



2015 Groundwater and Surface Water Sampling Report

Kentec Site
Grifton, North Carolina

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September 2015

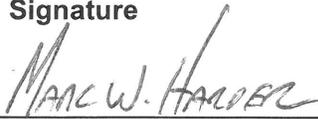
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TABLE OF CONTENTS

1.0	Introduction	1
1.1	Site Setting and History	1
1.2	Regulatory History	2
2.0	Field Procedures and Methodolgy	3
2.1	Groundwater/Surface Water Sampling.....	3
2.2	Sampling Procedures.....	4
2.2.1	Collection, Preservation, and Handling of Samples.....	4
2.2.2	Field Quality Control Samples	4
3.0	Results	7
3.1	Potentiometric Surface	7
3.2	Analytical Results	7
4.0	Conclusions and Recommendations.....	9
5.0	References	11

FIGURES

Figure 1	Site Location Map
Figure 2	Groundwater/Surface Water Sample Location Map
Figure 3	Potentiometric Map (April 2015)
Figure 4	Data Post Map: 1,4-Dioxane in Groundwater and Surface Water (April 2015)
Figure 5	Data Post Map: 1,1-Dichloroethane (1,1-DCA) in Groundwater and Surface Water (April 2015)

TABLES

Table 1	Water Quality Field Parameters (April 2015)
Table 2	Groundwater Elevation Data (April 2015)
Table 3	Historical Concentrations of 1,4-Dioxane in Groundwater and Surface Water (1999-2015)
Table 4	Historical Concentrations of 1,1-DCA in Groundwater and Surface Water (1999-2015)

APPENDICES

Appendix A	Laboratory Analytical Results (April 2015)
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ACRONYMS

Acronym	Definition / Description
1,1-DCA	1,1-dichloroethane
1,1-DCE	1,1-dichloroethene
AA	Administrative Agreement
CAP MOD	Corrective Action Plan Modification
CRG	(DuPont) Corporate Remediation Group
DuPont	E. I. du Pont de Nemours and Company
µg/L	Micrograms per liter
NC 2B	15A NCAC 2B.0200 Standards (surface waters)
NC 2L	15A NCAC 2L 0200 Standards
NCAC	North Carolina Administrative Code
NCDENR	North Carolina Department of Environment and Natural Resources
N.C.G.S.	North Carolina General Statutes
REC	Registered Environmental Consultant
Redox	Oxidation reduction potential
RI	Remedial Investigation
SIM	Selected ion monitoring
USEPA	United States Environmental Protection Agency

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1.0 INTRODUCTION

This report documents the results of groundwater and surface water sampling conducted in April 2015 at the E.I. du Pont de Nemours and Company (DuPont) Kentec Facility in Grifton, North Carolina (the Site). The sampling was conducted to supplement existing groundwater quality data and address data requirements specific to completing a remedial investigation in accordance with the applicable requirements of the Registered Environmental Consultant Program Implementation Guidance (North Carolina Department of Environment and Natural Resources [NCDENR] 2014).

Groundwater and surface water quality monitoring documented herein was performed in accordance with a modification to the Corrective Action Plan (CAP) implemented by DuPont and overseen by the NCDENR. DuPont submitted the modification to the CAP (CAP MOD) in October 2005, and the NCDENR approved it on January 31, 2006.

1.1 Site Setting and History

The Site is located approximately two miles from the DuPont Kinston site on Braxton Road near Grifton, North Carolina (Figure 1). The plant was originally owned by James Enterprises, which began operating it in 1969. DuPont purchased the Site from James Enterprises in late 1981 and operated it as a parts cleaning facility until 2004 when ownership was transferred to Invista S.A.R.L., a subsidiary of Koch Industries. The Site is currently owned by Unifi.

During DuPont operations, the plant cleaned packs, powdered metal, and spinnerets used in the manufacture of Dacron[®]. The cleaning process consisted of dipping parts in triethylene glycol to remove the byproducts of the Dacron[®] process and then rinsing the parts with water. The rinse water was collected in the onsite wastewater treatment system and discharged to an adjacent unnamed tributary via a National Pollutant Discharge Elimination System permit. Spent glycols were sent offsite for recycling and subsequently returned to the Site for re-use.

CH2M Hill conducted a groundwater assessment of the Site between April 1987 and December 1990 (CH2M Hill 1991). Results of this investigation indicated that shallow groundwater beneath the Kentec plant was contaminated with 1,4-dioxane, 1,1-dichloroethene (1,1-DCE), and 1,1-dichloroethane (1,1-DCA). Results of the assessment also indicated that the above-listed contaminants had migrated beyond the boundaries of the Kentec facility, although the underlying deeper Peedee aquifer had not been impacted.

The 2005 CAP MOD listed only 1,4-dioxane and 1,1-DCE as constituents of concern because the concentrations of 1,1-DCA detected in groundwater were significantly less than the current 15A NCAC¹ 2L.0200 (NC 2L) groundwater standard of 70 micrograms per liter ($\mu\text{g/L}$). However, in 2010, the NC 2L standard for 1,1-DCA was lowered to 6 $\mu\text{g/L}$. Therefore, 1,1-DCA was added to the target parameter list for the April 2015 groundwater sampling event to re-assess baseline groundwater quality data for 1,1-DCA in respect to current groundwater and surface water standards. Based on a review of groundwater quality data generated to date (since 1987), concentrations of 1,1-DCE in groundwater have never exceeded the current NC 2L standard of 350 $\mu\text{g/L}$. In the past, the NC 2L standard for 1,1-DCE was significantly lower and groundwater contaminant

¹ NCAC – North Carolina Administrative Code

concentrations exceeded the lower standard, which is why this compound was included on the original target parameter list.

1.2 Regulatory History

On June 4, 2010, the DuPont Corporate Remediation Group (CRG) and Unifi entered into an Administrative Agreement (AA) for REC-Directed Assessment and Remedial Action pursuant to N.C.G.S.² 130A-310.9(c) and 15A NCAC 13C.0300 for the Site. This agreement constitutes a voluntary cleanup of the Site directed by a REC. The REC program is a way of privatizing the remediation of a site in the place of direct oversight by the state. On May 17, 2013, DuPont and Unifi elected to temporarily discontinue work under the existing AA for REC-Directed Assessment and Remedial Action. The temporary discontinuation of ongoing activities pursuant to the assessment and remedial requirements of N.C.G.S. 130A-310.9(c) and 15A NCAC 13C .0300 was necessary to further review the site characterization data generated to date in respect to the aforementioned REC Program remedial investigation requirements.

The review of historical data indicated that additional investigation was still warranted to supplement limited soil quality data generated following soil investigation and excavation activities completed at the Site prior to 1991. In December 2013, shallow soil samples were collected near the main building (Wastewater Concrete Settling Tanks Area) and in the ditches adjacent to the road (Former Surface Disposal Area). Historical soil quality data for these areas indicated concentrations of 1,4-dioxane above applicable soil health based remedial goals and/or protective of groundwater quality remedial goals. In July 2014, a site-wide round of groundwater and surface water samples were collected to address data gaps that were apparent following review of the most recent groundwater quality data generated as part of sampling activities completed in September 2011. The comprehensive results of the soil investigation completed in 2013 and the groundwater/surface water investigation completed in 2014 were documented in the Supplemental Investigation Report, dated December 2014 (Parsons). This report was submitted (via email) to the NCDENR on December 5, 2014, and will be included as part of the Remedial Investigation Completion Report to be prepared for the Site once it re-enters the REC Program.

This report presents the results of the groundwater and surface water sampling conducted at the Site in April 2015. The information provided in this report is divided into several sections in addition to this introduction. Field procedures and methodology are included in Section 2, results are presented in Section 3, conclusions and recommendations are provided in Section 4, and references cited in the text are contained in Section 5.

² N.C.G.S. – North Carolina General Statutes

2.0 FIELD PROCEDURES AND METHODOLOGY

The following tasks were performed during the April 2015 sampling event:

- Collection of groundwater and surface water samples to update the delineation of groundwater and surface water impacts previously assessed at the Site, verify that the groundwater plume has not migrated beyond the ditch boundaries, and confirm that surface water has not been impacted above screening criteria
- Collection of water levels from all shallow monitoring wells at the Site to demonstrate that groundwater flow direction and gradients have remained consistent as part of assessment activities completed to date
- Evaluation of analytical results and water levels in light of historical data, CAP MOD requirements, and site hydrologic conditions

2.1 Groundwater/Surface Water Sampling

A comprehensive round of groundwater and surface water samples were collected at the Site in April 2015 to provide updated groundwater and surface water quality data. The samples were also collected to compare the results against historical data in respect to demonstrating adequate plume delineation and stability. The sampling included the following tasks:

- Collection of groundwater samples from the following 15 shallow monitoring wells: MW-1, MW-3, MW-4A, MW-6, MW-7A, MW-9, MW-10A, MW-11A, MW-12, MW-13, MW-14A, MW-15, MW-16, MW-19, and MW-H
- Collection of groundwater samples from the following five deep monitoring wells: MW-4B, MW-7B, MW-10B, MW-11B, and MW-14B.
- Collection of surface water samples from four locations (SW-9, SW-11, SW-24, and SW-29) in the unnamed tributary to the west and the Beaverdam Branch south of the Site
- Measurement of water levels from 18 shallow monitoring wells
- Evaluation of analytical results and water levels with regard to historical data, CAP requirements, and site hydrologic conditions

The groundwater and surface water sample locations are shown on Figure 2. All groundwater and surface water samples were analyzed for 1,4-dioxane using United States Environmental Protection Agency (USEPA) Method 8270D SIM³ and 1,1-DCA using USEPA Method 8260B.

The following water quality parameters were collected in the field during this investigation: pH, temperature, specific conductance, turbidity, oxidation/reduction potential (redox), and dissolved oxygen (Table 1). Water level measurements were collected from shallow monitoring wells to detect any changes to the groundwater potentiometric surface that may affect enhanced natural attenuation (undertaken as a corrective measure at the Site) (Table 2).

³ SIM – Select ion monitoring

2.2 Sampling Procedures

Groundwater samples were collected by Parsons from April 27 through 30, 2015. The samples were collected using a peristaltic pump operated in accordance with low-flow sampling techniques. Groundwater was pumped from each well until measured water quality parameters (pH, temperature, specific conductivity, dissolved oxygen, redox, and turbidity) varied less than 10 percent between measurements. Dedicated silicon and polyethylene tubing were used at each well location. The general field procedures used to obtain groundwater samples during each sampling event are described below:

- New, disposable, chemically-inert tubing was placed into the well water column and lowered to the target sampling depth. This tubing was then connected to new, disposable, flexible, chemically-inert tubing in the peristaltic pump head.
- Water was removed from the well with the peristaltic pump into a flow-through cell that housed the field parameter probes.
- Depth-to-water levels were measured before and during sampling.
- Upon purge completion, sample containers were filled directly from the pump discharge tubing.
- To prevent cross-contamination between wells, clean disposable nitrile gloves were worn and were changed at every sampling location.
- All non-dedicated, disposable sampling equipment was disposed of after sampling each well.

Surface water samples were collected by Parsons from April 27 through 30, 2015, using a Teflon™ scooper and handle. The scooper was cleaned prior to use at each surface water sample location by washing it with phosphate-free soap and water, then rinsing it with deionized water.

2.2.1 Collection, Preservation, and Handling of Samples

Samples were collected into pre-preserved sample containers and placed in an iced cooler to maintain the samples at a cool temperature (approximately $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$) from the time of collection until the coolers arrived at the laboratory. Each individual sample container was sealed according to laboratory specifications prior to being placed in the cooler. The ice in each cooler was wrapped in a heavy-duty plastic bag that was placed directly in contact with the sample containers. Plastic “bubble wrap” was also used as padding to prevent sample container breakage. Clean, disposable gloves were worn during the handling of all samples and sampling devices.

2.2.2 Field Quality Control Samples

Field duplicate samples were collected to evaluate the precision of the field sampling procedures. Duplicate samples were collected by alternately filling sample containers with the same sampling device/method at the same location for each parameter. The duplicate samples were then transferred to the laboratory and analyzed for the same parameters as the original samples.

Equipment blank samples and trip blank samples were used to identify potential sources of cross-contamination during each sampling event. Equipment blanks (field rinsate blanks) were used to evaluate equipment cleaning and/or decontamination procedures. Equipment blank samples were prepared by passing analyte-free, organic-free water

over or through the sample collection device and into a sample container and preserving the container as appropriate. Trip blank samples were analyzed only for volatile organic compounds and consisted of sample containers filled at the laboratory with analyte-free, organic-free water. The trip blanks traveled to the Site with the empty sample bottles and back from the Site with the collected samples to simulate sample handling conditions. Trip blanks were not opened in the field. All blank samples were handled, transported, and analyzed in the same manner as the actual field samples.

Any positive detections in the investigative samples that were not significantly above concentrations observed in the associated blank samples were flagged with a "B" qualifier (identifying that they are unreliable concentrations), and the results were not carried forward for further discussion.

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3.0 RESULTS

3.1 Potentiometric Surface

Water level measurements were gauged and recorded from 18 shallow monitoring wells (MW-1, -2, -3, -4A, -5, -6, -7A, -8, -9, -10A, -11A, -12, -13, -14A, -15, -16, -19 and -H) on April 27, 2015. Groundwater elevations at each well were calculated by subtracting the depth to water from the surveyed elevation of a measuring point at the top of each well casing and manhole. Groundwater elevation data are presented on Table 2.

The resulting potentiometric surface of the shallow aquifer is depicted on Figure 3. The potentiometric map shows that the groundwater flow direction is to the southwest toward nearby surface water drainage features (an unnamed tributary and Beaverdam Branch). The map shows that the groundwater gradient steepens to the south toward monitoring well MW-19 and the Beaverdam Branch. This contour pattern generally mimics the area topography. The April 2015 potentiometric surface contour map is consistent with historic potentiometric surface contour maps generated for the Site.

3.2 Analytical Results

Groundwater

Groundwater samples were collected from a total of 20 monitoring wells (15 shallow and five deep) in April 2015 (see Section 2.2). The analytical results are summarized on Tables 3 and 4 and illustrated on Figures 4 and 5. Tables 3 and 4 also provide historical concentrations of 1,4-dioxane and 1,1-DCA in groundwater from 1999 to 2015.

The April 2015 analytical results indicate that:

- The following monitoring wells contained detectable levels of 1,4-dioxane but at concentrations below the NC 2L standard of 3 µg/L: MW-7A, MW-10A, MW-10B, MW-11A, MW-12, MW-14A, and MW-16.
- Concentrations of 1,4-dioxane in groundwater were above the NC 2L standard at monitoring wells MW-1, MW-3, MW-4A, MW-6, MW-15, and MW-19. The highest concentrations of 1,4-dioxane detected in groundwater were found at monitoring wells MW-4A, MW-6, and MW-19. Monitoring wells MW-4A and MW-6 are both located near the center of the property, while MW-19 is located to the south of the production facility near the Beaverdam Branch.
- 1,1-DCA was detected at three monitoring well locations (MW-6, MW-7A, and MW-15). Only one monitoring well (MW-6) contained 1,1-DCA at a concentration slightly above the NC 2L standard of 6 µg/L.

Based on a review of the comprehensive groundwater quality generated to date, the concentration of 1,4-dioxane in groundwater at MW-4A has declined over the past 6 years (from 272 µg/L in 2009 to 61 µg/L in 2015). The same is true for the concentration of 1,4-dioxane in groundwater at MW-6, which has declined from 350 µg/L in 2009 to 40 µg/L in 2015 (Table 3). The concentration of 1,4-dioxane in groundwater at MW-19 has remained relatively stable since 2006, ranging between 110 µg/L and 223 µg/L (Table 3). Historical concentrations of 1,1-DCA in groundwater at MW-6 show that there has been a downward trend over the past 10 years (49 µg/L in 2005 to 15 µg/L in 2015) (Table 4).

Surface Water

Four surface water samples (SW-9, SW-11, SW-24, and SW-29) were collected in April 2015 at the locations shown on Figure 4. All four surface water samples contained low levels of 1,4-dioxane that were below the NC 2B⁴ surface water standard of 80 µg/L. Two surface water samples (SW-11 and SW-24) contained trace levels of 1,1-DCA that were below the NC 2B surface water standard of 100 µg/L. The 2005 CAP MOD states that in order for monitored natural attenuation to be an acceptable remedy, “groundwater discharge will not possess contaminant concentrations that would result in violations of standards for surface waters contained in 15A NCAC 2B.0200.” As such, monitored natural attenuation still remains an acceptable remedy.

The laboratory analytical data for the April 2015 sampling event is included in Appendix A.

⁴ 15A NCAC 2B.0200 Classifications and Water Quality Standards Applicable to Surface Waters

4.0 CONCLUSIONS AND RECOMMENDATIONS

Conclusions and recommendations are listed below based on data presented in this and previous reports.

Conclusions

- Additional groundwater and surface water sampling activities were successfully completed at the Kentec Site in April 2015 to supplement existing site investigation data collected to date and to address data gaps necessary to complete the remedial investigation under the REC program.
- Potentiometric data are consistent with previous sampling events, indicating that groundwater flows to the southwest toward the Beaverdam Branch and an unnamed tributary. The Beaverdam Branch to the south and the unnamed tributary to the west are considered hydrologic boundaries where groundwater is discharging into surface water.
- Although groundwater contains concentrations of 1,4-dioxane above the NC 2L standard at six monitoring well locations, the plume is stable and has been adequately delineated.
- The concentrations of 1,4-dioxane detected in groundwater samples at all monitoring well locations have decreased over the past 6 years (from 2009 to 2015). Concentrations of 1,4-dioxane detected in surface water samples in April 2015 are below the NC 2B standard of 80 µg/L. These surface water sample results are consistent with historical data.
- The extent of 1,1-DCA in groundwater has been adequately delineated. Over the past 10 years (2005 through 2015), the concentration of 1,1-DCA at MW-6 has decreased significantly. Two surface water samples contained 1,1-DCA but at trace levels, significantly below the NC 2B surface water standard.

Recommendations

- DuPont and Unifi plan to enter into a new AA with the Inactive Sites Branch of the NCDENR, with the understanding that the allotted time to complete the REC Program deadlines will continue from the time of dissolution of the initial AA.
- The Remedial Investigation (RI) Complete report will be submitted to the NCDENR within the program deadline.
- Once the RI Complete report has been finalized, a Remedial Action Plan will be prepared within the program deadline.

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5.0 REFERENCES

CH2M Hill. April 1991. Kentec Groundwater Assessment Report.

DuPont Corporate Remediation Group. October 2005. Corrective Action Plan Modification, Former DuPont Kentec Facility, Revision 1.

DuPont Corporate Remediation Group. December 2014. Supplemental Investigation Report, Former DuPont Kentec Facility.

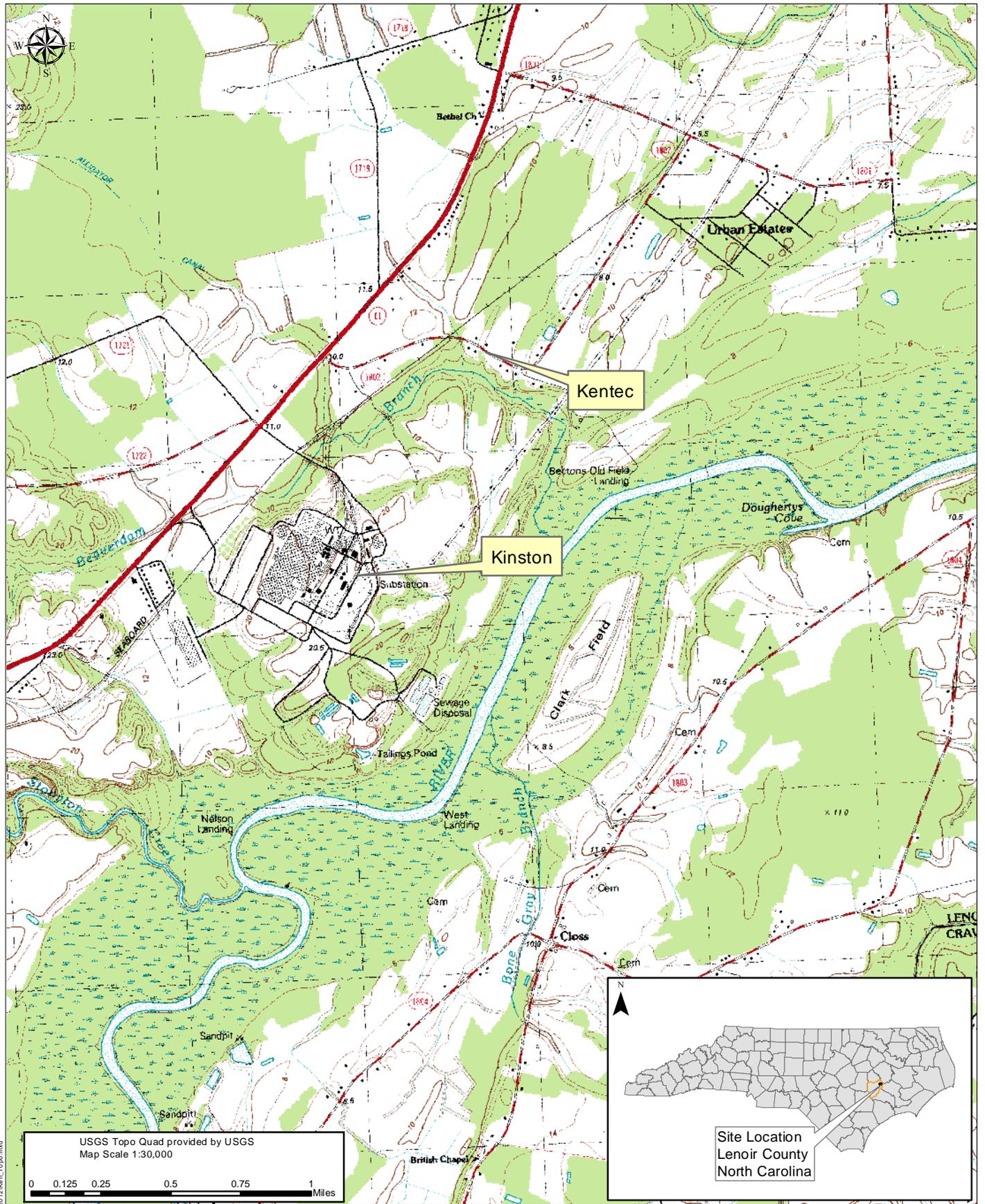
NCDENR. January 31, 2006. Letter from NCDENR to DuPont: Corrective Action Plan (CAP) Approval.

NCDENR. November 2014. Registered Environmental Consultant Program, Implementation Guidance.
http://portal.ncdenr.org/c/document_library/get_file?uuid=3049dcfb-b0cf-4ebf-8459-5018415fb6a3&groupId=38361

Parsons. December 2014. Supplemental Investigation Report, Kentec Site, Grifton, North Carolina.

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FIGURES



USGS Topo Quad provided by USGS
 Map Scale 1:30,000
 0 0.125 0.25 0.5 0.75 1 Miles



Site Location
 Lenoir County
 North Carolina

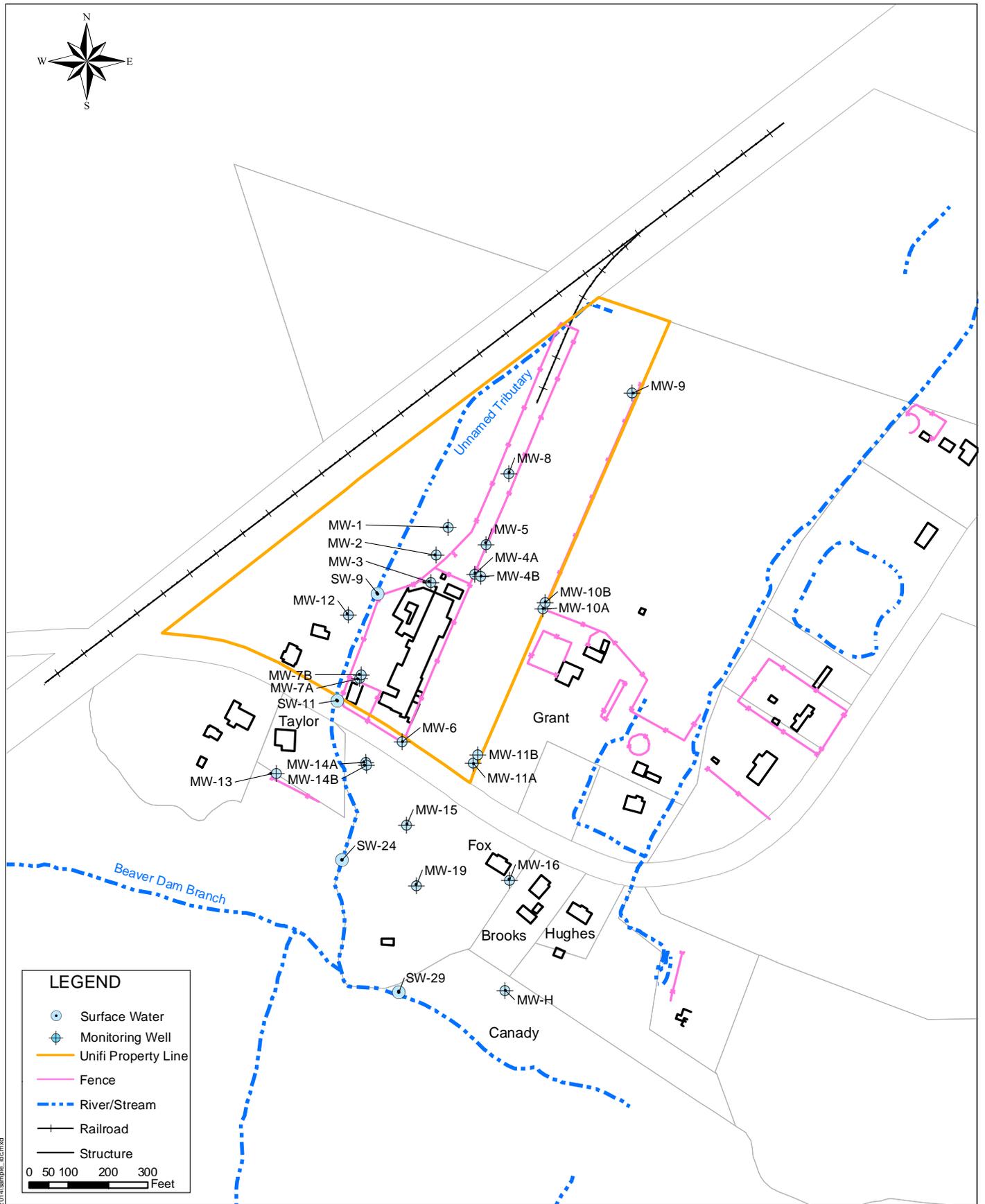
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Site Location Map
 2015 Groundwater and Surface Water Sampling Report
 Kentec Plant
 Grifton, North Carolina

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Revision:	Figure No.:	Parsons Project No.:
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LEGEND

- Surface Water
- Monitoring Well
- Unifi Property Line
- Fence
- River/Stream
- Railroad
- Structure

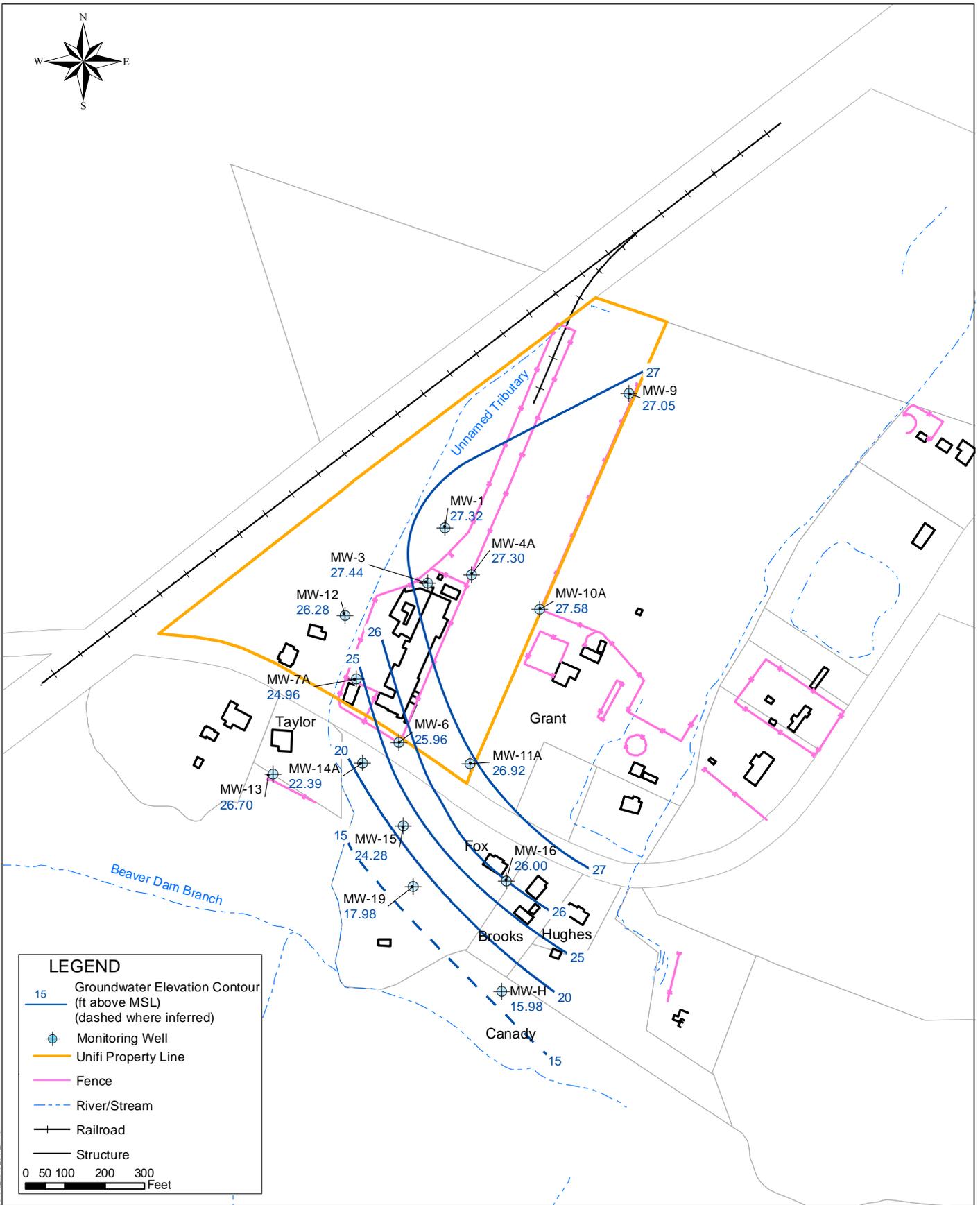
0 50 100 200 300 Feet

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Groundwater/Surface Water Sample Location Map
2015 Groundwater and Surface Water Sampling Report
Kentec Plant
Grifton, North Carolina

Drawn: C. Oneal	Date: 8/3/2015	DuPont Project No.:
Revision:	Figure No.: 2	Parsons Project No.: 448393.01050
File Name: sample_loc		



LEGEND

- 15 Groundwater Elevation Contour (ft above MSL) (dashed where inferred)
- Monitoring Well
- Unifi Property Line
- Fence
- River/Stream
- Railroad
- Structure

0 50 100 200 300 Feet

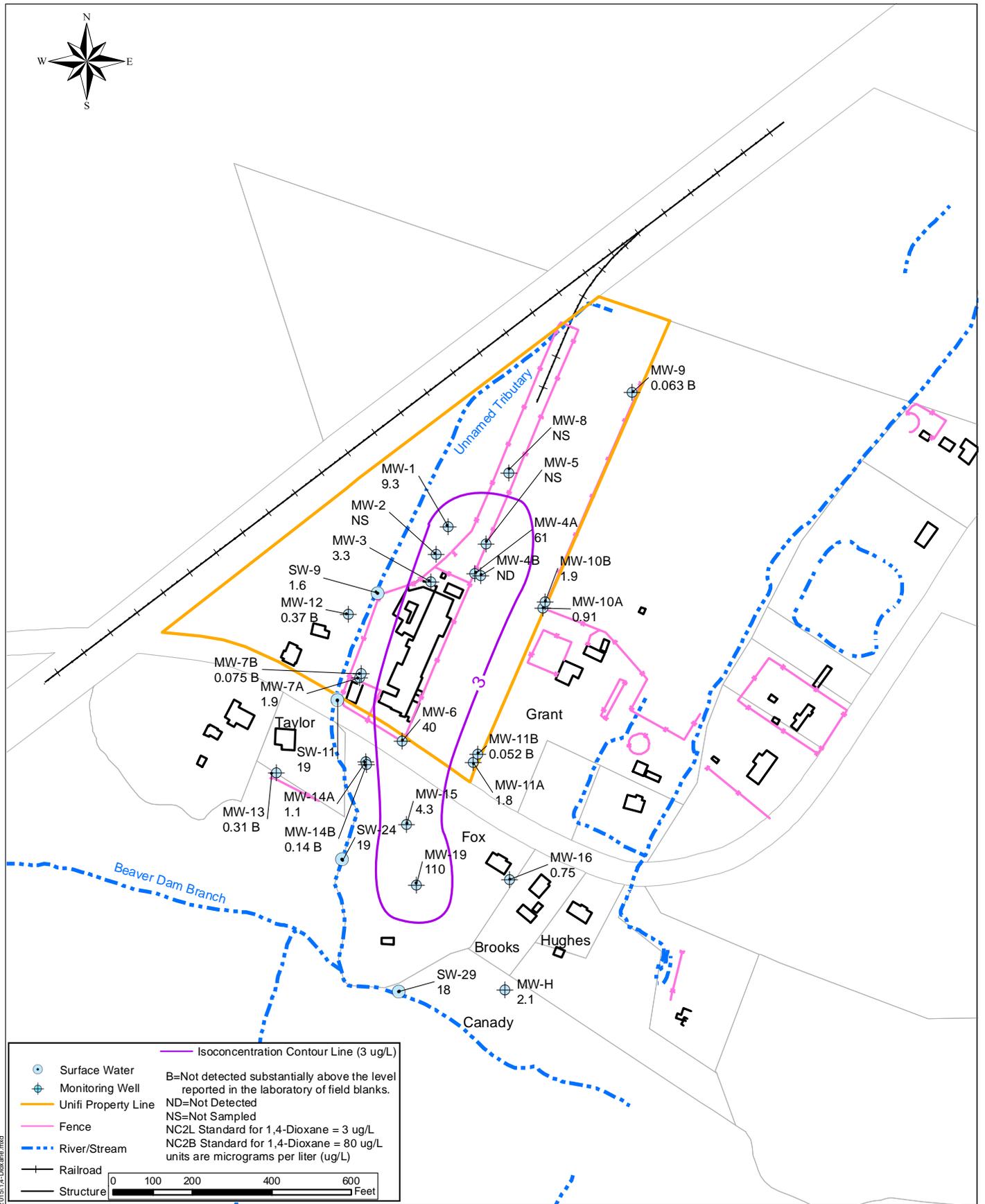
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Potentiometric Map (April 2015)
2015 Groundwater and Surface Water Sampling Report
Kentec Plant
Grifton, North Carolina

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Revision:	Figure No.:	Parsons Project No.:
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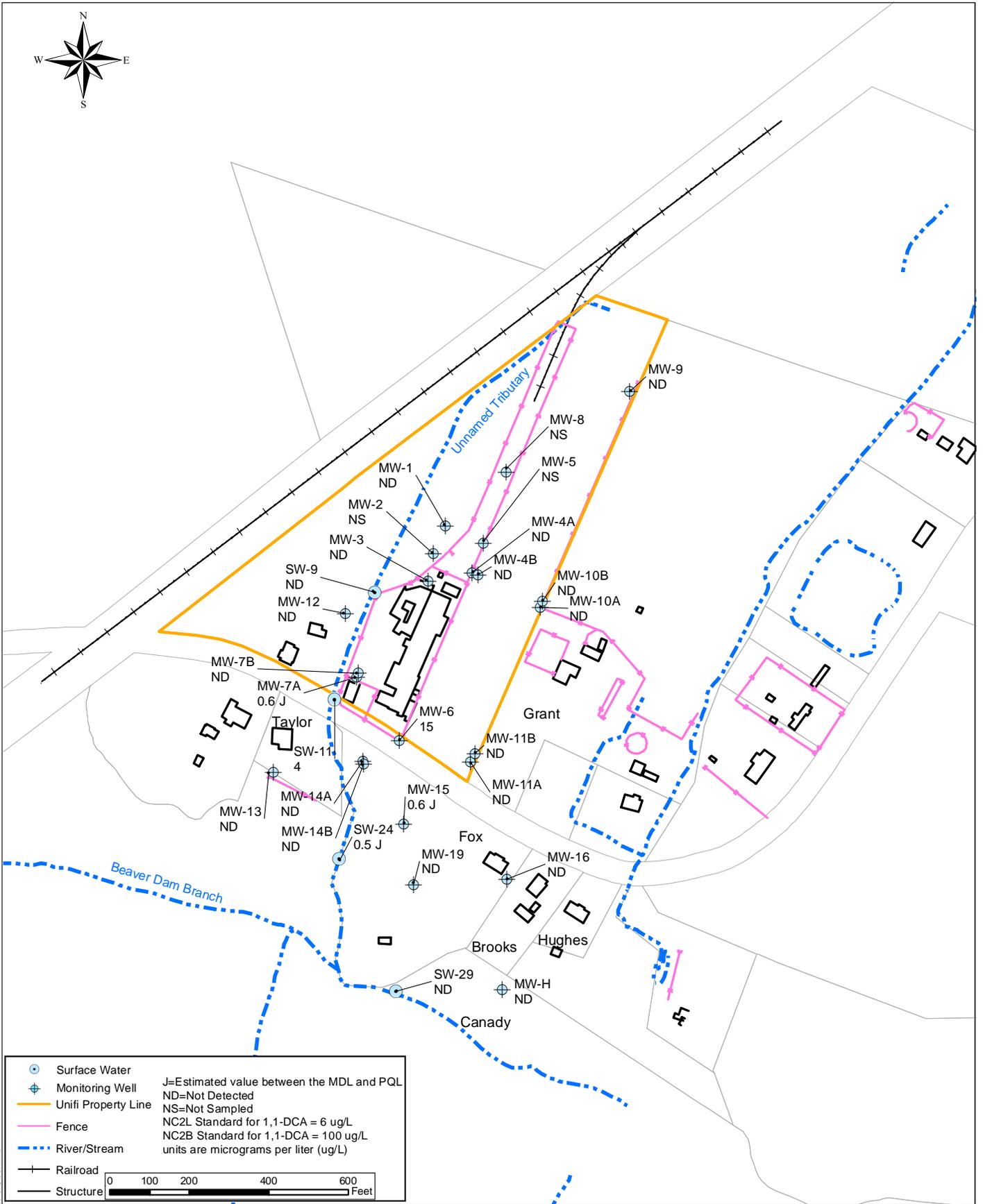
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Data Post Map: 1,4-Dioxane in Groundwater and Surface Water
(April 2015)
2015 Groundwater and Surface Water Sampling Report
Kentec Plant
Grifton, North Carolina

Drawn: C. Oneal	Date: 8/3/2015	DuPont Project No.:
Revision:	Figure No.:	Parsons Project No.:
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File Name: 1,4-Dioxane		



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● Surface Water	J=Estimated value between the MDL and PQL
⊕ Monitoring Well	ND=Not Detected
— Unifi Property Line	NS=Not Sampled
— Fence	NC2L Standard for 1,1-DCA = 6 ug/L
--- River/Stream	NC2B Standard for 1,1-DCA = 100 ug/L
— Railroad	units are micrograms per liter (ug/L)
— Structure	



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Data Post Map: 1,1-Dichloroethane (1,1-DCA) in
Groundwater and Surface Water (April 2015)
2015 Groundwater and Surface Water Sampling Report
Kentec Plant
Grifton, North Carolina

Drawn: C. Oneal	Date: 8/3/2015	DuPont Project No.:
Revision:	Figure No.:	Parsons Project No.:
	5	448393.01050
File Name: 1,1DCA		

TABLES

Table 1
 Water Quality Field Parameters (April 2015)
 2015 Groundwater and Surface Water Sampling Report
 Kentec Plant
 Grifton, North Carolina

SAMPLE (WELL ID)	DATE SAMPLED	TIME SAMPLED	WATER LEVEL (ft BTOC)	pH	TEMP (C)	SPECIFIC CONDUCTANCE (mS/cm)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	TURBIDITY (NTU)	COLOR	ODOR
MW-1	4/27/2015	1425	3.90	6.38	17.21	0.081	1.17	-30.8	24.10	clear	none
MW-3	4/27/2015	1320	2.18	6.78	16.94	0.079	1.92	-28.4	40.7	clear	none
MW-4A	4/27/2015	1535	5.70	7.18	18.90	0.156	0.83	-103.2	2.62	clear	slight
MW-4B	4/27/2015	1731	7.38	7.78	17.95	0.247	1.82	-44.1	0.80	clear	none
MW-6	4/27/2015	1100	4.75	6.68	15.77	0.099	1.94	-60.5	40.2	clear	none
MW-7A	4/27/2015	840	5.22	6.61	15.68	0.229	9.12	98.2	1.02	clear	none
MW-7B	4/27/2015	1000	4.48	7.84	17.23	0.252	3.26	-9.9	0.72	clear	none
MW-9	4/28/2015	830	5.73	6.46	13.21	0.058	2.08	-27.6	4.15	clear	slight sulfur
MW-10A	4/28/2015	923	5.52	6.06	12.88	0.053	3.33	84.2	6.34	clear	none
MW-10B	4/28/2015	1003	7.50	11.65	13.60	0.368	6.93	-66.5	1.17	clear	none
MW-11A	4/28/2015	1140	5.90	6.43	16.97	0.068	3.08	106.8	13.9	clear	none
MW-11B	4/28/2015	1057	7.72	8.06	17.18	0.290	1.26	-6.3	1.01	clear	none
MW-12	4/29/2015	940	3.75	6.49	14.65	0.103	0.70	-1.8	NR	clear	slight sulfur
MW-13	4/29/2015	1040	3.33	6.37	14.83	0.231	1.68	66.6	NR	light tan	slight
MW-14A	4/29/2015	1452	6.09	6.25	16.37	0.091	2.65	73.1	NR	clear	none
MW-14B	4/29/2015	1536	1.48	7.66	17.04	0.237	0.69	-21.8	NR	clear	none
MW-15	4/29/2015	1405	4.68	6.56	17.57	0.163	0.68	-19.1	NR	clear	none
MW-16	4/29/2015	1620	3.50	6.12	17.00	0.044	1.72	120.8	NR	clear	none
MW-19	4/29/2015	1735	9.77	7.42	15.41	0.318	0.68	-117.5	NR	clear	none
MW-H	4/29/2015	1115	2.95	6.05	16.48	0.063	1.15	108.1	NR	clear	none
SW-9	4/28/2015	1330	NA	6.42	16.68	0.127	11.48	71.4	18.50	light tan	none
SW-11	4/28/2015	1350	NA	6.65	16.63	0.131	5.26	-8.5	11.70	clear	slight sulfur
SW-24	4/30/2015	900	NA	9.75	13.44	0.204	5.45	55.9	NR	light tan	none
SW-29	4/28/2015	1425	NA	6.77	18.04	0.131	4.99	-16.8	17.70	clear	none

Notes:

- ft BTOC = feet below top of casing
- C = degrees Celsius
- mg/L = milligrams per liter
- mS/cm = milliSiemens per centimeter
- mV = milliVolts
- NTU = nephelometric turbidity unit
- NA= not applicable
- NR= Not Recorded (turbidity meter malfunction)

Table 2
Groundwater Elevation Data (April 2015)
 2015 Groundwater and Surface Water Sampling Report
 Kentec Plant
 Grifton, North Carolina

Well ID	Depth to Water	TOC Elevation	Groundwater Elevation
MW-1	3.90	31.22	27.32
MW-3	2.18	29.62	27.44
MW-4A	5.70	33.00	27.30
MW-6	4.75	30.71	25.96
MW-7A	5.22	30.18	24.96
MW-9	5.73	32.78	27.05
MW-10A	5.52	33.1	27.58
MW-11A	5.90	32.82	26.92
MW-12	3.75	30.03	26.28
MW-13	3.33	30.03	26.70
MW-14A	6.09	28.48	22.39
MW-15	4.68	28.96	24.28
MW-16	3.50	29.5	26.00
MW-19	9.77	27.75	17.98
MW-H	2.95	18.93	15.98

Notes:

Depths are in feet below top of casing (TOC)

All Elevations reference feet above mean sea level

Table 3
Historical Concentrations of 1,4-Dioxane in Groundwater and Surface Water (1999 - 2015)
 2015 Groundwater and Surface Water Sampling Report
 Kentec Plant
 Grifton, North Carolina

Date	MW-1	MW-3	MW-4A	MW-4B	MW-6	MW-7A	MW-7B	MW-9	MW-10A	MW-10B	MW-11A	MW-11B	MW-12	MW-13	MW-14A	MW-14B	MW-15	MW-16	MW-19	MW-H	SW-9	SW-11	SW-24	SW-29
4/13/1999	<150	<150	340	<150	950	170	<150	<150	<150		<150	<150	<150		<150	<150	<150				<150	<150	<150	<150
7/14/1999	<150	<300	460	<150	1200	210	<150	<150	<150		<150	<150	<150		<150	<150	<150				<150	<150	<150	<300
10/27/1999	<150	160	420	<150	1200	590	<150	<150	780		<150	<150	<150		<150	<150	<150				<150	<150	<150	<150
1/11/2000	<150	290	370	<150	940	380	<150	<150	<150		<150	<150	<150		<150	<150	<150				<150	<150	<150	<150
4/13/2000	<150	<150	290	<150	770	370	<150	<150	<150		<150	<150	<150		<150	<150	<150				<150	<150	<150	<150
4/10/2001	<150	190	730	<150	830	370	<150	<150	<150		<150	<150	<150		<150	<150	<150				<150	<150	<150	<150
1/25/2002	30	100	300	<1.6	1300	59	<1.6		19		6.3				34	<1.6	11					8.1		
7/8/2002	83	60	99	<1.6	680	84	<1.6		12		2.9				60	<1.6	32					DRY		
4/17/2003	21	120	47	<20	260	93	<19		2.8		<21				<20	<21	25					21		
10/23/2003	32	58	16 J	<1.5	15	120	<1.5		<1.5		1.5 J				21	<1.5	22					15 J		
4/7/2004	25	47	78	<1.5	230	120	<1.6		<1.6		2.6 J				3.0 J	<1.6	24					9.0 J		
10/14/2004	44	44	120	<1.6	210	17 J			ND		6.3 J				6.6 J	<1.6	28					15 J		
4/7/2005	62	67	58	<1.5	210	27	<1.6		ND		13 J				2.7 J	<1.6	34					14 J		
10/10/2005	19	42	160	<1	190	48	<1		4 J		2 J				7	<1	27					6		
4/19/2006	53	16 J	200	<1.5	330	52	<1.5	<1.5	ND	1.55	5.3 J	<1.5			5.3 J	<1.5	42		180		14 J	11 J	65	7.9 J
7/18/2006	79	63	230	<1.5	220	39	<1.6	<1.6	4.3 J		ND	<1.6	<1.6		8.6 J	<1.6	42		160		NS	NS	NS	NS
11/9/2006	37	41	180	<1.6	220	12 J	<1.5	<1.6	3.2 J	2.05	1.9 J	<1.6	<1.6		7.2 J	<1.6	29		150		3.9 J	6.0 J	27	ND
1/31/2007	17 J	18 J	150	<1.5	300	24	<1.6	<1.6	ND		7.1 J	<1.6	<1.6		ND	<1.6	24		160		NS	NS	NS	NS
4/11/2007	49	16 J	150	<1.5	280	65	<1.6	<1.5	1.9 J		8.5 J	<1.5	<1.5		23	<1.5	23		170		4.5 J	3.8 J	56	44
7/31/2007	66	15 J	300	<1.5	180	15 J	<1.5	<1.6	5.5 J	3.25	5.0 J	<1.6	<1.6		8.0 J	<1.5	24		180		NS	NS	NS	NS
11/1/2007	71	8.2 J	240	<1.4	83	6.3 J	<1.3	1.8 J	4.8 J	2.3 J	1.5 J	<1.4	<1.4		12 J	<1.3	ND		130		7.6 J	8.7 J	58	35
11/11/2008	34 J	42	370	<0.63	170	8.6 J	<0.64	2 J	9.4 J	3.2 J	0.65 J	<0.62	<0.61		1.7 J	<0.62	33	<0.62	190		12 J	8.5 J	71	53
12/16/2009	24.8	20.3	272	<0.612	350	14.7	<0.612	<0.618	16.1	4.41 J	3.50 J	<0.612	<0.612		5.73 J	<0.612	16.5	<0.612	217		22	20.3	121	5.8 J
9/13/2011	15.3	16	288	<0.344	180	10.9	<0.344	<0.344	8.98 J	3.45 J	1.55 J	<0.344	<0.344		5.07 J	<0.344	15.8	0.854 J	223		28.8	16.2	60.2	39.5
7/1/2014	7.1	7.4	180	<0.050	40	1.2	<0.052	< 0.051	1.5	2.1	0.45	<0.050	0.11	0.68	1.1	<0.051	3.9	0.48	210	1.8	2.3	25	23	15
4/29/2015	9.3	3.3	61	<0.054	40 J	1.9	0.075 B	0.063 B	0.91	1.9	1.8	0.052 B	0.37 B	0.31 B	1.1	0.14 B	4.3	0.75	110	2.1	1.6	19	19	18

Notes:

MW = Monitoring well sample

SW = Surface water sample

ND = Not detected

NS = Not sampled

J = Analyte present. Value is between the method detection limit and the practical quantitation limit. Reported value may not be accurate or precise.

All units are in micrograms per liter (µg/L)

Table 4
Historical Concentrations of 1,1-DCA in Groundwater and Surface Water (1999 - 2015)
 2015 Groundwater and Surface Water Sampling Report
 Kentec Plant
 Grifton, North Carolina

Date	MW-1	MW-3	MW-4A	MW-4B	MW-6	MW-7A	MW-7B	MW-9	MW-10A	MW-10B	MW-11A	MW-11B	MW-12	MW-13	MW-14A	MW-14B	MW-15	MW-16	MW-19	MW-H	SW-9	SW-11	SW-24	SW-29
4/13/1999		5.6																						
7/14/1999		41																						
1/25/2002		25																						
7/8/2002					0.95																			
4/17/2003					3.2																			
10/23/2003					51	0.51 J																		
4/7/2004			0.56 J		49	0.65 J											0.77 J							
10/14/2004			1		29						1.4				0.62 J		2.1							
4/7/2005			1.7		45						6.8				0.58 J		5.1							
10/10/2005					61				3 J		1 J						10							
4/29/2015	ND	ND	ND	ND	15	0.6 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.6 J	ND	ND	ND	ND	4	0.5 J	ND

Notes:

MW = Monitoring well sample

SW = Surface water sample

ND = Not detected

NS = Not sampled

J = Analyte present. Value is between the method detection limit and the practical quantitation limit. Reported value may not be accurate or precise.

All units are in micrograms per liter (µg/L)

**APPENDIX A
LABORATORY ANALYTICAL RESULTS
(APRIL 2015)**

**ADQM DATA REVIEW
NARRATIVE**

Site **Kentec (KEN)**

Project **GW SAMPLING 2015**

Project Reviewer **Kelly Rinehimer**

Sampling Date **April 27-30, 2015**

Analytical Protocol

Laboratory	Method	Parameters
Eurofins Lancaster Laboratories Environmental (Lancaster)	SW846 Method 8260B	1,1-Dichloroethane
Lancaster	SW846 Method 8270D SIM	1,4-Dioxane

Sample Receipt

The following items are noted for this data set:

- All samples were received in satisfactory condition and within EPA temperature guidelines between April 29 and May 1, 2015.
- Field personnel did not include the time of collection for samples GW2015-MW-10A, -MW-11B, -MW-11A or -MW-10B on the Lancaster Chain-of-Custody (COC) 31919 for the volatile analysis. Field personnel did include the time of collection for the semivolatile fraction of these samples. Lancaster personnel logged the times of these samples from the semivolatile COCs.
- In a few instances, Lancaster personnel did not relinquish the COCs with a signature. Since the COC was not initiated by the laboratory, field personnel should have initiated the COC with a signature in the first "Bottles Relinquished By" box.
- Lancaster received two, not three volatile vials as indicated on Lancaster COC 31919, for sample TB-GW-4-042715.
- Field personnel could not ship sample SW2015-SW-24 to the laboratory with the trip blank (TB-SW-042815) it was shipped to the site with since the location was dry. The sample was collected the next day and shipped with trip blanks TB-GW2-042915 and TB-GW5-042915. None of the trip blanks had detections above the method detection limit (MDL) therefore; there is no impact to the data.

Data Review

The electronic data submitted for this project was reviewed via the Data Verification Module (DVM) process. Overall the data is acceptable for use without qualification, except as noted below:

- 1,4-dioxane was detected in the method blank associated with the samples in all three lots (1557274, 1557275 and 1558042). The samples were re-extracted outside the method required holding time and the QC was again outside of the acceptance limits. All results are reported from

the first trial. Similar results were obtained in both trials. The results for 1,4-dioxane in samples GW2015-MW-7B, GW2015-MW-9, GW2015-MW-11B, GW2015-MW-12, GW2015-MW-13B and GW2015-MW-14B have been flagged "B" in the database and should be considered biased high. In addition, the 1,4-dioxane result in sample GW2015-MW-6 should be considered biased high and has been flagged "J" in the database. The "B" qualifier has been replaced with the "J" qualifier since a similar result for 1,4-dioxane was observed in this well last year without method blank contamination.

- Some of the results are flagged "J" in the database and should be considered estimated since the results are in between the method detection limit and practical quantitation limit.
- One groundwater equipment blank and one surface water equipment blank were collected for this project. 1,1-Dichloroethane was not detected in either equipment blank. 1,4-Dioxane was detected in both equipment blanks. Since 1,4-dioxane was also detected in the method blanks associated with this project, all of the 1,4-dioxane results were evaluated for blank contamination.

Data Verification Module (DVM)

The DVM is an internal review process used by the ADQM group to assist with the determination of data usability. The electronic data deliverables received from the laboratory are loaded into the Locus EIM™ database and processed through a series of data quality checks, which are a combination of software (Locus EIM™ database Data Verification Module (DVM)) and manual reviewer evaluations. The data is evaluated against the following data usability checks:

- Field and laboratory blank contamination
- US EPA hold time criteria
- Missing Quality Control (QC) samples
- Matrix spike(MS)/matrix spike duplicate (MSD) recoveries and the relative percent differences (RPDs) between these spikes
- Laboratory control sample(LCS)/control sample duplicate (LCSD) recoveries and the RPD between these spikes
- Surrogate spike recoveries for organic analyses
- RPD between field duplicate sample pairs
- RPD between laboratory replicates for inorganic analyses
- Difference / percent difference between total and dissolved sample pairs.

There are two qualifier fields in EIM:

Lab Qualifier is the qualifier assigned by the lab and may not reflect the usability of the data. This qualifier may have many different meanings and can vary between labs and over time within the same lab. Please refer to the laboratory report for a description of the lab qualifiers. As they are lab descriptors they are not to be used when evaluating the data.

Validation Qualifier is the 3rd party formal validation qualifier if this was performed. Otherwise this field contains the qualifier resulting from the ADQM DVM review process. This qualifier assesses the usability of the data and may not equal the lab qualifier. The DVM applies the following data evaluation qualifiers to analysis results, as warranted:

Qualifier	Definition
B	Not detected substantially above the level reported in the laboratory or field blanks.
R	Unusable result. Analyte may or may not be present in the sample.
J	Analyte present. Reported value may not be accurate or precise.
UJ	Not detected. Reporting limit may not be accurate or precise.

The **Validation Status Code** field is set to "DVM" if the ADQM DVM process has been performed. If the DVM has not been run, the field will be blank.

If the DVM has been run (**Validation Status Code** equals "DVM"), use the **Validation Qualifier**.

DVM Narrative Report

Site: Kentec

Sampling Program: GW SAMPLING 2015

Validation Options: LABSTATS

Validation Reason Code: Contamination detected in Method Blank(s). Sample result does not differ significantly from the analyte concentration detected in the associated method blank(s).

Field Sample ID	Date Sampled	Lab Sample ID	Analyte	Result	Units	Type	MDL	PQL	Validation Qualifier	Analytical Method	Pre-prep	Prep
GW2015-MW-12	04/29/2015	7871182	1,4-Dioxane	0.37	UG/L	MDL	0.050	0.10	B	8270D SIM		3510C
GW2015-MW-13	04/29/2015	7871174	1,4-Dioxane	0.31	UG/L	MDL	0.050	0.10	B	8270D SIM		3510C
GW2015-MW-14B	04/29/2015	7871178	1,4-Dioxane	0.14	UG/L	MDL	0.052	0.10	B	8270D SIM		3510C
GW2015-MW-11B	04/28/2015	7867207	1,4-Dioxane	0.052	UG/L	MDL	0.051	0.10	B	8270D SIM		3510C
GW2015-MW-7B	04/27/2015	7867200	1,4-Dioxane	0.075	UG/L	MDL	0.051	0.10	B	8270D SIM		3510C
GW2015-MW-9	04/28/2015	7867201	1,4-Dioxane	0.063	UG/L	MDL	0.051	0.10	B	8270D SIM		3510C
GW2015-MW-6	04/27/2015	7867195	1,4-Dioxane	40	UG/L	MDL	5.1	10	J	8270D SIM		3510C

Validation Reason Code: The result is estimated since the concentration is between the method detection limit and practical quantitation limit.

Field Sample ID	Date Sampled	Lab Sample ID	Analyte	Result	Units	Type	MDL	PQL	Validation Qualifier	Analytical Method	Pre-prep	Prep
GW2015-MW-7A	04/27/2015	7867198	1,1-Dichloroethane	0.6	UG/L	MDL	0.5	1	J	8260B		5030B
GW2015-MW-7A-D	04/27/2015	7867199	1,1-Dichloroethane	0.6	UG/L	MDL	0.5	1	J	8260B		5030B
EB-GW1-042815	04/28/2015	7867202	1,4-Dioxane	0.052	UG/L	MDL	0.051	0.10	J	8270D SIM		3510C
GW2015-MW-15	04/29/2015	7871181	1,1-Dichloroethane	0.6	UG/L	MDL	0.5	1	J	8260B		5030B
SW2015-SW-24	04/30/2015	7871176	1,1-Dichloroethane	0.5	UG/L	MDL	0.5	1	J	8260B		5030B

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

CRG-E.I.DuPont de Nemours & Co
AECOM
Sabre Building
4051 Ogletown Road, Suite 300
Newark DE 19713

May 13, 2015

Project: KEN - GW SAMPLING

Submittal Date: 04/29/2015

Group Number: 1557274

PO Number: LBIO-67047

State of Sample Origin: NC

Client Sample DescriptionLancaster Labs (LL) #

GW2015-MW-1 Groundwater	7867191
GW2015-MW-3 Groundwater	7867192
GW2015-MW-4A Groundwater	7867193
GW2015-MW-4B Groundwater	7867194
GW2015-MW-6 Groundwater	7867195
GW2015-MW-6 MS Groundwater	7867196
GW2015-MW-6 MSD Groundwater	7867197
GW2015-MW-7A Groundwater	7867198
GW2015-MW-7A-D Groundwater	7867199
GW2015-MW-7B Groundwater	7867200
GW2015-MW-9 Groundwater	7867201
EB-GW1-042815 Blank Water	7867202
TB-GW1-042715 Blank Water	7867203
TB-GW3-042715 Blank Water	7867204
TB-GW-4-042715 Blank Water	7867205
GW2015-MW-10A Groundwater	7867206
GW2015-MW-11B Groundwater	7867207
GW2015-MW-11A Groundwater	7867208
GW2015-MW-10B Groundwater	7867209

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>.

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Sample Description: GW2015-MW-1 Groundwater
GW SAMPLING 2015

LL Sample # WW 7867191
LL Group # 1557274
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/27/2015 14:25 by KS

CRG-E.I.DuPont de Nemours & Co
AECOM

Submitted: 04/29/2015 09:10

Sabre Building

Reported: 05/13/2015 17:33

4051 Ogletown Road, Suite 300
Newark DE 19713

KNT-1

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260B	ug/l	ug/l	ug/l	
10335	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	9.3	0.051	0.10	1

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	T151282AA	05/09/2015 02:19	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T151282AA	05/09/2015 02:19	Kevin A Sposito	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15120WAK026	05/04/2015 14:51	Holly B Ziegler	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	15120WAK026	05/01/2015 09:30	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: GW2015-MW-3 Groundwater
GW SAMPLING 2015

LL Sample # WW 7867192
LL Group # 1557274
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/27/2015 13:20 by KS

CRG-E.I.DuPont de Nemours & Co
AECOM

Submitted: 04/29/2015 09:10

Sabre Building

Reported: 05/13/2015 17:33

4051 Ogletown Road, Suite 300
Newark DE 19713

KNT03

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260B	ug/l	ug/l	ug/l	
10335	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	3.3	0.051	0.10	1

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	T151282AA	05/09/2015 02:42	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T151282AA	05/09/2015 02:42	Kevin A Sposito	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15120WAK026	05/04/2015 15:18	Holly B Ziegler	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	15120WAK026	05/01/2015 09:30	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: GW2015-MW-4A Groundwater
GW SAMPLING 2015

LL Sample # WW 7867193
LL Group # 1557274
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/27/2015 15:35 by KS

CRG-E.I.DuPont de Nemours & Co
AECOM

Submitted: 04/29/2015 09:10

Sabre Building

Reported: 05/13/2015 17:33

4051 Ogletown Road, Suite 300
Newark DE 19713

KNT4A

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/l	ug/l	ug/l	
10335	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
GC/MS Semivolatiles	SW-846 8270D SIM		ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	61	5.1	10	100

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	T151282AA	05/09/2015 03:06	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T151282AA	05/09/2015 03:06	Kevin A Sposito	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15120WAK026	05/07/2015 20:12	Catherine E Bachman	100
10466	BNA Water Extraction	SIM SW-846 3510C	1	15120WAK026	05/01/2015 09:30	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: GW2015-MW-4B Groundwater
GW SAMPLING 2015

LL Sample # WW 7867194
LL Group # 1557274
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/27/2015 17:31 by KS

CRG-E.I.DuPont de Nemours & Co
AECOM

Submitted: 04/29/2015 09:10

Sabre Building

Reported: 05/13/2015 17:33

4051 Ogletown Road, Suite 300
Newark DE 19713

KNT4B

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/l	ug/l	ug/l	
10335	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
GC/MS Semivolatiles	SW-846 8270D SIM		ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	0.054 U	0.054	0.11	1

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	T151282AA	05/09/2015 03:29	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T151282AA	05/09/2015 03:29	Kevin A Sposito	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15120WAK026	05/04/2015 16:13	Holly B Ziegler	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	15120WAK026	05/01/2015 09:30	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: GW2015-MW-6 Groundwater
GW SAMPLING 2015

LL Sample # WW 7867195
LL Group # 1557274
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/27/2015 11:00 by KS

CRG-E.I.DuPont de Nemours & Co
AECOM

Submitted: 04/29/2015 09:10

Sabre Building

Reported: 05/13/2015 17:33

4051 Ogletown Road, Suite 300
Newark DE 19713

KNT-6

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260B	ug/l	ug/l	ug/l	
10335	1,1-Dichloroethane	75-34-3	15	0.5	1	1
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	40	5.1	10	100

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	T151282AA	05/09/2015 03:53	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T151282AA	05/09/2015 03:53	Kevin A Sposito	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15120WAK026	05/04/2015 21:12	Holly B Ziegler	100
10466	BNA Water Extraction SIM	SW-846 3510C	1	15120WAK026	05/01/2015 09:30	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: GW2015-MW-6 MS Groundwater
GW SAMPLING 2015

LL Sample # WW 7867196
LL Group # 1557274
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/27/2015 11:00 by KS

CRG-E.I.DuPont de Nemours & Co
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Submitted: 04/29/2015 09:10

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Reported: 05/13/2015 17:33

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KNT-6

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260B	ug/l	ug/l	ug/l	
10335	1,1-Dichloroethane	75-34-3	34	0.5	1	1
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	39	5.1	10	100

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	T151282AA	05/09/2015 04:17	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T151282AA	05/09/2015 04:17	Kevin A Sposito	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15120WAK026	05/04/2015 21:40	Holly B Ziegler	100
10466	BNA Water Extraction SIM	SW-846 3510C	1	15120WAK026	05/01/2015 09:30	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: GW2015-MW-6 MSD Groundwater
GW SAMPLING 2015

LL Sample # WW 7867197
LL Group # 1557274
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/27/2015 11:00 by KS

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Submitted: 04/29/2015 09:10

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Reported: 05/13/2015 17:33

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KNT-6

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260B	ug/l	ug/l	ug/l	
10335	1,1-Dichloroethane	75-34-3	34	0.5	1	1
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	34	5.1	10	100

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	T151282AA	05/09/2015 04:41	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T151282AA	05/09/2015 04:41	Kevin A Sposito	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15120WAK026	05/07/2015 19:45	Catherine E Bachman	100
10466	BNA Water Extraction	SIM SW-846 3510C	1	15120WAK026	05/01/2015 09:30	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: GW2015-MW-7A Groundwater
GW SAMPLING 2015

LL Sample # WW 7867198
LL Group # 1557274
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/27/2015 08:40 by KS

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Submitted: 04/29/2015 09:10

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Reported: 05/13/2015 17:33

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KNT7A

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260B	ug/l	ug/l	ug/l	
10335	1,1-Dichloroethane	75-34-3	0.6 J	0.5	1	1
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	1.9	0.051	0.10	1

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	T151282AA	05/09/2015 05:05	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T151282AA	05/09/2015 05:05	Kevin A Sposito	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15120WAK026	05/04/2015 16:40	Holly B Ziegler	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	15120WAK026	05/01/2015 09:30	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: GW2015-MW-7A-D Groundwater
GW SAMPLING 2015

LL Sample # WW 7867199
LL Group # 1557274
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/27/2015 08:40 by KS

CRG-E.I.DuPont de Nemours & Co
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Submitted: 04/29/2015 09:10

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Reported: 05/13/2015 17:33

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KNT7D

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260B	ug/l	ug/l	ug/l	
10335	1,1-Dichloroethane	75-34-3	0.6 J	0.5	1	1
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	2.1	0.051	0.10	1

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	T151282AA	05/09/2015 05:28	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T151282AA	05/09/2015 05:28	Kevin A Sposito	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15120WAK026	05/04/2015 17:07	Holly B Ziegler	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	15120WAK026	05/01/2015 09:30	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: GW2015-MW-7B Groundwater
GW SAMPLING 2015

LL Sample # WW 7867200
LL Group # 1557274
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/27/2015 10:00 by KS

CRG-E.I.DuPont de Nemours & Co
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Submitted: 04/29/2015 09:10

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Reported: 05/13/2015 17:33

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KNT7B

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260B						
10335	1,1-Dichloroethane	75-34-3	0.5 U	ug/l 0.5	ug/l 1	1
GC/MS Semivolatiles SW-846 8270D SIM						
12971	1,4-Dioxane	123-91-1	0.075 J	ug/l 0.051	ug/l 0.10	1
<p>Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: The sample was re-extracted outside the method required holding time and the QC is again outside of the acceptance limits. All results are reported from the first trial. Similar results were obtained in both trials.</p>						

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	T151282AA	05/09/2015 05:52	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T151282AA	05/09/2015 05:52	Kevin A Sposito	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15120WAK026	05/04/2015 17:35	Holly B Ziegler	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	15120WAK026	05/01/2015 09:30	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: GW2015-MW-9 Groundwater
GW SAMPLING 2015

LL Sample # WW 7867201
LL Group # 1557274
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/28/2015 08:30 by KS

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Submitted: 04/29/2015 09:10

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Reported: 05/13/2015 17:33

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KNT09

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260B						
10335	1,1-Dichloroethane	75-34-3	0.5 U	ug/l 0.5	ug/l 1	1
GC/MS Semivolatiles SW-846 8270D SIM						
12971	1,4-Dioxane	123-91-1	0.063 J	ug/l 0.051	ug/l 0.10	1

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the method required holding time and the QC is again outside of the acceptance limits. All results are reported from the first trial. Similar results were obtained in both trials.

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	T151282AA	05/09/2015 06:15	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T151282AA	05/09/2015 06:15	Kevin A Sposito	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15120WAK026	05/04/2015 18:02	Holly B Ziegler	1
10466	BNA Water Extraction	SIM SW-846 3510C	1	15120WAK026	05/01/2015 09:30	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: **EB-GW1-042815 Blank Water**
GW SAMPLING 2015

LL Sample # **WW 7867202**
LL Group # **1557274**
Account # **06643**

Project Name: **KEN - GW SAMPLING**

Collected: 04/28/2015 13:05 by KS

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Submitted: 04/29/2015 09:10

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Reported: 05/13/2015 17:33

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KNTE1

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260B						
10335	1,1-Dichloroethane	75-34-3	0.5 U	ug/l 0.5	ug/l 1	1
GC/MS Semivolatiles SW-846 8270D SIM						
12971	1,4-Dioxane	123-91-1	0.052 J	ug/l 0.051	ug/l 0.10	1

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the method required holding time and the QC is again outside of the acceptance limits. All results are reported from the first trial. Similar results were obtained in both trials.

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	T151282AA	05/09/2015 00:43	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T151282AA	05/09/2015 00:43	Kevin A Sposito	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15120WAK026	05/04/2015 18:29	Holly B Ziegler	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	15120WAK026	05/01/2015 09:30	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: TB-GW1-042715 Blank Water
GW SAMPLING 2015

LL Sample # WW 7867203
LL Group # 1557274
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/27/2015 07:15 by KS

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Newark DE 19713

Submitted: 04/29/2015 09:10

Reported: 05/13/2015 17:33

KNTT1

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
10335	1,1-Dichloroethane	SW-846 8260B 75-34-3	0.5 U	ug/l 0.5	ug/l 1	1

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	T151282AA	05/09/2015 01:07	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T151282AA	05/09/2015 01:07	Kevin A Sposito	1

*=This limit was used in the evaluation of the final result

Sample Description: TB-GW3-042715 Blank Water
GW SAMPLING 2015

LL Sample # WW 7867204
LL Group # 1557274
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/27/2015 07:20 by KS

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Submitted: 04/29/2015 09:10

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Reported: 05/13/2015 17:33

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KNTT3

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260B	ug/l	ug/l	ug/l	
10335	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	T151282AA	05/09/2015 01:31	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T151282AA	05/09/2015 01:31	Kevin A Sposito	1

*=This limit was used in the evaluation of the final result

Sample Description: TB-GW-4-042715 Blank Water
GW SAMPLING 2015

LL Sample # WW 7867205
LL Group # 1557274
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/27/2015 07:00 by KS

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Submitted: 04/29/2015 09:10

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Reported: 05/13/2015 17:33

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KNTT4

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
10335	1,1-Dichloroethane	SW-846 8260B 75-34-3	0.5 U	ug/l 0.5	ug/l 1	1

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	T151282AA	05/09/2015 01:55	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T151282AA	05/09/2015 01:55	Kevin A Sposito	1

*=This limit was used in the evaluation of the final result

Sample Description: GW2015-MW-10A Groundwater
GW SAMPLING 2015

LL Sample # WW 7867206
LL Group # 1557274
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/28/2015 09:23 by KS

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Submitted: 04/29/2015 09:10

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Reported: 05/13/2015 17:33

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KN10A

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260B						
10335	1,1-Dichloroethane	75-34-3	0.5 U	ug/l 0.5	ug/l 1	1
GC/MS Semivolatiles SW-846 8270D SIM						
12971	1,4-Dioxane	123-91-1	0.91	ug/l 0.051	ug/l 0.10	1
<p>Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: The sample was re-extracted outside the method required holding time and the QC is again outside of the acceptance limits. All results are reported from the first trial. Similar results were obtained in both trials.</p>						

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	T151291AA	05/09/2015 15:52	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T151291AA	05/09/2015 15:52	Kevin A Sposito	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15120WAK026	05/04/2015 18:56	Holly B Ziegler	1
10466	BNA Water Extraction	SIM SW-846 3510C	1	15120WAK026	05/01/2015 09:30	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: GW2015-MW-11B Groundwater
GW SAMPLING 2015

LL Sample # WW 7867207
LL Group # 1557274
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/28/2015 10:57 by KS

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4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 04/29/2015 09:10

Reported: 05/13/2015 17:33

KN11B

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260B						
10335	1,1-Dichloroethane	75-34-3	0.5 U	ug/l 0.5	ug/l 1	1
GC/MS Semivolatiles SW-846 8270D SIM						
12971	1,4-Dioxane	123-91-1	0.052 J	ug/l 0.051	ug/l 0.10	1

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the method required holding time and the QC is again outside of the acceptance limits. All results are reported from the first trial. Similar results were obtained in both trials.

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	T151291AA	05/09/2015 16:16	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T151291AA	05/09/2015 16:16	Kevin A Sposito	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15120WAK026	05/04/2015 19:24	Holly B Ziegler	1
10466	BNA Water Extraction	SIM SW-846 3510C	1	15120WAK026	05/01/2015 09:30	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: GW2015-MW-11A Groundwater
GW SAMPLING 2015

LL Sample # WW 7867208
LL Group # 1557274
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/28/2015 11:40 by KS

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Submitted: 04/29/2015 09:10

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Reported: 05/13/2015 17:33

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KN11A

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260B	ug/l	ug/l	ug/l	
10335	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	1.8	0.050	0.10	1

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	T151291AA	05/09/2015 16:40	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T151291AA	05/09/2015 16:40	Kevin A Sposito	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15120WAK026	05/04/2015 19:51	Holly B Ziegler	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	15120WAK026	05/01/2015 09:30	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: GW2015-MW-10B Groundwater
GW SAMPLING 2015

LL Sample # WW 7867209
LL Group # 1557274
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/28/2015 10:03 by KS

CRG-E.I.DuPont de Nemours & Co
AECOM

Submitted: 04/29/2015 09:10

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Reported: 05/13/2015 17:33

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Newark DE 19713

KN10B

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260B	ug/l	ug/l	ug/l	
10335	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	1.9	0.051	0.10	1

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	T151291AA	05/09/2015 17:04	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T151291AA	05/09/2015 17:04	Kevin A Sposito	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15120WAK026	05/04/2015 20:18	Holly B Ziegler	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	15120WAK026	05/01/2015 09:30	David S Schrum	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: CRG-E.I.DuPont de Nemours & Co
Reported: 05/13/2015 17:33

Group Number: 1557274

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank MDL**</u>	<u>Blank LOQ</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: T151282AA 1,1-Dichloroethane	0.5 U	0.5	1	Sample number(s): 7867191-7867205 ug/l	92		80-120		
Batch number: T151291AA 1,1-Dichloroethane	0.5 U	0.5	1	Sample number(s): 7867206-7867209 ug/l	93		80-120		
Batch number: 15120WAK026 1,4-Dioxane	0.11	0.050	0.10	Sample number(s): 7867191-7867202,7867206-7867209 ug/l	67		32-113		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

<u>Analysis Name</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>MS/MSD Limits</u>	<u>RPD</u>	<u>RPD MAX</u>	<u>BKG Conc</u>	<u>DUP Conc</u>	<u>DUP RPD</u>	<u>Dup RPD Max</u>
Batch number: T151282AA 1,1-Dichloroethane	98	98	84-129	0	30	Sample number(s): 7867191-7867205 UNSPK: 7867195			
Batch number: T151291AA 1,1-Dichloroethane	101	97	84-129	3	30	Sample number(s): 7867206-7867209 UNSPK: P867212			
Batch number: 15120WAK026 1,4-Dioxane	-64 (2)	-538	36-104	13	30	Sample number(s): 7867191-7867202,7867206-7867209 UNSPK: 7867195 (2)			

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 1,1-Dichloroethane
Batch number: T151282AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7867191	112	100	90	93
7867192	110	99	91	95
7867193	113	95	92	95
7867194	113	98	91	97

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CRG-E.I.DuPont de Nemours & Co
Reported: 05/13/2015 17:33

Group Number: 1557274

Surrogate Quality Control

7867195	113	99	91	93
7867196	111	100	91	100
7867197	112	98	91	101
7867198	110	96	89	95
7867199	111	96	91	97
7867200	114	97	92	96
7867201	116	98	91	95
7867202	108	97	90	95
7867203	108	97	91	95
7867204	110	96	91	95
7867205	110	97	91	96
Blank	108	99	92	95
LCS	106	97	93	97
MS	111	100	91	100
MSD	112	98	91	101
Limits:	80-116	77-113	80-113	78-113

Analysis Name: 1,1-Dichloroethane
Batch number: T151291AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7867206	113	101	93	98
7867207	112	97	93	97
7867208	112	98	93	97
7867209	112	98	93	98
Blank	110	97	93	96
LCS	111	100	93	98
MS	111	97	92	100
MSD	112	98	93	101
Limits:	80-116	77-113	80-113	78-113

Analysis Name: 1,4-Dioxane
Batch number: 15120WAK026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
7867191	107	89	92
7867192	107	92	93
7867193	85	76	114
7867194	111	97	93
7867195	137*	119	139*
7867196	100	80	109
7867197	95	95	120
7867198	105	92	56
7867199	108	94	86
7867200	105	97	89
7867201	108	98	94
7867202	113	102	97
7867206	111	89	93
7867207	109	92	92
7867208	111	92	97
7867209	112	102	62
Blank	110	105	87
LCS	108	107	101
MS	100	80	109
MSD	95	95	120
Limits:	56-134	26-158	52-127

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CRG-E.I.DuPont de Nemours & Co
Reported: 05/13/2015 17:33

Group Number: 1557274

Surrogate Quality Control

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.



Lancaster Laboratories

Analysis Request / Environmental Services Chain of Custody

For Lancaster Laboratories Use Only

Group No.: 1557274 Sample Nos: 7867191-209
Acc't: 06643 SF: 206343 SCR No.: 170670 Cooler No.: 020763 **31919**
Cooler Temperature upon receipt: 08 °C Container No.: 4

Facility Name: Kentec		Project Manager: Marc Harder		Analyses Required										Comments:																							
Facility Contact: Jerry Bailey		Facility Contact Phone No.: 704-858-4116																																			
Facility Address: DuPont Kentec Plant		Job No.: 9267-7720100C-WH06504707																																			
		Release No.:																																			
Kentec NC		PO Number: LBIO-67047																																			
Sampler(s): <u>K. Stuart / J. Bailey / M. Harder</u>		Project Name: GW SAMPLING 2015		1,1-DCA 8260B										Condition upon receipt: <u>Extract</u>																							
Sample Identification	Date Collected	Time Collected	Matrix													Containers			X																		
																Volume (ml)	Preserv	No.																			
GW2015-MW-1	4/27/15	1425	WW													40	HCl	3	X																		
GW2015-MW-3	4/27/15	1320	WW													40	HCl	3	X																		
GW2015-MW-4A	4/27/15	1535	WW													40	HCl	3	X																		
GW2015-MW-4B	4/27/15	1731	WW													40	HCl	3	X																		
GW2015-MW-6	4/27/15	1100	WW													40	HCl	3	X																		
GW2015-MW-6	4/27/15	1100	WW													40	HCl	3	X																	MS	
GW2015-MW-6	4/27/15	1100	WW													40	HCl	3	X																	MSD	
GW2015-MW-7A	4/27/15	0840	WW													40	HCl	3	X																		
GW2015-MW-7A-D	4/27/15	0840	WW													40	HCl	3	X																		
GW2015-MW-7B	4/27/15	1000	WW													40	HCl	3	X																		
GW2015-MW-9	4/28/15	0830	WW	40	HCl	3	X																														
Turnaround Time Requested (please circle): Normal <u>Push</u> Number of days: _____							Special Instructions:																														
Bottles Relinquished by: <u>Anada S. Mon-Thomas</u>		Date: <u>4/21/2015</u>	Time: <u>1550</u>	Bottles Received by: <u>Jerry Bailey</u>		Date: <u>4-24-15</u>	Time: <u>0900</u>																														
Bottles Relinquished by: <u>Jerry Bailey</u>		Date: <u>4-28-15</u>	Time: <u>1800</u>	Bottles Received by: _____		Date: _____	Time: _____																														
Bottles Relinquished by: _____		Date: _____	Time: _____	Bottles Received by: <u>[Signature]</u>		Date: <u>4-29-15</u>	Time: <u>910</u>																														



Lancaster Laboratories

Analysis Request / Environmental Services Chain of Custody

For Lancaster Laboratories Use Only

Group No.: 1557274 Sample Nos.: 7867191-209

Acc't: 06643 SF: 206343 SCR No.: 170670

Cooler No.: 220763

31919

Cooler Temperature upon receipt: 0.8 °C

Container No.: 4

Facility Name: Kentec		Project Manager: Marc Harder		Analyses Required										Comments:				
Facility Contact: Jerry Bailey		Facility Contact Phone No.: 704-858-4116		1,1-DCA 8260B														
Facility Address: DuPont Kentec Plant		Job No.: 9267-7720100C-WH06504707																
		Release No.:																
Kentec NC		PO Number: LBIO-67047																
Sampler(s): <u>K. Stuart / M. Harder / J. Bailey</u>		Project Name: GW SAMPLING 2015												Condition upon receipt: <u>Intact</u>				
Sample Identification	Date Collected	Time Collected	Matrix	Containers			No.	X										
				Volume (ml)	Preserv	No.												
GW2015-MW-19			WW	40	HCl	3	X											
GW2015-MW-19			WW	40	HCl	3	X											MS
GW2015-MW-19			WW	40	HCl	3	X											MSD
GW2015-MW-13			WW	40	HCl	3	X											
GW2015-MW-H			WW	40	HCl	3	X											
EB-GW1-042815	4/28/15	1305	WW	40	HCl	3	X											
TB-GW1-042715	4/27/15	0715	WW	40	HCl	2	X											
TB-GW2-			WW	40	HCl	2	X											
TB-GW3-042715	4/27/15	0720	WW	40	HCl	2	X											
Turnaround Time Requested (please circle): Normal <u>Rush</u> Number of days: _____								Special Instructions:										
Bottles Relinquished by: <u>Chanda S. Montgomery</u>		Date: <u>4/21/2015</u>	Time: <u>1556</u>	Bottles Received by: <u>Jerry Bailey</u>		Date: <u>4-24-15</u>	Time: <u>0900</u>											
Bottles Relinquished by: <u>Jerry Bailey</u>		Date: <u>4/28/15</u>	Time: <u>1800</u>	Bottles Received by: _____		Date: _____	Time: _____											
Bottles Relinquished by: _____		Date: _____	Time: _____	Bottles Received by: _____		Date: _____	Time: _____											
Bottles Relinquished by: _____		Date: _____	Time: _____	Bottles Received by: <u>WWS</u>		Date: <u>4-29-15</u>	Time: <u>910</u>											



Lancaster Laboratories

Analysis Request / Environmental Services Chain of Custody

1 of 1

For Lancaster Laboratories Use Only

Group No.: 1557274 Sample Nos.: 7867191-209
 Acct: 06643 SF: 206343 SCR No.: 170670 Cooler No.: CA5050 **31919**
 Cooler Temperature upon receipt: 0.4 °C Container No.: 2

Facility Name: Kentec		Project Manager: Marc Harder		Analyses Required										Comments:															
Facility Contact: Jerry Bailey		Facility Contact Phone No.: 704-858-4116																											
Facility Address: DuPont Kentec Plant		Job No.: 9267-7720100C-WH06504707																											
		Release No.:																											
Kentec NC		PO Number: LBIO-67047																											
Sampler(s): <u>K. Stuart / M. Harder / J. Bailey</u>				1,4 Dioxane 8270D SIM										Condition upon receipt: <u>Intact</u>															
Project Name: GW SAMPLING 2015																													
Sample Identification	Date Collected	Time Collected	Matrix													Containers			X										
																Volume (ml)	Preserv	No.											
GW2015-MW-1	<u>4/27/15</u>	<u>1425</u>	WW													250	None	2	X										
GW2015-MW-3	<u>4/27/15</u>	<u>1320</u>	WW													250	None	2	X										
GW2015-MW-4A			WW													250	None	2	X	Removed - 4/28/15									
GW2015-MW-4B	<u>4/27/15</u>	<u>1731</u>	WW													250	None	2	X										
GW2015-MW-6	<u>4/27/15</u>	<u>1100</u>	WW													250	None	2	X										
GW2015-MW-6	<u>4/27/15</u>	<u>1100</u>	WW													250	None	2	X										
GW2015-MW-6	<u>4/27/15</u>	<u>1100</u>	WW													250	None	2	X										
GW2015-MW-7A	<u>4/27/15</u>	<u>0840</u>	WW													250	None	2	X										
GW2015-MW-7A-D	<u>4/27/15</u>	<u>0840</u>	WW													250	None	2	X										
Turnaround Time Requested (please circle): Normal <u> </u> Rush																Special Instructions:													
Bottles Relinquished by: <u>Angelo L. Montgomery</u>		Date: <u>4/21/2015</u>	Time: <u>1550</u>	Bottles Received by: <u>Jerry Bailey</u>		Date: <u>4/27/15</u>	Time: <u>0900</u>																						
Bottles Relinquished by: <u>Jerry Bailey</u>		Date: <u>4/28/15</u>	Time: <u>1300</u>	Bottles Received by: _____		Date: _____	Time: _____																						
Bottles Relinquished by: _____		Date: _____	Time: _____	Bottles Received by: _____		Date: _____	Time: _____																						
Bottles Relinquished by: _____		Date: _____	Time: _____	Bottles Received by: <u>WTC</u>		Date: <u>4-29-15</u>	Time: <u>910</u>																						



Lancaster Laboratories

Analysis Request / Environmental Services Chain of Custody

1 of 1

For Lancaster Laboratories Use Only

Group No.: 1557274 Sample Nos.: 7867191-209

Acc't: 06643 SF: 206343 SCR No.: 170670

Cooler No.: 211673

31919

Cooler Temperature upon receipt: 0.3 °C

Container No.: 1

Facility Name: Kentec		Project Manager: Marc Harder		Analyses Required										Comments:					
Facility Contact: Jerry Bailey		Facility Contact Phone No.: 704-858-4116																	
Facility Address: DuPont Kentec Plant		Job No.: 9267-7720100C-WH06504707																	
		Release No.:																	
Kentec NC		PO Number: LBIO-67047																	
Sampler(s): <u>K. Stuart / M. Harder / J. Bailey</u>				1,4 Dioxane 8270D SIM										Condition upon receipt: <u>Intact</u>					
Project Name: GW SAMPLING 2015																			
Sample Identification	Date Collected	Time Collected	Matrix													Containers			X
																Volume (ml)	Preserv	No.	
GW2015-MW-10A	4/28/15	0923	WW													250	None	2	X
GW2015-MW-10B	4/28/15	1003	WW													250	None	2	X
GW2015-MW-11A	4/28/15	1140	WW													250	None	2	X
GW2015-MW-11B	4/28/15	1057	WW													250	None	2	X
GW2015-MW-12 ^{IS-4/28/15} MW-9	4/28/15	0830	WW													250	None	2	X
GW2015-MW-14A ^{KS-4/28/15} MW-7B	4/27/15	1000	WW													250	None	2	X
GW2015-MW-14B ^{KS-4/28/15} MW-4A	4/27/15	1535	WW													250	None	2	X
GW2015-MW-15			WW													250	None	2	X
GW2015-MW-16			WW													250	None	2	X
EB-GW-1-042815	4/28/15	1305	WW													250	None	2	X
Turnaround Time Requested (please circle): Normal <u>Normal</u> Rush Number of days: _____																Special Instructions:			
Bottles Relinquished by: <u>Angela S. Montgomery</u>		Date: <u>4/21/2015</u>	Time: <u>1550</u>	Bottles Received by: <u>Jerry Bailey</u>		Date: <u>4-24-15</u>	Time: <u>0900</u>												
Bottles Relinquished by: <u>Jerry Bailey</u>		Date: <u>4/28/15</u>	Time: <u>1800</u>	Bottles Received by: _____		Date: _____	Time: _____												
Bottles Relinquished by: _____		Date: _____	Time: _____	Bottles Received by: _____		Date: _____	Time: _____												
Bottles Relinquished by: _____		Date: _____	Time: _____	Bottles Received by: <u>WTS</u>		Date: <u>4-29-15</u>	Time: <u>910</u>												

Client: Dupont

Delivery and Receipt Information

Delivery Method:	<u>Fed Ex</u>	Arrival Timestamp:	<u>04/29/2015 9:10</u>
Number of Packages:	<u>4</u>	Number of Projects:	<u>1</u>
State/Province of Origin:	<u>NC</u>		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	8
Paperwork Enclosed:	Yes	Trip Blank Type:	HCL
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	Yes		

Unpacked by Timothy Cubberley (6520) at 16:26 on 04/29/2015

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	0.3	DT	Wet	Y	Loose	N
2	DT131	0.4	DT	Wet	Y	Loose	N
3	DT131	0.7	DT	Wet	Y	Loose	N
4	DT131	0.8	DT	Wet	Y	Loose	N

Container Quantity Discrepancy Details

Sample ID on COC	Container Qty. Received	Container Qty. on COC	Comments
TB-GW-4-042715	2	3	

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm	ng	nanogram(s)
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
µg	microgram(s)	mg	milligram(s)
mL	milliliter(s)	L	liter(s)
m³	cubic meter(s)	µL	microliter(s)
		pg/L	picogram/liter
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Laboratory Data Qualifiers:

- B - Analyte detected in the blank
- C - Result confirmed by reanalysis
- E - Concentration exceeds the calibration range
- J (or G, I, X) - estimated value \geq the Method Detection Limit (MDL or DL) and the $<$ Limit of Quantitation (LOQ or RL)
- P - Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
- U - Analyte was not detected at the value indicated
- V - Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference...

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, ISO17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

CRG-E.I.DuPont de Nemours & Co
AECOM
Sabre Building
4051 Ogletown Road, Suite 300
Newark DE 19713

May 13, 2015

Project: KEN - GW SAMPLING

Submission Date: 04/29/2015

Group Number: 1557275

PO Number: LBIO-67047

State of Sample Origin: NC

<u>Client Sample Description</u>	<u>Lancaster Labs (LL) #</u>
SW2015-SW-9 Groundwater	7867210
SW2015-SW-9-D Groundwater	7867211
SW2015-SW-11 Groundwater	7867212
SW2015-SW-11 MS Groundwater	7867213
SW2015-SW-11 MSD Groundwater	7867214
SW2015-SW-29 Groundwater	7867215
EB-SW-042815 Blank Water	7867216
TB-SW-042815 Blank Water	7867217

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>.

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Sample Description: SW2015-SW-9 Groundwater
GW SAMPLING 2015

LL Sample # WW 7867210
LL Group # 1557275
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/28/2015 13:30 by KS

CRG-E.I.DuPont de Nemours & Co
AECOM

Submitted: 04/29/2015 09:10

Sabre Building

Reported: 05/13/2015 17:35

4051 Ogletown Road, Suite 300
Newark DE 19713

KEN09

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/l	ug/l	ug/l	
10335	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
GC/MS Semivolatiles	SW-846 8270D SIM		ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	1.6	0.051	0.10	1

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	T151291AA	05/09/2015 17:27	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T151291AA	05/09/2015 17:27	Kevin A Sposito	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15120WAK026	05/04/2015 20:45	Holly B Ziegler	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	15120WAK026	05/01/2015 09:30	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: SW2015-SW-9-D Groundwater
GW SAMPLING 2015

LL Sample # WW 7867211
LL Group # 1557275
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/28/2015 13:30 by KS

CRG-E.I.DuPont de Nemours & Co
AECOM
Sabre Building
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 04/29/2015 09:10

Reported: 05/13/2015 17:35

KEN9D

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260B						
10335	1,1-Dichloroethane	75-34-3	0.5 U	ug/l 0.5	ug/l 1	1
GC/MS Semivolatiles SW-846 8270D SIM						
12971	1,4-Dioxane	123-91-1	2.0	ug/l 0.051	ug/l 0.10	1
<p>Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: The sample was re-extracted outside the method required holding time and the QC is again outside of the acceptance limits. All results are reported from the first trial. Similar results were obtained in both trials.</p>						

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	T151291AA	05/09/2015 17:51	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T151291AA	05/09/2015 17:51	Kevin A Sposito	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15122WAP026	05/11/2015 15:43	Holly B Ziegler	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	15122WAP026	05/05/2015 03:30	Sherry L Morrow	1

*=This limit was used in the evaluation of the final result

Sample Description: SW2015-SW-11 Groundwater
GW SAMPLING 2015

LL Sample # WW 7867212
LL Group # 1557275
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/28/2015 13:50 by KS

CRG-E.I.DuPont de Nemours & Co
AECOM

Submitted: 04/29/2015 09:10

Sabre Building

Reported: 05/13/2015 17:35

4051 Ogletown Road, Suite 300
Newark DE 19713

KEN11

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/l	ug/l	ug/l	
10335	1,1-Dichloroethane	75-34-3	4	0.5	1	1
GC/MS Semivolatiles	SW-846 8270D SIM		ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	19	0.25	0.50	5

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	T151291AA	05/09/2015 14:41	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T151291AA	05/09/2015 14:41	Kevin A Sposito	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15122WAP026	05/11/2015 16:12	Holly B Ziegler	5
10466	BNA Water Extraction SIM	SW-846 3510C	1	15122WAP026	05/05/2015 03:30	Sherry L Morrow	1

*=This limit was used in the evaluation of the final result

Sample Description: SW2015-SW-11 MS Groundwater
GW SAMPLING 2015

LL Sample # WW 7867213
LL Group # 1557275
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/28/2015 13:50 by KS

CRG-E.I.DuPont de Nemours & Co
AECOM

Submitted: 04/29/2015 09:10

Sabre Building

Reported: 05/13/2015 17:35

4051 Ogletown Road, Suite 300
Newark DE 19713

KEN11

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260B	ug/l	ug/l	ug/l	
10335	1,1-Dichloroethane	75-34-3	24	0.5	1	1
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	18	0.26	0.51	5

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	T151291AA	05/09/2015 15:05	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T151291AA	05/09/2015 15:05	Kevin A Sposito	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15122WAP026	05/11/2015 16:40	Holly B Ziegler	5
10466	BNA Water Extraction SIM	SW-846 3510C	1	15122WAP026	05/05/2015 03:30	Sherry L Morrow	1

*=This limit was used in the evaluation of the final result

Sample Description: SW2015-SW-11 MSD Groundwater
GW SAMPLING 2015

LL Sample # WW 7867214
LL Group # 1557275
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/28/2015 13:50 by KS

CRG-E.I.DuPont de Nemours & Co
AECOM

Submitted: 04/29/2015 09:10

Sabre Building

Reported: 05/13/2015 17:35

4051 Ogletown Road, Suite 300
Newark DE 19713

KEN11

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260B	ug/l	ug/l	ug/l	
10335	1,1-Dichloroethane	75-34-3	23	0.5	1	1
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	19	0.25	0.50	5

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	T151291AA	05/09/2015 15:29	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T151291AA	05/09/2015 15:29	Kevin A Sposito	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15122WAP026	05/11/2015 17:08	Holly B Ziegler	5
10466	BNA Water Extraction SIM	SW-846 3510C	1	15122WAP026	05/05/2015 03:30	Sherry L Morrow	1

*=This limit was used in the evaluation of the final result

Sample Description: SW2015-SW-29 Groundwater
GW SAMPLING 2015

LL Sample # WW 7867215
LL Group # 1557275
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/28/2015 14:25 by KS

CRG-E.I.DuPont de Nemours & Co
AECOM

Submitted: 04/29/2015 09:10

Sabre Building

Reported: 05/13/2015 17:35

4051 Ogletown Road, Suite 300
Newark DE 19713

KEN29

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260B	ug/l	ug/l	ug/l	
10335	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	18	0.25	0.51	5

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	T151291AA	05/09/2015 18:15	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T151291AA	05/09/2015 18:15	Kevin A Sposito	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15122WAP026	05/11/2015 17:36	Holly B Ziegler	5
10466	BNA Water Extraction SIM	SW-846 3510C	1	15122WAP026	05/05/2015 03:30	Sherry L Morrow	1

*=This limit was used in the evaluation of the final result

Sample Description: **EB-SW-042815 Blank Water**
GW SAMPLING 2015

LL Sample # **WW 7867216**
LL Group # **1557275**
Account # **06643**

Project Name: **KEN - GW SAMPLING**

Collected: 04/28/2015 13:00 by KS

CRG-E.I.DuPont de Nemours & Co
AECOM

Submitted: 04/29/2015 09:10

Sabre Building

Reported: 05/13/2015 17:35

4051 Ogletown Road, Suite 300
Newark DE 19713

KENEB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260B						
10335	1,1-Dichloroethane	75-34-3	0.5 U	ug/l 0.5	ug/l 1	1
GC/MS Semivolatiles SW-846 8270D SIM						
12971	1,4-Dioxane	123-91-1	0.13	ug/l 0.051	ug/l 0.10	1
<p>Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: The sample was re-extracted outside the method required holding time and the QC is again outside of the acceptance limits. All results are reported from the first trial. Similar results were obtained in both trials.</p>						

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	T151291AA	05/09/2015 13:54	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T151291AA	05/09/2015 13:54	Kevin A Sposito	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15122WAP026	05/08/2015 23:57	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	15122WAP026	05/05/2015 03:30	Sherry L Morrow	1

*=This limit was used in the evaluation of the final result

Sample Description: TB-SW-042815 Blank Water
GW SAMPLING 2015

LL Sample # WW 7867217
LL Group # 1557275
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/28/2015 08:00 by KS

CRG-E.I.DuPont de Nemours & Co
AECOM
Sabre Building
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 04/29/2015 09:10
Reported: 05/13/2015 17:35

KENTB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
10335	1,1-Dichloroethane	SW-846 8260B 75-34-3	0.5 U	ug/l 0.5	ug/l 1	1

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	T151291AA	05/09/2015 14:18	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T151291AA	05/09/2015 14:18	Kevin A Sposito	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: CRG-E.I.DuPont de Nemours & Co
Reported: 05/13/2015 17:35

Group Number: 1557275

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank MDL**</u>	<u>Blank LOQ</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: T151291AA 1,1-Dichloroethane	0.5 U	0.5	1	7867210-7867217 ug/l	93		80-120		
Batch number: 15120WAK026 1,4-Dioxane	0.11	0.050	0.10	7867210 ug/l	67		32-113		
Batch number: 15122WAP026 1,4-Dioxane	0.13	0.050	0.10	7867211-7867216 ug/l	63		32-113		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

<u>Analysis Name</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>MS/MSD Limits</u>	<u>RPD</u>	<u>RPD MAX</u>	<u>BKG Conc</u>	<u>DUP Conc</u>	<u>DUP RPD</u>	<u>Dup RPD Max</u>
Batch number: T151291AA 1,1-Dichloroethane			84-129	3	30				
Batch number: 15120WAK026 1,4-Dioxane	-64 (2)	-538 (2)	36-104	13	30				
Batch number: 15122WAP026 1,4-Dioxane	-73 (2)	-20 (2)	36-104	3	30				

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 1,1-Dichloroethane
Batch number: T151291AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7867210	113	98	93	97
7867211	113	101	94	97
7867212	114	98	94	96
7867213	111	97	92	100

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CRG-E.I.DuPont de Nemours & Co
Reported: 05/13/2015 17:35

Group Number: 1557275

Surrogate Quality Control

7867214	112	98	93	101
7867215	114	99	93	96
7867216	111	97	92	96
7867217	113	101	94	97
Blank	110	97	93	96
LCS	111	100	93	98
MS	111	97	92	100
MSD	112	98	93	101
Limits:	80-116	77-113	80-113	78-113

Analysis Name: 1,4-Dioxane
Batch number: 15120WAK026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
7867210	109	97	92
Blank	110	105	87
LCS	108	107	101
MS	100	80	109
MSD	95	95	120
Limits:	56-134	26-158	52-127

Analysis Name: 1,4-Dioxane
Batch number: 15122WAP026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
7867211	101	98	94
7867212	98	99	103
7867213	100	100	100
7867214	104	103	103
7867215	93	93	95
7867216	97	100	91
Blank	106	107	99
LCS	96	101	90
MS	100	100	100
MSD	104	103	103
Limits:	56-134	26-158	52-127

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

Client: Dupont

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Timestamp: 04/29/2015 9:10
 Number of Packages: 4 Number of Projects: 1
 State/Province of Origin: NC

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	8
Paperwork Enclosed:	Yes	Trip Blank Type:	HCL
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	Yes		

Unpacked by Timothy Cubberley (6520) at 16:26 on 04/29/2015

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	0.3	DT	Wet	Y	Loose	N
2	DT131	0.4	DT	Wet	Y	Loose	N
3	DT131	0.7	DT	Wet	Y	Loose	N
4	DT131	0.8	DT	Wet	Y	Loose	N

Container Quantity Discrepancy Details

Sample ID on COC	Container Qty. Received	Container Qty. on COC	Comments
TB-GW-4-042715	2	3	

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm	ng	nanogram(s)
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
µg	microgram(s)	mg	milligram(s)
mL	milliliter(s)	L	liter(s)
m3	cubic meter(s)	µL	microliter(s)
		pg/L	picogram/liter
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Laboratory Data Qualifiers:

- B - Analyte detected in the blank
- C - Result confirmed by reanalysis
- E - Concentration exceeds the calibration range
- J (or G, I, X) - estimated value \geq the Method Detection Limit (MDL or DL) and the $<$ Limit of Quantitation (LOQ or RL)
- P - Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
- U - Analyte was not detected at the value indicated
- V - Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference...

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, ISO17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

CRG-E.I.DuPont de Nemours & Co
AECOM
Sabre Building
4051 Ogletown Road, Suite 300
Newark DE 19713

May 14, 2015

Project: KEN - GW SAMPLING

Submittal Date: 05/01/2015

Group Number: 1558042

PO Number: LBIO-67047

State of Sample Origin: NC

Client Sample DescriptionTB-GW2-042915 Blank Water
GW2015-MW-19 Groundwater
GW2015-MW-19 MS Groundwater
GW2015-MW-19 MSD Groundwater
GW2015-MW-13 Groundwater
GW2015-MW-H Groundwater
SW2015-SW-24 Groundwater
TB-GW5-042915 Blank Water
GW2015-MW-14B Groundwater
GW2015-MW-14A Groundwater
GW2015-MW-16 Groundwater
GW2015-MW-15 Groundwater
GW2015-MW-12 GroundwaterLancaster Labs (LL) #7871170
7871171
7871172
7871173
7871174
7871175
7871176
7871177
7871178
7871179
7871180
7871181
7871182

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>.

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Sample Description: TB-GW2-042915 Blank Water
GW SAMPLING 2015

LL Sample # WW 7871170
LL Group # 1558042
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/29/2015 07:00 by KS

CRG-E.I.DuPont de Nemours & Co
AECOM

Submitted: 05/01/2015 09:10

Sabre Building

Reported: 05/14/2015 10:11

4051 Ogletown Road, Suite 300
Newark DE 19713

KNTT2

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
10335	1,1-Dichloroethane	SW-846 8260B 75-34-3	0.5 U	ug/l 0.5	ug/l 1	1

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	L151321AA	05/12/2015 03:02	Stephanie A Selis	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	L151321AA	05/12/2015 03:02	Stephanie A Selis	1

*=This limit was used in the evaluation of the final result

Sample Description: GW2015-MW-19 Groundwater
GW SAMPLING 2015

LL Sample # WW 7871171
LL Group # 1558042
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/29/2015 17:35 by KS

CRG-E.I.DuPont de Nemours & Co
AECOM

Submitted: 05/01/2015 09:10

Sabre Building

Reported: 05/14/2015 10:11

4051 Ogletown Road, Suite 300
Newark DE 19713

KN-19

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260B	ug/l	ug/l	ug/l	
10335	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	110	5.1	10	100

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	L151321AA	05/12/2015 03:24	Stephanie A Selis	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	L151321AA	05/12/2015 03:24	Stephanie A Selis	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15125WAL026	05/08/2015 03:26	Catherine E Bachman	100
10466	BNA Water Extraction	SIM SW-846 3510C	1	15125WAL026	05/06/2015 08:15	Roman Kuropatkin	1

*=This limit was used in the evaluation of the final result

Sample Description: GW2015-MW-19 MS Groundwater
GW SAMPLING 2015

LL Sample # WW 7871172
LL Group # 1558042
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/29/2015 17:35 by KS

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4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 05/01/2015 09:10

Reported: 05/14/2015 10:11

KN-19

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
10335	1,1-Dichloroethane	SW-846 8260B 75-34-3	ug/l 22	ug/l 0.5	ug/l 1	1
GC/MS Semivolatiles						
12971	1,4-Dioxane	SW-846 8270D SIM 123-91-1	ug/l 120	ug/l 5.2	ug/l 10	100

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	L151321AA	05/12/2015 03:47	Stephanie A Selis	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	L151321AA	05/12/2015 03:47	Stephanie A Selis	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15125WAL026	05/08/2015 03:53	Catherine E Bachman	100
10466	BNA Water Extraction	SIM SW-846 3510C	1	15125WAL026	05/06/2015 08:15	Roman Kuropatkin	1

*=This limit was used in the evaluation of the final result

Sample Description: GW2015-MW-19 MSD Groundwater
GW SAMPLING 2015

LL Sample # WW 7871173
LL Group # 1558042
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/29/2015 17:35 by KS

CRG-E.I.DuPont de Nemours & Co
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Submitted: 05/01/2015 09:10

Sabre Building

Reported: 05/14/2015 10:11

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Newark DE 19713

KN-19

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
10335	1,1-Dichloroethane	SW-846 8260B 75-34-3	ug/l 21	ug/l 0.5	ug/l 1	1
GC/MS Semivolatiles						
12971	1,4-Dioxane	SW-846 8270D SIM 123-91-1	ug/l 110	ug/l 5.2	ug/l 10	100

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	L151321AA	05/12/2015 04:09	Stephanie A Selis	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	L151321AA	05/12/2015 04:09	Stephanie A Selis	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15125WAL026	05/08/2015 04:20	Catherine E Bachman	100
10466	BNA Water Extraction	SIM SW-846 3510C	1	15125WAL026	05/06/2015 08:15	Roman Kuropatkin	1

*=This limit was used in the evaluation of the final result

Sample Description: GW2015-MW-13 Groundwater
GW SAMPLING 2015

LL Sample # WW 7871174
LL Group # 1558042
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/29/2015 10:40 by KS

CRG-E.I.DuPont de Nemours & Co
AECOM
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4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 05/01/2015 09:10

Reported: 05/14/2015 10:11

KN-13

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260B						
10335	1,1-Dichloroethane	75-34-3	0.5 U	ug/l 0.5	ug/l 1	1
GC/MS Semivolatiles SW-846 8270D SIM						
12971	1,4-Dioxane	123-91-1	0.31	ug/l 0.050	ug/l 0.10	1

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the method required holding time and the QC is again outside of the acceptance limits. All results are reported from the first trial. Similar results were obtained in both trials.

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	L151321AA	05/12/2015 04:32	Stephanie A Selis	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	L151321AA	05/12/2015 04:32	Stephanie A Selis	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15125WAL026	05/07/2015 23:49	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	15125WAL026	05/06/2015 08:15	Roman Kuropatkin	1

*=This limit was used in the evaluation of the final result

Sample Description: GW2015-MW-H Groundwater
GW SAMPLING 2015

LL Sample # WW 7871175
LL Group # 1558042
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/29/2015 11:15 by KS

CRG-E.I.DuPont de Nemours & Co
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Submitted: 05/01/2015 09:10

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Reported: 05/14/2015 10:11

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Newark DE 19713

KNT-H

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260B	ug/l	ug/l	ug/l	
10335	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	2.1	0.051	0.10	1

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	L151321AA	05/12/2015 04:54	Stephanie A Selis	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	L151321AA	05/12/2015 04:54	Stephanie A Selis	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15125WAL026	05/08/2015 00:16	Catherine E Bachman	1
10466	BNA Water Extraction	SIM SW-846 3510C	1	15125WAL026	05/06/2015 08:15	Roman Kuropatkin	1

*=This limit was used in the evaluation of the final result

Sample Description: SW2015-SW-24 Groundwater
GW SAMPLING 2015

LL Sample # WW 7871176
LL Group # 1558042
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/30/2015 09:00 by KS

CRG-E.I.DuPont de Nemours & Co
AECOM

Submitted: 05/01/2015 09:10

Sabre Building

Reported: 05/14/2015 10:11

4051 Ogletown Road, Suite 300
Newark DE 19713

KNS24

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260B	ug/l	ug/l	ug/l	
10335	1,1-Dichloroethane	75-34-3	0.5 J	0.5	1	1
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	19	0.50	1.0	10

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	L151321AA	05/12/2015 05:16	Stephanie A Selis	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	L151321AA	05/12/2015 05:16	Stephanie A Selis	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15125WAL026	05/11/2015 14:16	Holly B Ziegler	10
10466	BNA Water Extraction SIM	SW-846 3510C	1	15125WAL026	05/06/2015 08:15	Roman Kuropatkin	1

*=This limit was used in the evaluation of the final result

Sample Description: TB-GW5-042915 Blank Water
GW SAMPLING 2015

LL Sample # WW 7871177
LL Group # 1558042
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/29/2015 07:05 by KS

CRG-E.I.DuPont de Nemours & Co
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Sabre Building
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 05/01/2015 09:10

Reported: 05/14/2015 10:11

KNTT5

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
10335	1,1-Dichloroethane	SW-846 8260B 75-34-3	0.5 U	ug/l 0.5	ug/l 1	1

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	L151321AA	05/12/2015 05:39	Stephanie A Selis	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	L151321AA	05/12/2015 05:39	Stephanie A Selis	1

*=This limit was used in the evaluation of the final result

Sample Description: GW2015-MW-14B Groundwater
GW SAMPLING 2015

LL Sample # WW 7871178
LL Group # 1558042
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/29/2015 15:36 by KS

CRG-E.I.DuPont de Nemours & Co
AECOM
Sabre Building
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 05/01/2015 09:10

Reported: 05/14/2015 10:11

KN-4B

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260B						
10335	1,1-Dichloroethane	75-34-3	0.5 U	ug/l 0.5	ug/l 1	1
GC/MS Semivolatiles SW-846 8270D SIM						
12971	1,4-Dioxane	123-91-1	0.14	ug/l 0.052	ug/l 0.10	1
<p>Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: The sample was re-extracted outside the method required holding time and the QC is again outside of the acceptance limits. All results are reported from the first trial. Similar results were obtained in both trials.</p>						

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	L151321AA	05/12/2015 06:01	Stephanie A Selis	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	L151321AA	05/12/2015 06:01	Stephanie A Selis	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15125WAL026	05/08/2015 01:10	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	15125WAL026	05/06/2015 08:15	Roman Kuropatkin	1

*=This limit was used in the evaluation of the final result

Sample Description: GW2015-MW-14A Groundwater
GW SAMPLING 2015

LL Sample # WW 7871179
LL Group # 1558042
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/29/2015 14:52 by KS

CRG-E.I.DuPont de Nemours & Co
AECOM

Submitted: 05/01/2015 09:10

Sabre Building

Reported: 05/14/2015 10:11

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Newark DE 19713

KN-4A

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260B	ug/l	ug/l	ug/l	
10335	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	1.1	0.050	0.10	1

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	L151321AA	05/12/2015 06:23	Stephanie A Selis	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	L151321AA	05/12/2015 06:23	Stephanie A Selis	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15125WAL026	05/08/2015 01:37	Catherine E Bachman	1
10466	BNA Water Extraction	SIM SW-846 3510C	1	15125WAL026	05/06/2015 08:15	Roman Kuropatkin	1

*=This limit was used in the evaluation of the final result

Sample Description: GW2015-MW-16 Groundwater
GW SAMPLING 2015

LL Sample # WW 7871180
LL Group # 1558042
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/29/2015 16:20 by KS

CRG-E.I.DuPont de Nemours & Co
AECOM
Sabre Building
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 05/01/2015 09:10

Reported: 05/14/2015 10:11

KN-16

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260B						
10335	1,1-Dichloroethane	75-34-3	0.5 U	ug/l 0.5	ug/l 1	1
GC/MS Semivolatiles SW-846 8270D SIM						
12971	1,4-Dioxane	123-91-1	0.75	ug/l 0.051	ug/l 0.10	1

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the method required holding time and the QC is again outside of the acceptance limits. All results are reported from the first trial. Similar results were obtained in both trials.

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	L151321AA	05/12/2015 06:46	Stephanie A Selis	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	L151321AA	05/12/2015 06:46	Stephanie A Selis	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15125WAL026	05/08/2015 02:04	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	15125WAL026	05/06/2015 08:15	Roman Kuropatkin	1

*=This limit was used in the evaluation of the final result

Sample Description: GW2015-MW-15 Groundwater
GW SAMPLING 2015

LL Sample # WW 7871181
LL Group # 1558042
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/29/2015 14:05 by KS

CRG-E.I.DuPont de Nemours & Co
AECOM

Submitted: 05/01/2015 09:10

Sabre Building

Reported: 05/14/2015 10:11

4051 Ogletown Road, Suite 300
Newark DE 19713

KN-15

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260B	ug/l	ug/l	ug/l	
10335	1,1-Dichloroethane	75-34-3	0.6 J	0.5	1	1
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	4.3	0.051	0.10	1

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	L151321AA	05/12/2015 07:08	Stephanie A Selis	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	L151321AA	05/12/2015 07:08	Stephanie A Selis	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15125WAL026	05/08/2015 02:31	Catherine E Bachman	1
10466	BNA Water Extraction	SIM SW-846 3510C	1	15125WAL026	05/06/2015 08:15	Roman Kuropatkin	1

*=This limit was used in the evaluation of the final result

Sample Description: GW2015-MW-12 Groundwater
GW SAMPLING 2015

LL Sample # WW 7871182
LL Group # 1558042
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 04/29/2015 09:40 by KS

CRG-E.I.DuPont de Nemours & Co
AECOM
Sabre Building
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 05/01/2015 09:10

Reported: 05/14/2015 10:11

KN-12

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260B						
10335	1,1-Dichloroethane	75-34-3	0.5 U	ug/l 0.5	ug/l 1	1
GC/MS Semivolatiles SW-846 8270D SIM						
12971	1,4-Dioxane	123-91-1	0.37	ug/l 0.050	ug/l 0.10	1
<p>Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: The sample was re-extracted outside the method required holding time and the QC is again outside of the acceptance limits. All results are reported from the first trial. Similar results were obtained in both trials.</p>						

General Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	1,1-Dichloroethane	SW-846 8260B	1	L151321AA	05/12/2015 07:31	Stephanie A Selis	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	L151321AA	05/12/2015 07:31	Stephanie A Selis	1
12971	1,4-Dioxane	SW-846 8270D SIM	1	15125WAL026	05/08/2015 02:59	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	15125WAL026	05/06/2015 08:15	Roman Kuropatkin	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: CRG-E.I.DuPont de Nemours & Co
Reported: 05/14/2015 10:11

Group Number: 1558042

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank MDL**</u>	<u>Blank LOQ</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: L151321AA 1,1-Dichloroethane	0.5 U	0.5	1	ug/l	102		80-120		
Batch number: 15125WAL026 1,4-Dioxane	0.11	0.050	0.10	ug/l	93		32-113		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

<u>Analysis Name</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>MS/MSD Limits</u>	<u>RPD</u>	<u>RPD MAX</u>	<u>BKG Conc</u>	<u>DUP Conc</u>	<u>DUP RPD</u>	<u>Dup RPD Max</u>
Batch number: L151321AA 1,1-Dichloroethane	109	106	84-129	2	30				
Batch number: 15125WAL026 1,4-Dioxane	524 (2)	-84 (2)	36-104	5	30				

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 1,1-Dichloroethane
Batch number: L151321AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7871170	100	103	98	98
7871171	101	103	99	98
7871172	101	103	98	98
7871173	102	103	100	100
7871174	98	99	99	97
7871175	101	104	98	97
7871176	101	100	98	97
7871177	99	101	98	97
7871178	99	102	99	97
7871179	100	102	98	97
7871180	103	102	99	97

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CRG-E.I.DuPont de Nemours & Co
Reported: 05/14/2015 10:11

Group Number: 1558042

Surrogate Quality Control

7871181	100	101	99	97
7871182	101	102	99	98
Blank	101	101	99	98
LCS	101	100	101	99
MS	101	103	98	98
MSD	102	103	100	100
Limits:	80-116	77-113	80-113	78-113

Analysis Name: 1,4-Dioxane
Batch number: 15125WAL026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
7871171	112	79	132*
7871172	99	79	131*
7871173	100	76	117
7871174	110	108	111
7871175	108	100	107
7871176	103	104	103
7871178	108	106	106
7871179	106	105	108
7871180	106	90	106
7871181	108	96	106
7871182	102	85	102
Blank	121	120	118
LCS	107	113	112
MS	99	79	131*
MSD	100	76	117
Limits:	56-134	26-158	52-127

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.



Lancaster Laboratories

Analysis Request / Environmental Services Chain of Custody

1 of 1

For Lancaster Laboratories Use Only

Group No.: 1558042 Sample Nos.: 7871170-82

Acc't: 06643 SF: 206343 SCR No.: 170670

Cooler No.: C18245

31919

Cooler Temperature upon receipt: 0.7 °C

Container No.: 1

Facility Name: Kentec		Project Manager: Marc Harder		Analyses Required										Comments:															
Facility Contact: Jerry Bailey		Facility Contact Phone No.: 704-858-4116																											
Facility Address: DuPont Kentec Plant		Job No.: 9267-7720100C-WH06504707																											
		Release No.:																											
Kentec NC		PO Number: LBIO-67047																											
Sampler(s): <u>K. Stewart / J. Bailey</u>				1,4 Dioxane 8270D SIM										Condition upon receipt: <u>Intact</u>															
Project Name: GW SAMPLING 2015																													
Sample Identification	Date Collected	Time Collected	Matrix													Containers			X										
																Volume (ml)	Preserv	No.											
GW2015-MW-19	4/29/15	1735	WW													250	None	2	X										
GW2015-MW-19	4/29/15	1735	WW													250	None	2	X										
GW2015-MW-19	4/29/15	1735	WW													250	None	2	X										
GW2015-MW-13	4/29/15	1040	WW													250	None	2	X										
GW2015-MW-H	4/29/15	1115	WW													250	None	2	X										
EB-GW1-			WW													250	None	2	X	Sampled 4/28/15									
GW2015-MW-16	4/29/15	1620	WW													250	None	2	X										
GW2015-MW-15	4/29/15	1405	WW													250	None	2	X										
GW2015-MW-14B	4/29/15	1536	WW													250	None	2	X										
GW2015-MW-14A	4/29/15	1452	WW													250	None	2	X										
GW2015-MW-12	4/29/15	0940	WW													250	None	2	X										
Turnaround Time Requested (please circle): <u>Normal</u> Rush Number of days: _____							Special Instructions:																						
Bottles Relinquished by: <u>Angela S. Montgomery</u>		Date: <u>4/21/2015</u>	Time: <u>1550</u>	Bottles Received by: <u>Jerry Bailey</u>		Date: <u>4-24-15</u>	Time: <u>0900</u>																						
Bottles Relinquished by: <u>Jerry Bailey</u>		Date: <u>4-30-15</u>	Time: <u>12:00 PM</u>	Bottles Received by:		Date:	Time:																						
Bottles Relinquished by:		Date:	Time:	Bottles Received by:		Date:	Time:																						
Bottles Relinquished by:		Date:	Time:	Bottles Received by:		Date: <u>5/15</u>	Time: <u>9:10</u>																						

Client: DuPont

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Timestamp: 05/01/2015 9:10
 Number of Packages: 2 Number of Projects: 1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	HCl
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Jordan Woods (6698) at 15:06 on 05/01/2015

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	0.7	DT	Wet	Y	Loose/Bag	N
2	DT146	0.3	DT	Wet	Y	Loose/Bag	N

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm	ng	nanogram(s)
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
µg	microgram(s)	mg	milligram(s)
mL	milliliter(s)	L	liter(s)
m³	cubic meter(s)	µL	microliter(s)
		pg/L	picogram/liter
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Laboratory Data Qualifiers:

- B - Analyte detected in the blank
- C - Result confirmed by reanalysis
- E - Concentration exceeds the calibration range
- J (or G, I, X) - estimated value \geq the Method Detection Limit (MDL or DL) and the $<$ Limit of Quantitation (LOQ or RL)
- P - Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
- U - Analyte was not detected at the value indicated
- V - Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference...

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, ISO17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

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Analysis Request / Environmental Services Chain of Custody

Lab No.: 124701 (1000)

For Lancaster Laboratories Use Only
 Group No.: 1558042 Sample No.: 7871170-82
 Acct: 06643 SF: 206343 SCR No.: 170670 Cooler No.:
 Cooler Temperature upon receipt: 2.3 °C Container No.: 2

31919

Analyses Required

Comments:

Facility Name: Kentec
 Project Manager: Marc Harder
 Facility Contact: Jerry Bailey
 Facility Contact Phone No.: 704-858-4116
 Facility Address: DuPont Kentec Plant
 Job No.: 9267-7720100C-WH06504707
 Release No.:
 Kentec NC
 PO Number: LBIO-67047

Sampler(s): K. Stuart H. Bailey
 Project Name: GW SAMPLING 2015

Sample Identification	Date Collected	Time Collected	Matrix	Containers		No.	Special Instructions:
				Volume (ml)	Preserv		
TB-GW2-042915	4/29/15	0700	WW	40	HCl	3	
GW2015-MW-19	4/29/15	1735	WW	40	HCl	3	
GW2015-MW-19	4/29/15	1735	WW	40	HCl	3	
GW2015-MW-19	4/29/15	1735	WW	40	HCl	3	
GW2015-MW-13	4/29/15	1040	WW	40	HCl	3	
GW2015-MW-14	4/29/15	1115	WW	40	HCl	3	
GW2015-SW-24	4/30/15	0900	WW	40	HCl	3	

Condition upon receipt:
In tank

MS
MSD

Turnaround Time Requested (please circle): Normal Rush Number of days: _____

Bottles Relinquished by: _____ Date: _____ Time: _____
 Bottles Received by: Jerry Bailey Date: 4/29/15 Time: 0900
 Bottles Relinquished by: Jerry Bailey Date: 4-30-15 Time: 1200 PM
 Bottles Received by: _____ Date: _____ Time: _____
 Bottles Relinquished by: _____ Date: _____ Time: _____
 Bottles Received by: _____ Date: 5/1/15 Time: 900

Analysis Request / Environmental Services Chain of Custody

For Lancaster Laboratories Use Only
 Group No.: 1555019 Sample No.: 7871170-8a
 Acct: 06643 SF: 206343 SCR No.: 170670 Cooler No.: 118245
 Cooler Temperature upon receipt: 0.7 °C Container No.: 1 31919

Facility Name: Kentec Project Manager: Marc Harder

Facility Contact: Jerry Bailey Facility Contact Phone No.: 704-858-4116

Facility Address: DuPont Kentec Plant Job No.: 9267-7720100C-WH06504707

Release No.:

Kentec NC PO Number: LBIO-67047

Samplers(s): Van Sled Jerry Bailey

Project Name: GW SAMPLING 2015

Sample Identification	Date Collected	Time Collected	Matrix	Containers		No.	Special Instructions	Condition upon receipt:
				Volume (ml)	Preserv			
GW2015-11-15-7B			WW	250	None	2		
GW2015-11-15-9			WW	250	None	2		
GW2015-11-15-10	5/30/15	0900	WW	250	None	2		

Turnaround Time Requested (please circle): Normal Rush Number of days: _____

Bottles Relinquished by: *Made & M. Thompson* Date: 4/21/15 Time: 1550

Bottles Relinquished by: *Jerry Bailey* Date: 4-30-15 Time: 1510

Bottles Relinquished by: *Jerry Bailey* Date: _____ Time: _____

Bottles Relinquished by: _____ Date: _____ Time: _____

Bottles Received by: *Jerry Bailey* Date: 5/1/15 Time: 910

Bottles Received by: _____ Date: _____ Time: _____

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 Copies: White copy should accompany samples to Lancaster Laboratories. The pink copy should be retained by the samplers.