



SUPPLEMENTAL INVESTIGATION
REPORT
KENTEC SITE
GRIFTON, NORTH CAROLINA

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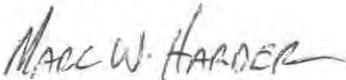
December 2014

Parsons PN 448393

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PROFESSIONAL SIGNATURES AND SEALS

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ACRONYMS

Acronym	Definition / Description
1,1-DCA	1,1-dichloroethane
1,1-DCE	1,1-dichloroethene
AA	Administrative Agreement
bgs	Below ground surface
CAP	Corrective Action Plan
CAP MOD	Corrective Action Plan Modification
CRG	(DuPont) Corporate Remediation Group
DuPont	E. I. du Pont de Nemours and Company
MDL	Method detection limit
µg/L	Micrograms per liter
µg/kg	Micrograms per kilogram
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
PQL	Practical quantitation limit
PSRG	Preliminary Soil Remediation Goal
REC	Registered Environmental Consultant
Redox	Oxidation reduction potential
SIM	Selected ion monitoring
SPLP	Synthetic Precipitation Leaching Procedure
USEPA	United States Environmental Protection Agency

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1.0 INTRODUCTION

This report documents the results of soil sampling conducted in December 2013 and groundwater/surface water sampling conducted in July 2014 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 soil and 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 (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 North Carolina Department of Environment and Natural Resources (NCDENR). DuPont submitted the modification to the CAP in October 2005 (CAP MOD), which was approved by the NCDENR 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 operations at the Site in 1969. DuPont purchased the Site from James Enterprises in late 1981 and operated it as a parts cleaning facility until ownership was transferred to Invista S.A.R.L., a subsidiary of Koch Industries in 2004. 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) for which there were seven potential sources, all of which were removed and/or addressed during the course of the site assessment. Results of the assessment also indicated that the above listed contaminants had migrated beyond the boundaries of the Kentec facility, although the underlying 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 50 times less than the 15A NCAC¹ 2L.0200 (NC 2L) standard. Based on a review of groundwater quality data generated to date, concentrations of 1,1-DCE have been below the NC 2L standard since 2002. As such, the continued inclusion of 1,1-DCE as a sampling analyte is not warranted in accordance with Registered Environmental Consultant (REC) guidance stating that sampling is no longer required when groundwater quality data generated from two consecutive sampling events (spaced at least three months apart) demonstrate that all monitoring wells are free of contamination above applicable remediation goals. Therefore, the target parameter during this investigation was limited to 1,4-dioxane.

¹ NCAC – North Carolina Administrative Code

1.2 Regulatory History

On June 4, 2010, 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. This additional work involved the collection of shallow soil samples near the main building (Wastewater Concrete Settling Tanks Area) and in the ditches adjacent to the road (Former Surface Disposal Area) where historical soil quality data indicate concentrations of 1,4-dioxane above applicable soil health based remedial goals and/or protective of groundwater quality remedial goals. Since 1,4-dioxane is highly soluble, it is anticipated that the historical data are no longer representative of soil quality in these areas; subsequently, additional sampling was recommended to update soil quality in these areas of concern. In addition to soil sampling, updated groundwater quality information was 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 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 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 this investigation:

- Collection of soil samples to address data requirements identified from the review of historical data
- 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 migrating 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 Soil Sampling

Soil quality data, generated as part of the soil assessment and remedial action activities completed at the site to date, was reviewed in accordance with applicable remedial investigation guidelines pursuant to the REC Program. Based on this review, soil quality data in the following areas indicated that additional actions were warranted.

Former Surface Disposal Area

The area deemed the former surface disposal area as well as corresponding assessment data points are indicated on Figure 2. Soil samples S2 and S3 and SED-20 were originally sampled by CH2M Hill and the reported concentrations of 1,4-dioxane were above both the industrial health-based preliminary soil remediation goal (PSRG) and the protection of groundwater PSRG. It is presumed that CH2M Hill used the prefix “SED” for sample SED-20 as there may have been water in the ditch where SED-20 is located at the time of sampling. This location is not considered to be part of the surface water network at the site and the sample is considered to be a soil sample. Figure 2 shows the locations of S2, S3, and SED-20. Based on the documented soil quality data in the areas of samples S2, S3 and SED-20, additional sampling was proposed to update soil quality, as well as evaluate the extent of soil impacts above the applicable PSRGs if present.

One shallow soil boring was completed at SED-20 using a hand auger. Four “step-out” samples (SED-20A through SED-20D) were completed 25 feet from SED-20, oriented at 90 degrees from one another (Figure 2). Soil samples were collected from each of the borings from depths of 1 foot to 3 feet below ground surface (bgs). The primary soil sample (SED-20 on Figure 1) was submitted for laboratory analysis of 1,4-dioxane using United States Environmental Protection Agency (USEPA) Method 8260B SIM³. This method is capable of detecting concentrations as low as 12 micrograms per kilogram ($\mu\text{g}/\text{kg}$), the PSRG for protection of groundwater. This sample was also analyzed for Synthetic Precipitation Leaching Procedure (SPLP) 1,4-dioxane using USEPA method 8260B SIM. The four “step-out” soil samples (SED-20A through SED-20D) were temporarily archived pending results from sample SED-20. Had laboratory results indicated that the concentration of 1,4-dioxane was above 12 $\mu\text{g}/\text{kg}$ in soil sample SED-

³ SIM – Selected ion monitoring

20, then the archived samples would have been analyzed for 1,4-dioxane and SPLP 1,4-dioxane.

One shallow soil boring each was completed at the locations of previous samples S2 and S3 (Figure 1). Soil samples were collected from each of the borings at depths of 2 to 3 ft bgs. Lateral delineation of the area of previous soil samples S2 and S3 was not required because the historical exceedance only related to the protection of groundwater PSRG. However, it was necessary to demonstrate through SPLP analysis that soils remaining in this area will not leach and are therefore protective of groundwater quality. Soil samples S2 and S3 were submitted for laboratory analysis of 1,4-dioxane and SPLP 1,4-dioxane using USEPA Method 8260B SIM.

Wastewater Concrete Settling Tanks Area

Based on historical site documentation, shallow soils in the Wastewater Concrete Settling Tanks Area were excavated as part of tank removal activities and the excavation was then backfilled with sand. Soil sample ST1-1 was originally sampled by CH2M Hill who reported concentrations of 1,4-dioxane above both the residential health-based and the protection of groundwater PSRGs. ST1-1 is located in the area of the former Wastewater Concrete Settling Tanks (Figure 2).

One shallow soil boring (ST1-1) was completed in a location believed to be the former location of ST1-1. Four shallow soil borings (ST1-1A through ST1-1D) were then installed 25 feet from ST1-1, oriented at 90 degrees from one another. Soil samples were collected from each of the borings at depths of 2 to 3 ft bgs. The primary soil sample (ST1-1 on Figure 2) was submitted for laboratory analysis of 1,4-dioxane and SPLP 1,4-dioxane using USEPA Method 8260B SIM. The four "step-out" soil samples (ST1-1A through ST1-1D) were temporarily archived pending results from primary sample ST1-1. Had laboratory results indicated that the concentration of 1,4-dioxane was above 12 µg /kg in soil sample ST1-1, then the archived samples would have been analyzed for 1,4-dioxane and SPLP 1,4-dioxane.

2.2 Groundwater/Surface Water Sampling

A comprehensive round of groundwater and surface water samples were collected at the Site to provide updated groundwater and surface water quality to compare against historic 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 3. All groundwater and surface water samples were analyzed for 1,4-dioxane using USEPA Method 8270D SIM. In addition, the following water quality parameters were collected in the field: 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).

A few concerns were identified as part of meeting the REC Program remedial investigation requirements specific to groundwater. Specifically, the data gaps that existed prior to this investigation are described below.

Monitoring Well MW-13: No groundwater samples had been collected from this monitoring well since 1990. Even though the drainage ditch has always been considered a “boundary” where groundwater discharges to the ditch but does not migrate beneath the ditch, this assumption needed to be empirically supported with current groundwater quality data. Groundwater quality generated as part of the sampling of monitoring well MW-12 (located north of monitoring well MW-13) corroborated that contaminant migration is not extending beneath the drainage ditch. This investigation included collecting a groundwater sample from monitoring well MW-13 to further demonstrate that the drainage ditch is a point of groundwater discharge.

Monitoring Well MW-19: MW-19 is located in the southern downgradient section of the 1,4-dioxane plume. This area can be inferred to represent groundwater quality in the leading edge of the plume prior to the anticipated discharge into the Beaverdam Branch. Monitoring wells located in close proximity to, and upgradient of, monitoring well MW-19 (including MW-15, MW-14A and MW-6) do not exhibit similar contaminant concentrations, suggesting that the localized presence of higher 1,4-dioxane groundwater concentrations is attributable to a contaminant slug (hot spot) within the contaminant plume. Contaminant concentrations in monitoring well MW-19 should eventually decrease once the slug has migrated beyond the well.

Monitoring Well MW-H: In order to assess the downgradient extent of 1,4-dioxane in groundwater to the southeast, this investigation included collecting a groundwater sample from monitoring well MW-H, which was installed as part of litigation assessment activities in the 1990s.

Monitoring Well MW-10A: Concentrations of 1,4-dioxane in groundwater at MW-10A have exceeded the NC 2L standard of 3 micrograms per liter ($\mu\text{g/L}$) in the past, indicating that the eastern boundary of the plume has not been adequately defined in this area. Due to the lack of plume definition in the MW-10A area, there is a possibility that 1,4-dioxane is present in groundwater beneath the Grant property located immediately east of the site and monitoring well MW-10A (Figure 3).

2.3 Sampling Procedures

Soil samples were collected using a hand auger, stainless-steel bowl, and spoon. As mentioned above, the soil samples were collected from two general areas: the Wastewater Concrete Setting Tanks Area and the Former Surface Disposal Area. The hand auger, bowl, and spoons were decontaminated prior to use at each soil sample location by washing them with phosphate-free soap and water, then rinsing them with deionized water.

Groundwater samples were collected with a peristaltic pump using 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 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 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 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.

2.3.1 Collection, Preservation, and Handling of Samples

Samples were collected into pre-preserved sample containers, and ice was used 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 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.

2.3.2 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 in an effort 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) in July 2014. 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 for the 2014 sampling event are presented on Table 2.

The potentiometric surface of the shallow aquifer (as measured in July 2014) is depicted on Figure 4. 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 mimics the area topography. The July 2014 potentiometric surface contour map is consistent with historic potentiometric surface contour maps generated for the site.

3.2 Analytical Results

Soil

Soil samples were collected from the Wastewater Concrete Settling Tanks Area and Former Surface Disposal Area in December 2013 (see Section 2.1). The soil samples results are listed on Table 3 and illustrated on Figure 5. There were no detections of 1,4-dioxane or SPLP 1,4-dioxane in any of the soil samples collected except for at location SED-20 (at 1 to 3 feet bgs). SED-20 is located in the Former Surface Disposal Area. The concentration of 1,4-dioxane detected at SED-20 (8.6 µg/kg) is below the protection of groundwater PSRG (12 µg/kg) and the residential health based PSRG (4,900 µg/kg). Furthermore, the concentration of SPLP 1,4-dioxane at SED-20 (0.7 µg/L) is below the NC 2L standard of 3 µg/L. Note that there was no need to analyze the “step-out” soil samples at the Wastewater Concrete Settling Tanks Area (ST1-1A through ST1-1D) or Former Surface Disposal Area (SED-20A through SED-20D) based on the results of the primary samples (ST1-1 and SED-20). Based on the information presented above, no further action is warranted with respect to soil.

Groundwater

Groundwater samples were collected from a total of 20 monitoring wells (15 shallow and five deep) in July 2014 (see Section 2.2). The analytical results are listed on Table 4 and illustrated on Figure 6. Table 4 also provides historical concentrations of 1,4-dioxane in groundwater from 1999 to 2014. The results show that the highest concentrations of 1,4-dioxane in groundwater were detected 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. The 1,4-dioxane concentrations in groundwater at MW-4A have been declining over the past 5 years (from 272 µg/L in 2009 to 180 µg/L in 2014) as shown on Table 4. 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 2014. During the same time period, the concentration of 1,4-dioxane in groundwater at MW-19 has remained relatively stable, ranging from 210 µg/L to 223 µg/L.

Concentrations of 1,4-dioxane in groundwater have remained slightly above the NC 2L standard (3 µg/L) at monitoring wells MW-1, MW-3, and MW-15. However, the concentration of 1,4-dioxane has declined in all three wells since 2008 (Table 4). In July 2014, the following wells contained 1,4-dioxane but at concentrations below the NC 2L standard of 3µg /L: MW-7A, MW-10A, MW-10B, MW-11A, MW-12, MW-14A, and MW-16.

Surface Water

Four surface water samples (SW-9, SW-11, SW-24, and SW-29) were collected in July 2014 at the locations shown on Figure 6. All four surface water samples contained 1,4-dioxane at concentrations below the NC 2B standard of 80 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 mentioned above, surface water concentrations for 1,4-dioxane remain below the NC 2B standard for 1,4-dioxane.

The laboratory analytical data for the December 2013 and July 2014 sampling events are included in Appendix A.

4.0 CONCLUSIONS AND RECOMMENDATIONS

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

Conclusions

- Additional assessment activities were successfully completed at the Kentec Site in 2013 (soil) and 2014 (groundwater/surface water) to fill data gaps necessary to complete the remedial investigation under the REC program.
- No further action is warranted regarding soil at the Site. There was only one detection of 1,4-dioxane and SPLP 1,4-dioxane (at SED-20), but the concentrations were below the action limits.
- Although groundwater contains 1,4-dioxane above the NC 2L standard (3 ug/L) at six monitoring well locations (MW-1, MW-3, MW-4A, MW-6, MW-15, and MW-19), the plume is stable (not moving) and has been fully delineated.
- The concentrations of 1,4-dioxane in groundwater at all monitoring wells have decreased over the past 5 years (since 2009). The only exception is MW-19, in which concentrations have remained stable since 2009.
- The lateral extent of the 1,4-dioxane plume has been delineated to the east (MW-10A) and southeast (MW-H). The concentration of 1,4-dioxane in groundwater was below the NC 2L standard at both MW-10A (located adjacent to the Grant property) and MW-H (located on the Canady property).
- Concentrations of 1,4-dioxane in surface water samples (at the discharge boundary) are below the NC 2B standard of 80 µg/L. Surface water sample results are consistent with historical data.
- 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.

Recommendations

- DuPont and Unifi plan to enter into a new AA with the Inactive Sites Branch of 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.

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5.0 REFERENCES

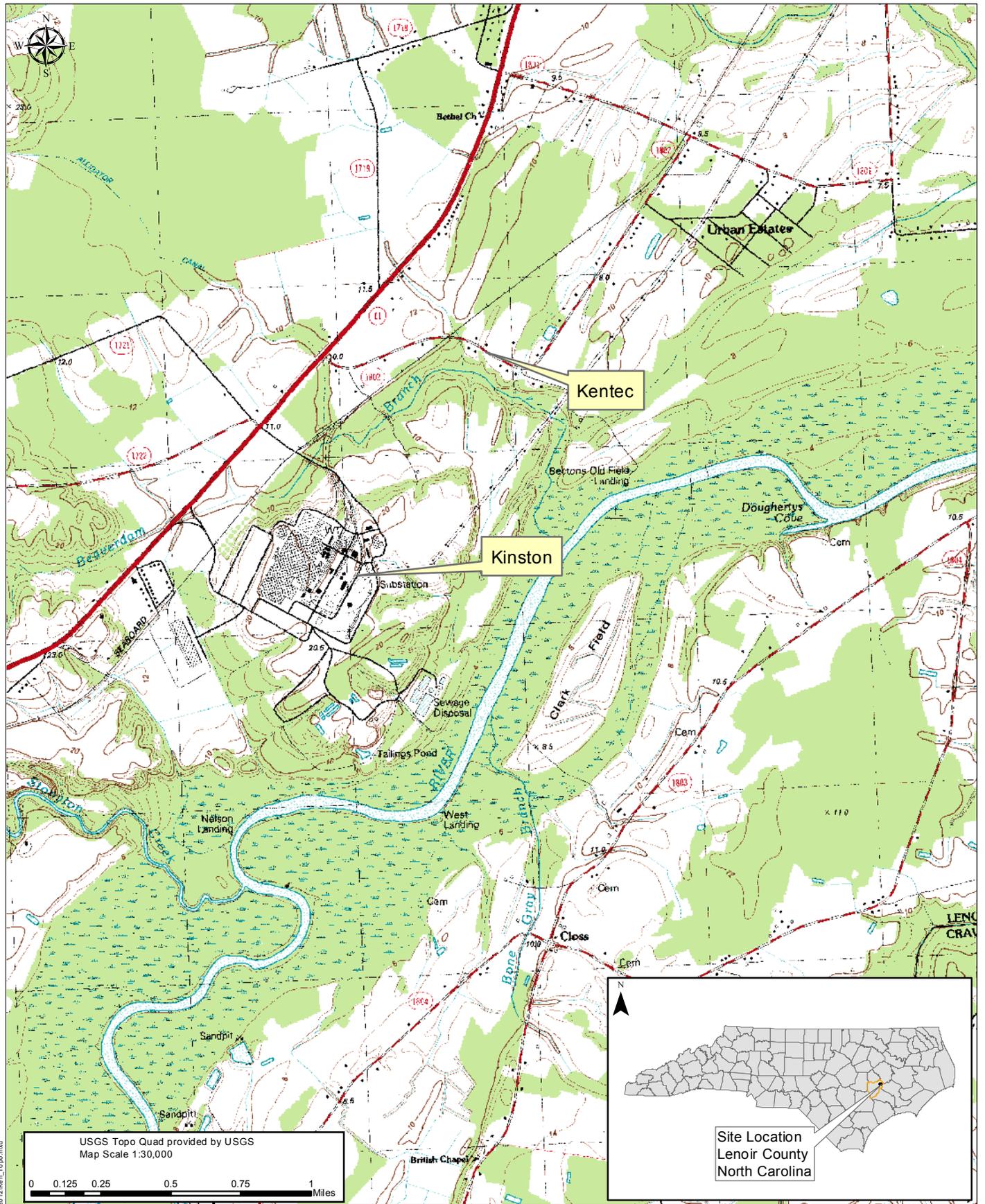
CH2M Hill. April 1991. Kentec Groundwater Assessment Report.

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

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

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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



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Site Location Map
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 Grifton, North Carolina

Drawn: C. Oneal	Date: 10/22/2014	DuPont Project No.:
Revision:	Figure No.: 1	Parsons Project No.: 448393.01050
File Name: Ken_Topo		



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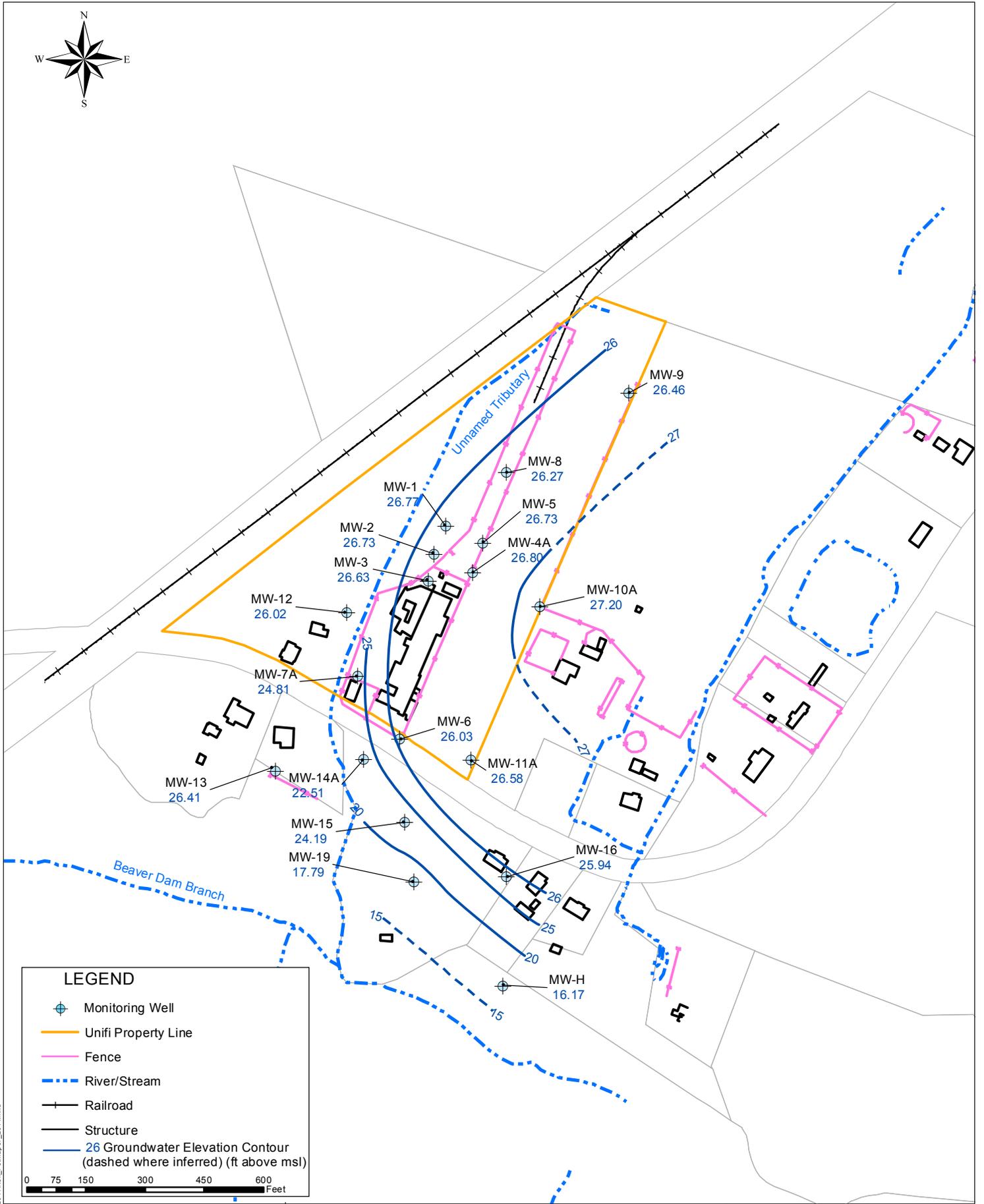


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Soil Sample Location Map
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Kentec Plant
Grifton, North Carolina

Drawn: C. Oneal	Date: 10/22/2014	DuPont Project No.:
Revision:	Figure No.: 2	Parsons Project No.: 448393.01050
File Name: Ken_sampLoc		



LEGEND

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

0 75 150 300 450 600 Feet

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Potentiometric Map (July 2014)
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Kentec Plant
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Drawn: C. Oneal	Date: 10/22/2014	DuPont Project No.: 504707
Revision:	Figure No.: 4	Parsons Project No.: 448393
File Name: Ken_PotMap07_2014		

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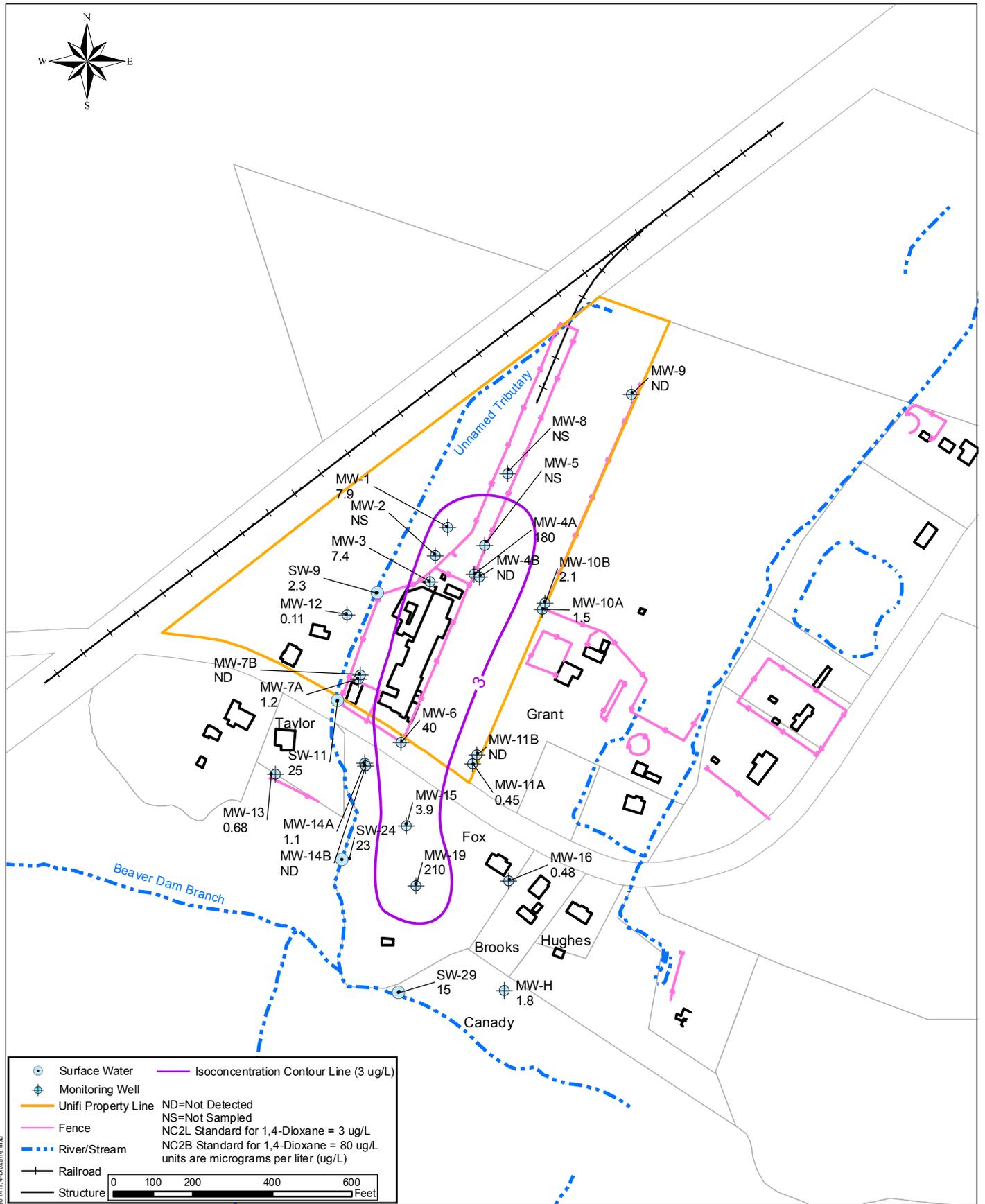
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Data Post Map: 1,4-Dioxane in Soil (December 2013)
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Drawn: C. ONeal	Date: 10/22/2014	DuPont Project No.:
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Data Post Map: 1,4-Dioxane in
Groundwater and Surface Water (July 2014)
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Revision:	Figure No.:	Parsons Project No.:
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File Name: 1,4-Dioxane		

TABLES

Table 1
Water Quality Field Parameters
Supplemental Investigation 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	7/2/2014	952	4.45	6.28	21.28	0.129	0.07	-55.6	2.10	Clear	None
MW-3	7/2/2014	908	2.49	6.83	22.38	0.133	0.15	-97	5.6	Clear	None
MW-4A	7/2/2014	1331	6.20	7.20	22.50	0.237	0.01	-148	3.10	Clear	None
MW-4B	7/1/2014	1608	8.44	8.27	20.15	0.239	1.26	56.5	7.90	Clear	None
MW-6	7/1/2014	1111	4.68	6.50	22.63	0.124	0.07	-79.9	14.1	Clear	None
MW-7A	7/1/2014	745	5.37	6.54	22.80	0.378	0.13	55.8	7.30	Clear	Slight
MW-7B	7/1/2014	819	5.54	7.79	20.40	0.329	0.06	-79.8	7.70	Clear	None
MW-9	7/1/2014	1505	6.32	5.68	20.35	0.065	0.03	14.7	8.10	Clear	None
MW-10A	7/1/2014	1423	5.90	6.02	22.84	0.079	0.14	18.5	7.40	Clear	Slight
MW-10B	7/1/2014	1342	8.52	11.49	19.59	0.440	0.74	28	7.80	Clear	None
MW-11A	7/2/2014	1036	6.24	5.96	23.27	0.076	0.39	104.2	0.4	Clear	None
MW-11B	7/2/2014	1123	8.68	7.73	25.89	0.334	0.02	1.9	8.60	Clear	None
MW-12	7/2/2014	1404	4.01	7.16	20.99	0.271	0.01	-123.2	7.50	Clear	None
MW-13	7/1/2014	904	3.62	6.19	20.49	0.533	0.04	99.4	4.00	Clear	None
MW-14A	6/30/2014	942	5.97	6.15	21.99	0.105	2.01	-24.3	0	Clear	None
MW-14B	6/30/2014	1020	2.48	7.73	19.12	0.336	0.09	-159.6	6.50	Clear	None
MW-15	6/30/2014	1134	4.77	6.47	18.93	0.219	0.16	-27.9	5.30	Clear	None
MW-16	6/30/2014	1625	3.56	5.92	22.09	0.068	1.12	147	6.50	Clear	None
MW-19	6/30/2014	1519	9.96	7.51	18.07	0.450	0.15	-150	8.30	Clear	None
MW-H	7/1/2014	1015	2.76	5.73	22.74	0.074	0.16	159.5	4.20	Clear	None
SW-9	6/30/2014	1311	N/A	6.64	22.88	0.166	0.29	-40.8	24.20	Sl. Cloudy	None
SW-24	6/30/2014	1339	N/A	7.18	22.39	0.162	0.44	-15.4	2.50	Clear	None
SW-29	6/30/2014	1350	N/A	6.91	22.82	0.173	0.53	-25.2	1.20	Clear	None
SW-11	6/30/2014	1325	N/A	6.69	22.65	0.164	0.50	-30.1	20.10	Sl. Cloudy	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
N/A= not applicable

Table 2
Groundwater Elevation Data
 Supplemental Investigation Report
 Kentec Plant
 Grifton, North Carolina

Well ID	Depth to Water (July, 2014)	TOC Elevation	Groundwater Elevation
MW-1	4.45	31.22	26.77
MW-2	5.50	32.23	26.73
MW-3	2.99	29.62	26.63
MW-4A	6.20	33.00	26.80
MW-5	6.09	32.82	26.73
MW-6	4.68	30.71	26.03
MW-7A	5.37	30.18	24.81
MW-8	4.91	31.18	26.27
MW-9	6.32	32.78	26.46
MW-10A	5.90	33.1	27.20
MW-11A	6.24	32.82	26.58
MW-12	4.01	30.03	26.02
MW-13	3.62	30.03	26.41
MW-14A	5.97	28.48	22.51
MW-15	4.77	28.96	24.19
MW-16	3.56	29.5	25.94
MW-19	9.96	27.75	17.79
MW-H	2.76	18.93	16.17

Notes:

Depths are in feet below top of casing (TOC)

All Elevations reference feet above mean sea level

Table 3
Soil Sampling Results
 Supplemental Investigation Report
 Kentec Plant
 Grifton, North Carolina

Sample ID (Depth)	Parameter Name	Result	Units	Sample Type	MDL	Qualifier
S2 (2-3 feet)	1,4-DIOXANE	ND	UG/KG	Soil	5.4	
SPLP S2 (2-3 feet)	1,4-DIOXANE	ND	UG/L	Soil	0.5	
S3 (2-3 feet)	1,4-DIOXANE	ND	UG/KG	Soil	4.9	
SPLP S3 (2-3 feet)	1,4-DIOXANE	ND	UG/L	Soil	0.5	
SED20 (1-3 feet)	1,4-DIOXANE	8.6	UG/KG	Soil	5.8	J
SPLP SED20 (1-3 feet)	1,4-DIOXANE	0.7	UG/L	Soil	0.5	J
ST-1 (2-3 feet)	1,4-DIOXANE	ND	UG/KG	Soil	6.2	
SPLP ST-1 (2-3 feet)	1,4-DIOXANE	ND	UG/L	Soil	0.5	
Trip Blank	1,4-DIOXANE	ND	UG/L	Water	0.5	
Equipment Blank	1,4-DIOXANE	ND	UG/L	Water	0.5	

Notes:

Date Sampled: 12/2/2013

J = Result is between the method detection limit (MDL) and practical quantitation limit (PQL)

SPLP = Synthetic Precipitation Leaching Procedure

UG/KG = Micrograms per kilogram

UG/L = Micrograms per liter

ND = Not detected

Table 4
Historical Concentrations of 1,4-Dioxane in Groundwater and Surface Water (1999 - 2014)
 Supplemental Investigation Report
 Kentec Plant
 Grifton, North Carolina

Date	MW-1	MW-3	MW-4A	MW-4B	MW-6	MW-7A	MW-7B	MW-8	MW-9	MW-10A	MW-10B	MW-11A	MW-11B	MW-12	MW-14A	MW-14B	MW-15	MW-16	MW-19	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	<150
7/14/1999	<150	<300	460	<150	1200	210	<150	<150	<150	<150		<150	<150	<150	<150	<150	<150			<150	<150	<150	<300
10/27/1999	<150	160	420	<150	1200	590	<150	<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	<150
4/13/2000	<150	<150	290	<150	770	370	<150	<150	<150	<150		<150	<150	<150	<150	<150	<150			<150	<150	<150	<150
4/10/2001	<150	190	730	<150	830	370	<150	16 J	<150	<150		<150	<150	<150	<150	<150	<150			<150	<150	<150	<150
1/25/2002	30	100	300	<1.6	1300	59	<1.6	22		19		6.3			34	<1.6	11				8.1		
7/8/2002	83	60	99	<1.6	680	84	<1.6	28		12		2.9			60	<1.6	32				DRY		
4/17/2003	21	120	47	<20	260	93	<19	11		2.8		<21			<20	<21	25				21		
10/22/2003		58	16 J							<1.5		1.5 J			21	<1.5	22						
10/23/2003	32			<1.5	15	120	<1.5	25													15 J		
4/7/2004	25	47	78	<1.5	230	120	<1.6	17 J		<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	<1.6	24		ND		6.3 J			6.6 J	<1.6	28				15 J		
4/7/2005	62	67	58	<1.5	210	27	<1.6	7.6 J		ND		13 J			2.7 J	<1.6	34				14 J		
10/10/2005	19	42	160	<1	190	48	<1	6		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	NS	<0.051	1.5	2.1	0.45	<0.050	0.11	1.1	<0.051	3.9	0.48	210	2.3	25	23	15

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 DATA
(DECEMBER 2013 AND JULY 2014)**

**ADQM DATA REVIEW
NARRATIVE**

Site **Kentec (KEN)**

Project **Soil Sampling 12/13**

Project Reviewer **Kelly Rinehimer**

Sampling Date **December 2, 2013**

Analytical Protocol

Laboratory	Methods	Parameters
Lancaster	SW846 Method 8260B SIM	1,4-Dioxane
Lancaster	SW846 Methods 1312/8260B SIM	SPLP 1,4-Dioxane
Lancaster	SM 2540 G-1997	Percent Moisture

Sample Receipt

The following items are noted for this data set:

- All samples were received in satisfactory condition and within EPA temperature guidelines between 12/3/13 and 12/4/13.
- Thirteen soil samples, one equipment blank and two trip blanks were submitted to Lancaster between 12/3/13 and 12/4/13. Five soils were immediately prepped and analyzed for 1,4-dioxane and SPLP 1,4-dioxane. The remaining eight soils were prepped and put on hold for analysis, along with the associated trip blank, pending the results of two of the samples. Based on the results of the two samples, the analyses of the samples on hold were cancelled.

Data Review

The electronic data submitted for this project was reviewed via the DuPont Data Review (DDR) process. Overall the data is acceptable for use without qualification. Some of the results are qualified due to imprecision between laboratory duplicates and results detected between the method detection limit and practical quantitation limit. See the DDR Narrative Report for the specific samples qualified and the reasons for the qualification.

DuPont Data Review (DDR)

The DDR 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 Validation 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
- 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
- Difference / percent difference between total and dissolved sample pairs.

The DDR 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.

Please refer to the laboratory report for a description of the lab qualifiers.

DDR Narrative Report

Site: Kentec

Sampling Program: SOIL SAMPLING 12/13

Validation Options: LABSTATS

Validation Reason Code: High relative percent difference (RPD) observed between REP (laboratory replicate) and parent sample. The reported result may be imprecise.

Field Sample ID	Date Sampled	Lab Sample ID	Analyte	Result	Units	Type	MDL	PQL	Validation Qualifier	Analytical Method	Pre-prep	Prep
SS2013-SED20-1-3	12/02/2013	7298775	PERCENT MOISTURE	23.4	%	MDL	0.50	0.50	J	2540 G-1997		
SS2013-ST-1-2-3	12/02/2013	7298789	PERCENT MOISTURE	11.3	%	MDL	0.50	0.50	J	2540 G-1997		

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
SS2013-SED20-1-3	12/02/2013	7298775	1,4-DIOXANE	8.6	UG/KG	MDL	5.8	17	J	8260B SIM		5035A
SS2013-SED20-1-3	12/02/2013	7298778	1,4-DIOXANE	0.7	UG/L	MDL	0.5	2.0	J	8260B SIM	1312	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
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

December 10, 2013

Project: KEN - SOIL SAMPLING

Submittal Date: 12/03/2013

Group Number: 1437884

PO Number: LBIO-66380

State of Sample Origin: NC

<u>Client Sample Description</u>	<u>Lancaster Labs (LL) #</u>
SS2013-SED20-1-3 Soil	7298775
SS2013-SED20-1-3 MS Soil	7298776
SS2013-SED20-1-3 MSD Soil	7298777
SS2013-SED20-1-3 Soil	7298778
SS2013-SED20-1-3 MS Soil	7298779
SS2013-SED20-1-3 MSD Soil	7298780
SS2013-SED20-A-1-3 Soil	7298781
SS2013-SED20-A-1-3 Soil	7298782
SS2013-SED20-B-1-3 Soil	7298783
SS2013-SED20-B-1-3 Soil	7298784
SS2013-SED20-C-1-3 Soil	7298785
SS2013-SED20-C-1-3 Soil	7298786
SS2013-SED20-D-1-3 Soil	7298787
SS2013-SED20-D-1-3 Soil	7298788
SS2013-ST-1-2-3 Soil	7298789
SS2013-ST-1-2-3 Soil	7298790
SS2013-S2-2-3 Soil	7298791
SS2013-S2-2-3 Soil	7298792
SS2013-S2-2-3-D Soil	7298793
SS2013-S2-2-3-D Soil	7298794
SS2013-S3-2-3 Soil	7298795
SS2013-S3-2-3 Soil	7298796
EB-SS-120213 Blank Water	7298797
TB1-SS-120213 Blank Water	7298798

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

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Sample Description: SS2013-SED20-1-3 Soil
SOIL SAMPLING 12/13

LL Sample # SW 7298775
LL Group # 1437884
Account # 06643

Project Name: KEN - SOIL SAMPLING

Collected: 12/02/2013 10:00
Submitted: 12/03/2013 09:20
Reported: 12/10/2013 11:27

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

201-3

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
10326	1,4-Dioxane	SW-846 8260B SIM 123-91-1	ug/kg 8.6 J	ug/kg 5.8	ug/kg 17	22.28
Wet Chemistry						
00111	Moisture	SM 2540 G-1997 n.a.	% 23.4	% 0.50	% 0.50	1
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

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
10326	1,4-Dioxane	SW-846 8260B SIM	1	E133401AA	12/06/2013 12:29	Jason M Long	22.28
08390	GC/MS - HL Encore Prep	SW-846 5035A	1	201333733318	12/03/2013 17:15	Lisa J Cooke	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035A	1	201333733318	12/03/2013 17:14	Lisa J Cooke	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035A	2	201333733318	12/03/2013 17:14	Lisa J Cooke	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201333733318	12/03/2013 17:15	Lisa J Cooke	n.a.
00111	Moisture	SM 2540 G-1997	1	13337820005B	12/03/2013 19:46	Scott W Freisher	1

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

Sample Description: SS2013-SED20-1-3 MS Soil
SOIL SAMPLING 12/13

LL Sample # SW 7298776
LL Group # 1437884
Account # 06643

Project Name: KEN - SOIL SAMPLING

Collected: 12/02/2013 10:00
Submitted: 12/03/2013 09:20
Reported: 12/10/2013 11:27

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

201-3

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
10326	1,4-Dioxane	SW-846 8260B SIM 123-91-1	ug/kg 130	ug/kg 5.9	ug/kg 18	22.44
Wet Chemistry						
00118	Moisture	SM 2540 G-1997 n.a.	% 23.4	% 0.50	% 0.50	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
10326	1,4-Dioxane	SW-846 8260B SIM	1	E133401AA	12/06/2013 14:10	Jason M Long	22.44
08390	GC/MS - HL Encore Prep	SW-846 5035A	1	201333733318	12/03/2013 17:19	Lisa J Cooke	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035A	1	201333733318	12/03/2013 17:18	Lisa J Cooke	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035A	2	201333733318	12/03/2013 17:19	Lisa J Cooke	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201333733318	12/03/2013 17:19	Lisa J Cooke	n.a.
00118	Moisture	SM 2540 G-1997	1	13337820005B	12/03/2013 19:46	Scott W Freisher	1

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

Sample Description: SS2013-SED20-1-3 MSD Soil
SOIL SAMPLING 12/13

LL Sample # SW 7298777
LL Group # 1437884
Account # 06643

Project Name: KEN - SOIL SAMPLING

Collected: 12/02/2013 10:00
Submitted: 12/03/2013 09:20
Reported: 12/10/2013 11:27

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

201-3

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
10326	1,4-Dioxane	SW-846 8260B SIM 123-91-1	ug/kg 130	ug/kg 5.8	ug/kg 17	22.32
Wet Chemistry						
00118	Moisture	SM 2540 G-1997 n.a.	% 23.4	% 0.50	% 0.50	1
00121	Moisture Duplicate	n.a.	21.2	0.50	0.50	1
The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.						

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
10326	1,4-Dioxane	SW-846 8260B SIM	1	E133401AA	12/06/2013 14:30	Jason M Long	22.32
08390	GC/MS - HL Encore Prep	SW-846 5035A	1	201333733318	12/03/2013 17:27	Lisa J Cooke	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035A	1	201333733318	12/03/2013 17:26	Lisa J Cooke	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035A	2	201333733318	12/03/2013 17:26	Lisa J Cooke	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201333733318	12/03/2013 17:27	Lisa J Cooke	n.a.
00118	Moisture	SM 2540 G-1997	1	13337820005B	12/03/2013 19:46	Scott W Freisher	1
00121	Moisture Duplicate	SM 2540 G-1997	1	13337820005B	12/03/2013 19:46	Scott W Freisher	1

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

Sample Description: SS2013-SED20-1-3 Soil
SPLP ZHE
SOIL SAMPLING 12/13

LL Sample # TL 7298778
LL Group # 1437884
Account # 06643

Project Name: KEN - SOIL SAMPLING

Collected: 12/02/2013 10:00

CRG-E.I.DuPont de Nemours & Co

Submitted: 12/03/2013 09:20

URS Corporation

Reported: 12/10/2013 11:27

Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

2013S

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	SW-846 8260B SIM		ug/l	ug/l	ug/l	
00527	1,4-Dioxane	123-91-1	0.7 J	0.5	2.0	1

General Sample Comments

State of North Carolina Lab Certification No. 521

If the analysis is for determination of Hazardous Waste Characteristics, see Table 1 in EPA Code of Federal Regulations 40 CFR 261.24.

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
00527	1,4-Dioxane	SW-846 8260B SIM	1	E133431AA	12/09/2013 09:28	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	E133431AA	12/09/2013 09:28	Jason M Long	1
08792	SPLP Volatile Extraction	SW-846 1312	1	13340-482-8792	12/06/2013 13:40	Darin P Wagner	n.a.

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

Sample Description: SS2013-SED20-1-3 MS Soil
SPLP ZHE
SOIL SAMPLING 12/13

LL Sample # TL 7298779
LL Group # 1437884
Account # 06643

Project Name: KEN - SOIL SAMPLING

Collected: 12/02/2013 10:00

CRG-E.I.DuPont de Nemours & Co

Submitted: 12/03/2013 09:20

URS Corporation

Reported: 12/10/2013 11:27

Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

2013S

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260B SIM	ug/l	ug/l	ug/l	
00527	1,4-Dioxane	123-91-1	5.9	0.5	2.0	1

General Sample Comments

State of North Carolina Lab Certification No. 521

If the analysis is for determination of Hazardous Waste Characteristics, see Table 1 in EPA Code of Federal Regulations 40 CFR 261.24.

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
00527	1,4-Dioxane	SW-846 8260B SIM	1	E133431AA	12/09/2013 11:10	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	E133431AA	12/09/2013 11:10	Jason M Long	1
08792	SPLP Volatile Extraction	SW-846 1312	1	13340-482-8792	12/06/2013 13:40	Darin P Wagner	n.a.

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

Sample Description: SS2013-SED20-1-3 MSD Soil
SPLP ZHE
SOIL SAMPLING 12/13

LL Sample # TL 7298780
LL Group # 1437884
Account # 06643

Project Name: KEN - SOIL SAMPLING

Collected: 12/02/2013 10:00

CRG-E.I.DuPont de Nemours & Co

Submitted: 12/03/2013 09:20

URS Corporation

Reported: 12/10/2013 11:27

Iron Hill Corporate Center

4051 Ogletown Road, Suite 300

Newark DE 19713

2013S

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260B SIM	ug/l	ug/l	ug/l	
00527	1,4-Dioxane	123-91-1	6.1	0.5	2.0	1

General Sample Comments

State of North Carolina Lab Certification No. 521

If the analysis is for determination of Hazardous Waste Characteristics, see Table 1 in EPA Code of Federal Regulations 40 CFR 261.24.

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
00527	1,4-Dioxane	SW-846 8260B SIM	1	E133431AA	12/09/2013 11:31	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	E133431AA	12/09/2013 11:31	Jason M Long	1
08792	SPLP Volatile Extraction	SW-846 1312	1	13340-482-8792	12/06/2013 13:40	Darin P Wagner	n.a.

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

Sample Description: SS2013-SED20-A-1-3 Soil
 HOLD
 SOIL SAMPLING 12/13

LL Sample # SW 7298781
 LL Group # 1437884
 Account # 06643

Project Name: KEN - SOIL SAMPLING

Collected: 12/02/2013 10:30

CRG-E.I.DuPont de Nemours & Co

Submitted: 12/03/2013 09:20

URS Corporation

Reported: 12/10/2013 11:27

Iron Hill Corporate Center
 4051 Ogletown Road, Suite 300
 Newark DE 19713

20A13

General Sample Comments

State of North Carolina Lab Certification No. 521

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis		Analyst	Dilution Factor
					Date	Time		
08390	GC/MS - HL Encore Prep	SW-846 5035A	1	201333733318	12/03/2013	17:31	Lisa J Cooke	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035A	1	201333733318	12/03/2013	17:30	Lisa J Cooke	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035A	2	201333733318	12/03/2013	17:30	Lisa J Cooke	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201333733318	12/03/2013	17:31	Lisa J Cooke	n.a.

Sample Description: SS2013-SED20-A-1-3 Soil
SPLP ZHE H
SOIL SAMPLING 12/13

LL Sample # TL 7298782
LL Group # 1437884
Account # 06643

Project Name: KEN - SOIL SAMPLING

Collected: 12/02/2013 10:00

CRG-E.I.DuPont de Nemours & Co

Submitted: 12/03/2013 09:20

URS Corporation

Reported: 12/10/2013 11:27

Iron Hill Corporate Center

4051 Ogletown Road, Suite 300

Newark DE 19713

0A13S

General Sample Comments

State of North Carolina Lab Certification No. 521

If the analysis is for determination of Hazardous Waste Characteristics,
see Table 1 in EPA Code of Federal Regulations 40 CFR 261.24.

Sample Description: SS2013-SED20-B-1-3 Soil
HOLD
SOIL SAMPLING 12/13

LL Sample # SW 7298783
LL Group # 1437884
Account # 06643

Project Name: KEN - SOIL SAMPLING

Collected: 12/02/2013 11:00
Submitted: 12/03/2013 09:20
Reported: 12/10/2013 11:27

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

20B13

General Sample Comments

State of North Carolina Lab Certification No. 521

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis		Analyst	Dilution Factor
					Date	Time		
08390	GC/MS - HL Encore Prep	SW-846 5035A	1	201333733318	12/03/2013	17:38	Lisa J Cooke	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035A	1	201333733318	12/03/2013	17:38	Lisa J Cooke	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035A	2	201333733318	12/03/2013	17:38	Lisa J Cooke	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201333733318	12/03/2013	17:39	Lisa J Cooke	n.a.

Sample Description: SS2013-SED20-B-1-3 Soil
SPLP ZHE H
SOIL SAMPLING 12/13

LL Sample # TL 7298784
LL Group # 1437884
Account # 06643

Project Name: KEN - SOIL SAMPLING

Collected: 12/02/2013 11:00
Submitted: 12/03/2013 09:20
Reported: 12/10/2013 11:27

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

S0B13

General Sample Comments

State of North Carolina Lab Certification No. 521

If the analysis is for determination of Hazardous Waste Characteristics,
see Table 1 in EPA Code of Federal Regulations 40 CFR 261.24.

Sample Description: SS2013-SED20-C-1-3 Soil
HOLD
SOIL SAMPLING 12/13

LL Sample # SW 7298785
LL Group # 1437884
Account # 06643

Project Name: KEN - SOIL SAMPLING

Collected: 12/02/2013 11:30
Submitted: 12/03/2013 09:20
Reported: 12/10/2013 11:27

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

20C13

General Sample Comments

State of North Carolina Lab Certification No. 521

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis		Analyst	Dilution Factor
					Date	Time		
08390	GC/MS - HL Encore Prep	SW-846 5035A	1	201333733318	12/03/2013	17:42	Lisa J Cooke	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035A	1	201333733318	12/03/2013	17:42	Lisa J Cooke	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035A	2	201333733318	12/03/2013	17:42	Lisa J Cooke	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201333733318	12/03/2013	17:43	Lisa J Cooke	n.a.

Sample Description: SS2013-SED20-C-1-3 Soil
SPLP ZHE H
SOIL SAMPLING 12/13

LL Sample # TL 7298786
LL Group # 1437884
Account # 06643

Project Name: KEN - SOIL SAMPLING

Collected: 12/02/2013 11:30

CRG-E.I.DuPont de Nemours & Co

Submitted: 12/03/2013 09:20

URS Corporation

Reported: 12/10/2013 11:27

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Newark DE 19713

S0C13

General Sample Comments

State of North Carolina Lab Certification No. 521

If the analysis is for determination of Hazardous Waste Characteristics,
see Table 1 in EPA Code of Federal Regulations 40 CFR 261.24.

Sample Description: SS2013-SED20-D-1-3 Soil
HOLD
SOIL SAMPLING 12/13

LL Sample # SW 7298787
LL Group # 1437884
Account # 06643

Project Name: KEN - SOIL SAMPLING

Collected: 12/02/2013 12:00
Submitted: 12/03/2013 09:20
Reported: 12/10/2013 11:27

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

20D13

General Sample Comments

State of North Carolina Lab Certification No. 521

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis		Analyst	Dilution Factor
					Date	Time		
08390	GC/MS - HL Encore Prep	SW-846 5035A	1	201333733318	12/03/2013	17:45	Lisa J Cooke	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035A	1	201333733318	12/03/2013	17:45	Lisa J Cooke	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035A	2	201333733318	12/03/2013	17:45	Lisa J Cooke	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201333733318	12/03/2013	17:46	Lisa J Cooke	n.a.

Sample Description: SS2013-SED20-D-1-3 Soil
SPLP ZHE H
SOIL SAMPLING 12/13

LL Sample # TL 7298788
LL Group # 1437884
Account # 06643

Project Name: KEN - SOIL SAMPLING

Collected: 12/02/2013 12:00

CRG-E.I.DuPont de Nemours & Co

Submitted: 12/03/2013 09:20

URS Corporation

Reported: 12/10/2013 11:27

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Newark DE 19713

S0D13

General Sample Comments

State of North Carolina Lab Certification No. 521

If the analysis is for determination of Hazardous Waste Characteristics,
see Table 1 in EPA Code of Federal Regulations 40 CFR 261.24.

Sample Description: SS2013-ST-1-2-3 Soil
SOIL SAMPLING 12/13

LL Sample # SW 7298789
LL Group # 1437884
Account # 06643

Project Name: KEN - SOIL SAMPLING

Collected: 12/02/2013 15:30

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 12/03/2013 09:20

Reported: 12/10/2013 11:27

2T123

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
10326	1,4-Dioxane	SW-846 8260B SIM 123-91-1	ug/kg 6.2 U	ug/kg 6.2	ug/kg 19	27.65
Wet Chemistry						
00111	Moisture	SM 2540 G-1997 n.a.	% 11.3	% 0.50	% 0.50	1
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

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
10326	1,4-Dioxane	SW-846 8260B SIM	1	E133401AA	12/06/2013 12:49	Jason M Long	27.65
08390	GC/MS - HL Encore Prep	SW-846 5035A	1	201333733318	12/03/2013 17:48	Lisa J Cooke	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035A	1	201333733318	12/03/2013 17:47	Lisa J Cooke	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035A	2	201333733318	12/03/2013 17:48	Lisa J Cooke	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201333733318	12/03/2013 17:48	Lisa J Cooke	n.a.
00111	Moisture	SM 2540 G-1997	1	13337820005B	12/03/2013 19:46	Scott W Freisher	1

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

Sample Description: SS2013-ST-1-2-3 Soil
SPLP ZHE
SOIL SAMPLING 12/13

LL Sample # TL 7298790
LL Group # 1437884
Account # 06643

Project Name: KEN - SOIL SAMPLING

Collected: 12/02/2013 15:30

CRG-E.I.DuPont de Nemours & Co

Submitted: 12/03/2013 09:20

URS Corporation

Reported: 12/10/2013 11:27

Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

ST123

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
00527	1,4-Dioxane	SW-846 8260B SIM 123-91-1	ug/l 0.5 U	ug/l 0.5	ug/l 2.0	1

General Sample Comments

State of North Carolina Lab Certification No. 521

If the analysis is for determination of Hazardous Waste Characteristics, see Table 1 in EPA Code of Federal Regulations 40 CFR 261.24.

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
00527	1,4-Dioxane	SW-846 8260B SIM	1	E133431AA	12/09/2013 10:09	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	E133431AA	12/09/2013 10:09	Jason M Long	1
08792	SPLP Volatile Extraction	SW-846 1312	1	13340-482-8792	12/06/2013 13:40	Darin P Wagner	n.a.

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

Sample Description: SS2013-S2-2-3 Soil
SOIL SAMPLING 12/13

LL Sample # SW 7298791
LL Group # 1437884
Account # 06643

Project Name: KEN - SOIL SAMPLING

Collected: 12/02/2013 13:00
Submitted: 12/03/2013 09:20
Reported: 12/10/2013 11:27

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

S223-

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
10326	1,4-Dioxane	SW-846 8260B SIM 123-91-1	ug/kg 5.4 U	ug/kg 5.4	ug/kg 16	22.85
Wet Chemistry						
00111	Moisture	SM 2540 G-1997 n.a.	% 15.5	% 0.50	% 0.50	1
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

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
10326	1,4-Dioxane	SW-846 8260B SIM	1	E133401AA	12/06/2013 13:10	Jason M Long	22.85
08390	GC/MS - HL Encore Prep	SW-846 5035A	1	201333733318	12/03/2013 17:51	Lisa J Cooke	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035A	1	201333733318	12/03/2013 17:50	Lisa J Cooke	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035A	2	201333733318	12/03/2013 17:50	Lisa J Cooke	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201333733318	12/03/2013 17:51	Lisa J Cooke	n.a.
00111	Moisture	SM 2540 G-1997	1	13343820007A	12/09/2013 23:16	Scott W Freisher	1

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

Sample Description: SS2013-S2-2-3 Soil
SPLP ZHE
SOIL SAMPLING 12/13

LL Sample # TL 7298792
LL Group # 1437884
Account # 06643

Project Name: KEN - SOIL SAMPLING

Collected: 12/02/2013 13:00
Submitted: 12/03/2013 09:20
Reported: 12/10/2013 11:27

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

S223S

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	SW-846 8260B SIM		ug/l	ug/l	ug/l	
00527	1,4-Dioxane	123-91-1	0.5 U	0.5	2.0	1

General Sample Comments

State of North Carolina Lab Certification No. 521

If the analysis is for determination of Hazardous Waste Characteristics, see Table 1 in EPA Code of Federal Regulations 40 CFR 261.24.

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
00527	1,4-Dioxane	SW-846 8260B SIM	1	E133431AA	12/09/2013 10:30	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	E133431AA	12/09/2013 10:30	Jason M Long	1
08792	SPLP Volatile Extraction	SW-846 1312	1	13340-482-8792	12/06/2013 13:40	Darin P Wagner	n.a.

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

Sample Description: SS2013-S2-2-3-D Soil
SOIL SAMPLING 12/13

LL Sample # SW 7298793
LL Group # 1437884
Account # 06643

Project Name: KEN - SOIL SAMPLING

Collected: 12/02/2013 13:00
Submitted: 12/03/2013 09:20
Reported: 12/10/2013 11:27

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

S223D

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
10326	1,4-Dioxane	SW-846 8260B SIM 123-91-1	ug/kg 5.3 U	ug/kg 5.3	ug/kg 16	22.52
Wet Chemistry						
00111	Moisture	SM 2540 G-1997 n.a.	% 15.3	% 0.50	% 0.50	1
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

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
10326	1,4-Dioxane	SW-846 8260B SIM	1	E133401AA	12/06/2013 13:30	Jason M Long	22.52
08390	GC/MS - HL Encore Prep	SW-846 5035A	1	201333733318	12/03/2013 17:54	Lisa J Cooke	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035A	1	201333733318	12/03/2013 17:53	Lisa J Cooke	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035A	2	201333733318	12/03/2013 17:53	Lisa J Cooke	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201333733318	12/03/2013 17:53	Lisa J Cooke	n.a.
00111	Moisture	SM 2540 G-1997	1	13343820007A	12/09/2013 23:16	Scott W Freisher	1

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

Sample Description: SS2013-S2-2-3-D Soil
SPLP ZHE
SOIL SAMPLING 12/13

LL Sample # TL 7298794
LL Group # 1437884
Account # 06643

Project Name: KEN - SOIL SAMPLING

Collected: 12/02/2013 13:00
Submitted: 12/03/2013 09:20
Reported: 12/10/2013 11:27

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

223DS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
00527	1,4-Dioxane	SW-846 8260B SIM 123-91-1	ug/l 0.5 U	ug/l 0.5	ug/l 2.0	1

General Sample Comments

State of North Carolina Lab Certification No. 521

If the analysis is for determination of Hazardous Waste Characteristics, see Table 1 in EPA Code of Federal Regulations 40 CFR 261.24.

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
00527	1,4-Dioxane	SW-846 8260B SIM	1	E133431AA	12/09/2013 09:49	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	E133431AA	12/09/2013 09:49	Jason M Long	1
08792	SPLP Volatile Extraction	SW-846 1312	1	13340-482-8792	12/06/2013 13:40	Darin P Wagner	n.a.

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

Sample Description: SS2013-S3-2-3 Soil
SOIL SAMPLING 12/13

LL Sample # SW 7298795
LL Group # 1437884
Account # 06643

Project Name: KEN - SOIL SAMPLING

Collected: 12/02/2013 14:30
Submitted: 12/03/2013 09:20
Reported: 12/10/2013 11:27

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

S323-

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
10326	1,4-Dioxane	SW-846 8260B SIM 123-91-1	ug/kg 4.9 U	ug/kg 4.9	ug/kg 15	20.36
Wet Chemistry						
00111	Moisture	SM 2540 G-1997 n.a.	% 16.4	% 0.50	% 0.50	1
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

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
10326	1,4-Dioxane	SW-846 8260B SIM	1	E133401AA	12/06/2013 13:50	Jason M Long	20.36
08390	GC/MS - HL Encore Prep	SW-846 5035A	1	201333733318	12/03/2013 17:55	Lisa J Cooke	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035A	1	201333733318	12/03/2013 17:56	Lisa J Cooke	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035A	2	201333733318	12/03/2013 17:56	Lisa J Cooke	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201333733318	12/03/2013 17:56	Lisa J Cooke	n.a.
00111	Moisture	SM 2540 G-1997	1	13343820007A	12/09/2013 23:16	Scott W Freisher	1

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

Sample Description: SS2013-S3-2-3 Soil
SPLP ZHE
SOIL SAMPLING 12/13

LL Sample # TL 7298796
LL Group # 1437884
Account # 06643

Project Name: KEN - SOIL SAMPLING

Collected: 12/02/2013 14:30
Submitted: 12/03/2013 09:20
Reported: 12/10/2013 11:27

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

S323S

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	SW-846 8260B SIM		ug/l	ug/l	ug/l	
00527	1,4-Dioxane	123-91-1	0.5 U	0.5	2.0	1

General Sample Comments

State of North Carolina Lab Certification No. 521

If the analysis is for determination of Hazardous Waste Characteristics, see Table 1 in EPA Code of Federal Regulations 40 CFR 261.24.

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
00527	1,4-Dioxane	SW-846 8260B SIM	1	E133431AA	12/09/2013 10:50	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	E133431AA	12/09/2013 10:50	Jason M Long	1
08792	SPLP Volatile Extraction	SW-846 1312	1	13340-482-8792	12/06/2013 13:40	Darin P Wagner	n.a.

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

Sample Description: **EB-SS-120213 Blank Water**
SOIL SAMPLING 12/13

LL Sample # **WW 7298797**
LL Group # **1437884**
Account # **06643**

Project Name: **KEN - SOIL SAMPLING**

Collected: 12/02/2013 16:00

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 12/03/2013 09:20

Reported: 12/10/2013 11:27

EB-SS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method	As Received Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles							
00527	1,4-Dioxane	SW-846 8260B SIM 123-91-1	0.5 U	ug/l	ug/l	ug/l	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
00527	1,4-Dioxane	SW-846 8260B SIM	1	E133431AA	12/09/2013 08:47	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	E133431AA	12/09/2013 08:47	Jason M Long	1

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

Sample Description: TB1-SS-120213 Blank Water
SOIL SAMPLING 12/13

LL Sample # WW 7298798
LL Group # 1437884
Account # 06643

Project Name: KEN - SOIL SAMPLING

Collected: 12/02/2013 16:00

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 12/03/2013 09:20

Reported: 12/10/2013 11:27

TB-SS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method	As Received Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles							
00527	1,4-Dioxane	SW-846 8260B SIM 123-91-1	0.5 U	ug/l	ug/l	ug/l	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
00527	1,4-Dioxane	SW-846 8260B SIM	1	E133431AA	12/09/2013 09:08	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	E133431AA	12/09/2013 09:08	Jason M Long	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: 12/10/13 at 11:27 AM

Group Number: 1437884

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: E133401AA 1,4-Dioxane	Sample number(s): 7298775-7298777, 7298789, 7298791, 7298793, 7298795 5.0 U 5.0	15	ug/kg	102	107	70-130	5	30	
Batch number: E133431AA 1,4-Dioxane	Sample number(s): 7298778-7298780, 7298790, 7298792, 7298794, 7298796-7298798 0.5 U 0.5	2.0	ug/l	103		80-123			
Batch number: 13337820005B Moisture Moisture Moisture Duplicate	Sample number(s): 7298775-7298777, 7298789			100 100 100		99-101 99-101 99-101			
Batch number: 13343820007A Moisture	Sample number(s): 7298791, 7298793, 7298795			100		99-101			

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: E133401AA 1,4-Dioxane	Sample number(s): 7298775-7298777, 7298789, 7298791, 7298793, 7298795 85	82	70-130	4	30				UNSPK: 7298775
Batch number: E133431AA 1,4-Dioxane	Sample number(s): 7298778-7298780, 7298790, 7298792, 7298794, 7298796-7298798 104	107	73-138	3	30				UNSPK: 7298778
Batch number: 13337820005B Moisture Moisture Moisture Duplicate	Sample number(s): 7298775-7298777, 7298789					BKG: 7298775 23.4 23.4 23.4	21.2 21.2 21.2	10* 10* 10*	5 5 5
Batch number: 13343820007A Moisture	Sample number(s): 7298791, 7298793, 7298795					BKG: 7298791 15.5	15.6	1	5

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.

Quality Control Summary

Client Name: CRG-E.I.DuPont de Nemours & Co
Reported: 12/10/13 at 11:27 AM

Group Number: 1437884

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: 1,4-Dioxane
Batch number: E133401AA
Toluene-d8

7298775	98
7298776	98
7298777	99
7298789	99
7298791	100
7298793	100
7298795	100
Blank	101
LCS	99
LCSD	100
MS	98
MSD	99

Limits: 70-130

Analysis Name: 1,4-Dioxane
Batch number: E133431AA
Toluene-d8

7298778	93
7298779	93
7298780	93
7298790	94
7298792	94
7298794	93
7298796	93
7298797	93
7298798	94
Blank	93
LCS	94
MS	93
MSD	93

Limits: 80-120

*- 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.

Environmental Sample Administration 1437884
Receipt Documentation Log

Client/Project: DuPont
Date of Receipt: 12.3.13
Time of Receipt: 920
Source Code: 60-1

Shipping Container Sealed: YES NO
Custody Seal Present * : YES NO
* Custody seal was intact unless otherwise noted in the discrepancy section
Package: Chilled Not Chilled

Temperature of Shipping Containers							
Cooler #	Thermometer ID	Temperature (°C)	Temp Bottle (TB) or Surface Temp (ST)	Wet Ice (WI) or Dry Ice (DI) or Ice Packs (IP)	Ice Present? Y/N	Loose (L) Bagged Ice (B) or NA	Comments
1	DH46	0.6	TB	WI	Y	L	
2	↓	0.3	↓	↓	↓	↓	
3	/						
4	/						
5	/						
6	/						

Number of Trip Blanks received NOT listed on chain of custody: 0

Paperwork Discrepancy/Unpacking Problems:

Unpacker Signature/Emp#: Brendly Boney 2299 Date/Time: 12.3.13 955

Issued by Dept. 6042 Management

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 - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> 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.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is \geq the Method Detection Limit (MDL) and $<$ the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

Inorganic Qualifiers

A	TIC is a possible aldol-condensation product	B	Value is $<$ CRDL, but \geq IDL
B	Analyte was also detected in the blank	E	Estimated due to interference
C	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and confirmation columns $>$ 25%	W	Post digestion spike out of control limits
U	Compound was not detected	*	Duplicate analysis not within control limits
X,Y,Z	Defined in case narrative	+	Correlation coefficient for MSA $<$ 0.995

Analytical test results meet all requirements of NELAC 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.

**ADQM DATA REVIEW
NARRATIVE**

Site **Kentec (KEN)**

Project **GW SAMPLING 2014**

Project Reviewer **Kelly Rinehimer**

Sampling Dates **June 30, July 1, and July 2, 2014**

Analytical Protocol

Laboratory	Method	Parameters
Eurofins Lancaster Laboratories Environmental (Lancaster) Lancaster, PA	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 July 1 and July 3, 2014.

Data Review

The electronic data submitted for this project was reviewed via the DuPont Data Review (DDR) process. Overall the data is acceptable for use without qualification. Some of the analytical results have been qualified in the database due to high laboratory control sample and/or control sample duplicate recoveries and field duplicate imprecision. See the DuPont Data Review (DDR) Narrative Report for which samples were qualified, the specific reasons for qualification, and potential bias in reported results.

DuPont Data Review (DDR)

The DDR 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 Validation 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.

The DDR 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.

Please refer to the laboratory report for a description of the lab qualifiers.

DDR Narrative Report

Site: Kentec

Sampling Program: GW SAMPLING 2014

Validation Options: LABSTATS

Validation Reason Code: Associated LCS and/or LCSD analysis had relative percent recovery (RPR) values higher than the upper control limit. The reported result may be biased high.

Field Sample ID	Date Sampled	Lab Sample ID	Analyte	Result	Units	Type	MDL	PQL	Validation Qualifier	Analytical Method	Pre-prep	Prep
SW2014-SW-11	06/30/2014	7517742	1,4-Dioxane	25	UG/L	MDL	0.55	1.1	J	8270D SIM		3510C
SW2014-SW-24	06/30/2014	7517745	1,4-Dioxane	23	UG/L	MDL	0.51	1.0	J	8270D SIM		3510C
SW2014-SW-29	06/30/2014	7517746	1,4-Dioxane	15	UG/L	MDL	0.52	1.0	J	8270D SIM		3510C

Validation Reason Code: High relative percent difference (RPD) observed between field duplicate and parent sample. The reported result may be imprecise.

Field Sample ID	Date Sampled	Lab Sample ID	Analyte	Result	Units	Type	MDL	PQL	Validation Qualifier	Analytical Method	Pre-prep	Prep
GW2014-MW-7A	07/01/2014	7519254	1,4-Dioxane	1.2	UG/L	MDL	0.052	0.10	J	8270D SIM		3510C
GW2014-MW-7A-D	07/01/2014	7519255	1,4-Dioxane	1.7	UG/L	MDL	0.051	0.10	J	8270D SIM		3510C

ANALYTICAL RESULTS

Prepared by:

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

Prepared for:

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

July 14, 2014

Project: KEN - GW SAMPLING

Submission Date: 07/01/2014

Group Number: 1485788

PO Number: LBIO-66380

State of Sample Origin: NC

Client Sample Description

GW2014-MW-14A Groundwater
GW2014-MW-14B Groundwater
GW2014-MW-15 Groundwater
GW2014-MW-16 Groundwater
GW2014-MW-19 Groundwater
GW2014-MW-19 MS Groundwater
GW2014-MW-19 MSD Groundwater

Lancaster Labs (LL) #

7517732
7517733
7517734
7517735
7517736
7517737
7517738

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

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Sample Description: GW2014-MW-14A Groundwater
GW SAMPLING 2014

LL Sample # WW 7517732
LL Group # 1485788
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 06/30/2014 09:42 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/01/2014 09:30

Reported: 07/14/2014 11:39

KEN4A

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	1.1	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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14183WAD026	07/10/2014 01:39	Brian K Graham	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14183WAD026	07/02/2014 16:00	Seth A Farrier	1

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

Sample Description: GW2014-MW-14B Groundwater
GW SAMPLING 2014

LL Sample # WW 7517733
LL Group # 1485788
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 06/30/2014 10:20 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/01/2014 09:30

Reported: 07/14/2014 11:39

KEN4B

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method	As Received Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	0.051 U	0.051	0.10	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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14183WAD026	07/10/2014 02:07	Brian K Graham	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14183WAD026	07/02/2014 16:00	Seth A Farrier	1

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

Sample Description: GW2014-MW-15 Groundwater
GW SAMPLING 2014

LL Sample # WW 7517734
LL Group # 1485788
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 06/30/2014 11:34 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/01/2014 09:30
Reported: 07/14/2014 11:39

KEN15

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	3.9	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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14183WAD026	07/10/2014 02:34	Brian K Graham	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14183WAD026	07/02/2014 16:00	Seth A Farrier	1

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

Sample Description: GW2014-MW-16 Groundwater
GW SAMPLING 2014

LL Sample # WW 7517735
LL Group # 1485788
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 06/30/2014 16:25 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/01/2014 09:30

Reported: 07/14/2014 11:39

KEN16

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	0.48	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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14183WAD026	07/10/2014 03:01	Brian K Graham	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14183WAD026	07/02/2014 16:00	Seth A Farrier	1

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

Sample Description: GW2014-MW-19 Groundwater
GW SAMPLING 2014

LL Sample # WW 7517736
LL Group # 1485788
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 06/30/2014 15:19 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/01/2014 09:30

Reported: 07/14/2014 11:39

KEN19

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	210	5.2	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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14183WAD026	07/10/2014 03:29	Brian K Graham	100
10466	BNA Water Extraction SIM	SW-846 3510C	1	14183WAD026	07/02/2014 16:00	Seth A Farrier	1

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

Sample Description: GW2014-MW-19 MS Groundwater
GW SAMPLING 2014

LL Sample # WW 7517737
LL Group # 1485788
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 06/30/2014 15:19 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/01/2014 09:30

Reported: 07/14/2014 11:39

KEN19

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	210	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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14183WAD026	07/10/2014 03:56	Brian K Graham	100
10466	BNA Water Extraction SIM	SW-846 3510C	1	14183WAD026	07/02/2014 16:00	Seth A Farrier	1

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

Sample Description: GW2014-MW-19 MSD Groundwater
GW SAMPLING 2014

LL Sample # WW 7517738
LL Group # 1485788
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 06/30/2014 15:19 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/01/2014 09:30
Reported: 07/14/2014 11:39

KEN19

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	170	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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14183WAD026	07/10/2014 04:24	Brian K Graham	100
10466	BNA Water Extraction SIM	SW-846 3510C	1	14183WAD026	07/02/2014 16:00	Seth A Farrier	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: 07/14/14 at 11:39 AM

Group Number: 1485788

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: 14183WAD026 1,4-Dioxane	0.050 U	0.050	0.10	ug/l	63		45-77		
	Sample number(s): 7517732-7517738								

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: 14183WAD026 1,4-Dioxane	-480	-4350	36-104	21	30				
	(2)	(2)							
	Sample number(s): 7517732-7517738 UNSPK: 7517736								

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: 17 PAH Compounds
Batch number: 14183WAD026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
7517732	103	106	90
7517733	98	100	93
7517734	89	101	82
7517735	106	84	78
7517736	96	85	104
7517737	100	87	115
7517738	105	86	132
Blank	101	108	84
LCS	103	109	84
MS	100	87	115
MSD	105	86	132
Limits:	59-128	62-141	70-134

*- 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: 07/14/14 at 11:39 AM

Group Number: 1485788

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

1 of 1

For Lancaster Laboratories Use Only

Group No.: 1485788 Sample Nos.: 7517732-38 C01621 **28893**
Acc't: 06643 SF: 206343 SCR No.: 156007 Cooler No.:
Cooler Temperature upon receipt: 1.2 °C Container No.: 1

Facility Name: Kentec		Project Manager: Marc Harder			Analyses Required										Comments:																	
Facility Contact: Jerry Bailey		Facility Contact Phone No.: 252-341-0912																														
Facility Address: DuPont Kentec Plant		Job No.: 9267-7720100C-WH06504707																														
		Release No.:																														
Kentec NC		PO Number: LBIO-66380																														
Sampler(s): <u>K. Tague, J. Bailey</u>					1,4-Dioxane (8270D SIM)										Condition upon receipt:																	
Project Name: GW SAMPLING 2014																																
Sample Identification	Date Collected	Time Collected	Matrix	Containers													X															
	Volume (ml)	Preserv	No.																													
GW2014-MW-16	<u>10/30/14</u>	<u>1025</u>	<u>WW</u>	<u>250</u>													<u>None</u>	<u>2</u>	<u>X</u>													<u>Intact</u>
GW2014-MW-19	<u>10/30/14</u>	<u>1519</u>	<u>WW</u>	<u>250</u>													<u>None</u>	<u>2</u>	<u>X</u>													
GW2014-MW-19	<u>↓</u>	<u>↓</u>	<u>WW</u>	<u>250</u>													<u>None</u>	<u>2</u>	<u>X</u>													<u>MS</u>
GW2014-MW-19	<u>↓</u>	<u>↓</u>	<u>WW</u>	<u>250</u>													<u>None</u>	<u>2</u>	<u>X</u>													<u>MSD</u>
Turnaround Time Requested (please circle): <u>Standard</u> RUSH Number of days: <u>8</u>							Special Instructions:																									
Bottles Relinquished by: <u>Kent Tague</u>		Date: <u>10-10-14</u>	Time: <u>0745</u>	Bottles Received by: <u>Kauskagne</u>		Date: <u>10/30/14</u>	Time: <u>0830</u>																									
Bottles Relinquished by: <u>Kauskagne</u>		Date: <u>10/30/14</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>Cash</u>		Date: <u>11/1/14</u>	Time: <u>0930</u>																									

Client: DUPONT

KENTEC

Delivery and Receipt Information

Delivery Method:	<u>Fed Ex</u>	Arrival Timestamp:	<u>07/01/2014 9:30</u>
Number of Packages:	<u>1</u>	Number of Projects:	<u>1</u>
State/Province of Origin:	<u>NC</u>		

Arrival Condition Summary

Shipping Container Sealed:	<u>Yes</u>	Total Trip Blank Qty:	<u>0</u>
Custody Seal Present:	<u>Yes</u>	Trip Blank Type:	<u>N/A</u>
Custody Seal Intact:	<u>Yes</u>	Air Quality Samples Present:	<u>No</u>
Samples Chilled:	<u>Yes</u>	Air Quality Flow Controllers Present:	<u>N/A</u>
Paperwork Enclosed:	<u>Yes</u>	Flow Controller Quantity:	<u>0</u>
Samples Intact:	<u>Yes</u>	Air Quality Returns:	<u>N/A</u>
Missing Samples:	<u>No</u>		
Extra Samples:	<u>No</u>		
Discrepancy in Container Qty on COC:	<u>No</u>		
Sample IDs on COC match Containers:	<u>Yes</u>		
Sample Date/Times match COC:	<u>Yes</u>		
VOA Vial Headspace \geq 6mm:	<u>N/A</u>		
VOA IDs (\geq 6mm):	<u>N/A</u>		

Unpacked by Corey Eshleman (3647) at 11:12 on 07/01/2014

Samples Chilled Details: KENTEC

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	Samples	
							Collected Same Day as Receipt?	Elevated Temp?
1	DT121	1.2	DT	Wet	Y	Loose	N	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 - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> 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.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is \geq the Method Detection Limit (MDL) and $<$ the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

- A** TIC is a possible aldol-condensation product
- B** Analyte was also detected in the blank
- C** Pesticide result confirmed by GC/MS
- D** Compound quantitated on a diluted sample
- E** Concentration exceeds the calibration range of the instrument
- N** Presumptive evidence of a compound (TICs only)
- P** Concentration difference between primary and confirmation columns $>25\%$
- U** Compound was not detected
- X,Y,Z** Defined in case narrative

Inorganic Qualifiers

- B** Value is $<$ CRDL, but \geq IDL
- E** Estimated due to interference
- M** Duplicate injection precision not met
- N** Spike sample not within control limits
- S** Method of standard additions (MSA) used for calculation
- U** Compound was not detected
- W** Post digestion spike out of control limits
- *** Duplicate analysis not within control limits
- +** Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC 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
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

July 15, 2014

Project: KEN - GW SAMPLING

Submission Date: 07/01/2014

Group Number: 1485789

PO Number: LBIO-66380

State of Sample Origin: NC

Client Sample Description

EB-SW1-063014 Blank Water
SW2014-SW-9 Groundwater
SW2014-SW-9-D Groundwater
SW2014-SW-11 Groundwater
SW2014-SW-11 MS Groundwater
SW2014-SW-11 MSD Groundwater
SW2014-SW-24 Groundwater
SW2014-SW-29 Groundwater

Lancaster Labs (LL) #

7517739
7517740
7517741
7517742
7517743
7517744
7517745
7517746

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

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Sample Description: **EB-SW1-063014 Blank Water**
GW SAMPLING 2014

LL Sample # **WW 7517739**
LL Group # **1485789**
Account # **06643**

Project Name: **KEN - GW SAMPLING**

Collected: 06/30/2014 14:40 by **KT**

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/01/2014 09:30

Reported: 07/15/2014 13:59

KENEB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method	As Received Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	0.052 U		0.052	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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14183WAD026	07/10/2014 04:51	Brian K Graham	1
10466	BNA Water Extraction	SIM SW-846 3510C	1	14183WAD026	07/02/2014 16:00	Seth A Farrier	1

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

Sample Description: SW2014-SW-9 Groundwater
GW SAMPLING 2014

LL Sample # WW 7517740
LL Group # 1485789
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 06/30/2014 13:11 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/01/2014 09:30

Reported: 07/15/2014 13:59

KEN09

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	2.3	0.052	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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14183WAD026	07/10/2014 05:19	Brian K Graham	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14183WAD026	07/02/2014 16:00	Seth A Farrier	1

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

Sample Description: SW2014-SW-9-D Groundwater
GW SAMPLING 2014

LL Sample # WW 7517741
LL Group # 1485789
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 06/30/2014 13:11 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/01/2014 09:30

Reported: 07/15/2014 13:59

KEN9D

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	2.3	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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14183WAD026	07/10/2014 05:46	Brian K Graham	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14183WAD026	07/02/2014 16:00	Seth A Farrier	1

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

Sample Description: SW2014-SW-11 Groundwater
GW SAMPLING 2014

LL Sample # WW 7517742
LL Group # 1485789
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 06/30/2014 13:25 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/01/2014 09:30

Reported: 07/15/2014 13:59

KEN11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	25	0.55	1.1	10

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits 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 compliant. 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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14184WAA026	07/10/2014 06:14	Brian K Graham	10
10466	BNA Water Extraction SIM	SW-846 3510C	1	14184WAA026	07/03/2014 09:00	Anna E Stager	1

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

Sample Description: SW2014-SW-11 MS Groundwater
GW SAMPLING 2014

LL Sample # WW 7517743
LL Group # 1485789
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 06/30/2014 13:25 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/01/2014 09:30

Reported: 07/15/2014 13:59

KEN11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	22	0.52	1.0	10
<p>The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits 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 compliant. 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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14184WAA026	07/10/2014 06:41	Brian K Graham	10
10466	BNA Water Extraction SIM	SW-846 3510C	1	14184WAA026	07/03/2014 09:00	Anna E Stager	1

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

Sample Description: SW2014-SW-11 MSD Groundwater
GW SAMPLING 2014

LL Sample # WW 7517744
LL Group # 1485789
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 06/30/2014 13:25 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/01/2014 09:30

Reported: 07/15/2014 13:59

KEN11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	25	0.59	1.2	10
<p>The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits 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 compliant. 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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14184WAA026	07/10/2014 07:09	Brian K Graham	10
10466	BNA Water Extraction SIM	SW-846 3510C	1	14184WAA026	07/03/2014 09:00	Anna E Stager	1

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

Sample Description: SW2014-SW-24 Groundwater
GW SAMPLING 2014

LL Sample # WW 7517745
LL Group # 1485789
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 06/30/2014 13:39 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/01/2014 09:30

Reported: 07/15/2014 13:59

KEN24

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	23	0.51	1.0	10

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits 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 compliant. 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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14184WAA026	07/10/2014 07:36	Brian K Graham	10
10466	BNA Water Extraction SIM	SW-846 3510C	1	14184WAA026	07/03/2014 09:00	Anna E Stager	1

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

Sample Description: SW2014-SW-29 Groundwater
GW SAMPLING 2014

LL Sample # WW 7517746
LL Group # 1485789
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 06/30/2014 13:50 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/01/2014 09:30

Reported: 07/15/2014 13:59

KEN29

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	15	0.52	1.0	10
<p>The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits 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 compliant. 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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14184WAA026	07/10/2014 08:04	Brian K Graham	10
10466	BNA Water Extraction SIM	SW-846 3510C	1	14184WAA026	07/03/2014 09:00	Anna E Stager	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: 07/15/14 at 01:59 PM

Group Number: 1485789

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: 14183WAD026 1,4-Dioxane	Sample number(s): 7517739-7517741 0.050 U	0.050	0.10	ug/l	63		45-77		
Batch number: 14184WAA026 1,4-Dioxane	Sample number(s): 7517742-7517746 0.050 U	0.050	0.10	ug/l	99*		45-77		

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: 14183WAD026 1,4-Dioxane	Sample number(s): 7517739-7517741 UNSPK: P517736 -480 (2)	-4350 (2)	36-104	21	30				
Batch number: 14184WAA026 1,4-Dioxane	Sample number(s): 7517742-7517746 UNSPK: 7517742 -291 (2)	-24 (2)	36-104	12	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: 17 PAH Compounds

Batch number: 14183WAD026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
7517739	83	113	98
7517740	106	113	87
7517741	109	112	87
Blank	101	108	84
LCS	103	109	84
MS	100	87	115
MSD	105	86	132

*- 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: 07/15/14 at 01:59 PM

Group Number: 1485789

Surrogate Quality Control

Limits: 59-128 62-141 70-134

Analysis Name: 17 PAH Compounds

Batch number: 14184WAA026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
7517742	90	89	86
7517743	80	72	81
7517744	89	88	88
7517745	89	81	83
7517746	84	78	77
Blank	94	106	83
LCS	104	114	93
MS	80	72	81
MSD	89	88	88

Limits: 59-128 62-141 70-134

*- 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

KENTEC

Delivery and Receipt Information

Delivery Method:	<u>Fed Ex</u>	Arrival Timestamp:	<u>07/01/2014 9:30</u>
Number of Packages:	<u>1</u>	Number of Projects:	<u>1</u>
State/Province of Origin:	<u>NC</u>		

Arrival Condition Summary

Shipping Container Sealed:	<u>Yes</u>	Total Trip Blank Qty:	<u>0</u>
Custody Seal Present:	<u>Yes</u>	Trip Blank Type:	<u>N/A</u>
Custody Seal Intact:	<u>Yes</u>	Air Quality Samples Present:	<u>No</u>
Samples Chilled:	<u>Yes</u>	Air Quality Flow Controllers Present:	<u>N/A</u>
Paperwork Enclosed:	<u>Yes</u>	Flow Controller Quantity:	<u>0</u>
Samples Intact:	<u>Yes</u>	Air Quality Returns:	<u>N/A</u>
Missing Samples:	<u>No</u>		
Extra Samples:	<u>No</u>		
Discrepancy in Container Qty on COC:	<u>No</u>		
Sample IDs on COC match Containers:	<u>Yes</u>		
Sample Date/Times match COC:	<u>Yes</u>		
VOA Vial Headspace \geq 6mm:	<u>N/A</u>		
VOA IDs (\geq 6mm):	<u>N/A</u>		

Unpacked by Corey Eshleman (3647) at 11:12 on 07/01/2014

Samples Chilled Details: KENTEC

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

<u>Cooler #</u>	<u>Thermometer ID</u>	<u>Corrected Temp</u>	<u>Therm. Type</u>	<u>Ice Type</u>	<u>Ice Present?</u>	<u>Ice Container</u>	<u>Samples Collected Same Day as Receipt?</u>	<u>Elevated Temp?</u>
1	DT121	1.2	DT	Wet	Y	Loose	N	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 - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> 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.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is \geq the Method Detection Limit (MDL) and $<$ the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

Inorganic Qualifiers

A	TIC is a possible aldol-condensation product	B	Value is $<$ CRDL, but \geq IDL
B	Analyte was also detected in the blank	E	Estimated due to interference
C	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and confirmation columns $>$ 25%	W	Post digestion spike out of control limits
U	Compound was not detected	*	Duplicate analysis not within control limits
X,Y,Z	Defined in case narrative	+	Correlation coefficient for MSA $<$ 0.995

Analytical test results meet all requirements of NELAC 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
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

July 15, 2014

Project: KEN - GW SAMPLING

Submittal Date: 07/02/2014

Group Number: 1486143

PO Number: LBIO-66380

State of Sample Origin: NC

Client Sample Description

GW2014-MW-4B Groundwater
GW2014-MW-6 Groundwater
GW2014-MW-6 MS Groundwater
GW2014-MW-6 MSD Groundwater
GW2014-MW-7A Groundwater
GW2014-MW-7A-D Groundwater
GW2014-MW-7B Groundwater
GW2014-MW-9 Groundwater
GW2014-MW-10A Groundwater
GW2014-MW-10B Groundwater
GW2014-MW-13 Groundwater
GW2014-MW-H Groundwater
EB-GW1-070114 Blank Water

Lancaster Labs (LL)

7519250
7519251
7519252
7519253
7519254
7519255
7519256
7519257
7519258
7519259
7519260
7519261
7519262

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

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Sample Description: GW2014-MW-4B Groundwater
GW SAMPLING 2014

LL Sample # WW 7519250
LL Group # 1486143
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 07/01/2014 16:08 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/02/2014 09:20

Reported: 07/15/2014 11:52

MW4B-

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	0.050 U	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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14184WAC026	07/10/2014 08:31	Brian K Graham	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14184WAC026	07/03/2014 09:00	Anna E Stager	1

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

Sample Description: GW2014-MW-6 Groundwater
GW SAMPLING 2014

LL Sample # WW 7519251
LL Group # 1486143
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 07/01/2014 11:11 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/02/2014 09:20

Reported: 07/15/2014 11:52

MW6--

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	40	1.0	2.1	20

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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14184WAC026	07/10/2014 08:59	Brian K Graham	20
10466	BNA Water Extraction SIM	SW-846 3510C	1	14184WAC026	07/03/2014 09:00	Anna E Stager	1

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

Sample Description: GW2014-MW-6 MS Groundwater
GW SAMPLING 2014

LL Sample # WW 7519252
LL Group # 1486143
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 07/01/2014 11:11 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/02/2014 09:20

Reported: 07/15/2014 11:52

MW6--

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	29	1.0	2.1	20

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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14184WAC026	07/10/2014 09:26	Brian K Graham	20
10466	BNA Water Extraction SIM	SW-846 3510C	1	14184WAC026	07/03/2014 09:00	Anna E Stager	1

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

Sample Description: GW2014-MW-6 MSD Groundwater
GW SAMPLING 2014

LL Sample # WW 7519253
LL Group # 1486143
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 07/01/2014 11:11 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/02/2014 09:20

Reported: 07/15/2014 11:52

MW6--

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	35	1.0	2.0	20

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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14184WAC026	07/10/2014 09:54	Brian K Graham	20
10466	BNA Water Extraction SIM	SW-846 3510C	1	14184WAC026	07/03/2014 09:00	Anna E Stager	1

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

Sample Description: GW2014-MW-7A Groundwater
GW SAMPLING 2014

LL Sample # WW 7519254
LL Group # 1486143
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 07/01/2014 07:45 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/02/2014 09:20

Reported: 07/15/2014 11:52

M7A--

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	1.2	0.052	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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14184WAC026	07/14/2014 04:53	Brian K Graham	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14184WAC026	07/03/2014 09:00	Anna E Stager	1

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

Sample Description: GW2014-MW-7A-D Groundwater
GW SAMPLING 2014

LL Sample # WW 7519255
LL Group # 1486143
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 07/01/2014 07:45 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/02/2014 09:20

Reported: 07/15/2014 11:52

MW7AD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	1.7	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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14184WAC026	07/14/2014 05:20	Brian K Graham	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14184WAC026	07/03/2014 09:00	Anna E Stager	1

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

Sample Description: GW2014-MW-7B Groundwater
GW SAMPLING 2014

LL Sample # WW 7519256
LL Group # 1486143
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 07/01/2014 08:19 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/02/2014 09:20

Reported: 07/15/2014 11:52

MW7B-

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method	As Received Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l		ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	0.052 U		0.052	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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14184WAC026	07/14/2014 05:48	Brian K Graham	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14184WAC026	07/03/2014 09:00	Anna E Stager	1

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

Sample Description: GW2014-MW-9 Groundwater
GW SAMPLING 2014

LL Sample # WW 7519257
LL Group # 1486143
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 07/01/2014 15:05 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/02/2014 09:20
Reported: 07/15/2014 11:52

MW9--

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	0.051 U	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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14184WAC026	07/14/2014 06:15	Brian K Graham	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14184WAC026	07/03/2014 09:00	Anna E Stager	1

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

Sample Description: GW2014-MW-10A Groundwater
GW SAMPLING 2014

LL Sample # WW 7519258
LL Group # 1486143
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 07/01/2014 14:23 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/02/2014 09:20

Reported: 07/15/2014 11:52

MW10A

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	1.5	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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14184WAC026	07/14/2014 06:43	Brian K Graham	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14184WAC026	07/03/2014 09:00	Anna E Stager	1

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

Sample Description: GW2014-MW-10B Groundwater
GW SAMPLING 2014

LL Sample # WW 7519259
LL Group # 1486143
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 07/01/2014 13:42 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/02/2014 09:20

Reported: 07/15/2014 11:52

MW10B

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14184WAC026	07/14/2014 07:10	Brian K Graham	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14184WAC026	07/03/2014 09:00	Anna E Stager	1

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

Sample Description: GW2014-MW-13 Groundwater
GW SAMPLING 2014

LL Sample # WW 7519260
LL Group # 1486143
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 07/01/2014 09:04 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/02/2014 09:20
Reported: 07/15/2014 11:52

MW13-

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	0.68	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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14184WAC026	07/14/2014 07:38	Brian K Graham	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14184WAC026	07/03/2014 09:00	Anna E Stager	1

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

Sample Description: GW2014-MW-H Groundwater
GW SAMPLING 2014

LL Sample # WW 7519261
LL Group # 1486143
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 07/01/2014 10:15 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/02/2014 09:20

Reported: 07/15/2014 11:52

MWH--

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	1.8	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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14184WAC026	07/14/2014 08:05	Brian K Graham	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14184WAC026	07/03/2014 09:00	Anna E Stager	1

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

Sample Description: **EB-GW1-070114 Blank Water**
GW SAMPLING 2014

LL Sample # **WW 7519262**
LL Group # **1486143**
Account # **06643**

Project Name: **KEN - GW SAMPLING**

Collected: 07/01/2014 16:20 by **KT**

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/02/2014 09:20

Reported: 07/15/2014 11:52

MWEB1

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method	As Received Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	0.053 U		0.053	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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14184WAC026	07/14/2014 08:33	Brian K Graham	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14184WAC026	07/03/2014 09:00	Anna E Stager	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: 07/15/14 at 11:52 AM

Group Number: 1486143

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: 14184WAC026 1,4-Dioxane	0.050 U	0.050	0.10	ug/l	57		45-77		
	Sample number(s): 7519250-7519262								

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: 14184WAC026 1,4-Dioxane	-1070	-512	36-104	18	30				
	(2)	(2)							
	Sample number(s): 7519250-7519262 UNSPK: 7519251								

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: 17 PAH Compounds
Batch number: 14184WAC026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
7519250	101	108	90
7519251	100	89	104
7519252	98	82	97
7519253	93	75	92
7519254	85	87	77
7519255	98	99	89
7519256	98	106	87
7519257	101	104	86
7519258	92	88	82
7519259	93	101	80
7519260	100	95	89
7519261	95	94	86
7519262	99	103	87
Blank	92	96	80

*- 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: 07/15/14 at 11:52 AM

Group Number: 1486143

Surrogate Quality Control

LCS	107	112	94
MS	98	82	97
MSD	93	75	92
Limits:	59-128	62-141	70-134

*- 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.: 1486143 Sample Nos.: 7579 250-62
 Acc't: 06643 SF: 206343 SCR No.: 156008 Cooler No.: 226184 **28884**
 Cooler Temperature upon receipt: 0.5 °C Container No.: 1

Facility Name: Kentec		Project Manager: Marc Harder			Analyses Required										Comments:					
Facility Contact: Jerry Bailey		Facility Contact Phone No.: 252-341-0912																		
Facility Address: DuPont Kentec Plant		Job No.: 9267-7720100C-WH06504707																		
		Release No.:																		
Kentec NC		PO Number: LBIO-66380																		
Sampler(s): <u>Karen Teague, Jerry Bailey</u>		Project Name: GW SAMPLING 2014			1,4-Dioxane (8270D SIM)										Condition upon receipt: <u>Intact</u>					
Sample Identification		Date Collected	Time Collected	Matrix													Containers			X
																	Volume (ml)	Preserv	No.	
<u>GW2014-MW-1B</u>		<u>7/1/14</u>	<u>1608</u>	<u>WW</u>													<u>250</u>	<u>None</u>	<u>2</u>	
Turnaround Time Requested (please circle): <u>Standard</u> RUSH Number of days: <u>8</u>					Special Instructions:															
Bottles Relinquished by: <u>Kara Megadiko</u>		Date: <u>6/10/14</u>	Time: <u>8:08</u>		Bottles Received by: <u>Karen Teague</u>			Date: <u>6/10/14</u>	Time: <u>0830</u>											
Bottles Relinquished by: <u>Karen Teague</u>		Date: <u>7/1/14</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>[Signature]</u>			Date: <u>7/2/14</u>	Time: <u>0910</u>											



Lancaster Laboratories

Analysis Request / Environmental Services Chain of Custody

1 of 1

For Lancaster Laboratories Use Only

Group No.: 1486143 Sample Nos.: 7519250-62
Acc't: 06643 SF: 206343 SCR No.: 156007 Cooler No.: 221718 **28888**
Cooler Temperature upon receipt: 0.5 °C Container No.: 1

Facility Name: Kentec		Project Manager: Marc Harder			Analyses Required										Comments:				
Facility Contact: Jerry Bailey		Facility Contact Phone No.: 252-341-0912																	
Facility Address: DuPont Kentec Plant		Job No.: 9267-7720100C-WH06504707																	
		Release No.:																	
Kentec NC		PO Number: LBIO-66380																	
Sampler(s): <u>K. Teague, J. Bailey</u>												Condition upon receipt: <u>Intact</u>							
Project Name: GW SAMPLING 2014																			
Sample Identification	Date Collected	Time Collected	Matrix	Containers			1,4-Dioxane (8270D SIM)												
				Volume (ml)	Preserv	No.													
GW2014-MW-6	<u>7/11/14</u>	<u>1111</u>	WW	250	None	2	X												
GW2014-MW-6	<u>↓</u>	<u>↓</u>	WW	250	None	2	X												
GW2014-MW-6	<u>↓</u>	<u>↓</u>	WW	250	None	2	X												
Turnaround Time Requested (please circle): <u>Standard</u> RUSH Number of days: <u>8</u>												Special Instructions:							
Bottles Relinquished by: <u>K. L. Dint</u>		Date: <u>6-10-14</u>	Time: <u>0815</u>	Bottles Received by: <u>Shuskegne</u>				Date: <u>6/30/14</u>	Time: <u>0830</u>										
Bottles Relinquished by: <u>Shuskegne</u>		Date: <u>7/1/14</u>	Time: <u>1800</u>	Bottles Received by:				Date:	Time:										
Bottles Relinquished by: <u>/</u>		Date:	Time:	Bottles Received by: <u>/</u>				Date:	Time:										
Bottles Relinquished by: <u>/</u>		Date:	Time:	Bottles Received by: <u>/</u>				Date: <u>7/2/14</u>	Time: <u>0920</u>										



Lancaster Laboratories

Analysis Request / Environmental Services Chain of Custody

1 of 1

For Lancaster Laboratories Use Only

Group No.: 1486143 Sample Nos.: 7519250-62
 Acc't: 06643 SF: 206343 SCR No.: 156007 Cooler No.: C26104 **28890**
 Cooler Temperature upon receipt: 0.5 °C Container No.: 1

Facility Name: Kentec		Project Manager: Marc Harder		Analyses Required										Comments:																			
Facility Contact: Jerry Bailey		Facility Contact Phone No.: 252-341-0912																															
Facility Address: DuPont Kentec Plant		Job No.: 9267-7720100C-WH06504707																															
		Release No.:																															
Kentec NC		PO Number: LBIO-66380																															
Sampler(s): <u>K. Teague, J. Bailey</u>				1,4-Dioxane (8270D SIM)										Condition upon receipt: <u>Intact</u>																			
Project Name: GW SAMPLING 2014																																	
Sample Identification	Date Collected	Time Collected	Matrix												Containers			X															
															Volume (ml)	Preserv	No.																
GW2014-MW-9	<u>7/1/14</u>	<u>1505</u>	<u>WW</u>												<u>250</u>	<u>None</u>	<u>2</u>	X															
GW2014-MW-10A	<u>7/1/14</u>	<u>1423</u>	<u>WW</u>												<u>250</u>	<u>None</u>	<u>2</u>	X															
GW2014-MW-10B	<u>7/1/14</u>	<u>1342</u>	<u>WW</u>												<u>250</u>	<u>None</u>	<u>2</u>	X															
Turnaround Time Requested (please circle): <u>Standard</u> RUSH Number of days: <u>8</u>		Special Instructions:																															
Bottles Relinquished by: <u>[Signature]</u>	Date: <u>6-10-14</u>	Time: <u>0800</u>	Bottles Received by: <u>[Signature]</u>										Date: <u>6/30/14</u>	Time: <u>0830</u>																			
Bottles Relinquished by: <u>[Signature]</u>	Date: <u>7/1/14</u>	Time: <u>1800</u>	Bottles Received by: <u>[Signature]</u>										Date: <u></u>	Time: <u></u>																			
Bottles Relinquished by: <u>[Signature]</u>	Date: <u></u>	Time: <u></u>	Bottles Received by: <u>[Signature]</u>										Date: <u></u>	Time: <u></u>																			
Bottles Relinquished by: <u>[Signature]</u>	Date: <u></u>	Time: <u></u>	Bottles Received by: <u>[Signature]</u>										Date: <u>7/2/14</u>	Time: <u>0920</u>																			



Lancaster Laboratories

Analysis Request / Environmental Services Chain of Custody

1 of 1

For Lancaster Laboratories Use Only

Group No.: 1486143 Sample Nos.: 7519250-62
Acc't: 06643 SF: 206343 SCR No.: 156007 Cooler No.: 201621 **28894**
Cooler Temperature upon receipt: 0.5 °C Container No.: 1

Facility Name: Kentec		Project Manager: Marc Harder		Analyses Required										Comments:					
Facility Contact: Jerry Bailey		Facility Contact Phone No.: 252-341-0912		1,4-Dioxane (8270D SIM)															
Facility Address: DuPont Kentec Plant		Job No.: 9267-7720100C-WH06504707																	
Kentec NC		Release No.:																	
Sampler(s): <u>K. Taague, J. Bailey</u>		PO Number: LBIO-66380																	
Project Name: GW SAMPLING 2014												Condition upon receipt:							
Sample Identification				Containers													Condition upon receipt:		
Date Collected	Time Collected	Matrix	Volume (ml)	Preserv	No.														
GW2014-MW-13	<u>7/1/14</u>	<u>0904</u>	<u>WW</u>	<u>250</u>	<u>None</u>	<u>2</u>	<u>X</u>												
GW2014-MW-H	<u>7/1/14</u>	<u>1015</u>	<u>WW</u>	<u>250</u>	<u>None</u>	<u>2</u>	<u>X</u>												
Turnaround Time Requested (please circle): <u>Standard</u> RUSH Number of days: <u>8</u>												Special Instructions:							
Bottles Relinquished by: <u>[Signature]</u>		Date	Time	Bottles Received by: <u>[Signature]</u>		Date	Time												
		<u>6-10-14</u>	<u>0745</u>			<u>7/1/14</u>	<u>0830</u>												
Bottles Relinquished by: <u>[Signature]</u>		Date	Time	Bottles Received by:		Date	Time												
		<u>7/1/14</u>	<u>1800</u>																
Bottles Relinquished by:		Date	Time	Bottles Received by:		Date	Time												
Bottles Relinquished by:		Date	Time	Bottles Received by: <u>[Signature]</u>		Date	Time												
						<u>7/2/14</u>	<u>0920</u>												

Client: Dupont

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Timestamp: 07/02/2014 9:20
 Number of Packages: 1 Number of Projects: 1

Arrival Condition Summary

Shipping Container Sealed:	<u>Yes</u>	Total Trip Blank Qty:	<u>0</u>
Custody Seal Present:	<u>Yes</u>	Trip Blank Type:	<u>N/A</u>
Custody Seal Intact:	<u>Yes</u>	Air Quality Samples Present:	<u>No</u>
Samples Chilled:	<u>Yes</u>	Air Quality Flow Controllers Present:	<u>N/A</u>
Paperwork Enclosed:	<u>Yes</u>	Flow Controller Quantity:	<u>0</u>
Samples Intact:	<u>Yes</u>	Air Quality Returns:	<u>N/A</u>
Missing Samples:	<u>No</u>		
Extra Samples:	<u>No</u>		
Discrepancy in Container Qty on COC:	<u>No</u>		
Sample IDs on COC match Containers:	<u>Yes</u>		
Sample Date/Times match COC:	<u>Yes</u>		
VOA Vial Headspace \geq 6mm:	<u>N/A</u>		
VOA IDs (\geq 6mm):	<u>N/A</u>		

Unpacked by Joseph Gruber (5200) at 11:28 on 07/02/2014

Samples Chilled Details

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

<u>Cooler #</u>	<u>Thermometer ID</u>	<u>Corrected Temp</u>	<u>Therm. Type</u>	<u>Ice Type</u>	<u>Ice Present?</u>	<u>Ice Container</u>	<u>Samples Collected Same Day as Receipt?</u>	<u>Elevated Temp?</u>
1	DT131	0.5	DT	Wet	Y	Loose	N	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 - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> 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.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is \geq the Method Detection Limit (MDL) and $<$ the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns $>25\%$
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is $<$ CRDL, but \geq IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC 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
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

July 16, 2014

Project: KEN - GW SAMPLING

Submission Date: 07/03/2014

Group Number: 1486555

PO Number: LBIO-66380

State of Sample Origin: NC

Client Sample Description

GW2014-MW-1 Groundwater
GW2014-MW-3 Groundwater
GW2014-MW-4A Groundwater
GW2014-MW-11A Groundwater
GW2014-MW-11B Groundwater
GW2014-MW-12 Groundwater
EB-GW2-070214 Blank Water

Lancaster Labs (LL) #

7521166
7521167
7521168
7521169
7521170
7521171
7521172

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

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Sample Description: GW2014-MW-1 Groundwater
GW SAMPLING 2014

LL Sample # WW 7521166
LL Group # 1486555
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 07/02/2014 09:52 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/03/2014 09:15

Reported: 07/16/2014 13:39

KEN01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	7.9	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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14189WAH026	07/16/2014 00:26	Chad A Moline	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14189WAH026	07/08/2014 16:00	Seth A Farrier	1

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

Sample Description: GW2014-MW-3 Groundwater
GW SAMPLING 2014

LL Sample # WW 7521167
LL Group # 1486555
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 07/02/2014 09:08 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/03/2014 09:15

Reported: 07/16/2014 13:39

KEN03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	7.4	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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14189WAH026	07/16/2014 00:54	Chad A Moline	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14189WAH026	07/08/2014 16:00	Seth A Farrier	1

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

Sample Description: GW2014-MW-4A Groundwater
GW SAMPLING 2014

LL Sample # WW 7521168
LL Group # 1486555
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 07/02/2014 13:31 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/03/2014 09:15

Reported: 07/16/2014 13:39

KEN04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	180	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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14189WAH026	07/16/2014 04:32	Brian K Graham	100
10466	BNA Water Extraction SIM	SW-846 3510C	1	14189WAH026	07/08/2014 16:00	Seth A Farrier	1

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

Sample Description: GW2014-MW-11A Groundwater
GW SAMPLING 2014

LL Sample # WW 7521169
LL Group # 1486555
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 07/02/2014 10:36 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/03/2014 09:15

Reported: 07/16/2014 13:39

KEN1A

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	0.45	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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14189WAH026	07/16/2014 02:43	Brian K Graham	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14189WAH026	07/08/2014 16:00	Seth A Farrier	1

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

Sample Description: GW2014-MW-11B Groundwater
GW SAMPLING 2014

LL Sample # WW 7521170
LL Group # 1486555
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 07/02/2014 11:23 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/03/2014 09:15

Reported: 07/16/2014 13:39

KEN1B

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method	As Received Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	0.050 U		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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14189WAH026	07/16/2014 03:10	Brian K Graham	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14189WAH026	07/08/2014 16:00	Seth A Farrier	1

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

Sample Description: GW2014-MW-12 Groundwater
GW SAMPLING 2014

LL Sample # WW 7521171
LL Group # 1486555
Account # 06643

Project Name: KEN - GW SAMPLING

Collected: 07/02/2014 14:04 by KT

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/03/2014 09:15

Reported: 07/16/2014 13:39

KEN12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	ug/l	ug/l	
12971	1,4-Dioxane	123-91-1	0.11	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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14189WAH026	07/16/2014 03:37	Brian K Graham	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14189WAH026	07/08/2014 16:00	Seth A Farrier	1

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

Sample Description: **EB-GW2-070214 Blank Water**
GW SAMPLING 2014

LL Sample # **WW 7521172**
LL Group # **1486555**
Account # **06643**

Project Name: **KEN - GW SAMPLING**

Collected: 07/02/2014 14:30 by **KT**

CRG-E.I.DuPont de Nemours & Co
URS Corporation
Iron Hill Corporate Center
4051 Ogletown Road, Suite 300
Newark DE 19713

Submitted: 07/03/2014 09:15

Reported: 07/16/2014 13:39

KENE2

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method	As Received Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS	Semivolatiles	SW-846 8270D SIM	ug/l	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
12971	1,4-Dioxane	SW-846 8270D SIM	1	14189WAH026	07/16/2014 04:05	Brian K Graham	1
10466	BNA Water Extraction	SIM SW-846 3510C	1	14189WAH026	07/08/2014 16:00	Seth A Farrier	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: 07/16/14 at 01:39 PM

Group Number: 1486555

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: 14189WAH026 1,4-Dioxane	0.050 U	0.050	0.10	ug/l	75	76	45-77	1	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: 17 PAH Compounds
Batch number: 14189WAH026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
7521166	115	112	92
7521167	111	97	90
7521168	110	82	108
7521169	110	95	85
7521170	109	107	83
7521171	111	76	85
7521172	111	106	89
Blank	109	104	82
LCS	117	118	94
LCSD	114	116	93
Limits:	59-128	62-141	70-134

*- 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 Kentec

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Timestamp: 07/03/2014 9:15
 Number of Packages: 1 Number of Projects: 1
 State/Province of Origin: NC

Arrival Condition Summary

Shipping Container Sealed:	<u>Yes</u>	Total Trip Blank Qty:	<u>0</u>
Custody Seal Present:	<u>Yes</u>	Trip Blank Type:	<u>N/A</u>
Custody Seal Intact:	<u>Yes</u>	Air Quality Samples Present:	<u>No</u>
Samples Chilled:	<u>Yes</u>	Air Quality Flow Controllers Present:	<u>N/A</u>
Paperwork Enclosed:	<u>Yes</u>	Flow Controller Quantity:	<u>0</u>
Samples Intact:	<u>Yes</u>	Air Quality Returns:	<u>N/A</u>
Missing Samples:	<u>No</u>		
Extra Samples:	<u>No</u>		
Discrepancy in Container Qty on COC:	<u>No</u>		
Sample IDs on COC match Containers:	<u>Yes</u>		
Sample Date/Times match COC:	<u>Yes</u>		
VOA Vial Headspace ≥ 6mm:	<u>N/A</u>		
VOA IDs (≥ 6mm):	<u>N/A</u>		

Unpacked by Wesley Miller (2308) at 12:48 on 07/03/2014

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	Samples	
							Collected Same Day as Receipt?	Elevated Temp?
1	DT121	1.1	DT	Wet	Y	Loose	N	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 - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> 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.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is \geq the Method Detection Limit (MDL) and $<$ the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

- A** TIC is a possible aldol-condensation product
- B** Analyte was also detected in the blank
- C** Pesticide result confirmed by GC/MS
- D** Compound quantitated on a diluted sample
- E** Concentration exceeds the calibration range of the instrument
- N** Presumptive evidence of a compound (TICs only)
- P** Concentration difference between primary and confirmation columns $>25\%$
- U** Compound was not detected
- X,Y,Z** Defined in case narrative

Inorganic Qualifiers

- B** Value is $<$ CRDL, but \geq IDL
- E** Estimated due to interference
- M** Duplicate injection precision not met
- N** Spike sample not within control limits
- S** Method of standard additions (MSA) used for calculation
- U** Compound was not detected
- W** Post digestion spike out of control limits
- *** Duplicate analysis not within control limits
- +** Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC 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.

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