AECOM

Environment

Submitted on behalf of
The Chemours Company

Submitted by
AECOM
Sabre Building
Suite 300
4051 Ogletown Road
Newark, DE 19713

Ramapo-Pompton River Sediment Investigation Report
Pompton Lakes Works PI# 007411
Pompton Lakes, New Jersey

July 2015
18986635

Table of Contents

Tables

Figures

Appendices

Acronym List

Acronym	Explanation
ADQM	Analytical Data Quality Management
COC	Chain of custody
CSM	Conceptual site model
DDR	DuPont Data Review
EPA	Environmental Protection Agency
GIS	Geographic information system
GPS	Global positioning system
LCS/LCSD	Laboratory control sample/laboratory control sample duplicate
mm	Millimeter
MS/MSD	Matrix spike/matrix spike duplicate
MUA	Municipal Utility Authority
NJDEP	New Jersey Department of Environmental Protection
NJPDES	New Jersey Pollution Discharge Elimination System
PLW	Pompton Lakes Works
PVWC	Passaic Valley Water Commission
RCRA	Resource Conservation and Recovery Act
REP	Laboratory replicate
RPD	Relative percent difference
RPR	Relative percent recovery
THg	Total mercury
TOC	Total organic carbon

Executive Summary

This report presents the results of sediment investigations conducted on the Ramapo River and Pompton River downstream of the Pompton Lake Dam located near Pompton Lakes, New Jersey (Passaic County and Morris County; see Figure 1). The overall purpose of these investigations was to characterize mercury concentrations and other physical sediment characteristics to support the conceptual site model regarding the potential downstream transport of mercury from Pompton Lake.

The spatial scope of sediment investigations included approximately three miles of the Ramapo River and Pompton River downstream of the Pompton Lake Dam, extending from Hamburg Turnpike to Riverside Park (see Figure 1). Specific objectives of the sediment investigations on the Ramapo River and Pompton River downstream of the Pompton Lake Dam were to:

- Create a contiguous geospatial database of substrate composition to identify areas of fine-grained sediment (silts, clays, and fine sands) deposition; and
- Characterize total mercury (THg) concentrations and other physical sediment characteristics, with sampling biased to mapped areas of fine-grained sediment deposition.

Substrate mapping and visual bank surveys were conducted to identify and document existing riverbed and bank conditions. Riverbed substrates were classified into one of six types based on the predominant particle diameter. The locations of outfalls within the study area were also noted to identify other potential sources of mercury to the Ramapo River and Pompton River. Following the field mapping of riverbed substrates, geospatial data and associated observations were post-processed and integrated into a geographic information system (GIS) platform to produce contiguous geospatial mapping of the riverbed substrate types.

Based on the observed spatial distribution of substrate types within the three-mile study area, a sediment sampling program was designed to characterize THg concentrations in representative sediment depositional areas downstream of Pompton Lake. The selection of sediment sampling stations was biased to areas of fine-grained deposits identified during the substrate mapping survey based on the association of mercury with fine-grained sediment particles. Therefore, the resulting dataset represents a conservative characterization of THg concentrations in sediment within the study area.

Sediment samples were collected from cores advanced to refusal and sectioned at the following sampling intervals within the recovered core:

- 0 to 0.5-foot
- 0.5-foot to a maximum of 1.0 foot, depending on the depth of recovery
- 1.5-foot intervals thereafter (e.g., 1.0 to 2.5 feet) to the depth of recovery

The results of substrate mapping and sediment characterization sampling investigations support the following findings:

- Results of the substrate mapping survey indicate that fine-grained sediment deposits represented a relatively minor component (8.2 percent) of overall habitat availability within the surveyed areas; substrates with predominantly silt and clay size fractions represented only 5.4 percent of the mapped study area.

- Field survey observations and a database review identified current and historical outfalls, which may represent potential sources of mercury to the Ramapo River downstream of the Pompton Lake Dam.
- Consistent with previous investigations, the results of characterization sampling biased to areas of fine-grained sediment deposition indicate relatively low THg concentrations:
  - THg concentrations in the surficial sampling interval (0 to 0.5-foot) were less than 1 mg/kg in 25 of 34 samples, with all but one sample containing less than 5 mg/kg.
  - The geometric mean THg concentration in samples from the 0 to 0.5-foot sampling interval was 0.58 mg/kg.
  - The maximum concentration of 23.5 mg/kg in the surface interval was measured in a spatially-limited (approximately 0.06 acres) fine-grained sediment deposit and was not consistent with THg concentrations observed in surface samples from other fine-grained deposits within the study area.
- Surficial samples with greater THg concentrations were associated with greater concentrations of total organic carbon (TOC) and percent silt/clay-sized particles (grain size less than 0.063 mm); samples with THg concentrations greater than 1 mg/kg contained greater than 1.5 percent TOC and greater than 25 percent silt/clays.
- Given that the results of the substrate mapping survey indicate that silts/clays are the predominant substrate type in only 5.4 percent of surveyed areas, sediment deposits with surficial THg concentrations exceeding 1 mg/kg are likely spatially-limited.
- Vertical characterization of THg concentrations in sediment cores generally indicated decreasing THg concentrations with increasing sampling depth.

The results of substrate mapping and sediment characterization sampling, which was biased to fine-grained sediment deposits in the Ramapo River and Pompton River downstream of the Pompton Lake Dam, indicate a limited distribution of fine-grain sediment depositional areas within the 3-mile study area. The general association between THg concentration with TOC and fine-grain sediment, and the characterization mapping of the substrate indicates that the distribution of mercury in the sediment is not widespread.

1.0 Introduction

This report presents the results of sediment investigations conducted on the Ramapo River and Pompton River downstream of the Pompton Lake Dam located near Pompton Lakes, New Jersey (Passaic County and Morris County; see Figure 1). The overall purpose of these investigations was to characterize mercury concentrations and other physical sediment characteristics to support the conceptual site model (CSM) regarding the potential downstream transport of mercury from Pompton Lake.

Environmental investigations are being conducted to confirm or further refine the CSM identifying the source(s), fate, and transport of mercury in Pompton Lake and portions of the Ramapo River and Pompton River downstream of the Pompton Lake Dam. As part of the Corrective Action program under the Resource Conservation and Recovery Act (RCRA), numerous environmental investigations have been conducted to characterize the nature and extent of site-related constituents attributed to the Pompton Lakes Works (PLW) facility. As part of the RCRA Corrective Action program, the U.S. Environmental Protection Agency (EPA) requested additional sediment sampling in the Ramapo River and Pompton River downstream of Pompton Lake to evaluate the potential downstream transport of mercury (EPA, 2012).

Sediment investigations in the Ramapo River and Pompton River were conducted in a phased approach. To support the development of a sediment sampling plan for the downstream area, a riverbed substrate mapping survey was conducted in August 2013 to identify and map depositional areas that have accumulated fine-grained sediments (silts/clays and fine sands). Based on the substrate mapping information, sampling stations were located in identified fine-grained sediment deposits for mercury characterization. Fine-grained sediment deposits were the focus of the analytical sampling program due to the association of mercury with fine-grained sediment particles.

The findings of the substrate mapping survey and a proposed sampling plan to characterize mercury concentrations in sediment were presented in the *Ramapo River and Pompton River Substrate Characterization Technical Memorandum* (Substrate Characterization Technical Memorandum) that was submitted to EPA in January 2014 (URS, 2014a). The sampling plan was refined based on comments on the Substrate Characterization Technical Memorandum received from EPA and the New Jersey Department of Environmental Protection (NJDEP) on June 20, 2014. The revised sampling plan was implemented in July 2014.

This report presents the findings of the substrate mapping and the analytical characterization of mercury in fine-grained sediment deposits in the Ramapo River and Pompton River downstream of the Pompton Lake Dam.

1.1 Objectives and Scope

Specific objectives of the sediment investigations on the Ramapo River and Pompton River downstream of the Pompton Lake Dam were to:

- Create a contiguous geospatial database of substrate composition to identify areas of fine-grained sediment deposition; and
- Characterize total mercury (THg) concentrations and other physical sediment characteristics, with sampling biased to mapped areas of fine-grained sediment deposition.

The spatial scope of sediment investigations included approximately three miles of the Ramapo River and Pompton River downstream of the Pompton Lake Dam, extending from Hamburg Turnpike to Riverside Park (see Figure 1). Detailed maps of study area reaches are provided in Figures 2 through 12. Due to access issues, substrate mapping and/or analytical sediment sampling was not conducted within the following reaches in the overall study area:

- Between the Hamburg Turnpike Bridge and the Pompton Lake Dam: Substrate mapping and sediment sampling were not conducted due to restricted access and safety concerns associated with high water velocity discharging from the Pompton Lake Dam;
- Between the Pompton Dam and the Passaic Valley Water Commission (PVWC) Dam: Substrate mapping and sediment sampling were not conducted due to restricted access at the 12-acre Top Soil Depot Site. This site has been an ongoing subject of legal action by the NJDEP (NJDEP, 2010) and is not accessible without permission from the court or NJDEP, pending cleanup (Petrick, 2012); and
- Upstream of the Pompton Dam and Pequannock Dam: Substrate mapping was not conducted within 150 feet of the Pompton Dam and Pequannock Dam; due to safety concerns associated with low-head dams. However, two sediment stations were sampled upstream of each dam using a modified safety approach developed specifically to access these areas.

1.2 Report Organization

The report is organized into the following sections:

- Section 2.0 provides background information for the investigation.
- Section 3.0 presents the methods and findings of the substrate mapping survey.
- Section 4.0 presents the methods and findings of sediment characterization sampling.
- Section 5.0 summarizes the findings of the investigation.
- Section 6.0 lists the references cited in the report.

2.0 Investigation Background

The following sections provide background information on the study area.

2.1 Hydrologic Setting

Within the study area, the Ramapo River flows from the Pompton Lake Dam to its confluence with the Pequannock River between the Pompton and PVWC Dams to form the Pompton River (see Figure 1). Northeast of Aquatic Park, the Ramapo River braids, with a branch flowing to the west-southwest to the Pequannock Dam and the main channel continuing to flow south. During high flow conditions, the Ramapo River branch that flows west-southwest to the Pequannock Dam may represent a transport pathway for sediments from the Ramapo River below the Pompton Lake Dam. Downstream of the study area, the Pompton River discharges to the Passaic River, which flows to Newark Bay.

2.2 Previous Sediment Characterizations

Several sediment samples were collected as a part of a Feasibility Study for the removal of the Pequannock and Pompton Dams (Civil Dynamics, 2012). This study was conducted by Civil Dynamics for the State of New Jersey Division of Property Management and Construction. Sediment samples were collected for analytical or physical characterizations in 2004, 2011, and 2012, as summarized below.

Seven samples were collected for physical characterization of the substrate in the Ramapo River within the current survey area extending from just below the Pompton Lake Dam to just above the Pompton Dam (see Figure 1; Civil Dynamics, 2012). Substrate consistency and depth of the river bottom were probed at regular intervals with a long pole and representative grab samples were collected using a petite Ponar® clamshell-style dredge. Physical characterization samples were submitted for particle size analysis. The results of the particle size analyses indicated that one sample was well-graded gravel with some sand; the remaining six samples were poorly-graded sand. With the exception of one sample that contained nine percent silt/clay size fraction (< 0.063 mm particle size diameter), samples contained less than five percent silt/clay size fraction. These results, coupled with visual observations, indicated that sediments at these stations are generally sand and gravel (bed load material), with little to no fine-grained material.

Chemical analyses of surficial sediments, including THg analyses, were conducted in areas upstream of the Pequannock Dam, Pompton Dam, and at the PVWC Dam (Civil Dynamics, 2012). Sampling and analysis of sediments focused on stations closer to the feeder dams because these stations had a greater likelihood of containing fine-grained sediment deposits, based on the 2011 physical characterization that indicated upstream sediments were generally sand and gravel (Civil Dynamics, 2012). In the Ramapo River upstream of the Pompton Dam, one sample was collected adjacent to the right wing wall of the dam in October 2004; six additional samples were collected in areas upstream of the Pompton Dam in April 2012. Within the branch of the Ramapo River that flows west-southwest from where the channel braids near Aquatic Park, one analytical sample was collected immediately upstream of the spillway at the Pequannock Dam (October 2004) and three additional samples were collected upstream of the Pequannock Dam (April 2012). One sample was collected at the PVWC Dam. Sampling stations with available sediment THg concentrations are illustrated in Figures 5 through 9.

Sediment data collected during multiple sampling events as part of the PLW investigations in the Ramapo River main channel and the branch of the Ramapo River that flows from the channel braid near Aquatic Park indicate relatively low THg concentrations in surface sediment intervals when compared to concentrations measured in Pompton Lake (Civil Dynamics, 2012; URS, 2014b; ARCADIS et al., 2013; DuPont CRG, 2006; DuPont CRG, 2008; Exponent, 2003). Concentrations of THg in surficial sediments collected upstream of the Pompton Dam in 2012 ranged from 0.11 to 0.34 mg/kg. The sample collected adjacent to the right wing wall of the Pompton Dam (2004) contained 2.4 mg THg/kg. In the branch of the Ramapo River that flows to the Pequannock Dam, concentrations were less than 0.53 mg THg/kg, with the exception of the sample collected upstream of the spillway of the dam that contained 1.4 mg THg/kg (Civil Dynamics, 2012). The THg concentration in the sediment sample collected at the PVWC Dam was 1.5 mg/kg (see Figure 9).

Analytical data were not available to evaluate the potential contribution of mercury from the Top Soil Depot Site to Pompton River sediment (see Figure 9). As stated above, this site has been the subject of legal action by the NJDEP for the disposal, storage, and handling of solid waste, primarily kaofin, which was reported to have entered the river adjacent to the site (NJDEP, 2010; Justia, 2008). In 2008, a settlement was reached for a removal action at the site (NJDEP, 2008). In May 2012, another settlement was reached between NJDEP and 20 trucking companies to remove as much as 22,000 cubic yards of fill and solid waste that was allegedly delivered to the site since 2009, in violation of court orders (Petrick, 2012). The potential impacts of the Top Soil Depot Site on sediment quality within the river could not be assessed because site-specific analytical data were not identified; however, the site represents a potential source of sediment-associated contaminants to the Pompton River downstream of the Pompton Dam.

3.0 Substrate Mapping Survey

The substrate field mapping survey was conducted to create a contiguous geospatial database of substrate composition within approximately three miles of the Ramapo River and Pompton Rivers from Hamburg Turnpike downstream of the Pompton Lake Dam to Riverside Park (see Figure 1). The following sections present the technical approach and findings of the substrate mapping survey conducted in August 2013.

3.1 Technical Scope and Approach

Substrate mapping and visual bank surveys were conducted in two phases: an initial reconnaissance to identify river access, followed by detailed field mapping. Reconnaissance efforts were conducted on the Ramapo River and Pompton River below the Pompton Lake Dam on July 16, 2013 to identify: access/egress points, river conditions (depth/width, general substrate type), and locations of several low-head dams (Pompton Dam, Pequannock Dam, and PVWC Dam). During the reconnaissance, outfalls were also identified and recorded on the field map.

The field survey was conducted during August 12 through 14, 2013. The study area was assessed during the field survey to identify and document existing riverbed and bank conditions, consistent with the field operational procedures provided in the *Substrate Mapping Protocol* (see Appendix A). Predetermined locations were established using a 50-foot x 100-foot grid to facilitate systematic spatial coverage of the study area. Bank disturbances and features, including fallen trees (large woody debris/snags) and additional outfalls, were photographed and detailed notes regarding overall bank condition were recorded.

A Trimble® Geo-XH 6000 sub-meter global positioning system (GPS) unit was used to record the spatial position of predominant substrate types (> 50 percent coverage) and bank features. Substrate mapping was performed at the highest resolution possible given the weather and hydrologic conditions at the time of survey. Generally, substrate patches greater than or equal to approximately 100 square feet were mapped in detail. Where surface water depths precluded the clear identification of substrate type, a rod was used to probe the benthic layer and identify substrate type. Petite Ponar® grab samples and photographs were also collected at 10 percent of the sediment probing locations to enable qualitative characterization and photo documentation of sediments. The photographic log is provided in Appendix B.

Riverbed substrates were classified into one of six types based on the predominant particle diameter size, as adopted from the Wentworth scale (Leeder, 1982):

Sediment Classification	Description	Particle Diameter (mm)
Type 1	Silts and clays	< 0.063
Type 2	Fine sands	0.064 – 0.25
Type 3	Medium/coarse sand and granules	0.26 – 4.00
Type 4	Pebbles	4.01 – 64
Type 5	Pebble/cobble/boulder	64.01 – 4,096
Type 6	Bedrock	> 4,096

Following the field mapping of riverbed substrates, geospatial data and associated observations were post-processed and integrated into a geographic information system (GIS) platform to produce contiguous geospatial mapping of the riverbed substrate types, as follows:

- Depositional areas with fine-grained substrates were identified based on detailed mapping;
- Larger surveyed areas with uniform coarse substrate types (Types 4, 5, or 6) were approximated based on survey results at discrete locations; except at discrete survey points, no distinction was made between substrate Types 4 through 6 in mapping the spatial coverage of coarse-grained substrates.

The approximate spatial extent (i.e., areal coverage) of substrate types was calculated in GIS based on the resulting maps.

3.2 Mapping Survey Findings

The findings of the substrate mapping survey indicate that fine-grained sediment deposits represent a relatively minor component of overall habitat availability within the surveyed areas. Figures 2 through 12 illustrate the mapped substrate types for the survey areas within the Ramapo River and Pompton River between the Pompton Lake Dam and Riverside Park; Table 1 provides a summary of spatial coverage by predominant substrate type. The results indicate that the substrates are generally coarse (Types 3 to 6), with approximately 92 percent of the mapped area characterized by predominantly coarse substrates with particle sizes greater than 0.26 millimeters (mm). Silts and clays (< 0.063 mm particle diameter) comprise only 5.4 percent of the mapped area, with substrates predominated by fine sands representing an additional 2.8 percent of the available benthic habitat. Fine-grained substrates were primarily located in the following depositional areas:

- Areas within the branch of the Ramapo River that flows southwest-south to the Pequannock Dam from where the channel braids near Aquatic Park (see Figures 5 and 6);
- Several areas within the braided channel of the Ramapo River downstream of the Pequannock Dam and upstream of the Pompton Dam (see Figures 6 through 8); and
- Backwater areas along the downstream banks within the Pompton River approximately between 1,200 and 1,600 feet downstream of the PVWC Dam (see Figure 10).

Typically, hand probing in fine-grained sediment deposits encountered refusal at less than one foot below the sediment-surface water interface. One exception was the deposit in a backwater area on the east bank approximately 1,500 feet downstream of the PVWC Dam (see Figure 10), where the substrate depth was one to two feet. Water depths in the thalweg within the study area generally averaged five feet in the areas upstream of Pompton Dam and four feet in the areas downstream of the PVWC Dam. No significant bank erosion was observed during the survey period; bank conditions were generally vegetated and stable.

The survey team was unable to access two portions of the study area to complete substrate mapping efforts. The reach between the Pompton Dam and the PVWC Dam could not be accessed due to the on-going legal action by NJDEP at the Top Soil Depot

Site (see Figure 9). Access to the floodplain and river in this area is primarily through the 12acre Top Soil Depot Site, which is not accessible without permission from the court or NJDEP (NJDEP, 2010; Petrick, 2012). Only visual observations were made in this area via boat and land adjacent to the PVWC Dam. Based on photos and visual observations, predominant substrates along the left downstream bank appeared to be coarse (Types 3-6). In addition to the reach between the Pompton Dam and PVWC Dam, a survey location within a small area upstream of Pequannock Dam and west of Aquatic Park could not be mapped due to inaccessibility by boat (see Figure 5). Observations from accessible points surrounding this area indicated predominantly coarse substrate (Type 3); however, this observation could not be confirmed for the entire area due to inaccessibility.

The survey results indicate that fine-grained sediment deposits (silts/clays to fine sands) represent only a minor component (approximately 8% spatial coverage) of available habitat within the mapped areas. A greater distribution of fine-grained sediment deposits was found upstream of three feeder dams: Pompton Dam, Pequannock Dam, and PVWC Dam. These fine-grained deposits were the focus of the analytical sampling program to characterize the distribution of mercury given their greater binding capacity (see Section 4.0).

In addition to the mapping substrates, the locations of outfalls within the study area were noted to identify other potential sources of mercury to the Ramapo River and Pompton River. Field survey observations were also supplemented by the results of a search of the New Jersey GeoWeb database (see Table 2). Three outfalls were identified during field activities. The Pompton Lakes Municipal Utility Authority (MUA) outfall (NJPDES # 0023698), which discharges treated municipal wastewater, was identified on the Ramapo River immediately upstream of the braided channel/confluence with the Pequannock River (see Table 2 and Figure 4). Outfalls were also observed along the Ramapo River adjacent to the Dawes Highway Bridge (see Figure 3) and opposite of sample station RPR-24 on the east bank at the edge of an agricultural field (see Figure 8); records for these outfalls were not available in the New Jersey GeoWeb database. In addition to the observed outfalls, the New Jersey GeoWeb database identified two historical permitted discharges within the study area (see Table 2). The Wayne Township – Sheffield Hills (NJPDES # NJ0026841) and the Plains Plaza Shopping Center (NJPDES # NJ0026514) wastewater treatment outfalls historically discharged to the Pompton River downstream of the Route 680 (Jackson Avenue) bridge in Wayne Township (see Figure 10) and were removed from service in 1990 and 2009, respectively.

4.0 Analytical Characterization of Sediment

Based on the observed spatial distribution of substrate types within the three-mile study area, a sediment sampling program was designed to characterize THg concentrations in representative sediment depositional areas. Sediment sampling activities were completed from July 28 through 31, 2014. The following sections summarize the scope and objectives, sampling approach, and findings of the sediment characterization sampling.

4.1 Study Design and Sampling Methodology

The following sections provide an overview of the study design and sampling approach used to characterize THg concentrations in fine-grained sediment deposits downstream of the Pompton Lake Dam. The study design and sampling methodology were based on the general approach presented to EPA and NJDEP in the Substrate Technical Memorandum, with modifications based on EPA and NJDEP comments received in the June 20, 2014 comment letter.

4.1.1 Study Design

The primary objective of the sediment sampling scope was to characterize THg concentrations in representative sediment depositional areas identified within the three-mile Ramapo River and Pompton River study area (see Figure 1). The selection of sediment sampling stations was biased to areas of fine-grained sediment deposits identified during the substrate mapping survey based on the association of mercury with fine-grained sediment particles (e.g., silts, clays, fine sands). Therefore, the resulting dataset represents a conservative characterization of THg concentrations in sediment within the study area.

Based on the findings of the August 2013 substrates mapping survey and comments from EPA and NJDEP, 34 discrete sampling stations were selected to characterize sediment THg concentrations within the three-mile study area. Fine-grained sediment deposits, as represented by Substrate Types 1 or 2 in Figures 2 through 12, were defined as areas with the predominant substrate particle diameter equivalent to or less than fine sand (≤ 0.25 mm particle size). The findings of the substrate mapping survey and the limited historical sediment sampling available for the study area indicate that areas of fine-grained sediment are generally located immediately upstream of the Pequannock Dam (see Figure 6), between the Pequannock and Pompton Dams (see Figures 6 through 8), and downstream of the PVWC Dam adjacent to Riverside Park (see Figures 9 through 12). Consistent with the distribution of fine-grained sediments, higher densities of sampling stations were located in areas upstream of Pompton Dam (see Figure 8) and along the branch of the Ramapo River that flows to the Pequannock Dam (see Figure 6). As requested by EPA and NJDEP in the June 20, 2014 comment letter, two sediment stations each were located upstream of Pompton Dam and Pequannock Dam (see Figure 6 and Figure 8, respectively).

Consistent with the substrate mapping survey, analytical sampling was not conducted in two reaches between the Pompton Lake Dam and Riverside Park due to restricted and/or unsafe access:

- Analytical sampling was not conducted between the Hamburg Turnpike Bridge and the Pompton Lake Dam due to restricted access and safety concerns

associated with high water velocity discharging from the Pompton Lake Dam; and

- No samples were collected between the Pompton Dam and the PVWC Dam (see Figure 9) due restricted access at the 12-acre Top Soil Depot Site (see Section 3.2).

The following section details the sampling approach to characterize THg concentrations in fine-grained sediment deposits within the study area.

4.1.2 Sampling Methodology

Field sampling activities were conducted consistent with the approach outlined in the Substrate Characterization Technical Memorandum (URS, 2014a). Actual sampling stations were selected based on conditions observed in the field at the proposed sampling stations, specifically confirmation of the predominance of fine-grained sediments. The spatial position of each sampling station was recorded in the field using a Trimble® Geo-XH 6000 sub-meter GPS unit. Sediment samples were collected using a coring device advanced by hand (e.g., 2-inch diameter core liner and/or AMS sediment corer). Sediment cores were advanced to refusal and sectioned at the following sampling intervals within the recovered core:

- 0 to 0.5-foot
- 0.5-foot to a maximum of 1.0 foot, depending on the depth of recovery
- 1.5-foot intervals thereafter (e.g., 1.0 to 2.5 feet) to the depth of recovery

Sediment cores were visually inspected and characterized in the core log for each station. Intact cores were evaluated visually to identify potential discrete depositional sediment layers that may be indicative of increased sediment transport and deposition associated with hydrodynamic events, as requested by EPA and NJDEP in the June 20, 2014 comment letter.

Surface and subsurface sediment samples collected within the study area were characterized based on the analyses proposed in URS (2014a). Surface sediment samples were analyzed for THg, total organic carbon (TOC), and grain size distribution; subsurface samples were analyzed for THg only. Quality control samples included equipment blanks, field duplicates, and matrix spike/matrix spike duplicate samples (MS/MSD). Field duplicate and MS/MSD samples were collected at a rate of five (5) percent of the total samples collected for each sampling matrix. Equipment blanks associated with sediment sampling were collected at a rate of one per day. Sediment samples were shipped overnight under proper chain-of-custody (COC) procedures to an NJDEP-approved laboratory for analysis.

4.2 Sediment Analytical Characterization Results

The followings sections present the results of the sediment characterization sampling. The findings of the analytical data quality review are presented followed by a summary of the findings of the sediment characterization sampling.

4.2.1 Reliability of Analytical Data

The DuPont Analytical Data Quality Management (ADQM) Group conducted data validation on the electronic data deliverable using the DuPont data review (DDR) process. This process reviews and evaluates laboratory data including hold time criteria,

blank contamination, MS/MSD recoveries, duplicate sample relative percent difference (RPD), laboratory control sample/control sample duplicate (LCS/LCSD) recoveries, and surrogate recoveries. Based on the DDR process, the following qualifiers were assigned to the supplemental sediment data, as applicable:

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

The results of the DDR data review indicate that the sample results were considered useable with appropriate qualification. As presented in the DDR reports provided as Appendix C, select samples were qualified as 'UJ' or 'J' based on the following:

- Associated MS and/or MSD analysis had relative percent recovery (RPR) values less than the lower control limit. The actual detection limits may be higher than reported.
- Associated MS and/or MSD analysis had RPR values higher than the upper control limit. The reported result may be biased high.
- Associated MS and/or MSD analysis had RPR values less than the lower control limit but above the rejection limit. The reported result may be biased low.
- High RPD observed between field duplicate and parent sample. The reported result may be imprecise.
- High RPD observed between REP (laboratory replicate) and parent sample. The reported result may be imprecise.

Based on the findings of the DDR, sediment data were considered to be reliable for the purposes of the investigation.

4.2.2 Sediment Characterization Findings

As stated in Section 4.1.1, sediment characterization sampling in the Ramapo River and Pompton River downstream of the Pompton Lake Dam was biased to areas of fine-grained sediment deposits. As a result of this biased sampling design, the sampling results provide a conservative estimate of the distribution of mercury in sediments downstream of the Pompton Lake Dam, especially considering that fine-grained sediment deposits represent only approximately eight percent of the mapped study area (Section 3.2). Analytical results of characterization sampling are provided in Table 3. Figures 2 through 12 illustrate the spatial distribution of THg concentrations in the context of the substrate mapping survey results. A photographic log of sediment cores collected as part of the characterization sampling is provided as Appendix D; field data sheets are provided in Appendix E.

Consistent with previous investigations, analytical results for characterization sampling biased to areas of fine-grained sediment deposition indicated relatively low THg concentrations (Civil Dynamics, 2012; URS, 2014; ARCADIS et al., 2013; DuPont CRG, 2006; DuPont CRG, 2008; Exponent, 2003). Geometric mean THg concentrations in sediment sampling intervals ranged from 0.12 mg/kg (> 1-foot) to 0.58 mg/kg (0 to 0.5-foot; Table 3). THg concentrations in the surficial sampling interval (0 to 0.5-foot) were

less than 1 mg/kg in 25 of 34 samples, with all but one sample containing less than 5 mg/kg (see Figure 13). The maximum concentration of 23.5 mg/kg in the surface interval was not consistent with THg concentrations observed in surface samples from other fine-grained deposits within the study area. THg concentrations in the 0.5- to 1.0-foot sampling interval ranged from < 0.01 mg/kg to 7.36 mg/kg (geometric mean of 0.34 mg/kg) and THg concentrations in sampling intervals greater than 1-foot ranged from < 0.01 mg/kg to 0.48 mg/kg (see Figure 13). This sample point is downstream of existing outfalls observed within the river system.

Surficial Distribution of THg

The spatial distribution of THg concentrations in the surficial sampling interval (0 to 0.5-foot) indicated generally consistent concentrations in fine-grained sediment deposits. Surficial samples with greater THg concentrations were associated with greater concentrations of TOC and percent silt/clay-sized particles (grain size less than 0.063 mm). Samples with THg concentrations greater than 1 mg/kg contained greater than 1.5 percent TOC and greater than 25 percent silt/clay concentrations (see Figure 14). The maximum THg concentration (23.5 mg/kg) was measured in a sample collected from a spatially-limited (approximately 0.06 acres) fine-grained sediment deposit containing the maximum TOC concentration of 6.56 percent and 44 percent silts and clays. Although sampling was biased to areas of fine-grained sediment deposition, 13 of 34 samples contained less than 1.5 percent TOC and 25 percent silts/clays sediment. This indicates that the predominant substrate in nearly half of the characterization samples contained substrates with grain size diameter equivalent to or greater than fine sands (> 0.064 mm) that contain relatively low THg concentrations. As previously stated, substrates with predominantly silt and clay fractions represented only 5.4 percent of the mapped study area.

Vertical Distribution of THg

Fine-grained sediment deposits within the study area were relatively shallow (< 1 foot) and did not indicate distinct sediment layers potentially associated with episodic depositional events (see Table 3 and Appendix D). Samples were recovered from depth intervals greater than the 0 to 0.5-foot interval in sediment cores collected from 20 of 34 sampling stations; however, samples were recovered at depths greater than the 1-foot interval at only four of 34 sampling stations (see Table 3). No sediment cores greater than 1.5-feet were recovered (see Table 3). No distinct sediment layers that may be indicative of increased sediment transport and deposition associated with hydrodynamic events were observed in any of the cores.

Vertical characterization of THg concentrations in sediment cores generally indicated decreasing THg concentrations with increasing sampling depth. Fourteen of the 20 sampling stations contained greater THg concentrations in the surficial 0 to 0.5-foot interval compared to the 0.5- to 1.0-foot interval in the same core (see Table 3). In all four cores where samples greater than 1-foot were recovered, THg concentrations decreased with depth in each interval below the surface interval (see Table 3). These findings indicate that subsurface sediments sampled within the study area generally do not contain greater concentrations than what was observed in surface intervals.

5.0 Summary of Findings

Substrate mapping and sediment characterization sampling were conducted to characterize mercury concentrations and other physical sediment characteristics to support the CSM regarding the potential downstream transport of mercury from Pompton Lake. The results of these investigations support the following findings:

- Results of the substrate mapping survey indicate that fine-grained sediment deposits represented a relatively minor component (8.2 percent) of overall habitat availability within the surveyed areas; substrates with predominantly silt and clay size fractions represented only 5.4 percent of the mapped study area.
- Field survey observations and a database review identified current and historical outfalls which may represent potential sources of mercury to the Ramapo River downstream of the Pompton Lake Dam.
- Consistent with previous investigations, the results of characterization sampling biased to areas of fine-grained sediment deposition indicate relatively low THg concentrations.
    - THg concentrations in the surficial sampling interval (0 to 0.5-foot) were less than 1 mg/kg in 25 of 34 samples, with all but one sample containing less than 5 mg/kg.
    - The geometric mean THg concentration in samples from the 0 to 0.5-foot sampling interval was 0.58 mg/kg.
    - The maximum concentration of 23.5 mg/kg in the surface interval was measured in a spatially-limited fine-grained sediment deposit and was not consistent with THg concentrations observed in surface samples from other fine-grained deposits within the study area.
- Surficial samples with greater THg concentrations were associated with greater concentrations of TOC and percent silt/clay-sized particles (grain size less than 0.063 mm); samples with THg concentrations greater than 1 mg/kg contained greater than 1.5 percent TOC and greater than 25 percent silt/clays.
- Given that the results of the substrate mapping survey indicate that silts/clays are the predominant substrate type in only 5.4 percent of surveyed areas, sediment deposits with surficial THg concentrations exceeding 1 mg/kg are likely spatially-limited.
- Vertical characterization of THg concentrations in sediment cores generally indicated decreasing THg concentrations with increasing sampling depth.

The results of substrate mapping and sediment characterization sampling biased to fine-grained sediment deposits in the Ramapo River and Pompton River downstream of the Pompton Lake Dam indicate a limited distribution of mercury in sediments. The distribution of mercury in sediments in the three-mile study area downstream of the Pompton Lake Dam is generally associated with fine-grained sediment deposits with predominantly silt/clay grain size fraction (> 25% silts/clays) and higher TOC concentrations (> 1.5 percent). Given that silts/clays were the predominant substrate type in only 5.4 percent of the mapped area, the distribution of mercury in sediments downstream of the Pompton Lake Dam is not considered to be widespread throughout the study area.

6.0 References

ARCADIS, O'Brien & Gere, Parsons, and URS. 2013. Draft Technical Memorandum: Conceptual Site Model. Pompton Lake Acid Brook Delta Project. DuPont Pompton Lakes Works. June 2013.

Civil Dynamics. 2012. Feasibility Study for the Removal of Pompton Dam and Pequannock Dam. Prepared by Civil Dynamics, Inc. for the State of New Jersey Division of Property Management and Construction (DPMC). Project No. P1079-00. June 2012. Accessed at: http://www.nj.gov/dep/damsafety/docs/pomtpon-pequannock-dam-removal-feasibility-study-final201206.pdf

DuPont CRG. 2008. Revised Remedial Investigation Report. DuPont Pompton Lakes Works, Pompton Lakes, New Jersey.

DuPont CRG. 2006. Draft Remedial Action Proposal for Acid Brook Delta Sediments.

EPA. 2012. RCRA Corrective Action Permit Modification I: Statement of Basis. December 2012.

Exponent. 2003. Revised. Acid Brook Delta Ecological Investigation Phase 2 Report. DuPont Pompton Lakes Works, Pompton Lakes, New Jersey.

Justia. 2008. New Jersey Department of Environmental Protection v. Marcal Paper Mills, et al. January 23, 2008. Accessed online on October 10, 2013 at: http://law.justia.com/cases/new-jersey/appellate-division-unpublished/2008/a3551-06-opn.htmlNJDEP. 2010. Passaic River Flood Advisory Commission Acknowledgment of Comments. Accessed on 10 October, 2013 at: http://www.nj.gov/dep/passaicriver/docs/comments.pdf.

Leeder. 1982. Sedimentology: Process and Product. George Allen and Unwin Ltd, London, UK.

NJDEP. 2010. Passaic River Flood Advisory Commission Acknowledgment of Comments. Accessed on 10 October, 2013 at: http://www.nj.gov/dep/passaicriver/docs/comments.pdf.

NJDEP. 2008. Notice to Receive Interested Party Comments on Settlement for Potential Spill Act Liability and Other Environmental Issues in Bergen County. Accessed on 10 October, 2013 at: http://www.state.nj.us/dep/srp/legal/marcal200804notice.pdf.

Petrick. 2008. Long-sought agreement reached on cleanup of polluted Wayne site. THE RECORD. Tuesday, May 8, 2012 Last updated: Tuesday May 8, 2012, 6:35 PM. Accessed on 10 October, 2013 at: http://www.northjersey.com/wayne/Long-sought_agreement_reached_on_cleanup_of_polluted_Wayne_site.html

URS. 2014a. Ramapo River and Pompton River Substrate Characterization Technical Memorandum. DuPont Pompton Lakes Works. Pompton Lakes, New Jersey. URS Corporation. February 2014.

URS 2014b. 2013 Pompton Lake Ecological Investigation Report. DuPont Pompton Lakes Works, Pompton Lakes, New Jersey. URS Corporation. March 2014.

Tables

Table 1
Summary of Predominant Substrate Types Based on Substrate Mapping Survey
Ramapo-Pompton River Sediment Investigation Report
Chemours Pompton Lakes Works
Morris and Passaic Counties, New Jersey

Substrate Type	Particle Diameter (mm)	Mapped Sediment Area (acres)	Percentage of Mapped Area (%)
1) Silts and Clays	< 0.063	2.7	5.4%
2) Fine Sands	0.064 – 0.25	1.4	2.8%
Total Fine-Grained Sediments		**4.1**	**8.2%**
3) Medium / Coarse Sands and Granules	0.26 – 4.00	17.5	35.7%
4-6) Pebbles, Cobbles, Boulders, Bedrock	4.01 – > 4,096	27.5	56.0%
Total Coarse-Grained Sediments		**45.1**	**91.8%**

Table 2
Summary of Outfalls Identified within the Study Area
Ramapo-Pompton River Sediment Investigation Report
Chemours Pompton Lakes Works
Morris and Passaic Counties, New Jersey

NJPDES ID	Facility Name	Outfall Type	Notes
NJ0023698	Pompton Lakes MUA	Wastewater Treatment Plant	Active outfall
NJ0026841	Wayne Township -Sheffield Hills	Wastewater Treatment Plant	Outfall taken out of service - 11/1990
NJ0026514	Plains Plaza Shopping Center	Wastewater Treatment Plant	Outfall taken out of service - 11/2009
NA	NA	Unknown Outfall Observed	Outfall observed adjacent to Dawes Highway Bridge
NA	NA	Unknown Outfall Observed	Outfall observed adjacent to agricultural field

Notes:

NJPDES, New Jersey Pollutant Discharge Elimination System

NA, Data not available

Table 3
Summary of Sediment Analytical Results
Ramapo-Pompton River Sediment Investigation Report
Chemours Pompton Lakes Works
Morris and Passaic Counties, New Jersey

Sample ID	Sample Interval (ft)	THg (mg/kg)	Total Organic Carbon (%)	Percent Fines[1] (%)
RPR-01	0.0-0.5	0.44 J	0.78	7
	0.5-0.75	0.12 J	--	--
RPR-02	0.0-0.5	0.13 J	0.77	9
RPR-03	0.0-0.5	0.64	0.89	39
RPR-04	0.0-0.5	0.93	0.72	18
RPR-05	0.0-0.5	0.48	0.96	11
RPR-06	0.0-0.5	0.40	1.47	4
RPR-07	0.0-0.5	3.92	1.56	39
	0.5-.75	0.03 J	--	--
RPR-08	0.0-0.5	3.97	3.17	49
	0.5-1.0	3.38	--	--
RPR-09	0.0-0.5	z	2.27	13.5
RPR-10	0.0-0.5	0.04 J	0.01 U	2
RPR-11	0.0-0.5	0.10 J	0.18	2
RPR-12	0.0-0.5	2.77 J	3.38	32
	0.5-0.75	4.97 J	--	--
RPR-13	0.0-0.5	0.69 J	4.16 J	59
	0.5-.75	0.53 J	--	--
	1.0-1.1	0.18 J	--	--
RPR-14	0.0-0.5	0.55 J	3.71	40.5
	0.5-1.0	0.29 J	--	--
	1.0-1.5	0.21 J	--	--
RPR-15	0.0-0.5	23.5 J	6.56	44
	0.5-1.0	6.34 J	--	--
RPR-16	0.0-0.5	0.45 J	1.30	15
RPR-17	0.0-0.5	1.61 J	1.83	27
	0.5-1.0	2 J	--	--
RPR-18	0.0-0.5	2.41 J	4.55	42
	0.5-0.8	2.15 J	--	--
RPR-19	0.0-0.5	0.34 J	0.66	7
	0.5-0.8	0.38 J	--	--
RPR-20	0.0-0.5	0.22	0.36	18
	0.5-1.0	0.01 U	--	--
	1.0-1.4	0.01 U	--	--

Table 3
Summary of Sediment Analytical Results
Ramapo-Pompton River Sediment Investigation Report
Chemours Pompton Lakes Works
Morris and Passaic Counties, New Jersey

Sample ID	Sample Interval (ft)	THg (mg/kg)	Total Organic Carbon (%)	Percent Fines[1] (%)
RPR-21	0.0-0.5	3.31 J	3.16	45
	0.5-1.0	0.19 J	--	--
	1.0-1.2	0.48 J	--	--
RPR-22	0.0-0.5	0.38	2.37	13
RPR-23	0.0-0.5	1.86 J	4.64	62
	0.5-0.9	0.14 J	--	--
RPR-24	0.0-0.5	0.28	2.53	7.5
RPR-25	0.0-0.5	0.31	1.59	11.5
	0.5-0.95	0.71	--	--
RPR-26	0.0-0.5	4.95	5.09	30
	0.5-1.0	7.36	--	--
RPR-27	0.0-0.5	0.28	0.60	7.5
	0.5-1.0	1.12	--	--
RPR-28	0.0-0.5	0.71	4.37	39
RPR-29	0.0-0.5	0.94	3.02	48
	0.5-0.75	0.30	--	--
RPR-30	0.0-0.5	0.58	2.67	30
RPR-31	0.0-0.5	0.20 J	0.23	3
	0.5-0.9	0.10 J	--	--
RPR-32	0.0-0.5	0.17 J	1.97	14
	0.5-1.0	0.01 UJ	--	--
RPR-33	0.0-0.5	0.06 J	0.03 J	2
RPR-34	0.0-0.5	0.04 J	0.15	77
	0.5-0.75	0.01 UJ	--	--

Geometric Mean THg Concentrations	
Sample Interval (ft)	**THg (mg/kg)**
0.0-0.5	0.58
0.5-1.0	0.34
>1	0.12

Notes:

J - Analyte present. Reported value may not be accurate or precise

U - Not detected

UJ - Not detected. Reporting limit may not be accurate or prescise

-- Not analyzed

1, Percent fines is the percent of sediment passing 0.064 mm sieve, which is representative of silt and clay fractions.

Figures

AECOM

Pompton Lake Dam

Ramapo River

Pequannock River

Aquatic Park

23

Pequannock Dam

202

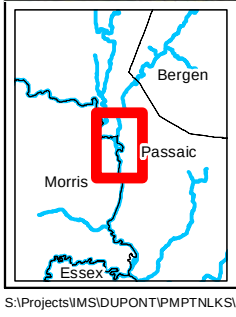
Pompton Dam

PVWC Dam

Pompton River

Pequannock Valley Park

Riverside Park



Legend

Dam

Downstream Study Area Extent

0 1,000 2,000 Feet

1 inch = 1,000 feet

Figure 1
Ramapo River/Pompton River Sediment Investigation Study Area
Ramapo-Pompton River Sediment Investigation Report
Chemours Pompton Lakes Works
Morris and Passaic Counties, New Jersey

S:\Projects\IMS\DUPONT\PMPTNLKS\Projects\PomLke_ERA\Ramapo River Substrate Field Reconnaissance\Figure 1 Ramapo River Substrate Mapping Overview_10142014.mxd

AECOM

Analyte	Units	RPR-01	
		(0 - 0.5')	(0.5' - 0.75')
		Result	Result
MERCURY	MG/KG	0.435 J	0.122 J
TOC	%	0.776	--
PERCENT FINES	% Passing	7	--

Figure 2
Ramapo River/Pompton River Sediment Results
Downstream of Pompton Lake Dam to Riverside Park
Ramapo-Pompton River Sediment Investigation Report
Chemours Pompton Lakes Works
Morris and Passaic Counties, New Jersey

S:\Projects\IMS\DUPONT\PMPTNLKS\Projects\PomLke_ERA\Ramapo River Substrate Field Reconnaissance\Figure 2-12 Ramapo River Substrate Field Reconnaissance Sept 2014_v3.mxd

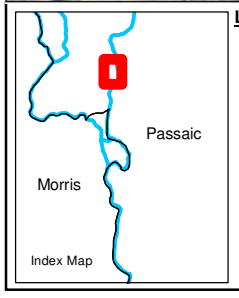
AECOM

Analyte	Units	RPR-02 (0 - 0.5') Result
MERCURY	MG/KG	0.123 J
TOC	%	0.773
PERCENT FINES	% Passing	9

RPR-02

THg Concentration (mg/kg)

- 0 - 0.50
- 0.50 - 2.0
- 2.0 - 5.0
- > 5.0



Legend

- Outfall observed
- **NJDEPES Discharge Points**
- Major
- Minor
- Historical Samples w/ THg Concentrations (mg/kg) (Civil Dynamics, 2012)
- Large Woody Debris
- Survey Location (Substrate Type)
- Photographic Log Reference
- Survey Location with Photo (Substrate Type)
- Access Points
- Dam
- Downstream Study Area Extent
- 150' Safety Buffer Near Dams

Substrate Types

- 1) Silt/Clay
- 2) Fine Sand
- 3) C. Sand/Granule
- 4-6) Pebbles, Cobble, Boulder, Bedrock
- Unmapped

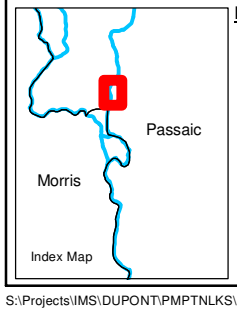
Figure 3
Ramapo River/Pompton River Sediment Results
Downstream of Pompton Lake Dam to Riverside Park
Ramapo-Pompton River Sediment Investigation Report
Chemours Pompton Lakes Works
Morris and Passaic Counties, New Jersey

0 50 100 Feet

1 inch = 100 feet

S:\Projects\IMS\DUPONT\PMPTNLKS\Projects\PomLke_ERA\Ramapo River Substrate Field Reconnaissance\Figure 2-12 Ramapo River Substrate Field Reconnaissance Sept 2014_v3.mxd

AECOM



Legend

- Outfall observed
- **NJDEPES Discharge Points**
- Major
- Minor
- Historical Samples w/ THg Concentrations (mg/kg) (Civil Dynamics, 2012)
- Large Woody Debris
- Survey Location (Substrate Type)
- Photographic Log Reference
- Survey Location with Photo (Substrate Type)
- Access Points
- Dam
- Downstream Study Area Extent
- 150' Safety Buffer Near Dams

Substrate Types

- 1) Silt/Clay
- 2) Fine Sand
- 3) C. Sand/Granule
- 4-6) Pebbles, Cobble, Boulder, Bedrock
- Unmapped

Figure 4
Ramapo River/Pompton River Sediment Results
Downstream of Pompton Lake Dam to Riverside Park
Ramapo-Pompton River Sediment Investigation Report
Chemours Pompton Lakes Works
Morris and Passaic Counties, New Jersey

0 50 100 Feet

1 inch = 100 feet

S:\Projects\IMS\DUPONT\PMPTNLKS\Projects\PomLke_ERA\Ramapo River Substrate Field Reconnaissance\Figure 2-12 Ramapo River Substrate Field Reconnaissance Sept 2014_v3.mxd

AECOM

Analyte	Units	RPR-03 (0 - 0.5') Result
MERCURY	MG/KG	0.639
TOC	%	0.889
PERCENT FINES	% Passing	39

RPR-03

Analyte	Units	RPR-04 (0 - 0.5') Result
MERCURY	MG/KG	0.933
TOC	%	0.722
PERCENT FINES	% Passing	18

RPR-04

Analyte	Units	RPR-05 (0 - 0.5') Result
MERCURY	MG/KG	0.481
TOC	%	0.961
PERCENT FINES	% Passing	11

RPR-05

Analyte	Units	RPR-06 (0 - 0.5') Result
MERCURY	MG/KG	0.401
TOC	%	1.47
PERCENT FINES	% Passing	4

RPR-06

Analyte	Units	RPR-07 (0 - 0.5') Result	RPR-07 (0.5' - 0.75') Result
MERCURY	MG/KG	3.92	0.029 J
TOC	%	1.56	--
PERCENT FINES	% Passing	39	--

RPR-07

Analyte	Units	RPR-08 (0 - 0.5') Result	RPR-08 (0.5' - 1.0') Result
MERCURY	MG/KG	3.97	3.38
TOC	%	3.17	--
PERCENT FINES	% Passing	49	--

RPR-08

Analyte	Units	RPR-09 (0 - 0.5') Result
MERCURY	MG/KG	0.733 J
TOC	%	2.27
PERCENT FINES	% Passing	13.5

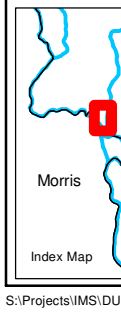
RPR-09

Analyte	Units	RPR-10 (0 - 0.5') Result
MERCURY	MG/KG	0.039 J
TOC	%	0.012 U
PERCENT FINES	% Passing	2

RPR-10

P-2
0.36 mg/kg

THg Concentration (mg/kg)
- 0 - 0.50
- 0.50 - 2.0
- 2.0 - 5.0
- > 5.0



Legend

- Outfall observed
- NJDEPES Discharge Points
  - Major
  - Minor
- Historical Samples w/ THg Concentrations (mg/kg) (Civil Dynamics, 2012)
- Large Woody Debris
- Survey Location (Substrate Type)
- Photographic Log Reference
- Survey Location with Photo (Substrate Type)
- Access Points
- Dam
- Downstream Study Area Extent
- 150' Safety Buffer Near Dams
- Substrate Types
  - 1) Silt/Clay
  - 2) Fine Sand
  - 3) C. Sand/Granule
  - 4-6) Pebbles, Cobble, Boulder, Bedrock
  - Unmapped

Figure 5
Ramapo River/Pompton River Sediment Results
Downstream of Pompton Lake Dam to Riverside Park
Ramapo-Pompton River Sediment Investigation Report
Chemours Pompton Lakes Works
Morris and Passaic Counties, New Jersey

0 50 100 Feet

1 inch = 100 feet

S:\Projects\IMS\DUPONT\PMPTNLKS\Projects\PomLke_ERA\Ramapo River Substrate Field Reconnaissance\Figure 2-12 Ramapo River Substrate Field Reconnaissance Sept 2014_v3.mxd

AECOM

Analyte	Units	RPR-11 (0 - 0.5') Result
MERCURY	MG/KG	0.101 J
TOC	%	0.175
PERCENT FINES	% Passing	2

Analyte	Units	RPR-12 (0 - 0.5') Result	RPR-12 (0.5' - 0.75') Result
MERCURY	MG/KG	2.77 J	4.97 J
TOC	%	3.38	--
PERCENT FINES	% Passing	32	--

Analyte	Units	RPR-32 (0 - 0.5') Result	RPR-32 (0.5' - 1.0') Result
MERCURY	MG/KG	0.169 J	0.012 UJ
TOC	%	1.97	--
PERCENT FINES	% Passing	14	--

Analyte	Units	RPR-31 (0 - 0.5') Result	RPR-31 (0.5' - 0.9') Result
MERCURY	MG/KG	0.196 J	0.101 J
TOC	%	0.226	--
PERCENT FINES	% Passing	3	--

Analyte	Units	RPR-15 (0 - 0.5') Result	RPR-15 (0.5' - 1.0') Result
MERCURY	MG/KG	23.5 J	6.34 J
TOC	%	6.56	--
PERCENT FINES	% Passing	44	--

RPR-11
P-4
0.32 mg/kg
RPR-12
P-1
0.53 mg/kg
Pequannock Dam
Pequannock Dam
1.5 mg/kg
RPR-32
RPR-31
RPR-15

THg Concentration (mg/kg)
- 0 - 0.50
- 0.50 - 2.0
- 2.0 - 5.0
- > 5.0

Index Map (Passaic, Morris)

Legend
- Outfall observed
- NJDEPES Discharge Points
- Major
- Minor
- Historical Samples w/ THg Concentrations (mg/kg) (Civil Dynamics, 2012)
- Large Woody Debris
- Survey Location (Substrate Type)
- Photographic Log Reference
- Survey Location with Photo (Substrate Type)
- Access Points
- Dam
- Downstream Study Area Extent
- 150' Safety Buffer Near Dams
- Substrate Types
- 1) Silt/Clay
- 2) Fine Sand
- 3) C. Sand/Granule
- 4-6) Pebbles, Cobble, Boulder, Bedrock
- Unmapped

Figure 6
Ramapo River/Pompton River Sediment Results
Downstream of Pompton Lake Dam to Riverside Park
Ramapo-Pompton River Sediment Investigation Report
Chemours Pompton Lakes Works
Morris and Passaic Counties, New Jersey

0 50 100 Feet
1 inch = 100 feet

S:\Projects\IMS\DUPONT\PMPTNLKS\Projects\PomLke_ERA\Ramapo River Substrate Field Reconnaissance\Figure 2-12 Ramapo River Substrate Field Reconnaissance Sept 2014_v3.mxd

AECOM

Analyte	Units	RPR-13		
		(0 - 0.5')	(0.5' - 1.0')	(1.0' - 1.1')
		Result	Result	Result
MERCURY	MG/KG	0.69 J	0.529 J	0.184 J
TOC	%	4.16 J	--	--
PERCENT FINES	% Passing	59	--	--

Analyte	Units	RPR-14		
		(0 - 0.5')	(0.5' - 1.0')	(1.0' - 1.5')
		Result	Result	Result
MERCURY	MG/KG	0.551 J	0.286 J	0.207 J
TOC	%	3.71	--	--
PERCENT FINES	% Passing	40.5	--	--

Analyte	Units	RPR-16
		(0 - 0.5')
		Result
MERCURY	MG/KG	0.448 J
TOC	%	1.3
PERCENT FINES	% Passing	15

Analyte	Units	RPR-17	
		(0 - 0.5')	(0.5' - 1.0')
		Result	Result
MERCURY	MG/KG	1.61 J	2 J
TOC	%	1.83	--
PERCENT FINES	% Passing	27	--

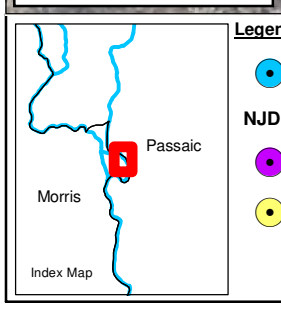
Analyte	Units	RPR-18	
		(0 - 0.5')	(0.5' - 0.8')
		Result	Result
MERCURY	MG/KG	2.41 J	2.15 J
TOC	%	4.55	--
PERCENT FINES	% Passing	42	--

Analyte	Units	RPR-19	
		(0 - 0.5')	(0.5' - 0.8')
		Result	Result
MERCURY	MG/KG	0.344 J	0.377 J
TOC	%	0.663	--
PERCENT FINES	% Passing	7	--

Analyte	Units	RPR-20		
		(0 - 0.5')	(0.5' - 1.0')	(1.0' - 1.4')
		Result	Result	Result
MERCURY	MG/KG	0.215	0.013 U	0.013 U
TOC	%	0.36	--	--
PERCENT FINES	% Passing	18	--	--

RPR-13
RPR-14
RPR-16
RPR-17
RPR-18
RPR-19
RPR-20
R-1
0.25 mg/kg

THg Concentration (mg/kg)
- 0 - 0.50
- 0.50 - 2.0
- 2.0 - 5.0
- > 5.0



Legend
- Outfall observed
- **NJDEPES Discharge Points**
- Major
- Minor
- Historical Samples w/ THg Concentrations (mg/kg) (Civil Dynamics, 2012)
- Large Woody Debris
- Survey Location (Substrate Type)
- Photographic Log Reference
- Survey Location with Photo (Substrate Type)
- Access Points
- Dam
- Downstream Study Area Extent
- 150' Safety Buffer Near Dams

Substrate Types
- 1) Silt/Clay
- 2) Fine Sand
- 3) C. Sand/Granule
- 4-6) Pebbles, Cobble, Boulder, Bedrock
- Unmapped

Figure 7
Ramapo River/Pompton River Sediment Results
Downstream of Pompton Lake Dam to Riverside Park
Ramapo-Pompton River Sediment Investigation Report
Chemours Pompton Lakes Works
Morris and Passaic Counties, New Jersey

0 50 100 Feet

1 inch = 100 feet

S:\Projects\IMS\DUPONT\PMPTNLKS\Projects\PomLke_ERA\Ramapo River Substrate Field Reconnaissance\Figure 2-12 Ramapo River Substrate Field Reconnaissance Sept 2014_v3.mxd

AECOM

Analyte	Units	RPR-21		
		(0 - 0.5')	(0.5' - 1.0')	(1.0' - 1.2')
		Result	Result	Result
MERCURY	MG/KG	3.31 J	0.192 J	0.476 J
TOC	%	3.16	--	--
PERCENT FINES	% Passing	45	--	--

Analyte	Units	RPR-33
		(0 - 0.5')
		Result
MERCURY	MG/KG	0.064 J
TOC	%	0.026 J
PERCENT FINES	% Passing	2

Analyte	Units	RPR-22
		(0 - 0.5')
		Result
MERCURY	MG/KG	0.382
TOC	%	2.37
PERCENT FINES	% Passing	13

Analyte	Units	RPR-23	
		(0 - 0.5')	(0.5' - 0.9')
		Result	Result
MERCURY	MG/KG	1.86 J	0.141 J
TOC	%	4.64	--
PERCENT FINES	% Passing	62	--

Analyte	Units	RPR-24
		(0 - 0.5')
		Result
MERCURY	MG/KG	0.275
TOC	%	2.53
PERCENT FINES	% Passing	7.5

Analyte	Units	RPR-25	
		(0 - 0.5')	(0.5' - 0.95')
		Result	Result
MERCURY	MG/KG	0.31	0.714
TOC	%	1.59	--
PERCENT FINES	% Passing	11.5	--

Analyte	Units	RPR-26	
		(0 - 0.5')	(0.5' - 1.0')
		Result	Result
MERCURY	MG/KG	4.95	7.36
TOC	%	5.09	--
PERCENT FINES	% Passing	30	--

Analyte	Units	RPR-34	
		(0 - 0.5')	(0.5' - 0.75')
		Result	Result
MERCURY	MG/KG	0.035 J	0.012 UJ
TOC	%	0.154	--
PERCENT FINES	% Passing	77	--

R-2
0.15 mg/kg

R-3
0.34 mg/kg

R-4
0.22 mg/kg

R-5
0.2 mg/kg

R-6
0.11 mg/kg

Pompton Dam

Pompton Dam
2.4 mg/kg

RPR-21
RPR-22
RPR-23
RPR-24
RPR-25
RPR-26
RPR-33
RPR-34

THg Concentration (mg/kg)
- 0 - 0.50
- 0.50 - 2.0
- 2.0 - 5.0
- > 5.0

Index Map (Passaic, Morris)

Legend
- Outfall observed
- **NJDEPES Discharge Points**
- Major
- Minor
- Historical Samples w/ THg Concentrations (mg/kg) (Civil Dynamics, 2012)
- Large Woody Debris
- Survey Location (Substrate Type)
- Photographic Log Reference
- Survey Location with Photo (Substrate Type)
- Access Points
- Dam
- Downstream Study Area Extent
- 150' Safety Buffer Near Dams
- **Substrate Types**
- 1) Silt/Clay
- 2) Fine Sand
- 3) C. Sand/Granule
- 4-6) Pebbles, Cobble, Boulder, Bedrock
- Unmapped

Figure 8
Ramapo River/Pompton River Sediment Results
Downstream of Pompton Lake Dam to Riverside Park
Ramapo-Pompton River Sediment Investigation Report
Chemours Pompton Lakes Works
Morris and Passaic Counties, New Jersey

0 50 100 Feet
1 inch = 100 feet

S:\Projects\IMS\DUPONT\PMPTNLKS\Projects\PomLke_ERA\Ramapo River Substrate Field Reconnaissance\Figure 2-12 Ramapo River Substrate Field Reconnaissance Sept 2014_v3.mxd

AECOM

N

UNABLE TO ACCESS DURING SURVEY

TOP SOIL
DEPOT SITE

PVWC Dam
1.5 mg/kg

PVWC Dam

THg Concentration (mg/kg)

- 0 - 0.50
- 0.50 - 2.0
- 2.0 - 5.0
- > 5.0

Index Map (Passaic, Morris)

Legend

- Outfall observed
- **NJDEPES Discharge Points**
- Major
- Minor
- Historical Samples w/ THg Concentrations (mg/kg) (Civil Dynamics, 2012)
- Large Woody Debris
- Survey Location (Substrate Type)
- Photographic Log Reference
- Survey Location with Photo (Substrate Type)
- Access Points
- Dam
- Downstream Study Area Extent
- 150' Safety Buffer Near Dams

Substrate Types

- 1) Silt/Clay
- 2) Fine Sand
- 3) C. Sand/Granule
- 4-6) Pebbles, Cobble, Boulder, Bedrock
- Unmapped

Figure 9
Ramapo River/Pompton River Sediment Results
Downstream of Pompton Lake Dam to Riverside Park
Ramapo-Pompton River Sediment Investigation Report
Chemours Pompton Lakes Works
Morris and Passaic Counties, New Jersey

0 50 100 Feet

1 inch = 100 feet

S:\Projects\IMS\DUPONT\PMPTNLKS\Projects\PomLke_ERA\Ramapo River Substrate Field Reconnaissance\Figure 2-12 Ramapo River Substrate Field Reconnaissance Sept 2014_v3.mxd

AECOM

N

Analyte	Units	RPR-27	
		(0 - 0.5')	(0.5' - 1.0')
		Result	Result
MERCURY	MG/KG	0.276	1.12
TOC	%	0.599	--
PERCENT FINES	% Passing	7.5	--

Analyte	Units	RPR-28
		(0 - 0.5')
		Result
MERCURY	MG/KG	0.711
TOC	%	4.37
PERCENT FINES	% Passing	39

Analyte	Units	RPR-29	
		(0 - 0.5')	(0.5' - 0.75')
		Result	Result
MERCURY	MG/KG	0.941	0.3
TOC	%	3.02	--
PERCENT FINES	% Passing	48	--

Analyte	Units	RPR-30
		(0 - 0.5')
		Result
MERCURY	MG/KG	0.579
TOC	%	2.67
PERCENT FINES	% Passing	30

RPR-27

RPR-28

RPR-29

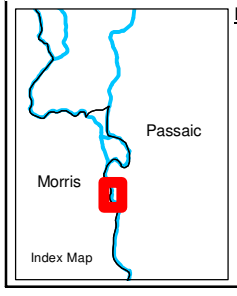
RPR-30

(34)

(35, 36, 37)

THg Concentration (mg/kg)

- 0 - 0.50
- 0.50 - 2.0
- 2.0 - 5.0
- > 5.0



Legend

- Outfall observed
- **NJDEPES Discharge Points**
- Major
- Minor
- Historical Samples w/ THg Concentrations (mg/kg) (Civil Dynamics, 2012)
- Large Woody Debris
- Survey Location (Substrate Type)
- Photographic Log Reference
- Survey Location with Photo (Substrate Type)
- Access Points
- Dam
- Downstream Study Area Extent
- 150' Safety Buffer Near Dams

Substrate Types

- 1) Silt/Clay
- 2) Fine Sand
- 3) C. Sand/Granule
- 4-6) Pebbles, Cobble, Boulder, Bedrock
- Unmapped

Figure 10
Ramapo River/Pompton River Sediment Results
Downstream of Pompton Lake Dam to Riverside Park
Ramapo-Pompton River Sediment Investigation Report
Chemours Pompton Lakes Works
Morris and Passaic Counties, New Jersey

0 50 100 Feet

1 inch = 100 feet

S:\Projects\IMS\DUPONT\PMPTNLKS\Projects\PomLke_ERA\Ramapo River Substrate Field Reconnaissance\Figure 2-12 Ramapo River Substrate Field Reconnaissance Sept 2014_v3.mxd

AECOM

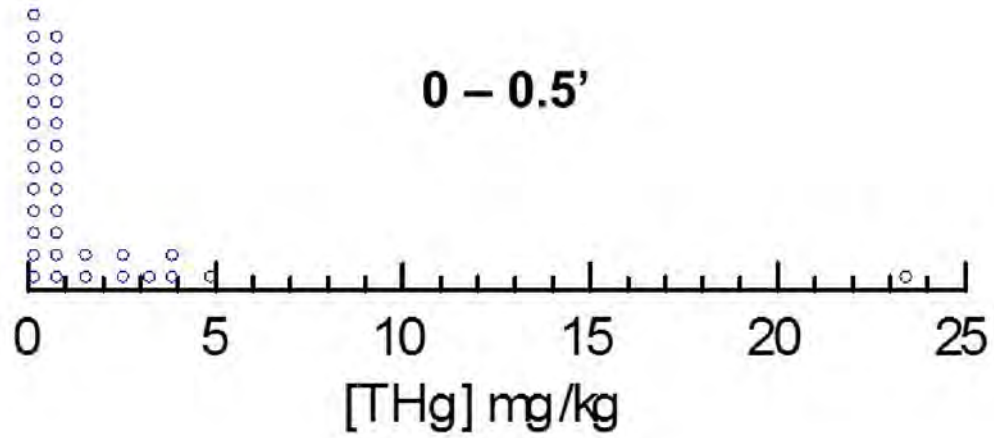
Figure 11
Ramapo River/Pompton River Sediment Results
Downstream of Pompton Lake Dam to Riverside Park
Ramapo-Pompton River Sediment Investigation Report
Chemours Pompton Lakes Works
Morris and Passaic Counties, New Jersey

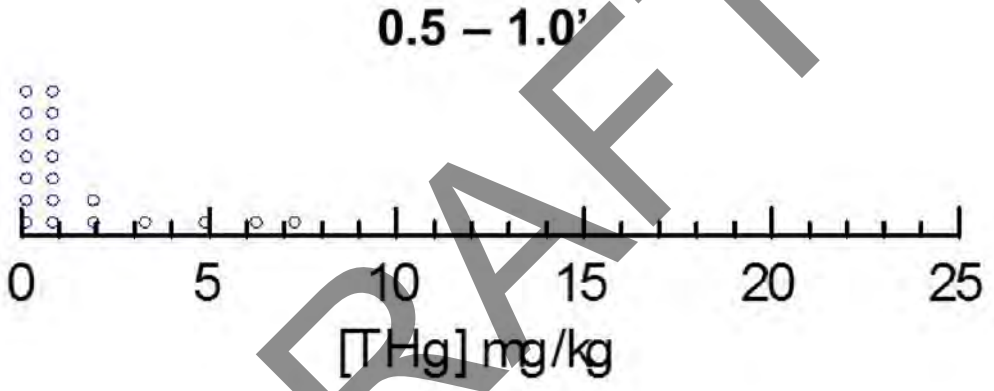
S:\Projects\IMS\DUPONT\PMPTNLKS\Projects\PomLke_ERA\Ramapo River Substrate Field Reconnaissance\Figure 2-12 Ramapo River Substrate Field Reconnaissance Sept 2014_v3.mxd

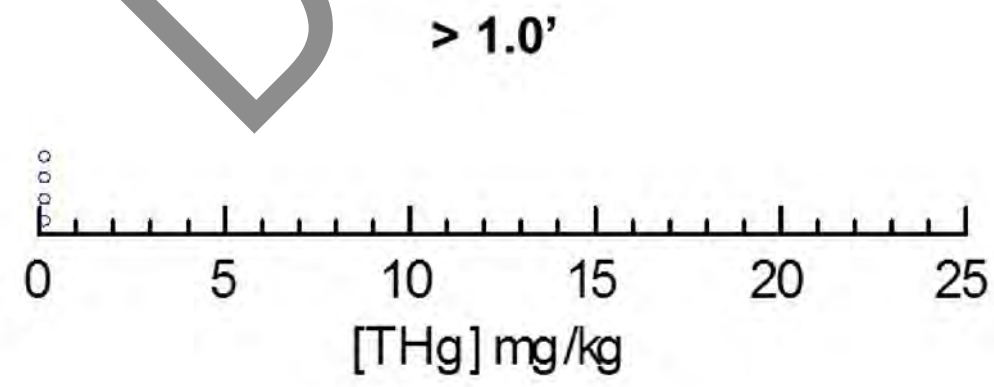
AECOM

Figure 12
Ramapo River/Pompton River Sediment Results
Downstream of Pompton Lake Dam to Riverside Park
Ramapo-Pompton River Sediment Investigation Report
Chemours Pompton Lakes Works
Morris and Passaic Counties, New Jersey

S:\Projects\IMS\DUPONT\PMPTNLKS\Projects\PomLke_ERA\Ramapo River Substrate Field Reconnaissance\Figure 2-12 Ramapo River Substrate Field Reconnaissance Sept 2014_v3.mxd



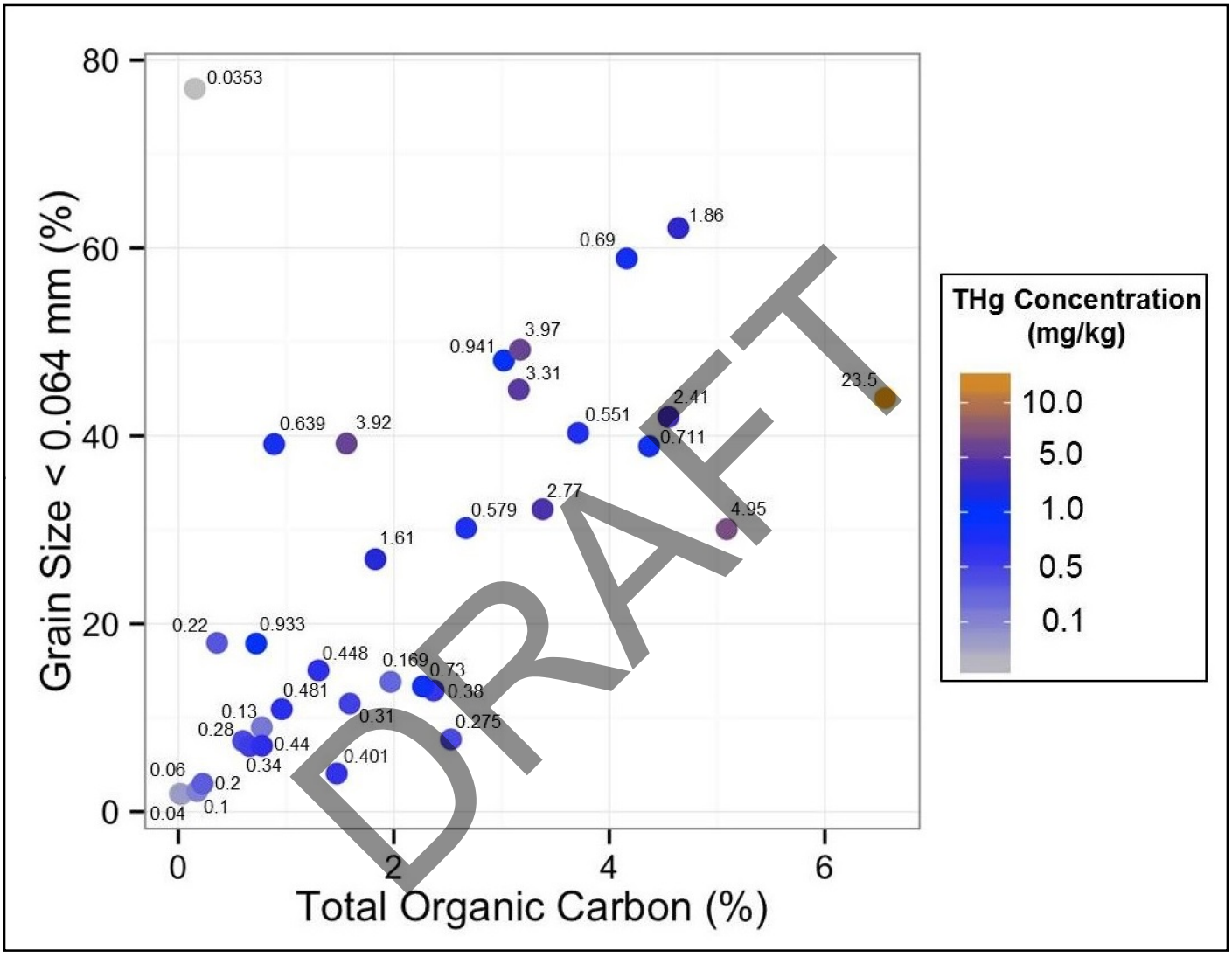




AECOM

Figure 13
Distributions of Sediment THg Concentrations By Sampling Depth Interval
Ramapo-Pompton River Sediment Investigation Report
Chemours Pompton Lakes Works
Morris and Passaic Counties, New Jersey

Prepared By: JC	Checked By: GL
Job: 18986635	Date: 4/1/2015



Notes
1. Data represent THg concentrations (mg/kg) measured in samples collected from the 0 – 0.5' sampling interval.
2. Percent passing grain size diameter < 0.064 mm represents the percentage of fine-grained sediments (e.g., clays and silts) in the sample.

AECOM

Figure 14
Relation Between Percent Silts/Clays, Percent TOC, and THg Concentrations in Surficial Sediments
Ramapo-Pompton River Sediment Investigation Report
Chemours Pompton Lakes Works
Morris and Passaic Counties, New Jersey

Prepared By: JC	Checked By: GL
Job: 18986635	Date: 7/9/2015

Appendices

Appendix A

Substrate Mapping Protocol

Riverbed Substrate Mapping Protocol
Ramapo River Investigation
Chemours Pompton Lakes Site

This protocol describes the approach that will be used to identify and map riverbed substrates in the Ramapo River below the Pompton Lake dam in Pompton Lakes, New Jersey.

The survey will extend for approximately three miles of the Ramapo River, from below the Pompton Lake dam (Figures 1 & 2). Detailed substrate mapping will not be conducted upstream of the Route Hamburg Turnpike bridge or within 150' upstream of downstream of the other dams within the reach.

The overall goal of this task is to identify and quantify the distribution of fine-grain sediments (silts, clays, fine sands) within the three mile reach of the Ramapo River below the Pompton Lake dam. Other key features such as stormwater outfalls, tributaries, submerged aquatic vegetation (SAV) and large woody debris (LWD) will also be documented.

This protocol is divided by task into the following sections:

- Equipment List
- Field Mapping Assessment
- Field Log Book and Field Sketch Maps

Equipment

The following equipment/supplies may be used to conduct substrate characterization field surveys:

- Field notebook/field sketch maps
- Pencils and waterproof/permanent marking pens
- Trimble® Geo-XH 6000 global positioning system (GPS)
- Camera and waterproof dry bags
- Field sediment grain size and texture guides
- Graduated sediment probe
- Ruler and measuring tapes
- Jon boat and necessary boating supplies (*e.g.,* anchor, paddles, motor, PFDs, etc.)
- Appropriate health and safety equipment

Field Mapping Assessment

The field mapping assessment will utilize the Trimble GPS unit to accurately map the spatial extent of riverbed substrate in the Ramapo River.

Substrate Mapping

- Field survey mapping will begin on the channel margin and work inward toward the center of the riverbed in an upstream-to-downstream direction. If water depths prohibit safely wading the reach a boat will be used to survey the area of concern.
- Substrate patches will be identified by the predominant coverage (>50%) of a sediment type. Determination of the predominant sediment type may require the measurement of the median axis width of several randomly selected particles within a patch. The six substrate types adopted from the Wentworth Scale (Leeder, 1982) are:

Type 1) Silts and Clays	< 0.063 mm
Type 2) Fine Sands	0.064 mm – 0.25 mm
Type 3) Medium / Coarse Sands and Granules	0.26 mm – 4.00 mm
Type 4) Pebbles	4.01 mm – 64.00 mm
Type 5) Cobbles and Boulders	64.01 mm – 4,096 mm
Type 6) Bedrock	> 4,096 mm

- Finer substrates will be worked between the thumb and forefinger to identify particle sizes.
- Substrate mapping will be performed at the highest resolution possible given the weather and hydrologic conditions at the time of survey. Generally, substrate patches greater than or equal to approximately 100 square feet will be mapped.
- Where surface water depths prohibit clear determination of substrate type, a probing rod will be used to probe the benthic layer at pre-determined points in order to identify substrate type. If predominate particle size cannot be determined with the probing rod alone, a petite Ponar® sampler will be used to retrieve for qualitative characterization/confirmation.
- Sediment types will be photo-documented at predetermined points (every fifth transect) to provide representative visual documentation of substrate type.
- The average depth of fine-grained deposits (*i.e.,* Type 1 and Type 2 substrates) will be estimated to approximate the volume and extent of accumulated sediment.
- Observations of any unique morphological features that describe sediment dynamics, such as the degree of embeddedness, imbrication, and sorting will be noted on the field sketch maps created in the preliminary geospatial assessment.

Field Logbook and Field Data Sheet

Thorough, organized, and accurate records will be made using field logbooks and field maps to document findings. Information pertinent to the investigation will be recorded in the field logbook and/or field data sheets. Entries will include the following, as applicable:

- Project name and number
- Name of sampler and field personnel
- Date and time of survey
- Physical characteristics of the substrate

- Photograph log with comments and spatial locations
- Observations at the sampling site (e.g., weather conditions)

Field investigation situations vary widely. No general rules can include each type of information that must be entered in a logbook or data sheet for a particular site. Site-specific recording will include sufficient information so that the sampling activity can be reconstructed without relying on the memory of field personnel.

References

Leeder, M. R. 1982. Sedimentology: Process and Product. George Allen and Unwin Ltd, London, UK.

Appendix B

Substrate Mapping Photographic Log

APPENDIX B
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986472

Photo No.	Date:
1	8/12/13-8/14/13

Substrate Type Classification:

4 (Pebble)

Description:

Sample Point – 6a
Top of cobble bar
Classification – 4
ID Type - Visual

Photo No.	Date:
2	8/12/13-8/14/13

Substrate Type Classification:

4 (Pebble)

Description:

Sample Point – 6b
Top of cobble bar
Classification – 4
ID Type - Visual

APPENDIX B
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986472

Photo No.	Date:
3	8/12/13-8/14/13

Substrate Type Classification:

4 (Pebble)

Description:

Sampling Point - 15
Transition to cobble along shoreline.
Classification – 4
ID Type – Visual /Ponar

Photo No.	Date:
4	8/12/13-8/14/13

Substrate Type Classification:

3 (Coarse Sand/Granule)

Description:

Sampling Point – 19
Classification – 3
ID Type – Visual /Ponar

APPENDIX B
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986472

Photo No.	Date:
5	8/12/13-8/14/13

Substrate Type Classification:

3 (Coarse Sand/Granule)

Description:

Sampling Point -29
Classification – 3
ID Type – Visual /Ponar

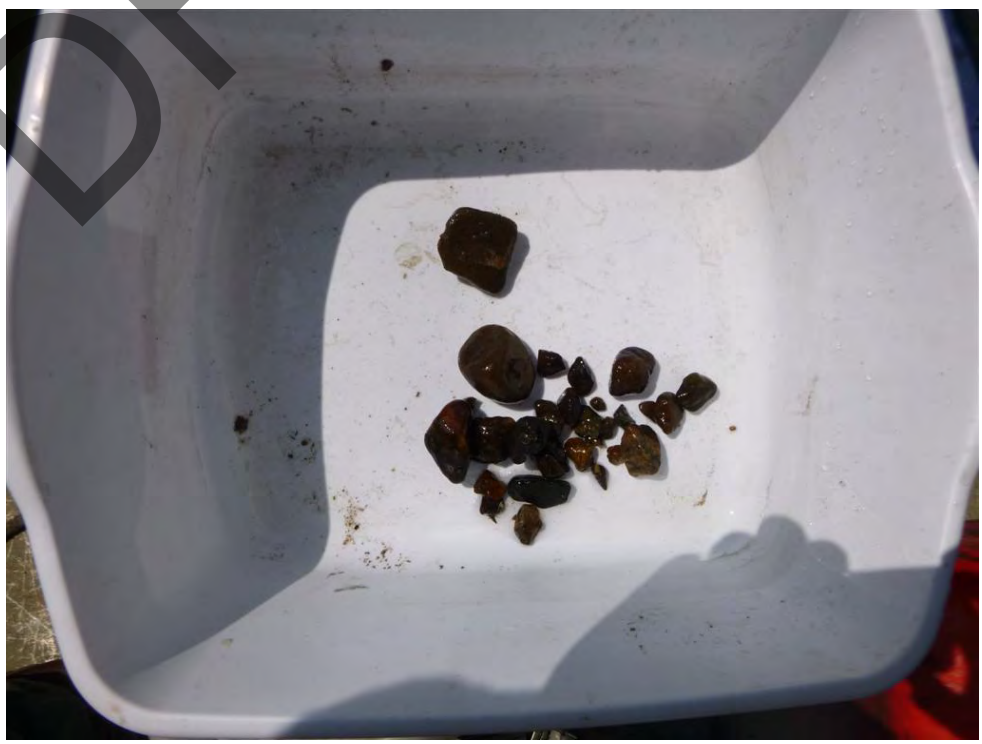
Photo No.	Date:
6	8/12/13-8/14/13

Substrate Type Classification:

4 (Pebble)

Description:

Sampling Point – 48
Classification – 4
ID Type – Visual/Ponar



APPENDIX B
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986472

Photo No.	Date:
7	8/12/13-8/14/13

Substrate Type Classification:

1 (Silt/Clay)

Description:

Sampling Point -55
Classification – 1
ID Type – Visual /Probe
Silt substrate; sink ~1 foot while wading.

Photo No.	Date:
8	8/12/13-8/14/13

Substrate Type Classification:

1 (Silt/Clay)

Description:

Sampling Point – 58a
Classification – 1
ID Type – Visual/Probe

APPENDIX B
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986472

Photo No.	Date:
9	8/12/13-8/14/13

Substrate Type Classification:

1 (Silt/Clay)

Description:

Sampling Point -58b
Classification – 1
ID Type – Visual /Probe

Photo No.	Date:
10	8/12/13-8/14/13

Substrate Type Classification:

3 (Coarse Sand/Granule)

Description:

Sampling Point – 64a
Classification – 3
ID Type – Visual
Channel contained limited areas of fines.

APPENDIX B
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986472

Photo No.	Date:
11	8/12/13-8/14/13

Substrate Type Classification:

3 (Coarse Sand/Granule)

Description:

Sampling Point -64b
Classification – 3
ID Type – Visual
Channel contained limited areas of fines.

Photo No.	Date:
12	8/12/13-8/14/13

Substrate Type Classification:

4 (Pebble)

Description:

Sampling Point – 66
Classification – 4
ID Type – Visual /Ponar

APPENDIX B
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986472

Photo No.	Date:
13	8/12/13-8/14/13

Substrate Type Classification:

1 (Silt/Clay)

Description:

Sampling Point -77
Classification – 1
ID Type – Visual /Ponar

Photo No.	Date:
14	8/12/13-8/14/13

Substrate Type Classification:

4 (Pebble)

Description:

Sampling Point – 78
Classification – 4
ID Type – Visual /Ponar
Limited grab due to coarse material.

APPENDIX B
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986472

Photo No.	Date:
15	8/12/13-8/14/13

Substrate Type Classification:

4 (Pebble)

Description:

Sampling Point -79
Classification – 4
ID Type – Visual /Probe

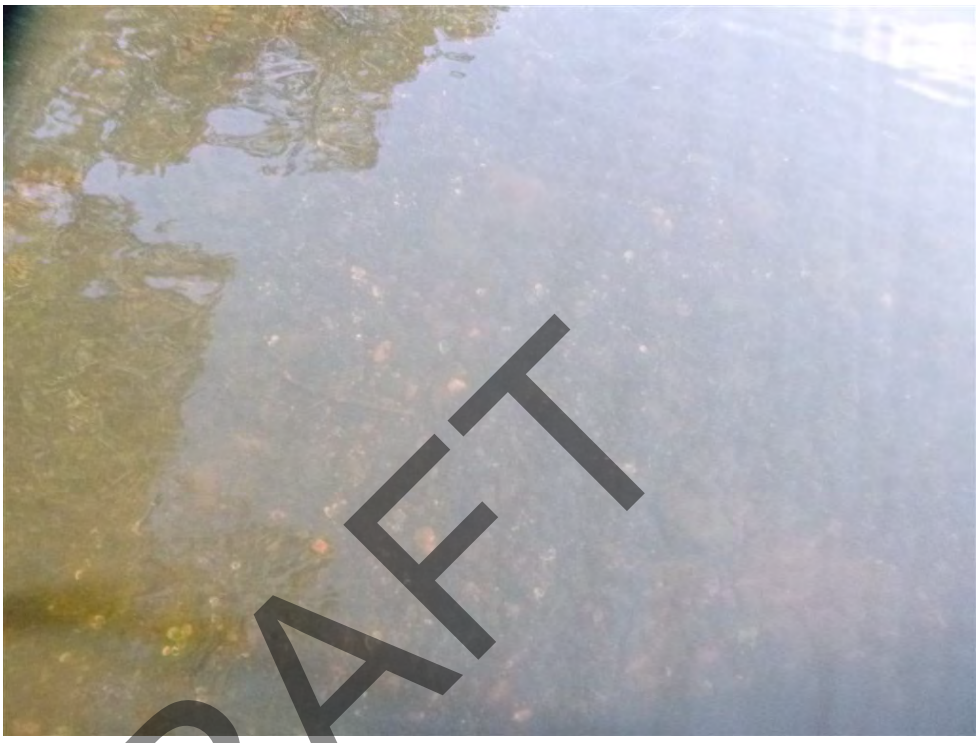


Photo No.	Date:
16	8/12/13-8/14/13

Substrate Type Classification:

4 (Pebble)

Description:

Sampling Point – 91
Classification – 4
ID Type – Visual /Probe

AECOM

APPENDIX B
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986472

Photo No. 17	Date: 8/12/13-8/14/13

Substrate Type Classification:

3 (Coarse Sand/Granule)

Description:

Sampling Point -97
Classification – 3
ID Type – Visual /Probe
SAV throughout channel

Photo No. 18	Date: 8/12/13-8/14/13

Substrate Type Classification:

3 (Coarse Sand/Granule)

Description:

Sampling Point – 99
Classification – 3
ID Type – Visual /Probe

AECOM

APPENDIX B
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986472

Photo No.	Date:
19	8/12/13-8/14/13

Substrate Type Classification:

4 (Pebble)

Description:

Sampling Point -100
Classification – 4
ID Type – Visual /Ponar
Limited grab collected

Photo No.	Date:
20	8/12/13-8/14/13

Substrate Type Classification:

4 (Pebble)

Description:

Sampling Point – 101
Classification – 4
ID Type – Visual /Probe
Shallow water

APPENDIX B
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986472

Photo No. 21	Date: 8/12/13-8/14/13

Substrate Type Classification:

3 (Coarse Sand/Granule)

Description:

Sampling Point -103
Classification – 3
ID Type – Visual /Ponar

Photo No. 22	Date: 8/12/13-8/14/13

Substrate Type Classification:

3 (Coarse Sand/Granule)

Description:

Sampling Point – 104
Classification – 3
ID Type – Visual /Ponar

APPENDIX B
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986472

Photo No.	Date:
23	8/12/13-8/14/13

Substrate Type Classification:

1 (Silt/Clay)

Description:

Sampling Point -105
Classification – 1
ID Type – Visual /Probe

Photo No.	Date:
24	8/12/13-8/14/13

Substrate Type Classification:

3 (Coarse Sand/Granule)

Description:

Sampling Point – 106
Classification – 3
ID Type – Visual /Probe
No photo – heavy veg.

APPENDIX B
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986472

Photo No.	Date:
25	8/12/13-8/14/13

Substrate Type Classification:

3 (Coarse Sand/Granule)

Description:

Sampling Point -109
Classification – 3
ID Type – Visual /Probe

Photo No.	Date:
26	8/12/13-8/14/13

Substrate Type Classification:

3 (Coarse Sand/Granule)

Description:

Sampling Point – 128
Classification – 3
ID Type – Visual /Probe

APPENDIX B
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986472

Photo No.	Date:
27	8/12/13-8/14/13

Substrate Type Classification:

1 (Silt/Clay)

Description:

Sampling Point -133
Classification – 1
ID Type – Visual /Ponar

Photo No.	Date:
28	8/12/13-8/14/13

Substrate Type Classification:

3 (Coarse Sand/Granule)

Description:

Sampling Point – 134
Classification – 3
ID Type – Visual /Ponar

AECOM

APPENDIX B
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986472

Photo No.	Date:
29	8/12/13-8/14/13

Substrate Type Classification:

3 (Coarse Sand/Granule)

Description:

Sampling Point -144
Classification – 3
ID Type – Visual /Ponar
Numerous *corbicula*.

Photo No.	Date:
30	8/12/13-8/14/13

Substrate Type Classification:

3 (Coarse Sand/Granule)

Description:

Sampling Point – 145
Classification – 3
ID Type – Visual /Ponar
Woody debris on bottom limited material collected.

APPENDIX B
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986472

Photo No.	Date:
31	8/12/13-8/14/13

Substrate Type Classification:

3 (Coarse Sand/Granule)

Description:

Sampling Point -156
Classification – 3
ID Type – Visual /Ponar
Coarse sand lost from Ponar grab.

Photo No.	Date:
32	8/12/13-8/14/13

Substrate Type Classification:

1 (Silt/Clay)

Description:

Sampling Point – 157
Classification – 1
ID Type – Visual /Ponar

APPENDIX B
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986472

Photo No.	Date:
33	8/12/13-8/14/13

Substrate Type Classification:

1 (Silt/Clay)

Description:

Sampling Point -158
Classification – 1
ID Type – Visual /Ponar

Photo No.	Date:
34	8/12/13-8/14/13

Substrate Type Classification:

3 (Coarse Sand/Granule)

Description:

Sampling Point – 194
Classification – 3
ID Type – Visual /Ponar

APPENDIX B
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours Pompton Lakes Works	Ramapo River	18986472

Photo No.	Date:
35	8/12/13-8/14/13

Substrate Type Classification:

4 (Pebble)

Description:

Sampling Point -201
Classification – 4
ID Type – Visual /Probe

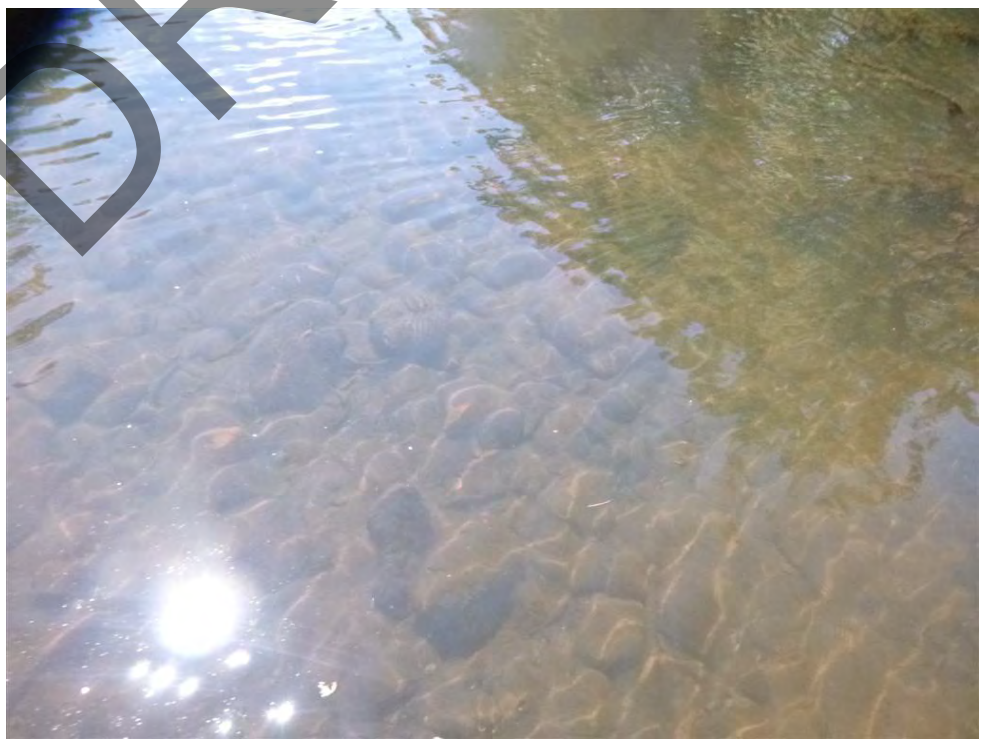
Photo No.	Date:
36	8/12/13-8/14/13

Substrate Type Classification:

5 (Cobble/Boulder)

Description:

Sampling Point – 205a
Classification – 5
ID Type – Visual /Probe



APPENDIX B
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986472

Photo No.	Date:
37	8/12/13-8/14/13

Substrate Type Classification:

5 (Cobble/Boulder)

Description:

Sampling Point -205b
Classification – 5
ID Type – Visual /Probe

Photo No.	Date:
38	8/12/13-8/14/13

Substrate Type Classification:

5 (Cobble/Boulder)

Description:

Sampling Point – 210
Classification – 5
ID Type – Visual /Probe
Collected material with hand.

APPENDIX B
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986472

Photo No.	Date:
39	8/12/13-8/14/13

Substrate Type Classification:

4 (Pebble)

Description:

Sampling Point -216a
Classification – 4
ID Type – Visual /Ponar

Photo No.	Date:
40	8/12/13-8/14/13

Substrate Type Classification:

4 (Pebble)

Description:

Sampling Point – 216b
Classification – 4
ID Type – Visual /Ponar

APPENDIX B
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986472

Photo No.	Date:
41	8/12/13-8/14/13

Substrate Type Classification:

4 (Pebble)

Description:

Sampling Point -216c
Classification – 4
ID Type – Visual /Ponar

Photo No.	Date:
42	8/12/13-8/14/13

Substrate Type Classification:

4 (Pebble)

Description:

Sampling Point – 221
Classification – 4
ID Type – Visual /Ponar

APPENDIX B
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986472

Photo No.	Date:
43	8/12/13-8/14/13

Substrate Type Classification:

4 (Pebble)

Description:

Sampling Point -225
Classification – 4
ID Type – Visual /Probe

Photo No.	Date:
44	8/12/13-8/14/13

Substrate Type Classification:

4 (Pebble)

Description:

Sampling Point – 227
Classification – 4
ID Type – Visual /Ponar

APPENDIX B
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986472

Photo No.	Date:
45	8/12/13-8/14/13

Substrate Type Classification:

4 (Pebble)

Description:

Sampling Point -233
Classification – 4
ID Type – Visual /Ponar

Appendix C

DuPont Data Review

ADQM DATA REVIEW
NARRATIVE

Site **POM – Pompton Lakes Works**

Project **Ramapo River Sediment Sampling 7/14**

Project Reviewer **Candia Carle**

Sampling Date **July 28 - 31, 2014**

Analytical Protocol

Laboratory	Analytical Method	Parameter(s)
Lancaster	SW 846 7470A/7471A	Mercury
Lancaster	SM 5310C 2000/Lloyd Khan modified	TOC
Lancaster	ASTM D422	Grain Size
Lancaster	SM 2540 G 1997	Moisture

Sample Receipt
The following items are noted for this data set:

- All samples were received in satisfactory condition and within EPA temperature guidelines on July 29 – 31 and August 1, 2014.
- Not all line-outs on the chain of custodies were both initialed and dated.
- Three samples received at the lab on July 30, 2014 were not recorded on the chains. The chains for these three samples were sent to the laboratory via email.
- The sample ID RPR-2**1**-0.0-0.5 was recorded on the chain. The project team corrected this ID and submitted a revised chain to the lab. The lab reported this sample as RPR-2**2**-0-0.5.

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, except as noted below:

- Some of the analytical results have been qualified in the database. See the DuPont Data Review (DDR) Narrative Report for which samples were qualified, the specific reasons for qualification, and potential bias in reported results.

Attachments

The DDR Narrative report and Lancaster Labs summary level report are attached. The full deliverables provided by the lab, due to the large file size, are not attached but are stored on the server in the project folder.

DuPont In-House 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: Pompton Lakes Works **Sampling Program:** Ramapo River Sediment Sampling 7/14 **Validation Options:** LABSTATS

Validation Reason Code: Associated MS and/or MSD analysis had relative percent recovery (RPR) values less than the lower control limit. The actual detection limits may be higher than reported.

Field Sample ID	Date Sampled	Lab Sample ID	Analyte	Result	Units	Type	MDL	PQL	Validation Qualifier	Analytical Method	Pre-prep	Prep
SD073114-RPR-32-0.5-1.0	07/31/2014	7552074	Mercury	0.0123	MG/KG	MDL	0.0123	0.123	UJ	7471A		7471A MOD.
SD073114-RPR-34-0.5-0.75	07/31/2014	7552075	Mercury	0.0122	MG/KG	MDL	0.0122	0.122	UJ	7471A		7471A MOD.

Site: Pompton Lakes Works **Sampling Program:** Ramapo River Sediment Sampling 7/14 **Validation Options:** LABSTATS

Validation Reason Code: Associated MS and/or MSD 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
SD072914-RPR-01-0.0-0.5	07/29/2014	7548881	Mercury	0.435	MG/KG	MDL	0.0152	0.152	J	7471A		7471A MOD.
SD072914-RPR-09-0.0-0.5	07/29/2014	7548859	Mercury	0.733	MG/KG	MDL	0.0193	0.193	J	7471A		7471A MOD.
SD072914-RPR-12-0.0-0.5	07/29/2014	7548862	Mercury	2.77	MG/KG	MDL	0.114	1.14	J	7471A		7471A MOD.
SD072914-RPR-12-0.5-0.75	07/29/2014	7548863	Mercury	4.97	MG/KG	MDL	0.105	1.05	J	7471A		7471A MOD.
SD072914-RPR-13-0.0-0.5	07/29/2014	7548864	Mercury	0.690	MG/KG	MDL	0.0301	0.301	J	7471A		7471A MOD.
SD072914-RPR-13-0.5-1.0	07/29/2014	7548867	Mercury	0.529	MG/KG	MDL	0.0169	0.169	J	7471A		7471A MOD.
SD072914-RPR-13-1.0-1.1	07/29/2014	7548868	Mercury	0.184	MG/KG	MDL	0.0176	0.176	J	7471A		7471A MOD.
SD072914-RPR-14-0.0-0.5	07/29/2014	7548865	Mercury	0.551	MG/KG	MDL	0.0246	0.246	J	7471A		7471A MOD.
SD072914-RPR-14-0.5-1.0	07/29/2014	7548869	Mercury	0.286	MG/KG	MDL	0.0153	0.153	J	7471A		7471A MOD.
SD072914-RPR-14-1.0-1.5	07/29/2014	7548870	Mercury	0.207	MG/KG	MDL	0.0153	0.153	J	7471A		7471A MOD.
SD072914-RPR-15-0.0-0.5	07/29/2014	7548866	Mercury	23.5	MG/KG	MDL	1.07	10.7	J	7471A		7471A MOD.
SD072914-RPR-15-0.0-0.5-D	07/29/2014	7548872	Mercury	23.9	MG/KG	MDL	1.06	10.6	J	7471A		7471A MOD.
SD072914-RPR-15-0.5-1.0	07/29/2014	7548871	Mercury	6.34	MG/KG	MDL	0.180	1.80	J	7471A		7471A MOD.
SD072914-RPR-16-0.0-0.5	07/29/2014	7548873	Mercury	0.448	MG/KG	MDL	0.0176	0.176	J	7471A		7471A MOD.
SD072914-RPR-17-0.0-0.5	07/29/2014	7548874	Mercury	1.61	MG/KG	MDL	0.0468	0.468	J	7471A		7471A MOD.
SD072914-RPR-17-0.5-1.0	07/29/2014	7548877	Mercury	2.00	MG/KG	MDL	0.0804	0.804	J	7471A		7471A MOD.
SD072914-RPR-18-0.0-0.5	07/29/2014	7548875	Mercury	2.41	MG/KG	MDL	0.0705	0.705	J	7471A		7471A MOD.
SD072914-RPR-18-0.5-0.8	07/29/2014	7548878	Mercury	2.15	MG/KG	MDL	0.0897	0.897	J	7471A		7471A MOD.
SD072914-RPR-19-0.0-0.5	07/29/2014	7548876	Mercury	0.344	MG/KG	MDL	0.0158	0.158	J	7471A		7471A MOD.
SD072914-RPR-19-0.5-0.8	07/29/2014	7548879	Mercury	0.377	MG/KG	MDL	0.0195	0.195	J	7471A		7471A MOD.
SD072914-RPR-02-0.0-0.5	07/29/2014	7548882	Mercury	0.123	MG/KG	MDL	0.0146	0.146	J	7471A		7471A MOD.
SD072914-RPR-10-0.0-0.5	07/29/2014	7548860	Mercury	0.0389	MG/KG	MDL	0.0123	0.123	J	7471A		7471A MOD.

Site: Pompton Lakes Works **Sampling Program:** Ramapo River Sediment Sampling 7/14 **Validation Options:** LABSTATS

Validation Reason Code: Associated MS and/or MSD 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
SD072914-RPR-11-0.0-0.5	07/29/2014	7548861	Mercury	0.101	MG/KG	MDL	0.0132	0.132	J	7471A		7471A MOD.
SD072914-RPR-01-0.5-0.75	07/29/2014	7548883	Mercury	0.122	MG/KG	MDL	0.0137	0.137	J	7471A		7471A MOD.

Site: Pompton Lakes Works **Sampling Program:** Ramapo River Sediment Sampling 7/14 **Validation Options:** LABSTATS

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
SD073014-RPR-26-0.0-0.5	07/30/2014	7550174	0.001 MM	2.0	% PASSING	MDL	0.50	0.50	J	D422		
SD073014-RPR-26-0.0-0.5	07/30/2014	7550174	0.002 MM	2.0	% PASSING	MDL	0.50	0.50	J	D422		
SD073014-RPR-26-0.0-0.5-D	07/30/2014	7550179	0.001 MM	4.0	% PASSING	MDL	0.50	0.50	J	D422		
SD073014-RPR-26-0.0-0.5-D	07/30/2014	7550179	0.002 MM	4.0	% PASSING	MDL	0.50	0.50	J	D422		

Site: Pompton Lakes Works **Sampling Program:** Ramapo River Sediment Sampling 7/14 **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
SD072914-RPR-01-0.0-0.5	07/29/2014	7548881	Percent Moisture	38.7	%	MDL	0.50	0.50	J	2540 G-1997		
SD072914-RPR-02-0.0-0.5	07/29/2014	7548882	Percent Moisture	35.5	%	MDL	0.50	0.50	J	2540 G-1997		
SD072914-RPR-01-0.5-0.75	07/29/2014	7548883	Percent Moisture	32.4	%	MDL	0.50	0.50	J	2540 G-1997		
SD073014-RPR-20-0.0-0.5	07/30/2014	7550165	Percent Moisture	31.5	%	MDL	0.50	0.50	J	2540 G-1997		
SD073014-RPR-20-0.5-1.0	07/30/2014	7550167	Percent Moisture	24.6	%	MDL	0.50	0.50	J	2540 G-1997		
SD073014-RPR-20-1.0-1.4	07/30/2014	7550168	Percent Moisture	25.9	%	MDL	0.50	0.50	J	2540 G-1997		
SD073014-RPR-22-0.0-0.5	07/30/2014	7550166	Percent Moisture	52.2	%	MDL	0.50	0.50	J	2540 G-1997		
SD073014-RPR-24-0.0-0.5	07/30/2014	7550169	Percent Moisture	49.3	%	MDL	0.50	0.50	J	2540 G-1997		
SD073014-RPR-25-0.0-0.5	07/30/2014	7550170	Percent Moisture	47.2	%	MDL	0.50	0.50	J	2540 G-1997		
SD073014-RPR-25-0.5-0.95	07/30/2014	7550176	Percent Moisture	51.6	%	MDL	0.50	0.50	J	2540 G-1997		
SD073014-RPR-26-0.0-0.5	07/30/2014	7550174	Percent Moisture	69.9	%	MDL	0.50	0.50	J	2540 G-1997		
SD073014-RPR-27-0.0-0.5	07/30/2014	7550175	Percent Moisture	35.1	%	MDL	0.50	0.50	J	2540 G-1997		
SD073014-RPR-28-0.0-0.5	07/30/2014	7550161	Percent Moisture	58.9	%	MDL	0.50	0.50	J	2540 G-1997		
SD073014-RPR-29-0.0-0.5	07/30/2014	7550162	Percent Moisture	56.0	%	MDL	0.50	0.50	J	2540 G-1997		
SD073014-RPR-29-0.5-0.75	07/30/2014	7550164	Percent Moisture	30.2	%	MDL	0.50	0.50	J	2540 G-1997		
SD073014-RPR-30-0.0-0.5	07/30/2014	7550163	Percent Moisture	50.3	%	MDL	0.50	0.50	J	2540 G-1997		
SD072914-RPR-13-0.0-0.5	07/29/2014	7548864	Total Organic Carbon	41600	MG/KG	MDL	2360	7090	J	LLOYD KAHN modified		
SD072914-RPR-14-0.5-1.0	07/29/2014	7548869	Percent Moisture	39.5	%	MDL	0.50	0.50	J	2540 G-1997		
SD072914-RPR-14-1.0-1.5	07/29/2014	7548870	Percent Moisture	35.1	%	MDL	0.50	0.50	J	2540 G-1997		
SD072914-RPR-15-0.0-0.5-D	07/29/2014	7548872	Percent Moisture	55.5	%	MDL	0.50	0.50	J	2540 G-1997		
SD072914-RPR-15-0.5-1.0	07/29/2014	7548871	Percent Moisture	48.4	%	MDL	0.50	0.50	J	2540 G-1997		
SD072914-RPR-16-0.0-0.5	07/29/2014	7548873	Percent Moisture	44.6	%	MDL	0.50	0.50	J	2540 G-1997		
SD072914-RPR-17-0.0-0.5	07/29/2014	7548874	Percent Moisture	50.2	%	MDL	0.50	0.50	J	2540 G-1997		

Site: Pompton Lakes Works **Sampling Program:** Ramapo River Sediment Sampling 7/14 **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
SD072914-RPR-17-0.5-1.0	07/29/2014	7548877	Percent Moisture	39.5	%	MDL	0.50	0.50	J	2540 G-1997		
SD072914-RPR-18-0.0-0.5	07/29/2014	7548875	Percent Moisture	65.2	%	MDL	0.50	0.50	J	2540 G-1997		
SD072914-RPR-18-0.5-0.8	07/29/2014	7548878	Percent Moisture	48.3	%	MDL	0.50	0.50	J	2540 G-1997		
SD072914-RPR-19-0.0-0.5	07/29/2014	7548876	Percent Moisture	37.2	%	MDL	0.50	0.50	J	2540 G-1997		
SD072914-RPR-19-0.5-0.8	07/29/2014	7548879	Percent Moisture	49.5	%	MDL	0.50	0.50	J	2540 G-1997		
SD073014-RPR-26-0.0-0.5-D	07/30/2014	7550179	Percent Moisture	73.6	%	MDL	0.50	0.50	J	2540 G-1997		
SD073014-RPR-26-0.5-1.0	07/30/2014	7550177	Percent Moisture	56.7	%	MDL	0.50	0.50	J	2540 G-1997		
SD073014-RPR-27-0.5-1.0	07/30/2014	7550178	Percent Moisture	29.5	%	MDL	0.50	0.50	J	2540 G-1997		

Site: Pompton Lakes Works **Sampling Program:** Ramapo River Sediment Sampling 7/14 **Validation Options:** LABSTATS

Validation Reason Code: Associated MS and/or MSD analysis had relative percent recovery (RPR) values less than the lower control limit but above the rejection limit. The reported result may be biased low.

Field Sample ID	Date Sampled	Lab Sample ID	Analyte	Result	Units	Type	MDL	PQL	Validation Qualifier	Analytical Method	Pre-prep	Prep
SD073114-RPR-21-1.0-1.2	07/31/2014	7552079	Mercury	0.476	MG/KG	MDL	0.0182	0.182	J	7471A		7471A MOD.
SD073114-RPR-23-0.0-0.5	07/31/2014	7552080	Mercury	1.86	MG/KG	MDL	0.0349	0.349	J	7471A		7471A MOD.
SD073114-RPR-23-0.5-0.9	07/31/2014	7552081	Mercury	0.141	MG/KG	MDL	0.0141	0.141	J	7471A		7471A MOD.
SD073114-RPR-31-0.0-0.5	07/31/2014	7552069	Mercury	0.196	MG/KG	MDL	0.0130	0.130	J	7471A		7471A MOD.
SD073114-RPR-21-0.0-0.5	07/31/2014	7552077	Mercury	3.31	MG/KG	MDL	0.0580	0.580	J	7471A		7471A MOD.
SD073114-RPR-21-0.5-1.0	07/31/2014	7552078	Mercury	0.192	MG/KG	MDL	0.0262	0.262	J	7471A		7471A MOD.
SD073114-RPR-31-0.5-0.9	07/31/2014	7552073	Mercury	0.101	MG/KG	MDL	0.0116	0.116	J	7471A		7471A MOD.
SD073114-RPR-32-0.0-0.5	07/31/2014	7552070	Mercury	0.169	MG/KG	MDL	0.0194	0.194	J	7471A		7471A MOD.
SD073114-RPR-33-0.0-0.5	07/31/2014	7552071	Mercury	0.0643	MG/KG	MDL	0.0115	0.115	J	7471A		7471A MOD.
SD073114-RPR-34-0.0-0.5	07/31/2014	7552072	Mercury	0.0353	MG/KG	MDL	0.0134	0.134	J	7471A		7471A MOD.

Site: Pompton Lakes Works **Sampling Program:** Ramapo River Sediment Sampling 7/14 **Validation Options:** LABSTATS

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
SD072814-RPR-07-0.5-0.75	07/28/2014	7547455	Mercury	0.0299	MG/KG	MDL	0.0161	0.161	J	7471A		7471A MOD.
SDW072814-FB-1	07/28/2014	7547457	Total Organic Carbon	0.98	MG/L	MDL	0.50	1.0	J	5310 C-2000		
SDW073114-FB-4	07/31/2014	7552076	Total Organic Carbon	0.97	MG/L	MDL	0.50	1.0	J	5310 C-2000		
SD073114-RPR-33-0.0-0.5	07/31/2014	7552071	Total Organic Carbon	264	MG/KG	MDL	124	372	J	LLOYD KAHN modified		

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

August 19, 2014

Project: POM - RAMAPO RIVER SEDIMENT SAMPLING

Submittal Date: 07/29/2014
Group Number: 1492182
SDG: POM20
PO Number: LBIO-66380
State of Sample Origin: NJ

Client Sample Description	Lancaster Labs (LL) #
SD072814-RPR-03-0.0-0.5 Sediment	7547446
SD072814-RPR-04-0.0-0.5 Sediment	7547447
SD072814-RPR-05-0.0-0.5 Sediment	7547448
SD072814-RPR-06-0.0-0.5 Sediment	7547449
SD072814-RPR-07-0.0-0.5 Sediment	7547450
SD072814-RPR-07-0.0-0.5 MS Sediment	7547451
SD072814-RPR-07-0.0-0.5 MSD Sediment	7547452
SD072814-RPR-07-0.0-0.5 Dupl Sediment	7547453
SD072814-RPR-08-0.0-0.5 Sediment	7547454
SD072814-RPR-07-0.5-0.75 Sediment	7547455
SD072814-RPR-08-0.5-1.0 Sediment	7547456
SDW072814-FB-1 Blank Water	7547457

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

1 COPY TO Data Package Group

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Sample Description: SD072814-RPR-03-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7547446
LL Group # 1492182
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/28/2014 12:55 by JC

Submitted: 07/29/2014 09:15
Reported: 08/19/2014 14:06

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

PRP03 SDG#: POM20-01

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.639	0.0211	0.211	1
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	8,890	1,650	4,950	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	100	0.50	0.50	1
07103	4.75 mm	n.a.	99.3	0.50	0.50	1
07103	3.35 mm	n.a.	98.4	0.50	0.50	1
07103	2.36 mm	n.a.	96.8	0.50	0.50	1
07103	1.18 mm	n.a.	96.0	0.50	0.50	1
07103	0.6 mm	n.a.	95.1	0.50	0.50	1
07103	0.3 mm	n.a.	91.1	0.50	0.50	1
07103	0.15 mm	n.a.	68.1	0.50	0.50	1
07103	0.075 mm	n.a.	42.8	0.50	0.50	1
07103	0.064 mm	n.a.	39.0	0.50	0.50	1
07103	0.05 mm	n.a.	32.0	0.50	0.50	1
07103	0.02 mm	n.a.	16.5	0.50	0.50	1
07103	0.005 mm	n.a.	7.5	0.50	0.50	1
07103	0.002 mm	n.a.	3.0	0.50	0.50	1
07103	0.001 mm	n.a.	2.0	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	56.2	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142115711001	08/01/2014 11:18	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142115711001	07/31/2014 10:25	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14211049531A	07/30/2014 02:34	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14211710301A	07/30/2014 01:30	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14217820001A	08/05/2014 19:51	Scott W Freisher	1

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

Sample Description: SD072814-RPR-04-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7547447
LL Group # 1492182
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/28/2014 13:30 by JC

Submitted: 07/29/2014 09:15
Reported: 08/19/2014 14:06

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

PRP04 SDG#: POM20-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.933	0.0191	0.191	1
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	7,220	1,570	4,710	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	99.9	0.50	0.50	1
07103	4.75 mm	n.a.	98.7	0.50	0.50	1
07103	3.35 mm	n.a.	98.1	0.50	0.50	1
07103	2.36 mm	n.a.	97.2	0.50	0.50	1
07103	1.18 mm	n.a.	95.6	0.50	0.50	1
07103	0.6 mm	n.a.	92.0	0.50	0.50	1
07103	0.3 mm	n.a.	75.1	0.50	0.50	1
07103	0.15 mm	n.a.	41.3	0.50	0.50	1
07103	0.075 mm	n.a.	21.8	0.50	0.50	1
07103	0.064 mm	n.a.	18.0	0.50	0.50	1
07103	0.05 mm	n.a.	14.5	0.50	0.50	1
07103	0.02 mm	n.a.	10.0	0.50	0.50	1
07103	0.005 mm	n.a.	3.0	0.50	0.50	1
07103	0.002 mm	n.a.	2.0	0.50	0.50	1
07103	0.001 mm	n.a.	2.0	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	49.2	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142115711001	08/01/2014 11:20	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142115711001	07/31/2014 10:25	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14211049531A	07/30/2014 02:42	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14211710301A	07/30/2014 01:30	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14217820001A	08/05/2014 19:51	Scott W Freisher	1

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

Sample Description: SD072814-RPR-05-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7547448
LL Group # 1492182
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/28/2014 14:00 by JC

Submitted: 07/29/2014 09:15
Reported: 08/19/2014 14:06

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

PRP05 SDG#: POM20-03

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.481	0.0148	0.148	1
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	9,610	984	2,950	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	100	0.50	0.50	1
07103	4.75 mm	n.a.	98.1	0.50	0.50	1
07103	3.35 mm	n.a.	97.4	0.50	0.50	1
07103	2.36 mm	n.a.	96.4	0.50	0.50	1
07103	1.18 mm	n.a.	95.7	0.50	0.50	1
07103	0.6 mm	n.a.	93.0	0.50	0.50	1
07103	0.3 mm	n.a.	70.3	0.50	0.50	1
07103	0.15 mm	n.a.	29.0	0.50	0.50	1
07103	0.075 mm	n.a.	13.3	0.50	0.50	1
07103	0.064 mm	n.a.	11.0	0.50	0.50	1
07103	0.05 mm	n.a.	8.5	0.50	0.50	1
07103	0.02 mm	n.a.	4.0	0.50	0.50	1
07103	0.005 mm	n.a.	3.0	0.50	0.50	1
07103	0.002 mm	n.a.	2.0	0.50	0.50	1
07103	0.001 mm	n.a.	2.0	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	37.4	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142115711001	08/01/2014 11:26	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142115711001	07/31/2014 10:25	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14211049531A	07/30/2014 01:19	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14211710301A	07/30/2014 01:30	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14217820001A	08/05/2014 19:51	Scott W Freisher	1

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

Sample Description: SD072814-RPR-06-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7547449
LL Group # 1492182
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/28/2014 14:30 by JC

Submitted: 07/29/2014 09:15
Reported: 08/19/2014 14:06

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

PRP06 SDG#: POM20-04

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.401	0.0146	0.146	1
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	14,700	1,540	4,620	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	100	0.50	0.50	1
07103	4.75 mm	n.a.	98.8	0.50	0.50	1
07103	3.35 mm	n.a.	98.4	0.50	0.50	1
07103	2.36 mm	n.a.	97.8	0.50	0.50	1
07103	1.18 mm	n.a.	97.3	0.50	0.50	1
07103	0.6 mm	n.a.	92.5	0.50	0.50	1
07103	0.3 mm	n.a.	72.5	0.50	0.50	1
07103	0.15 mm	n.a.	23.2	0.50	0.50	1
07103	0.075 mm	n.a.	6.3	0.50	0.50	1
07103	0.064 mm	n.a.	4.0	0.50	0.50	1
07103	0.05 mm	n.a.	4.0	0.50	0.50	1
07103	0.02 mm	n.a.	3.0	0.50	0.50	1
07103	0.005 mm	n.a.	2.0	0.50	0.50	1
07103	0.002 mm	n.a.	2.0	0.50	0.50	1
07103	0.001 mm	n.a.	2.0	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	35.2	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142115711001	08/01/2014 11:28	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142115711001	07/31/2014 10:25	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14211049531A	07/30/2014 01:27	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14211710301A	07/30/2014 01:30	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14217820001A	08/05/2014 19:51	Scott W Freisher	1

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

Sample Description: SD072814-RPR-07-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7547450
LL Group # 1492182
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/28/2014 15:15 by JC

Submitted: 07/29/2014 09:15
Reported: 08/19/2014 14:06

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

PRP07 SDG#: POM20-05BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	3.92		0.0898	0.898	5
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**		**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	15,600		2,900	8,700	1
Wet Chemistry	**ASTM D422**		**% Passing**		**% Passing**	**% Passing**	
07103	75 mm	n.a.	100		0.50	0.50	1
07103	37.5 mm	n.a.	100		0.50	0.50	1
07103	19 mm	n.a.	100		0.50	0.50	1
07103	4.75 mm	n.a.	99.5		0.50	0.50	1
07103	3.35 mm	n.a.	98.8		0.50	0.50	1
07103	2.36 mm	n.a.	97.1		0.50	0.50	1
07103	1.18 mm	n.a.	96.8		0.50	0.50	1
07103	0.6 mm	n.a.	96.1		0.50	0.50	1
07103	0.3 mm	n.a.	94.6		0.50	0.50	1
07103	0.15 mm	n.a.	77.8		0.50	0.50	1
07103	0.075 mm	n.a.	44.7		0.50	0.50	1
07103	0.064 mm	n.a.	39.0		0.50	0.50	1
07103	0.05 mm	n.a.	31.0		0.50	0.50	1
07103	0.02 mm	n.a.	17.0		0.50	0.50	1
07103	0.005 mm	n.a.	7.0		0.50	0.50	1
07103	0.002 mm	n.a.	3.0		0.50	0.50	1
07103	0.001 mm	n.a.	0.50	U	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	46.3		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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142115711001	08/01/2014 10:44	Damary Valentin	5
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142115711001	07/31/2014 10:25	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14211049531A	07/30/2014 01:35	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14211710301A	07/30/2014 01:30	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14217820001A	08/05/2014 19:51	Scott W Freisher	1

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

Sample Description: SD072814-RPR-07-0.0-0.5 MS Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7547451
LL Group # 1492182
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/28/2014 15:15 by JC

Submitted: 07/29/2014 09:15
Reported: 08/19/2014 14:06

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

PRP07 SDG#: POM20-05MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	4.29	0.0926	0.926	5
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00118	Moisture	n.a.	46.3	0.50	0.50	1

General Sample Comments

State of New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142115711001	08/01/2014 10:50	Damary Valentin	5
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142115711001	07/31/2014 10:25	Christopher M Klumpp	1
00118	Moisture	SM 2540 G-1997	1	14217820001A	08/05/2014 19:51	Scott W Freisher	1

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

Sample Description: SD072814-RPR-07-0.0-0.5 MSD Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7547452
LL Group # 1492182
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/28/2014 15:15 by JC

Submitted: 07/29/2014 09:15
Reported: 08/19/2014 14:06

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

PRP07 SDG#: POM20-05MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	2.51	0.0910	0.910	5
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00118	Moisture	n.a.	46.3	0.50	0.50	1

General Sample Comments

State of New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142115711001	08/01/2014 10:52	Damary Valentin	5
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142115711001	07/31/2014 10:25	Christopher M Klumpp	1
00118	Moisture	SM 2540 G-1997	1	14217820001A	08/05/2014 19:51	Scott W Freisher	1

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

Sample Description: SD072814-RPR-07-0.0-0.5 Dupl Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7547453
LL Group # 1492182
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/28/2014 15:15 by JC

Submitted: 07/29/2014 09:15
Reported: 08/19/2014 14:06

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

PRP07 SDG#: POM20-05DUP

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		mg/kg	mg/kg	mg/kg	
00159	Mercury	7439-97-6	5.12	0.0868	0.868	5
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	Moisture	n.a.	46.3	0.50	0.50	1
00121	Moisture Duplicate	n.a.	47.7	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142115711001	08/01/2014 10:48	Damary Valentin	5
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142115711001	07/31/2014 10:25	Christopher M Klumpp	1
00118	Moisture	SM 2540 G-1997	1	14217820001A	08/05/2014 19:51	Scott W Freisher	1
00121	Moisture Duplicate	SM 2540 G-1997	1	14217820001A	08/05/2014 19:51	Scott W Freisher	1

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

Sample Description: SD072814-RPR-08-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7547454
LL Group # 1492182
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/28/2014 15:45 by JC

Submitted: 07/29/2014 09:15
Reported: 08/19/2014 14:06

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

PRP08 SDG#: POM20-06

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	3.97	0.159	1.59	5
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	31,700	4,150	12,500	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	100	0.50	0.50	1
07103	4.75 mm	n.a.	99.2	0.50	0.50	1
07103	3.35 mm	n.a.	98.3	0.50	0.50	1
07103	2.36 mm	n.a.	95.3	0.50	0.50	1
07103	1.18 mm	n.a.	91.6	0.50	0.50	1
07103	0.6 mm	n.a.	90.6	0.50	0.50	1
07103	0.3 mm	n.a.	88.1	0.50	0.50	1
07103	0.15 mm	n.a.	74.3	0.50	0.50	1
07103	0.075 mm	n.a.	52.5	0.50	0.50	1
07103	0.064 mm	n.a.	49.0	0.50	0.50	1
07103	0.05 mm	n.a.	45.0	0.50	0.50	1
07103	0.02 mm	n.a.	26.0	0.50	0.50	1
07103	0.005 mm	n.a.	7.0	0.50	0.50	1
07103	0.002 mm	n.a.	6.0	0.50	0.50	1
07103	0.001 mm	n.a.	6.0	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	70.9	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142115711001	08/01/2014 11:43	Damary Valentin	5
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142115711001	07/31/2014 10:25	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14211049531A	07/30/2014 02:08	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14211710301A	07/30/2014 01:30	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14217820001A	08/05/2014 19:51	Scott W Freisher	1

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

Sample Description: SD072814-RPR-07-0.5-0.75 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7547455
LL Group # 1492182
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/28/2014 15:15 by JC

Submitted: 07/29/2014 09:15
Reported: 08/19/2014 14:06

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

PRP-7 SDG#: POM20-07

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0299 J	0.0161	0.161	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	40.1	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142115711001	08/01/2014 11:32	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142115711001	07/31/2014 10:25	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	14217820001A	08/05/2014 19:51	Scott W Freisher	1

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

Sample Description: SD072814-RPR-08-0.5-1.0 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7547456
LL Group # 1492182
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/28/2014 15:45 by JC

Submitted: 07/29/2014 09:15
Reported: 08/19/2014 14:06

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

PRP-8 SDG#: POM20-08

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	3.38	0.0829	0.829	5
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	43.3	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142115711001	08/01/2014 11:45	Damary Valentin	5
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142115711001	07/31/2014 10:25	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	14217820001A	08/05/2014 19:51	Scott W Freisher	1

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

Sample Description: SDW072814-FB-1 Blank Water
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # WW 7547457
LL Group # 1492182
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/28/2014 17:30 by JC

Submitted: 07/29/2014 09:15
Reported: 08/19/2014 14:06

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

PRPFB SDG#: POM20-09FB*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 7470A**		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000060 U	0.000060	0.00020	1
Wet Chemistry	**SM 5310 C-2000**		**mg/l**	**mg/l**	**mg/l**	
00273	Total Organic Carbon	n.a.	0.98 J	0.50	1.0	1

General Sample Comments

State of New Jersey Lab Certification No. PA011

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
00259	Mercury	SW-846 7470A	1	142115713003	08/01/2014 09:40	Damary Valentin	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	142115713003	07/31/2014 10:26	Micaela L Dishong	1
00273	Total Organic Carbon	SM 5310 C-2000	1	14212049501A	07/31/2014 04:25	James S Mathiot	1

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

Quality Control Summary

Client Name: CRG-E.I.DuPont de Nemours & Co Group Number: 1492182
Reported: 08/19/14 at 02:06 PM

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

Analysis Name	Blank Result	Blank MDL**	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 142115711001	Sample number(s): 7547446-7547456								
Mercury	0.0100 U	0.0100	0.100	mg/kg	100		80-120		
Batch number: 142115713003	Sample number(s): 7547457								
Mercury	0.000060 U	0.00006 0	0.00020	mg/l	89		80-120		
Batch number: 14211049531A	Sample number(s): 7547446-7547450,7547454								
TOC by Lloyd Kahn	100 U	100.	300	mg/kg	108		47-143		
Batch number: 14212049501A	Sample number(s): 7547457								
Total Organic Carbon	0.50 U	0.50	1.0	mg/l	103		91-113		
Batch number: 14217820001A	Sample number(s): 7547446-7547456								
Moisture					100		99-101		
Moisture					100		99-101		
Moisture Duplicate					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

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 142115711001	Sample number(s): 7547446-7547456 UNSPK: 7547450 BKG: 7547450								
Mercury	117 (2)	-467 (2)	80-120	52*	20	2.11	2.75	26* (1)	20
Batch number: 142115713003	Sample number(s): 7547457 UNSPK: P544420 BKG: P544420								
Mercury	60 (2)	91 (2)	80-120	4	20	0.0064	0.0063	2	20
Batch number: 14211049531A	Sample number(s): 7547446-7547450,7547454 UNSPK: 7547450 BKG: 7547450								
TOC by Lloyd Kahn	104		59-125			8,360	8,660	3 (1)	15
Batch number: 14212049501A	Sample number(s): 7547457 UNSPK: P547817 BKG: P547817								
Total Organic Carbon	106		63-142			14.7	14.7	0	4
Batch number: 14217820001A	Sample number(s): 7547446-7547456 BKG: 7547450								
Moisture						46.3	47.7	3	5

*- 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 Group Number: 1492182
Reported: 08/19/14 at 02:06 PM

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

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Moisture						46.3	47.7	3	5
Moisture Duplicate						46.3	47.7	3	5

*- 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.

Analysis Request / Environmental Services Chain of Custody

eurofins | Lancaster Laboratories

For Lancaster Laboratories Use Only
Group No.: 1492182 Sample Nos.: 7547446-57
Acc't: 07032 SF: 209603 SCR No.: 158932 Cooler No.: 5757
Cooler Temperature upon receipt: 0.7 °C Container No.: 1

29551

Facility Name: Pompton Lakes	Project Manager: Gary Long
Facility Contact: Josh Collins	Facility Contact Phone No.: 609.602.4694
Facility Address: Pompton Lakes Works	Job No.: 9267 7720100C WH06 50
2000 Cannonball Road	Release No.:
Pompton Lakes NJ 07442	PO Number: LBIO-66380
Sampler(s): SC, VM Josh Collins, Victoria Musumeci	
Project Name: RAMAPO RIVER SEDIMENT SAMPLING 7/14	

Sample Identification	Date Collected	Time Collected	Matrix	Containers: Volume (ml)	Preserv	No.	Grain Size (ASTM D422)	Hg (7471A)	Moisture (2540 G)	TOC (Lloyd Kahn)
~~SD07 14-RPR-01-0.0-~~			~~SW~~	125	None	1		X	X	X
~~SD07 14-RPR-01-0.0-~~			~~SW~~	~~500~~	None	1	X			
~~SD07 14-RPR-02-0.0-~~			~~SW~~	125	None	1		X	X	X
~~SD07 14-RPR-02-0.0-~~			SW	500	None	1	X			
SD07 28 14-RPR-03-0.0-0.5	7/28/14	12:55	SW	125	None	1		X	X	X
SD07 28 14-RPR-03-0.0-0.5	↓	12:55	SW	500	None	1	X			
SD07 28 14-RPR-04-0.0-0.5		13:30	SW	125	None	1		X	X	X
SD07 28 14-RPR-04-0.0-0.5	↓	13:30	SW	500	None	1	X			

Analyses Required

Comments:

Intact

Condition upon receipt:

~~SD07 14-RPR-01-0.0-~~ ~~SD07 14-RPR-01-0.0-~~ ~~SD07 14-RPR-02-0.0-~~ ~~SD07 14-RPR-02-0.0-~~ not collected

Turnaround Time Requested (please circle): (Standard) RUSH Number of days: 8

Special Instructions: Full Deliverables needed

Bottles Relinquished by: Joshua Collins	Date 7/28/14	Time 18:00	Bottles Received by:	Date:	Time:
Bottles Relinquished by:	Date	Time	Bottles Received by:	Date:	Time:
Bottles Relinquished by:	Date	Time	Bottles Received by:	Date:	Time:
Bottles Relinquished by:	Date	Time	Bottles Received by:	Date: 7.29.14	Time: 915

Analysis Request / Environmental Services Chain of Custody

eurofins | Lancaster Laboratories

For Lancaster Laboratories Use Only
Group No.: 1492182 Sample Nos.: 7547446-57
Acc't: 07032 SF: 209603 SCR No.: 158932 Cooler No.: 5757
Cooler Temperature upon receipt: 8.7 °C Container No.: 1

29552

Facility Name: Pompton Lakes	Project Manager: Gary Long
Facility Contact: Josh Collins	Facility Contact Phone No.: 609.602.4694
Facility Address: Pompton Lakes Works	Job No.: 9267 7720100C WH06 50
2000 Cannonball Road	Release No.:
Pompton Lakes NJ 07442	PO Number: LBIO-66380

Sampler(s): JC, UM

Project Name: RAMAPO RIVER SEDIMENT SAMPLING 7/14

Sample Identification	Date Collected	Time Collected	Matrix	Containers Volume (ml)	Preserv	No.	Grain Size (ASTM D422)	Hg (7471A)	Moisture (2540 G)	TOC (Lloyd Kahn)
SD07 28 14-RPR-05-0.0-0.5	7/28/14	14:00	SW	125	None	1		X	X	X
SD07 28 14-RPR-05-0.0-0.5		14:00	SW	500	None	1	X			
SD07 28 14-RPR-06-0.0-0.5		14:30	SW	125	None	1		X	X	X
SD07 28 14-RPR-06-0.0-0.5		14:30	SW	500	None	1	X			
SD07 28 14-RPR-07-0.0-0.5		15:15	SW	125	None	1		X	X	X
SD07 28 14-RPR-07-0.0-0.5		15:15	SW	500	None	1	X			
SD07 28 14-RPR-08-0.0-0.5		15:45	SW	125	None	1		X	X	X
SD07 28 14-RPR-08-0.0-0.5		15:45	SW	500	None	1	X			
SD07 2814-RPR-07-0.0-0.5 MS/MSD	7/28/14	15:15	SW	125	None	2		X		
SD07 2814-RPR-07-0.5-0.75	7/28/14	15:15	SW	125	None	1		X	X	
SD07 2814-RPR-08-0.5-1.0	7/28/14	15:45	SW	125	None	1		X	X	

Analyses Required

Comments:

Intact

Condition upon receipt:

DRAFT

Turnaround Time Requested (please circle) : (Standard) RUSH Number of days: 8

Special Instructions: **Full Deliverables needed**

	Date	Time		Date:	Time:
Bottles Relinquished by:	7/28/14	18:00	Bottles Received by:		
Bottles Relinquished by:	Date	Time	Bottles Received by:	Date:	Time:
Bottles Relinquished by:	Date	Time	Bottles Received by:	Date:	Time:
Bottles Relinquished by:	Date	Time	Bottles Received by:	11.29.14	915

Analysis Request / Environmental Services Chain of Custody

eurofins | Lancaster Laboratories

For Lancaster Laboratories Use Only

Group No.: 1492182 Sample Nos.: 7547446-57

Acc't: 07032 SF: 209603 SCR No.: 158932 Cooler No.: 1621

Cooler Temperature upon receipt: 0.1 °C Container No.: 1

29556

Facility Name: Pompton Lakes	Project Manager: Gary Long
Facility Contact: Josh Collins	Facility Contact Phone No.: 609.602.4694
Facility Address: Pompton Lakes Works	Job No.: 9267 7720100C WH06 50
2000 Cannonball Road	Release No.:
Pompton Lakes NJ 07442	PO Number: LBIO-66380

Sampler(s): SC, VM

Project Name: RAMAPO RIVER SEDIMENT SAMPLING 7/14

Sample Identification	Date Collected	Time Collected	Matrix	Containers Volume (ml)	Preserv	No.	Analyses Required: Hg (7470A)	TOC (5310 C)	Comments:
SDW07-28 14-FB-1	7/28/14	17:30	WW	250	HNO3	1	X		Intact
SDW07-28 14-FB-1	7/28/14	17:30	WW	40	H3PO4	2		X	Condition upon receipt:

Turnaround Time Requested (please circle): (Standard) RUSH Number of days: 8

Special Instructions: **Full Deliverables needed**

	Date	Time		Date:	Time:
Bottles Relinquished by:	7/28/14	18:00	Bottles Received by:		
Bottles Relinquished by:			Bottles Received by:		
Bottles Relinquished by:			Bottles Received by:		
Bottles Relinquished by:			Bottles Received by:	7.29.14	915

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 21454

Group Number(s): 1492182

Client: Dupont

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	07/29/2014 9:15
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	NJ		

Arrival Condition Summary

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

Unpacked by Brandy Barclay (2299) at 11:50 on 07/29/2014

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	DT146	0.7	DT	Wet	Y	Bagged	N	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

eurofins | Lancaster Laboratories Environmental

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 ≥ 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 ≥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.

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

August 22, 2014

Project: POM - RAMAPO RIVER SEDIMENT SAMPLING

Submittal Date: 07/30/2014
Group Number: 1492505
SDG: POM21
PO Number: LBIO-66380
State of Sample Origin: NJ

Client Sample Description	Lancaster Labs (LL) #
SD072914-RPR-09-0.0-0.5 Sediment	7548859
SD072914-RPR-10-0.0-0.5 Sediment	7548860
SD072914-RPR-11-0.0-0.5 Sediment	7548861
SD072914-RPR-12-0.0-0.5 Sediment	7548862
SD072914-RPR-12-0.5-0.75 Sediment	7548863
SD072914-RPR-13-0.0-0.5 Sediment	7548864
SD072914-RPR-14-0.0-0.5 Sediment	7548865
SD072914-RPR-15-0.0-0.5 Sediment	7548866
SD072914-RPR-13-0.5-1.0 Sediment	7548867
SD072914-RPR-13-1.0-1.1 Sediment	7548868
SD072914-RPR-14-0.5-1.0 Sediment	7548869
SD072914-RPR-14-1.0-1.5 Sediment	7548870
SD072914-RPR-15-0.5-1.0 Sediment	7548871
SD072914-RPR-15-0.0-0.5-D Sediment	7548872
SD072914-RPR-16-0.0-0.5 Sediment	7548873
SD072914-RPR-17-0.0-0.5 Sediment	7548874
SD072914-RPR-18-0.0-0.5 Sediment	7548875
SD072914-RPR-19-0.0-0.5 Sediment	7548876
SD072914-RPR-17-0.5-1.0 Sediment	7548877
SD072914-RPR-18-0.5-0.8 Sediment	7548878
SD072914-RPR-19-0.5-0.8 Sediment	7548879
SDW072914-FB-2 Blank Water	7548880
SD072914-RPR-01-0.0-0.5 Sediment	7548881
SD072914-RPR-02-0.0-0.5 Sediment	7548882
SD072914-RPR-01-0.5-0.75 Sediment	7548883

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

1 COPY TO Data Package Group

Respectfully Submitted,

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Sample Description: SD072914-RPR-09-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7548859
LL Group # 1492505
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/29/2014 10:15 by JC

Submitted: 07/30/2014 09:25
Reported: 08/22/2014 13:34

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

RMP-1 SDG#: POM21-01

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.733	0.0193	0.193	1
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	22,700	2,040	6,130	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	100	0.50	0.50	1
07103	4.75 mm	n.a.	99.6	0.50	0.50	1
07103	3.35 mm	n.a.	99.3	0.50	0.50	1
07103	2.36 mm	n.a.	98.9	0.50	0.50	1
07103	1.18 mm	n.a.	98.4	0.50	0.50	1
07103	0.6 mm	n.a.	96.2	0.50	0.50	1
07103	0.3 mm	n.a.	83.4	0.50	0.50	1
07103	0.15 mm	n.a.	37.7	0.50	0.50	1
07103	0.075 mm	n.a.	16.7	0.50	0.50	1
07103	0.064 mm	n.a.	13.5	0.50	0.50	1
07103	0.05 mm	n.a.	12.0	0.50	0.50	1
07103	0.02 mm	n.a.	8.0	0.50	0.50	1
07103	0.005 mm	n.a.	5.0	0.50	0.50	1
07103	0.002 mm	n.a.	2.0	0.50	0.50	1
07103	0.001 mm	n.a.	1.0	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	49.3	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142125711001	08/04/2014 16:59	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142125711001	08/04/2014 10:00	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14212049531A	08/01/2014 00:31	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14212710301A	07/31/2014 01:40	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14217820003A	08/05/2014 17:51	Scott W Freisher	1

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

Sample Description: SD072914-RPR-10-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7548860
LL Group # 1492505
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/29/2014 09:45 by JC

Submitted: 07/30/2014 09:25
Reported: 08/22/2014 13:34

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

RMP-2 SDG#: POM21-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0389	J	0.0123	0.123	1
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**		**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	123	U	123	369	1
Wet Chemistry	**ASTM D422**		**% Passing**		**% Passing**	**% Passing**	
07103	75 mm	n.a.	100		0.50	0.50	1
07103	37.5 mm	n.a.	100		0.50	0.50	1
07103	19 mm	n.a.	100		0.50	0.50	1
07103	4.75 mm	n.a.	95.2		0.50	0.50	1
07103	3.35 mm	n.a.	91.8		0.50	0.50	1
07103	2.36 mm	n.a.	86.8		0.50	0.50	1
07103	1.18 mm	n.a.	73.3		0.50	0.50	1
07103	0.6 mm	n.a.	51.9		0.50	0.50	1
07103	0.3 mm	n.a.	15.8		0.50	0.50	1
07103	0.15 mm	n.a.	2.6		0.50	0.50	1
07103	0.075 mm	n.a.	1.6		0.50	0.50	1
07103	0.064 mm	n.a.	2.0		0.50	0.50	1
07103	0.05 mm	n.a.	2.5		0.50	0.50	1
07103	0.02 mm	n.a.	2.5		0.50	0.50	1
07103	0.005 mm	n.a.	1.5		0.50	0.50	1
07103	0.002 mm	n.a.	1.5		0.50	0.50	1
07103	0.001 mm	n.a.	1.5		0.50	0.50	1

The grain size percent passing results are anomalous for particle sizes 0.075 mm, 0.064 mm and 0.05 mm due to matrix interference.

Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	18.8		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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142125711001	08/04/2014 17:11	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142125711001	08/04/2014 10:00	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14212049531A	08/01/2014 00:46	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14212710301A	07/31/2014 01:40	Daniel S Smith	1

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

Sample Description: SD072914-RPR-10-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7548860
LL Group # 1492505
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/29/2014 09:45 by JC

Submitted: 07/30/2014 09:25
Reported: 08/22/2014 13:34

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

RMP-2 SDG#: POM21-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM 2540 G-1997	1	14217820003A	08/05/2014 17:51	Scott W Freisher	1

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

Sample Description: SD072914-RPR-11-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7548861
LL Group # 1492505
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/29/2014 09:15 by JC

Submitted: 07/30/2014 09:25
Reported: 08/22/2014 13:34

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

RMP-3 SDG#: POM21-03

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.101 J	0.0132	0.132	1
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	1,750	133	400	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	100	0.50	0.50	1
07103	4.75 mm	n.a.	97.0	0.50	0.50	1
07103	3.35 mm	n.a.	93.8	0.50	0.50	1
07103	2.36 mm	n.a.	88.3	0.50	0.50	1
07103	1.18 mm	n.a.	73.7	0.50	0.50	1
07103	0.6 mm	n.a.	54.0	0.50	0.50	1
07103	0.3 mm	n.a.	20.0	0.50	0.50	1
07103	0.15 mm	n.a.	3.4	0.50	0.50	1
07103	0.075 mm	n.a.	2.2	0.50	0.50	1
07103	0.064 mm	n.a.	2.0	0.50	0.50	1
07103	0.05 mm	n.a.	2.5	0.50	0.50	1
07103	0.02 mm	n.a.	3.0	0.50	0.50	1
07103	0.005 mm	n.a.	1.0	0.50	0.50	1
07103	0.002 mm	n.a.	1.0	0.50	0.50	1
07103	0.001 mm	n.a.	1.0	0.50	0.50	1
	The grain size percent passing results are anomalous for particle sizes 0.075 mm, 0.064 mm and 0.05 mm due to matrix interference.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	25.0	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142125711001	08/04/2014 17:13	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142125711001	08/04/2014 10:00	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14212049531A	08/01/2014 00:58	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14212710301A	07/31/2014 01:40	Daniel S Smith	1

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

Sample Description: SD072914-RPR-11-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7548861
LL Group # 1492505
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/29/2014 09:15 by JC

Submitted: 07/30/2014 09:25
Reported: 08/22/2014 13:34

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

RMP-3 SDG#: POM21-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM 2540 G-1997	1	14217820003A	08/05/2014 17:51	Scott W Freisher	1

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

Sample Description: SD072914-RPR-12-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7548862
LL Group # 1492505
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/29/2014 08:40 by JC

Submitted: 07/30/2014 09:25
Reported: 08/22/2014 13:34

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

RMP-4 SDG#: POM21-04

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	2.77	0.114	1.14	5
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	33,800	1,160	3,480	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	100	0.50	0.50	1
07103	4.75 mm	n.a.	96.1	0.50	0.50	1
07103	3.35 mm	n.a.	94.7	0.50	0.50	1
07103	2.36 mm	n.a.	92.7	0.50	0.50	1
07103	1.18 mm	n.a.	89.7	0.50	0.50	1
07103	0.6 mm	n.a.	87.7	0.50	0.50	1
07103	0.3 mm	n.a.	83.2	0.50	0.50	1
07103	0.15 mm	n.a.	60.2	0.50	0.50	1
07103	0.075 mm	n.a.	35.3	0.50	0.50	1
07103	0.064 mm	n.a.	32.0	0.50	0.50	1
07103	0.05 mm	n.a.	27.0	0.50	0.50	1
07103	0.02 mm	n.a.	16.0	0.50	0.50	1
07103	0.005 mm	n.a.	5.0	0.50	0.50	1
07103	0.002 mm	n.a.	2.5	0.50	0.50	1
07103	0.001 mm	n.a.	1.5	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	56.7	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142125711001	08/04/2014 17:59	Damary Valentin	5
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142125711001	08/04/2014 10:00	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14212049531A	08/01/2014 01:14	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14212710301A	07/31/2014 01:40	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14217820003A	08/05/2014 17:51	Scott W Freisher	1

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

Sample Description: SD072914-RPR-12-0.5-0.75 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7548863
LL Group # 1492505
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/29/2014 08:40 by JC

Submitted: 07/30/2014 09:25
Reported: 08/22/2014 13:34

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

RMP-5 SDG#: POM21-05

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	4.97	0.105	1.05	5
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	54.9	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142125711001	08/04/2014 18:01	Damary Valentin	5
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142125711001	08/04/2014 10:00	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	14217820003A	08/05/2014 17:51	Scott W Freisher	1

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

Sample Description: SD072914-RPR-13-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7548864
LL Group # 1492505
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/29/2014 12:00 by JC

Submitted: 07/30/2014 09:25
Reported: 08/22/2014 13:34

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

RMP-6 SDG#: POM21-06

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.690	0.0301	0.301	1
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	41,600	2,360	7,090	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	100	0.50	0.50	1
07103	4.75 mm	n.a.	99.5	0.50	0.50	1
07103	3.35 mm	n.a.	97.4	0.50	0.50	1
07103	2.36 mm	n.a.	93.0	0.50	0.50	1
07103	1.18 mm	n.a.	90.4	0.50	0.50	1
07103	0.6 mm	n.a.	89.9	0.50	0.50	1
07103	0.3 mm	n.a.	89.0	0.50	0.50	1
07103	0.15 mm	n.a.	85.1	0.50	0.50	1
07103	0.075 mm	n.a.	64.4	0.50	0.50	1
07103	0.064 mm	n.a.	59.0	0.50	0.50	1
07103	0.05 mm	n.a.	50.0	0.50	0.50	1
07103	0.02 mm	n.a.	29.0	0.50	0.50	1
07103	0.005 mm	n.a.	11.0	0.50	0.50	1
07103	0.002 mm	n.a.	7.0	0.50	0.50	1
07103	0.001 mm	n.a.	3.0	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	67.6	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142125711001	08/04/2014 17:23	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142125711001	08/04/2014 10:00	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14212049531A	08/01/2014 01:34	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14212710301A	07/31/2014 01:40	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14217820003A	08/05/2014 17:51	Scott W Freisher	1

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

Sample Description: SD072914-RPR-14-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7548865
LL Group # 1492505
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/29/2014 11:30 by JC

Submitted: 07/30/2014 09:25
Reported: 08/22/2014 13:34

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

RMP-7 SDG#: POM21-07

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.551	0.0246	0.246	1
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	37,100	2,570	7,720	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	100	0.50	0.50	1
07103	4.75 mm	n.a.	99.8	0.50	0.50	1
07103	3.35 mm	n.a.	98.8	0.50	0.50	1
07103	2.36 mm	n.a.	96.9	0.50	0.50	1
07103	1.18 mm	n.a.	96.0	0.50	0.50	1
07103	0.6 mm	n.a.	95.3	0.50	0.50	1
07103	0.3 mm	n.a.	93.4	0.50	0.50	1
07103	0.15 mm	n.a.	76.2	0.50	0.50	1
07103	0.075 mm	n.a.	45.4	0.50	0.50	1
07103	0.064 mm	n.a.	40.5	0.50	0.50	1
07103	0.05 mm	n.a.	33.0	0.50	0.50	1
07103	0.02 mm	n.a.	17.0	0.50	0.50	1
07103	0.005 mm	n.a.	7.0	0.50	0.50	1
07103	0.002 mm	n.a.	6.0	0.50	0.50	1
07103	0.001 mm	n.a.	6.0	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	59.3	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142125711001	08/04/2014 17:25	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142125711001	08/04/2014 10:00	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14212049531A	08/01/2014 02:46	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14212710301A	07/31/2014 01:40	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14217820003A	08/05/2014 17:51	Scott W Freisher	1

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

Sample Description: SD072914-RPR-15-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7548866
LL Group # 1492505
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/29/2014 11:00 by JC

Submitted: 07/30/2014 09:25
Reported: 08/22/2014 13:34

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

RMP-8 SDG#: POM21-08

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	23.5	1.07	10.7	50
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	65,600	2,420	7,250	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	100	0.50	0.50	1
07103	4.75 mm	n.a.	99.3	0.50	0.50	1
07103	3.35 mm	n.a.	98.3	0.50	0.50	1
07103	2.36 mm	n.a.	94.6	0.50	0.50	1
07103	1.18 mm	n.a.	90.4	0.50	0.50	1
07103	0.6 mm	n.a.	83.9	0.50	0.50	1
07103	0.3 mm	n.a.	78.3	0.50	0.50	1
07103	0.15 mm	n.a.	61.9	0.50	0.50	1
07103	0.075 mm	n.a.	47.5	0.50	0.50	1
07103	0.064 mm	n.a.	44.0	0.50	0.50	1
07103	0.05 mm	n.a.	39.5	0.50	0.50	1
07103	0.02 mm	n.a.	25.0	0.50	0.50	1
07103	0.005 mm	n.a.	11.0	0.50	0.50	1
07103	0.002 mm	n.a.	7.0	0.50	0.50	1
07103	0.001 mm	n.a.	4.0	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	56.3	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142125711001	08/04/2014 18:05	Damary Valentin	50
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142125711001	08/04/2014 10:00	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14215049531A	08/03/2014 23:21	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14212710301A	07/31/2014 01:40	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14217820003A	08/05/2014 17:51	Scott W Freisher	1

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

Sample Description: SD072914-RPR-13-0.5-1.0 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7548867
LL Group # 1492505
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/29/2014 12:00 by JC

Submitted: 07/30/2014 09:25
Reported: 08/22/2014 13:34

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

RMP-9 SDG#: POM21-09

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.529	0.0169	0.169	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	41.8	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142125711001	08/04/2014 17:29	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142125711001	08/04/2014 10:00	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	14217820003A	08/05/2014 17:51	Scott W Freisher	1

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

Sample Description: SD072914-RPR-13-1.0-1.1 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7548868
LL Group # 1492505
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/29/2014 12:00 by JC

Submitted: 07/30/2014 09:25
Reported: 08/22/2014 13:34

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

RMP10 SDG#: POM21-10

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.184	0.0176	0.176	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	44.2	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142125711001	08/04/2014 17:31	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142125711001	08/04/2014 10:00	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	14217820003A	08/05/2014 17:51	Scott W Freisher	1

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

Sample Description: SD072914-RPR-14-0.5-1.0 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7548869
LL Group # 1492505
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/29/2014 11:30 by JC

Submitted: 07/30/2014 09:25
Reported: 08/22/2014 13:34

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

RMP11 SDG#: POM21-11

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.286	0.0153	0.153	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	39.5	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142125711001	08/04/2014 17:33	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142125711001	08/04/2014 10:00	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	14217820003B	08/05/2014 17:51	Scott W Freisher	1

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

Sample Description: SD072914-RPR-14-1.0-1.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7548870
LL Group # 1492505
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/29/2014 11:30 by JC

Submitted: 07/30/2014 09:25
Reported: 08/22/2014 13:34

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

RMP12 SDG#: POM21-12

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.207	0.0153	0.153	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	35.1	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142125711001	08/04/2014 17:35	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142125711001	08/04/2014 10:00	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	14217820003B	08/05/2014 17:51	Scott W Freisher	1

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

Sample Description: SD072914-RPR-15-0.5-1.0 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7548871
LL Group # 1492505
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/29/2014 11:00 by JC

Submitted: 07/30/2014 09:25
Reported: 08/22/2014 13:34

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

RMP13 SDG#: POM21-13

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	6.34	0.180	1.80	10
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	48.4	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142125711001	08/04/2014 18:11	Damary Valentin	10
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142125711001	08/04/2014 10:00	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	14217820003B	08/05/2014 17:51	Scott W Freisher	1

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

Sample Description: SD072914-RPR-15-0.0-0.5-D Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7548872
LL Group # 1492505
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/29/2014 11:00 by JC

Submitted: 07/30/2014 09:25
Reported: 08/22/2014 13:34

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

RMP14 SDG#: POM21-14FD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	23.9	1.06	10.6	50
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	63,700	2,470	7,420	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	100	0.50	0.50	1
07103	4.75 mm	n.a.	98.8	0.50	0.50	1
07103	3.35 mm	n.a.	96.4	0.50	0.50	1
07103	2.36 mm	n.a.	95.0	0.50	0.50	1
07103	1.18 mm	n.a.	91.8	0.50	0.50	1
07103	0.6 mm	n.a.	89.6	0.50	0.50	1
07103	0.3 mm	n.a.	86.0	0.50	0.50	1
07103	0.15 mm	n.a.	70.4	0.50	0.50	1
07103	0.075 mm	n.a.	51.8	0.50	0.50	1
07103	0.064 mm	n.a.	48.0	0.50	0.50	1
07103	0.05 mm	n.a.	42.5	0.50	0.50	1
07103	0.02 mm	n.a.	29.0	0.50	0.50	1
07103	0.005 mm	n.a.	12.0	0.50	0.50	1
07103	0.002 mm	n.a.	7.0	0.50	0.50	1
07103	0.001 mm	n.a.	4.0	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	55.5	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142125711001	08/04/2014 18:13	Damary Valentin	50
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142125711001	08/04/2014 10:00	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14215049531A	08/03/2014 23:29	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14212710301A	07/31/2014 01:40	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14217820003B	08/05/2014 17:51	Scott W Freisher	1

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

Sample Description: SD072914-RPR-16-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7548873
LL Group # 1492505
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/29/2014 16:00 by JC

Submitted: 07/30/2014 09:25
Reported: 08/22/2014 13:34

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

RMP15 SDG#: POM21-15

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.448	0.0176	0.176	1
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	13,000	2,620	7,860	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	100	0.50	0.50	1
07103	4.75 mm	n.a.	99.3	0.50	0.50	1
07103	3.35 mm	n.a.	98.8	0.50	0.50	1
07103	2.36 mm	n.a.	98.2	0.50	0.50	1
07103	1.18 mm	n.a.	97.8	0.50	0.50	1
07103	0.6 mm	n.a.	97.2	0.50	0.50	1
07103	0.3 mm	n.a.	89.1	0.50	0.50	1
07103	0.15 mm	n.a.	44.5	0.50	0.50	1
07103	0.075 mm	n.a.	19.1	0.50	0.50	1
07103	0.064 mm	n.a.	15.0	0.50	0.50	1
07103	0.05 mm	n.a.	12.0	0.50	0.50	1
07103	0.02 mm	n.a.	7.0	0.50	0.50	1
07103	0.005 mm	n.a.	2.0	0.50	0.50	1
07103	0.002 mm	n.a.	1.5	0.50	0.50	1
07103	0.001 mm	n.a.	1.5	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	44.6	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142125711001	08/04/2014 17:47	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142125711001	08/04/2014 10:00	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14215049531A	08/03/2014 23:55	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14212710301A	07/31/2014 01:40	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14217820003B	08/05/2014 17:51	Scott W Freisher	1

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

Sample Description: SD072914-RPR-17-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7548874
LL Group # 1492505
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/29/2014 15:30 by JC

Submitted: 07/30/2014 09:25
Reported: 08/22/2014 13:34

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

RMP16 SDG#: POM21-16

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	1.61	0.0468	0.468	2.5
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	18,300	1,760	5,280	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	100	0.50	0.50	1
07103	4.75 mm	n.a.	99.7	0.50	0.50	1
07103	3.35 mm	n.a.	99.3	0.50	0.50	1
07103	2.36 mm	n.a.	98.5	0.50	0.50	1
07103	1.18 mm	n.a.	98.0	0.50	0.50	1
07103	0.6 mm	n.a.	97.3	0.50	0.50	1
07103	0.3 mm	n.a.	94.9	0.50	0.50	1
07103	0.15 mm	n.a.	64.1	0.50	0.50	1
07103	0.075 mm	n.a.	31.8	0.50	0.50	1
07103	0.064 mm	n.a.	27.0	0.50	0.50	1
07103	0.05 mm	n.a.	22.0	0.50	0.50	1
07103	0.02 mm	n.a.	10.5	0.50	0.50	1
07103	0.005 mm	n.a.	4.0	0.50	0.50	1
07103	0.002 mm	n.a.	3.0	0.50	0.50	1
07103	0.001 mm	n.a.	1.0	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	50.2	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142125711001	08/04/2014 18:15	Damary Valentin	2.5
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142125711001	08/04/2014 10:00	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14215049531A	08/04/2014 00:03	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14212710301A	07/31/2014 01:40	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14217820003B	08/05/2014 17:51	Scott W Freisher	1

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

Sample Description: SD072914-RPR-18-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7548875
LL Group # 1492505
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/29/2014 15:00 by JC

Submitted: 07/30/2014 09:25
Reported: 08/22/2014 13:34

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

RMP17 SDG#: POM21-17

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	2.41	0.0705	0.705	2.5
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	45,500	2,520	7,570	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	100	0.50	0.50	1
07103	4.75 mm	n.a.	99.1	0.50	0.50	1
07103	3.35 mm	n.a.	98.3	0.50	0.50	1
07103	2.36 mm	n.a.	96.7	0.50	0.50	1
07103	1.18 mm	n.a.	95.8	0.50	0.50	1
07103	0.6 mm	n.a.	94.7	0.50	0.50	1
07103	0.3 mm	n.a.	92.4	0.50	0.50	1
07103	0.15 mm	n.a.	72.9	0.50	0.50	1
07103	0.075 mm	n.a.	45.2	0.50	0.50	1
07103	0.064 mm	n.a.	42.0	0.50	0.50	1
07103	0.05 mm	n.a.	38.0	0.50	0.50	1
07103	0.02 mm	n.a.	23.0	0.50	0.50	1
07103	0.005 mm	n.a.	7.5	0.50	0.50	1
07103	0.002 mm	n.a.	4.0	0.50	0.50	1
07103	0.001 mm	n.a.	3.0	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	65.2	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142125711001	08/04/2014 18:17	Damary Valentin	2.5
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142125711001	08/04/2014 10:00	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14215049531A	08/04/2014 00:18	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14212710301A	07/31/2014 01:40	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14217820003B	08/05/2014 17:51	Scott W Freisher	1

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

Sample Description: SD072914-RPR-19-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7548876
LL Group # 1492505
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/29/2014 14:30 by JC

Submitted: 07/30/2014 09:25
Reported: 08/22/2014 13:34

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

RMP18 SDG#: POM21-18

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.344	0.0158	0.158	1
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	6,630	895	2,680	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	100	0.50	0.50	1
07103	4.75 mm	n.a.	98.2	0.50	0.50	1
07103	3.35 mm	n.a.	97.7	0.50	0.50	1
07103	2.36 mm	n.a.	97.3	0.50	0.50	1
07103	1.18 mm	n.a.	97.1	0.50	0.50	1
07103	0.6 mm	n.a.	96.8	0.50	0.50	1
07103	0.3 mm	n.a.	79.6	0.50	0.50	1
07103	0.15 mm	n.a.	21.7	0.50	0.50	1
07103	0.075 mm	n.a.	8.2	0.50	0.50	1
07103	0.064 mm	n.a.	7.0	0.50	0.50	1
07103	0.05 mm	n.a.	5.5	0.50	0.50	1
07103	0.02 mm	n.a.	3.0	0.50	0.50	1
07103	0.005 mm	n.a.	1.5	0.50	0.50	1
07103	0.002 mm	n.a.	1.5	0.50	0.50	1
07103	0.001 mm	n.a.	1.5	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	37.2	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142125711001	08/04/2014 17:53	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142125711001	08/04/2014 10:00	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14215049531A	08/04/2014 02:08	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14212710301A	07/31/2014 01:40	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14217820003B	08/05/2014 17:51	Scott W Freisher	1

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

Sample Description: SD072914-RPR-17-0.5-1.0 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7548877
LL Group # 1492505
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/29/2014 15:30 by JC

Submitted: 07/30/2014 09:25
Reported: 08/22/2014 13:34

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

RMP19 SDG#: POM21-19

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	2.00	0.0804	0.804	5
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	39.5	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142125711001	08/04/2014 18:19	Damary Valentin	5
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142125711001	08/04/2014 10:00	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	14217820003B	08/05/2014 17:51	Scott W Freisher	1

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

Sample Description: SD072914-RPR-18-0.5-0.8 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7548878
LL Group # 1492505
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/29/2014 15:00 by JC

Submitted: 07/30/2014 09:25
Reported: 08/22/2014 13:34

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

RMP20 SDG#: POM21-20

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	2.15	0.0897	0.897	5
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	48.3	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142125711001	08/04/2014 18:21	Damary Valentin	5
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142125711001	08/04/2014 10:00	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	14217820003B	08/05/2014 17:51	Scott W Freisher	1

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

Sample Description: SD072914-RPR-19-0.5-0.8 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7548879
LL Group # 1492505
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/29/2014 14:30 by JC

Submitted: 07/30/2014 09:25
Reported: 08/22/2014 13:34

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

RMP21 SDG#: POM21-21

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.377	0.0195	0.195	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	49.5	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	2	142185711001	08/08/2014 07:00	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711004	08/05/2014 09:24	Christopher M Klumpp	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	2	142185711001	08/07/2014 11:20	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	14217820004A	08/05/2014 20:21	Scott W Freisher	1

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

Sample Description: SDW072914-FB-2 Blank Water
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # WW 7548880
LL Group # 1492505
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/29/2014 18:00 by JC

Submitted: 07/30/2014 09:25
Reported: 08/22/2014 13:34

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

RMP22 SDG#: POM21-22FB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 7470A**		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000060 U	0.000060	0.00020	1
Wet Chemistry	**SM 5310 C-2000**		**mg/l**	**mg/l**	**mg/l**	
00273	Total Organic Carbon	n.a.	1.0	0.50	1.0	1

General Sample Comments

State of New Jersey Lab Certification No. PA011

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
00259	Mercury	SW-846 7470A	1	142125713004	08/04/2014 13:42	Damary Valentin	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	142125713004	08/01/2014 08:02	Christopher M Klumpp	1
00273	Total Organic Carbon	SM 5310 C-2000	1	14213049501B	08/01/2014 08:13	James S Mathiot	1

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

Sample Description: SD072914-RPR-01-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7548881
LL Group # 1492505
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/29/2014 13:00 by JC

Submitted: 07/30/2014 09:25
Reported: 08/22/2014 13:34

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

RMP23 SDG#: POM21-23

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.435	0.0152	0.152	1
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	7,760	1,230	3,680	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	100	0.50	0.50	1
07103	4.75 mm	n.a.	99.4	0.50	0.50	1
07103	3.35 mm	n.a.	99.1	0.50	0.50	1
07103	2.36 mm	n.a.	98.6	0.50	0.50	1
07103	1.18 mm	n.a.	97.8	0.50	0.50	1
07103	0.6 mm	n.a.	93.7	0.50	0.50	1
07103	0.3 mm	n.a.	61.6	0.50	0.50	1
07103	0.15 mm	n.a.	24.5	0.50	0.50	1
07103	0.075 mm	n.a.	8.6	0.50	0.50	1
07103	0.064 mm	n.a.	7.0	0.50	0.50	1
07103	0.05 mm	n.a.	6.0	0.50	0.50	1
07103	0.02 mm	n.a.	5.0	0.50	0.50	1
07103	0.005 mm	n.a.	1.5	0.50	0.50	1
07103	0.002 mm	n.a.	1.5	0.50	0.50	1
07103	0.001 mm	n.a.	1.5	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	38.7	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	2	142185711001	08/08/2014 07:11	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711004	08/05/2014 09:24	Christopher M Klumpp	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	2	142185711001	08/07/2014 11:20	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14215049531A	08/04/2014 00:37	James S Mathiot	1

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

Sample Description: SD072914-RPR-01-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7548881
LL Group # 1492505
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/29/2014 13:00 by JC

Submitted: 07/30/2014 09:25
Reported: 08/22/2014 13:34

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

RMP23 SDG#: POM21-23

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	14212710301A	07/31/2014 01:40	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14217820004A	08/05/2014 20:21	Scott W Freisher	1

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

Sample Description: SD072914-RPR-02-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7548882
LL Group # 1492505
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/29/2014 12:45 by JC

Submitted: 07/30/2014 09:25
Reported: 08/22/2014 13:34

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

RMP24 SDG#: POM21-24

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.123 J	0.0146	0.146	1
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	7,730	944	2,830	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	100	0.50	0.50	1
07103	4.75 mm	n.a.	98.2	0.50	0.50	1
07103	3.35 mm	n.a.	97.4	0.50	0.50	1
07103	2.36 mm	n.a.	96.5	0.50	0.50	1
07103	1.18 mm	n.a.	95.7	0.50	0.50	1
07103	0.6 mm	n.a.	94.1	0.50	0.50	1
07103	0.3 mm	n.a.	83.6	0.50	0.50	1
07103	0.15 mm	n.a.	44.5	0.50	0.50	1
07103	0.075 mm	n.a.	12.1	0.50	0.50	1
07103	0.064 mm	n.a.	9.0	0.50	0.50	1
07103	0.05 mm	n.a.	8.0	0.50	0.50	1
07103	0.02 mm	n.a.	5.0	0.50	0.50	1
07103	0.005 mm	n.a.	2.0	0.50	0.50	1
07103	0.002 mm	n.a.	2.0	0.50	0.50	1
07103	0.001 mm	n.a.	2.0	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	35.5	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	2	142185711001	08/08/2014 07:13	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711004	08/05/2014 09:24	Christopher M Klumpp	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	2	142185711001	08/07/2014 11:20	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14215049531A	08/04/2014 02:18	James S Mathiot	1

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

Sample Description: SD072914-RPR-02-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7548882
LL Group # 1492505
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/29/2014 12:45 by JC

Submitted: 07/30/2014 09:25
Reported: 08/22/2014 13:34

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

RMP24 SDG#: POM21-24

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	14212710301A	07/31/2014 01:40	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14217820004A	08/05/2014 20:21	Scott W Freisher	1

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

Sample Description: SD072914-RPR-01-0.5-0.75 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7548883
LL Group # 1492505
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/29/2014 13:00 by JC

Submitted: 07/30/2014 09:25
Reported: 08/22/2014 13:34

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

RMP25 SDG#: POM21-25*

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.122 J	0.0137	0.137	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	32.4	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	2	142185711001	08/08/2014 07:15	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711004	08/05/2014 09:24	Christopher M Klumpp	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	2	142185711001	08/07/2014 11:20	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	14217820004A	08/05/2014 20:21	Scott W Freisher	1

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

Quality Control Summary

Client Name: CRG-E.I.DuPont de Nemours & Co Group Number: 1492505
Reported: 08/22/14 at 01:34 PM

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

Analysis Name	Blank Result	Blank MDL**	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 142125711001	Sample number(s): 7548859-7548878								
Mercury	0.0100 U	0.0100	0.100	mg/kg	101		80-120		
Batch number: 142125713004	Sample number(s): 7548880								
Mercury	0.000060 U	0.00006 0	0.00020	mg/l	102		80-120		
Batch number: 142185711001	Sample number(s): 7548879,7548881-7548883								
Mercury	0.0100 U	0.0100	0.100	mg/kg	104		80-120		
Batch number: 14212049531A	Sample number(s): 7548859-7548862,7548864-7548865								
TOC by Lloyd Kahn	100 U	100.	300	mg/kg	83		47-143		
Batch number: 14213049501B	Sample number(s): 7548880								
Total Organic Carbon	0.50 U	0.50	1.0	mg/l	104		91-113		
Batch number: 14215049531A	Sample number(s): 7548866,7548872-7548876,7548881-7548882								
TOC by Lloyd Kahn	100 U	100.	300	mg/kg	92		47-143		
Batch number: 14217820003A	Sample number(s): 7548859-7548868								
Moisture					100		99-101		
Batch number: 14217820003B	Sample number(s): 7548869-7548878								
Moisture					100		99-101		
Batch number: 14217820004A	Sample number(s): 7548879,7548881-7548883								
Moisture					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

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 142125711001	Sample number(s): 7548859-7548878 UNSPK: 7548859 BKG: 7548859								
Mercury	266*	108	80-120	40*	20	0.372	0.482	26* (1)	20
Batch number: 142125713004	Sample number(s): 7548880 UNSPK: P550365 BKG: P550365								

*- 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 Group Number: 1492505
Reported: 08/22/14 at 01:34 PM

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

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Mercury	106	109	80-120	3	20	0.00016 J	0.00018 J	14 (1)	20
Batch number: 142185711001	Sample number(s): 7548879,7548881-7548883 UNSPK: 7548879 BKG: 7548879								
Mercury	110	162*	80-120	19	20	0.190	0.196	3 (1)	20
Batch number: 14212049531A	Sample number(s): 7548859-7548862,7548864-7548865 UNSPK: 7548864 BKG: 7548864								
TOC by Lloyd Kahn	74		59-125			13,500	11,300	17* (1)	15
Batch number: 14213049501B	Sample number(s): 7548880 UNSPK: P548484 BKG: P548484								
Total Organic Carbon	106		63-142			4.7	4.7	0 (1)	4
Batch number: 14215049531A	Sample number(s): 7548866,7548872-7548876,7548881-7548882 UNSPK: 7548881 BKG: 7548881								
TOC by Lloyd Kahn	96		59-125			4,760	3,560	29* (1)	15
Batch number: 14217820003A	Sample number(s): 7548859-7548868 BKG: 7548866								
Moisture						56.3	56.5	0	5
Batch number: 14217820003B	Sample number(s): 7548869-7548878 BKG: 7548871								
Moisture						48.4	48.6	0	5
Batch number: 14217820004A	Sample number(s): 7548879,7548881-7548883 BKG: P549132								
Moisture						14.7	15.5	6*	5

*- 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.

Analysis Request / Environmental Services Chain of Custody

eurofins | Lancaster Laboratories

For Lancaster Laboratories Use Only
Group No.: 1492505 Sample Nos.: 754885 9 - 83
Acc't: 07032 SF: 209603 SCR No.: 158932 Cooler No.: 5757 29553
Cooler Temperature upon receipt: 0.8 °C Container No.: 1

Facility Name: Pompton Lakes	Project Manager: Gary Long
Facility Contact: Josh Collins	Facility Contact Phone No.: 609.602.4694
Facility Address: Pompton Lakes Works	Job No.: 9267 7720100C WH06 50
2000 Cannonball Road	Release No.:
Pompton Lakes NJ 07442	PO Number: LBIO-66380
Sampler(s): VC, VM (Josh Collins Victoria Musumeci)	
Project Name: RAMAPO RIVER SEDIMENT SAMPLING 7/14	

Sample Identification	Date Collected	Time Collected	Matrix	Containers: Volume (ml)	Preserv	No.	Grain Size (ASTM D422)	Hg (7471A)	Moisture (2540 G)	TOC (Lloyd Kahn)
SD07 29 14-RPR-09-0.0-0.5	7/29/14	1015	SW	125	None	1		X	X	X
SD07 29 14-RPR-09-0.0-0.5		1015	SW	500	None	1	X			
SD07 29 14-RPR-10-0.0-0.5		0945	SW	125	None	1		X	X	X
SD07 29 14-RPR-10-0.0-0.5		0945	SW	500	None	1	X			
SD07 29 14-RPR-11-0.0-0.5		0915	SW	125	None	1		X	X	X
SD07 29 14-RPR-11-0.0-0.5		0915	SW	500	None	1	X			
SD07 29 14-RPR-12-0.0-0.5		0840	SW	125	None	1		X	X	X
SD07 29 14-RPR-12-0.0-0.5		0840	SW	500	None	1	X			
SD07 29 14-RPR-12-0.5-0.75		0840	SW	125	None	1		X	X	

Analyses Required

Comments:

Condition upon receipt: intact

Turnaround Time Requested (please circle): (Standard) RUSH Number of days: 8

Special Instructions: Full Deliverables needed

	Date	Time		Date	Time
Bottles Relinquished by: VMusumeci	7/29/14	1800	Bottles Received by:		
Bottles Relinquished by:			Bottles Received by:		
Bottles Relinquished by:			Bottles Received by:		
Bottles Relinquished by:			Bottles Received by:	7/30/14	925

Analysis Request / Environmental Services Chain of Custody

eurofins | Lancaster Laboratories

For Lancaster Laboratories Use Only
Group No.: 1492505 Sample Nos.: 7548859-83
Acc't: 07032 SF: 209603 SCR No.: 158932 Cooler No.: 1621
Cooler Temperature upon receipt: 1.2 °C Container No.: 2

29554

Facility Name: Pompton Lakes	Project Manager: Gary Long
Facility Contact: Josh Collins	Facility Contact Phone No.: 609.602.4694
Facility Address: Pompton Lakes Works	Job No.: 9267 7720100C WH06 50
2000 Cannonball Road	Release No.:
Pompton Lakes NJ 07442	PO Number: LBIO-66380

Sampler(s): Victoria Musumeci, Josh Collins

Project Name: RAMAPO RIVER SEDIMENT SAMPLING 7/14

Sample Identification	Date Collected	Time Collected	Matrix	Containers Volume (ml)	Preserv	No.	Grain Size (ASTM D422)	Hg (7471A)	Moisture (2540 G)	TOC (Lloyd Kahn)
SD07 29 14-RPR-13-0.0-0.5	7/29/14	1200	SW	125	None	1		X	X	X
SD07 29 14-RPR-13-0.0-0.5		1200	SW	500	None	1	X			
SD07 29 14-RPR-14-0.0-0.5		1130	SW	125	None	1		X	X	X
SD07 29 14-RPR-14-0.0-0.5		1130	SW	500	None	1	X			
SD07 29 14-RPR-15-0.0-0.5		1100	SW	125	None	1		X	X	X
SD07 29 14-RPR-15-0.0-0.5		1100	SW	500	None	1	X			
SD072914-RPR-13-0.5-1.0		1200	SW	125	None	1		X	X	
SD072914-RPR-13-1.0-1.1		1200	SW	125	None	1		X	X	
SD072914-RPR-14-0.5-1.0		1130	SW	125	None	1		X	X	
SD072914-RPR-14-1.0-1.5		1130	SW	125	None	1		X	X	
SD072914-RPR-15-0.5-1.0	↓	1100	SW	125	None	1		X	X	

Analyses Required

Comments:

Condition upon receipt: intact

DRAFT

Turnaround Time Requested (please circle): (Standard) RUSH Number of days: 8

Special Instructions: **Full Deliverables needed**

	Date	Time		Date	Time
Bottles Relinquished by: V Musumeci	7/29/14	1800	Bottles Received by:		
Bottles Relinquished by:			Bottles Received by:		
Bottles Relinquished by:			Bottles Received by:		
Bottles Relinquished by:			Bottles Received by:	7/30/14	925

Analysis Request / Environmental Services Chain of Custody

eurofins | Lancaster Laboratories

For Lancaster Laboratories Use Only
Group No.: 1492505 Sample Nos.: 7548859-83
Acc't: 07032 SF: 209603 SCR No.: 158932 Cooler No.: 1621
Cooler Temperature upon receipt: 1.2 °C Container No.: 2

29555

Facility Name: Pompton Lakes	Project Manager: Gary Long
Facility Contact: Josh Collins	Facility Contact Phone No.: 609.602.4694
Facility Address: Pompton Lakes Works	Job No.: 9267 7720100C WH06 50
2000 Cannonball Road	Release No.:
Pompton Lakes NJ 07442	PO Number: LBIO-66380

Sampler(s): VM, JC

Project Name: RAMAPO RIVER SEDIMENT SAMPLING 7/14

Sample Identification	Date Collected	Time Collected	Matrix	Containers Volume (ml)	Preserv	No.	Grain Size (ASTM D422)	Hg (7471A)	Moisture (2540 G)	TOC (Lloyd Kahn)	Comments: / Condition upon receipt: intact
~~SD07 14-RPR- -0.0~~			SW	~~125~~	~~None~~	1		X	X	X	MS
~~SD07 14-RPR- -0.0-~~			SW	125	None	1		X	X	X	MSD
~~SD07 14-RPR- -0.0-~~	~~7/29/14~~		SW	500	None	1	X				MSD
SD07 29 14-RPR- 15 -0.0- 0.5 -D	~~7/29/14~~ 7/29/14	1100	SW	125	None	1		X	X	X	
SD07 29 14-RPR- 15 -0.0- 0.5 -D	7/29/14	1100	SW	500	None	1	X				

Turnaround Time Requested (please circle): (Standard) RUSH Number of days: 8

Special Instructions: **Full Deliverables needed**

	Date	Time		Date:	Time:
Bottles Relinquished by: VMassuneci	7/29/14	1800	Bottles Received by:		
Bottles Relinquished by:	Date	Time	Bottles Received by:	Date:	Time:
Bottles Relinquished by:	Date	Time	Bottles Received by:	Date:	Time:
Bottles Relinquished by:	Date	Time	Bottles Received by:	Date: 7/30/14	Time: 925

Analysis Request / Environmental Services Chain of Custody

eurofins | Lancaster Laboratories

For Lancaster Laboratories Use Only
Group No.: 149250S Sample Nos.: 7548859-83 167860
Acc't: 07032 SF: 209603 SCR No.: 159055 Cooler No.: 1
Cooler Temperature upon receipt: 0.8 °C Container No.: 1

29577

Facility Name: Pompton Lakes	Project Manager: Gary Long
Facility Contact: Josh Collins	Facility Contact Phone No.: 609.602.4694
Facility Address: Pompton Lakes Works	Job No.: 9267 7720100C WH06 50
2000 Cannonball Road	Release No.:
Pompton Lakes NJ 07442	PO Number: LBIO-66380
Sampler(s): VM, JC	
Project Name: RAMAPO RIVER SEDIMENT SAMPLING 7/14	

Sample Identification	Date Collected	Time Collected	Matrix	Containers Volume (ml)	Preserv	No.	Grain Size (ASTM D422)	Hg (7471A)	Moisture (2540 G)	TOC (Lloyd Kahn)
SD07 29 14-RPR-16-0.0-0.5	7/29/14	1600	SW	125	None	1		X	X	X
SD07 29 14-RPR-16-0.0-0.5		1600	SW	500	None	1	X			
SD07 29 14-RPR-17-0.0-0.5		1530	SW	125	None	1		X	X	X
SD07 29 14-RPR-17-0.0-0.5		1530	SW	500	None	1	X			
SD07 29 14-RPR-18-0.0-0.5		1500	SW	125	None	1		X	X	X
SD07 29 14-RPR-18-0.0-0.5		1500	SW	500	None	1	X			
SD07 29 14-RPR-19-0.0-0.5		1430	SW	125	None	1		X	X	X
SD07 29 14-RPR-19-0.0-0.5		1430	SW	500	None	1	X			
SD072914-RPR-17-0.5-1.0		1530	SW	125	None	1		X	X	
SD072914-RPR-18-0.5-0.8		1500	SW	125	None	1		X	X	
SD072914-RPR-19-0.5-0.8		1430	SW	125	None	1		X	X	

Analyses Required

Comments:

Condition upon receipt: Intact

Turnaround Time Requested (please circle): (Standard) RUSH Number of days: 8

Special Instructions: Full Deliverables needed

	Date	Time		Date	Time
Bottles Relinquished by:	7/28/14	11:30	Bottles Received by:		
Bottles Relinquished by:	7/29/14	1800	Bottles Received by:		
Bottles Relinquished by:			Bottles Received by:		
Bottles Relinquished by:			Bottles Received by:	7/30/14	0925

Analysis Request / Environmental Services Chain of Custody

eurofins | Lancaster Laboratories

For Lancaster Laboratories Use Only
Group No.: 1492505 Sample Nos.: 7540859-83
Acct: 07032 SF: 209603 SCR No.: 158932 Cooler No.: 1021 2
Cooler Temperature upon receipt: 1.2 °C Container No.:

29557

Facility Name: Pompton Lakes	Project Manager: Gary Long
Facility Contact: Josh Collins	Facility Contact Phone No.: 609.602.4694
Facility Address: Pompton Lakes Works	Job No.: 9267 7720100C WH06 50
2000 Cannonball Road	Release No.:
Pompton Lakes NJ 07442	PO Number: LBIO-66380

Sampler(s): JC, VM

Project Name: RAMAPO RIVER SEDIMENT SAMPLING 7/14

Sample Identification	Date Collected	Time Collected	Matrix	Containers Volume (ml)	Preserv	No.	Analyses Required: Hg (7470A)	TOC (5310 C)	Comments:
SDW07 29 14-FB-2	7/29/14	1800	WW	250	HNO3	1	X		Condition upon receipt: intact
SDW07 29 14-FB-2	7/29/14	1800	WW	40	H3PO4	2		X	

DRAFT

Turnaround Time Requested (please circle): (Standard) RUSH Number of days: 8

Special Instructions: **Full Deliverables needed**

	Date	Time		Date:	Time:
Bottles Relinquished by: V. Mussumeci	7/29/14	1800	Bottles Received by:		
Bottles Relinquished by:	Date	Time	Bottles Received by:	Date:	Time:
Bottles Relinquished by:	Date	Time	Bottles Received by:	Date:	Time:
Bottles Relinquished by:	Date	Time	Bottles Received by:	7/30/14	925

Analysis Request / Environmental Services Chain of Custody

eurofins | Lancaster Laboratories

For Lancaster Laboratories Use Only
Group No.: 1492505 Sample Nos.: 754885I-83
Acc't: 07032 SF: 209603 SCR No.: 159055 Cooler No.: 17722 29584
Cooler Temperature upon receipt: _____ °C Container No.: _____

Facility Name: Pompton Lakes	Project Manager: Gary Long
Facility Contact: Josh Collins	Facility Contact Phone No.: 609.602.4694
Facility Address: Pompton Lakes Works	Job No.: 9267 7720100C WH06 50
2000 Cannonball Road	Release No.:
Pompton Lakes NJ 07442	PO Number: LBIO-66380
Sampler(s): Josh Collins, Victoria Musumeci	
Project Name: RAMAPO RIVER SEDIMENT SAMPLING 7/14	

Sample Identification	Date Collected	Time Collected	Matrix	Containers: Volume (ml)	Preserv	No.	Hg (7471A)	Moisture (2540 G)	TOC (Lloyd Kahn)	Grain Size (ASTM D422)	Comments
SD07 29 14-RPR-01-0.0-0.5	7/29/14	1300	SW	125	None	1	X	X	X		
SD07 29 14-RPR-01-0.5-0.75	7/29/14	1300	SW	125	None	1	X	X			
SD07 29 14-RPR-02-0.0-0.5	7/29/14	1245	SW	125	None	1	X	X	X		
SD07 14-RPR-			SW	125	None	1	X	X			
SD07 14-RPR-			SW	125	None	1	X	X			
SD07 14-RPR-			SW	125	None	1	X	X			
SD07 14-RPR-			SW	125	None	1	X	X			
SD07 14-RPR-			SW	125	None	1	X	X			
SD072914-RPR-01-0.0-0.5	7/29/14	1300	SW	500	None	1				X	
SD072914-RPR-02-0.0-0.5	7/29/14	1245	SW	500	None	1				X	

Condition upon receipt:

Turnaround Time Requested (please circle): (Standard) RUSH Number of days: 8

Special Instructions: **Full Deliverables needed**

Bottles Relinquished by:	Date 7/28/14	Time 1545	Bottles Received by:	Date:	Time:
Bottles Relinquished by: VMusumeci	Date 7/29/14	Time 1800	Bottles Received by:	Date:	Time:
Bottles Relinquished by:	Date	Time	Bottles Received by:	Date:	Time:
Bottles Relinquished by:	Date	Time	Bottles Received by:	Date:	Time:

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 21754

Group Number(s): 1492505

Client: Dupont Pompton Lakes

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	07/30/2014 9:25
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	NJ		

Arrival Condition Summary

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

Unpacked by Wesley Miller (2308) at 13:12 on 07/30/2014

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	0.8	DT	Wet	Y	Bagged	N	N
2	DT121	1.2	DT	Wet	Y	Bagged	N	N

Extra Sample Details

Sample ID on Label	Number of Extra Containers	Date on Label	Comments
SD072914-RPR-01-0.0-0.5	2	7/29/2014 13:00	1 125mL jar and 1 500mL jar
SD072914-RPR-02-0.0-0.5	2	7/29/2014 12:45	1 125mL jar and 1 500mL jar
SD072914-RPR-01-0.5-0.75	1	7/29/2014 13:00	1 125mL jar

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

eurofins | Lancaster Laboratories Environmental

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 ≥ 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 ≥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.

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

August 27, 2014

Project: POM - RAMAPO RIVER SEDIMENT SAMPLING

Submittal Date: 07/31/2014
Group Number: 1492797
SDG: POM22
PO Number: LBIO-66380
State of Sample Origin: NJ

Client Sample Description	Lancaster Labs (LL) #
SD073014-RPR-28-0.0-0.5 Sediment	7550161
SD073014-RPR-29-0.0-0.5 Sediment	7550162
SD073014-RPR-30-0.0-0.5 Sediment	7550163
SD073014-RPR-29-0.5-0.75 Sediment	7550164
SD073014-RPR-20-0.0-0.5 Sediment	7550165
SD073014-RPR-22-0.0-0.5 Sediment	7550166
SD073014-RPR-20-0.5-1.0 Sediment	7550167
SD073014-RPR-20-1.0-1.4 Sediment	7550168
SD073014-RPR-24-0.0-0.5 Sediment	7550169
SD073014-RPR-25-0.0-0.5 Sediment	7550170
SD073014-RPR-25-0.0-0.5 MS Sediment	7550171
SD073014-RPR-25-0.0-0.5 MSD Sediment	7550172
SD073014-RPR-25-0.0-0.5 Dupl Sediment	7550173
SD073014-RPR-26-0.0-0.5 Sediment	7550174
SD073014-RPR-27-0.0-0.5 Sediment	7550175
SD073014-RPR-25-0.5-0.95 Sediment	7550176
SD073014-RPR-26-0.5-1.0 Sediment	7550177
SD073014-RPR-27-0.5-1.0 Sediment	7550178
SD073014-RPR-26-0.0-0.5-D Sediment	7550179
SDW073014-FB-3 Blank Water	7550180

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

1 COPY TO Data Package Group

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Sample Description: SD073014-RPR-28-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7550161
LL Group # 1492797
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/30/2014 10:40 by JC

Submitted: 07/31/2014 09:20
Reported: 08/27/2014 08:28

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

RPR28 SDG#: POM22-01

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.711	0.0225	0.225	1
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	43,700	2,090	6,270	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	100	0.50	0.50	1
07103	4.75 mm	n.a.	98.3	0.50	0.50	1
07103	3.35 mm	n.a.	96.6	0.50	0.50	1
07103	2.36 mm	n.a.	94.9	0.50	0.50	1
07103	1.18 mm	n.a.	92.2	0.50	0.50	1
07103	0.6 mm	n.a.	88.2	0.50	0.50	1
07103	0.3 mm	n.a.	80.0	0.50	0.50	1
07103	0.15 mm	n.a.	63.0	0.50	0.50	1
07103	0.075 mm	n.a.	43.8	0.50	0.50	1
07103	0.064 mm	n.a.	39.0	0.50	0.50	1
07103	0.05 mm	n.a.	32.0	0.50	0.50	1
07103	0.02 mm	n.a.	17.0	0.50	0.50	1
07103	0.005 mm	n.a.	5.0	0.50	0.50	1
07103	0.002 mm	n.a.	2.0	0.50	0.50	1
07103	0.001 mm	n.a.	1.0	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	58.9	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711003	08/05/2014 11:12	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711003	08/05/2014 08:26	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14216049531A	08/04/2014 22:01	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14213710301A	08/01/2014 00:35	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14218820004A	08/06/2014 19:42	Scott W Freisher	1

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

Sample Description: SD073014-RPR-29-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7550162
LL Group # 1492797
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/30/2014 10:15 by JC

Submitted: 07/31/2014 09:20
Reported: 08/27/2014 08:28

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

RPR29 SDG#: POM22-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.941	0.0220	0.220	1
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	30,200	1,340	4,010	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	100	0.50	0.50	1
07103	4.75 mm	n.a.	97.9	0.50	0.50	1
07103	3.35 mm	n.a.	96.4	0.50	0.50	1
07103	2.36 mm	n.a.	93.1	0.50	0.50	1
07103	1.18 mm	n.a.	90.3	0.50	0.50	1
07103	0.6 mm	n.a.	88.5	0.50	0.50	1
07103	0.3 mm	n.a.	83.4	0.50	0.50	1
07103	0.15 mm	n.a.	70.5	0.50	0.50	1
07103	0.075 mm	n.a.	53.1	0.50	0.50	1
07103	0.064 mm	n.a.	48.0	0.50	0.50	1
07103	0.05 mm	n.a.	42.0	0.50	0.50	1
07103	0.02 mm	n.a.	23.0	0.50	0.50	1
07103	0.005 mm	n.a.	7.0	0.50	0.50	1
07103	0.002 mm	n.a.	4.0	0.50	0.50	1
07103	0.001 mm	n.a.	2.0	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	56.0	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711003	08/05/2014 11:14	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711003	08/05/2014 08:26	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14216049531A	08/04/2014 22:10	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14213710301A	08/01/2014 00:35	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14218820004A	08/06/2014 19:42	Scott W Freisher	1

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

Sample Description: SD073014-RPR-30-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7550163
LL Group # 1492797
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/30/2014 10:00 by JC

Submitted: 07/31/2014 09:20
Reported: 08/27/2014 08:28

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

RPR30 SDG#: POM22-03

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.579	0.0193	0.193	1
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	26,700	1,310	3,920	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	100	0.50	0.50	1
07103	4.75 mm	n.a.	98.3	0.50	0.50	1
07103	3.35 mm	n.a.	97.2	0.50	0.50	1
07103	2.36 mm	n.a.	95.9	0.50	0.50	1
07103	1.18 mm	n.a.	93.4	0.50	0.50	1
07103	0.6 mm	n.a.	87.7	0.50	0.50	1
07103	0.3 mm	n.a.	76.8	0.50	0.50	1
07103	0.15 mm	n.a.	63.0	0.50	0.50	1
07103	0.075 mm	n.a.	34.2	0.50	0.50	1
07103	0.064 mm	n.a.	30.0	0.50	0.50	1
07103	0.05 mm	n.a.	24.0	0.50	0.50	1
07103	0.02 mm	n.a.	9.5	0.50	0.50	1
07103	0.005 mm	n.a.	3.0	0.50	0.50	1
07103	0.002 mm	n.a.	2.0	0.50	0.50	1
07103	0.001 mm	n.a.	2.0	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	50.3	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711003	08/05/2014 11:16	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711003	08/05/2014 08:26	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14216049531A	08/04/2014 22:22	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14213710301A	08/01/2014 00:35	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14218820004A	08/06/2014 19:42	Scott W Freisher	1

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

Sample Description: SD073014-RPR-29-0.5-0.75 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7550164
LL Group # 1492797
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/30/2014 10:15 by JC

Submitted: 07/31/2014 09:20
Reported: 08/27/2014 08:28

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

PR292 SDG#: POM22-04

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.300	0.0141	0.141	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	30.2	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711003	08/05/2014 11:18	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711003	08/05/2014 08:26	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	14218820004A	08/06/2014 19:42	Scott W Freisher	1

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

Sample Description: SD073014-RPR-20-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7550165
LL Group # 1492797
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/30/2014 13:45 by JC

Submitted: 07/31/2014 09:20
Reported: 08/27/2014 08:28

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

RPR20 SDG#: POM22-05

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.215	0.0144	0.144	1
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	3,600	676	2,030	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	100	0.50	0.50	1
07103	4.75 mm	n.a.	99.4	0.50	0.50	1
07103	3.35 mm	n.a.	99.8	0.50	0.50	1
07103	2.36 mm	n.a.	98.3	0.50	0.50	1
07103	1.18 mm	n.a.	98.0	0.50	0.50	1
07103	0.6 mm	n.a.	97.3	0.50	0.50	1
07103	0.3 mm	n.a.	84.6	0.50	0.50	1
07103	0.15 mm	n.a.	44.1	0.50	0.50	1
07103	0.075 mm	n.a.	22.1	0.50	0.50	1
07103	0.064 mm	n.a.	18.0	0.50	0.50	1
07103	0.05 mm	n.a.	13.0	0.50	0.50	1
07103	0.02 mm	n.a.	6.0	0.50	0.50	1
07103	0.005 mm	n.a.	3.0	0.50	0.50	1
07103	0.002 mm	n.a.	1.0	0.50	0.50	1
07103	0.001 mm	n.a.	1.0	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	31.5	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711003	08/05/2014 11:20	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711003	08/05/2014 08:26	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14216049531A	08/04/2014 22:34	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14213710301A	08/01/2014 00:35	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14218820004A	08/06/2014 19:42	Scott W Freisher	1

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

Sample Description: SD073014-RPR-22-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7550166
LL Group # 1492797
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/30/2014 14:15 by JC

Submitted: 07/31/2014 09:20
Reported: 08/27/2014 08:28

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

RPR21 SDG#: POM22-06

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.382	0.0209	0.209	1
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	23,700	1,420	4,260	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	99.5	0.50	0.50	1
07103	4.75 mm	n.a.	96.1	0.50	0.50	1
07103	3.35 mm	n.a.	94.4	0.50	0.50	1
07103	2.36 mm	n.a.	92.9	0.50	0.50	1
07103	1.18 mm	n.a.	91.9	0.50	0.50	1
07103	0.6 mm	n.a.	90.5	0.50	0.50	1
07103	0.3 mm	n.a.	81.5	0.50	0.50	1
07103	0.15 mm	n.a.	33.2	0.50	0.50	1
07103	0.075 mm	n.a.	15.0	0.50	0.50	1
07103	0.064 mm	n.a.	13.0	0.50	0.50	1
07103	0.05 mm	n.a.	10.0	0.50	0.50	1
07103	0.02 mm	n.a.	6.0	0.50	0.50	1
07103	0.005 mm	n.a.	2.5	0.50	0.50	1
07103	0.002 mm	n.a.	2.0	0.50	0.50	1
07103	0.001 mm	n.a.	2.0	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	52.2	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711003	08/05/2014 11:22	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711003	08/05/2014 08:26	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14216049531A	08/04/2014 22:42	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14213710301A	08/01/2014 00:35	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14218820004A	08/06/2014 19:42	Scott W Freisher	1

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

Sample Description: SD073014-RPR-20-0.5-1.0 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7550167
LL Group # 1492797
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/30/2014 13:45 by JC

Submitted: 07/31/2014 09:20
Reported: 08/27/2014 08:28

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

PR202 SDG#: POM22-07

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0127 U	0.0127	0.127	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	24.6	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711003	08/05/2014 11:24	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711003	08/05/2014 08:26	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	14218820004A	08/06/2014 19:42	Scott W Freisher	1

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

Sample Description: SD073014-RPR-20-1.0-1.4 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7550168
LL Group # 1492797
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/30/2014 13:45 by JC

Submitted: 07/31/2014 09:20
Reported: 08/27/2014 08:28

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

PR203 SDG#: POM22-08

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0128 U	0.0128	0.128	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	25.9	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711003	08/05/2014 11:26	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711003	08/05/2014 08:26	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	14218820004A	08/06/2014 19:42	Scott W Freisher	1

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

Sample Description: SD073014-RPR-24-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7550169
LL Group # 1492797
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/30/2014 14:45 by JC

Submitted: 07/31/2014 09:20
Reported: 08/27/2014 08:28

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

RPR24 SDG#: POM22-09

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.275	0.0194	0.194	1
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	25,300	1,960	5,890	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	99.8	0.50	0.50	1
07103	4.75 mm	n.a.	99.0	0.50	0.50	1
07103	3.35 mm	n.a.	98.5	0.50	0.50	1
07103	2.36 mm	n.a.	97.8	0.50	0.50	1
07103	1.18 mm	n.a.	97.3	0.50	0.50	1
07103	0.6 mm	n.a.	96.4	0.50	0.50	1
07103	0.3 mm	n.a.	88.5	0.50	0.50	1
07103	0.15 mm	n.a.	28.9	0.50	0.50	1
07103	0.075 mm	n.a.	9.0	0.50	0.50	1
07103	0.064 mm	n.a.	7.5	0.50	0.50	1
07103	0.05 mm	n.a.	6.0	0.50	0.50	1
07103	0.02 mm	n.a.	2.5	0.50	0.50	1
07103	0.005 mm	n.a.	1.5	0.50	0.50	1
07103	0.002 mm	n.a.	1.5	0.50	0.50	1
07103	0.001 mm	n.a.	1.5	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	49.3	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711003	08/05/2014 11:28	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711003	08/05/2014 08:26	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14216049531A	08/04/2014 22:55	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14213710301A	08/01/2014 00:35	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14218820004A	08/06/2014 19:42	Scott W Freisher	1

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

Sample Description: SD073014-RPR-25-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7550170
LL Group # 1492797
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/30/2014 15:15 by JC

Submitted: 07/31/2014 09:20
Reported: 08/27/2014 08:28

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

RPR25 SDG#: POM22-10BKG

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.310	0.0186	0.186	1
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	15,900	1,530	4,600	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	100	0.50	0.50	1
07103	4.75 mm	n.a.	99.2	0.50	0.50	1
07103	3.35 mm	n.a.	98.7	0.50	0.50	1
07103	2.36 mm	n.a.	98.0	0.50	0.50	1
07103	1.18 mm	n.a.	97.7	0.50	0.50	1
07103	0.6 mm	n.a.	97.2	0.50	0.50	1
07103	0.3 mm	n.a.	92.2	0.50	0.50	1
07103	0.15 mm	n.a.	34.0	0.50	0.50	1
07103	0.075 mm	n.a.	13.8	0.50	0.50	1
07103	0.064 mm	n.a.	11.5	0.50	0.50	1
07103	0.05 mm	n.a.	10.0	0.50	0.50	1
07103	0.02 mm	n.a.	7.0	0.50	0.50	1
07103	0.005 mm	n.a.	2.5	0.50	0.50	1
07103	0.002 mm	n.a.	2.0	0.50	0.50	1
07103	0.001 mm	n.a.	2.0	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	47.2	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711003	08/05/2014 10:49	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711003	08/05/2014 08:26	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14216049531A	08/04/2014 23:05	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14213710301A	08/01/2014 00:35	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14218820004A	08/06/2014 19:42	Scott W Freisher	1

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

Sample Description: SD073014-RPR-25-0.0-0.5 MS Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7550171
LL Group # 1492797
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/30/2014 15:15 by JC

Submitted: 07/31/2014 09:20
Reported: 08/27/2014 08:28

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

RPR25 SDG#: POM22-10MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.571	0.0189	0.189	1
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	145,000	4,560	13,700	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00118	Moisture	n.a.	47.2	0.50	0.50	1

General Sample Comments

State of New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711003	08/05/2014 10:55	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711003	08/05/2014 08:26	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14216049531A	08/04/2014 23:14	James S Mathiot	1
00118	Moisture	SM 2540 G-1997	1	14218820004A	08/06/2014 19:42	Scott W Freisher	1

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

Sample Description: SD073014-RPR-25-0.0-0.5 MSD Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7550172
LL Group # 1492797
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/30/2014 15:15 by JC

Submitted: 07/31/2014 09:20
Reported: 08/27/2014 08:28

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

RPR25 SDG#: POM22-10MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.648	0.0177	0.177	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00118	Moisture	n.a.	47.2	0.50	0.50	1

General Sample Comments

State of New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711003	08/05/2014 10:57	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711003	08/05/2014 08:26	Christopher M Klumpp	1
00118	Moisture	SM 2540 G-1997	1	14218820004A	08/06/2014 19:42	Scott W Freisher	1

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

Sample Description: SD073014-RPR-25-0.0-0.5 Dupl Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7550173
LL Group # 1492797
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/30/2014 15:15 by JC

Submitted: 07/31/2014 09:20
Reported: 08/27/2014 08:28

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

RPR25 SDG#: POM22-10DUP

CAT No.	Analysis Name		CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals		**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury		7439-97-6	0.224	0.0181	0.181	1
Wet Chemistry		**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn		n.a.	13,500	1,550	4,660	1
Wet Chemistry		**SM 2540 G-1997**		**%**	**%**	**%**	
00118	Moisture		n.a.	47.2	0.50	0.50	1
00121	Moisture Duplicate		n.a.	44.2	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711003	08/05/2014 10:53	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711003	08/05/2014 08:26	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14216049531A	08/05/2014 00:54	James S Mathiot	1
00118	Moisture	SM 2540 G-1997	1	14218820004A	08/06/2014 19:42	Scott W Freisher	1
00121	Moisture Duplicate	SM 2540 G-1997	1	14218820004A	08/06/2014 19:42	Scott W Freisher	1

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

Sample Description: SD073014-RPR-26-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7550174
LL Group # 1492797
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/30/2014 15:45 by JC

Submitted: 07/31/2014 09:20
Reported: 08/27/2014 08:28

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

RPR26 SDG#: POM22-11

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	4.95	0.158	1.58	5
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	50,900	2,530	7,590	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	100	0.50	0.50	1
07103	4.75 mm	n.a.	96.5	0.50	0.50	1
07103	3.35 mm	n.a.	94.4	0.50	0.50	1
07103	2.36 mm	n.a.	91.6	0.50	0.50	1
07103	1.18 mm	n.a.	88.3	0.50	0.50	1
07103	0.6 mm	n.a.	83.9	0.50	0.50	1
07103	0.3 mm	n.a.	77.2	0.50	0.50	1
07103	0.15 mm	n.a.	58.8	0.50	0.50	1
07103	0.075 mm	n.a.	33.5	0.50	0.50	1
07103	0.064 mm	n.a.	30.0	0.50	0.50	1
07103	0.05 mm	n.a.	25.0	0.50	0.50	1
07103	0.02 mm	n.a.	14.0	0.50	0.50	1
07103	0.005 mm	n.a.	4.0	0.50	0.50	1
07103	0.002 mm	n.a.	2.0	0.50	0.50	1
07103	0.001 mm	n.a.	2.0	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	69.9	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711003	08/05/2014 11:46	Damary Valentin	5
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711003	08/05/2014 08:26	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14216049531A	08/05/2014 00:18	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14213710301A	08/01/2014 00:35	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14218820004A	08/06/2014 19:42	Scott W Freisher	1

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

Sample Description: SD073014-RPR-27-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7550175
LL Group # 1492797
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/30/2014 11:30 by JC

Submitted: 07/31/2014 09:20
Reported: 08/27/2014 08:28

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

RPR27 SDG#: POM22-12

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.276	0.0143	0.143	1
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	5,990	669	2,010	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	100	0.50	0.50	1
07103	4.75 mm	n.a.	99.8	0.50	0.50	1
07103	3.35 mm	n.a.	99.6	0.50	0.50	1
07103	2.36 mm	n.a.	99.3	0.50	0.50	1
07103	1.18 mm	n.a.	99.0	0.50	0.50	1
07103	0.6 mm	n.a.	97.4	0.50	0.50	1
07103	0.3 mm	n.a.	71.5	0.50	0.50	1
07103	0.15 mm	n.a.	26.8	0.50	0.50	1
07103	0.075 mm	n.a.	7.8	0.50	0.50	1
07103	0.064 mm	n.a.	7.5	0.50	0.50	1
07103	0.05 mm	n.a.	5.0	0.50	0.50	1
07103	0.02 mm	n.a.	2.0	0.50	0.50	1
07103	0.005 mm	n.a.	1.5	0.50	0.50	1
07103	0.002 mm	n.a.	1.5	0.50	0.50	1
07103	0.001 mm	n.a.	1.5	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	35.1	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711003	08/05/2014 11:36	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711003	08/05/2014 08:26	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14216049531A	08/05/2014 00:29	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14213710301A	08/01/2014 00:35	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14218820004A	08/06/2014 19:42	Scott W Freisher	1

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

Sample Description: SD073014-RPR-25-0.5-0.95 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7550176
LL Group # 1492797
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/30/2014 15:15 by JC

Submitted: 07/31/2014 09:20
Reported: 08/27/2014 08:28

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

PR252 SDG#: POM22-13

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.714	0.0197	0.197	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	51.6	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711003	08/05/2014 11:38	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711003	08/05/2014 08:26	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	14218820004A	08/06/2014 19:42	Scott W Freisher	1

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

Sample Description: SD073014-RPR-26-0.5-1.0 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7550177
LL Group # 1492797
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/30/2014 15:45 by JC

Submitted: 07/31/2014 09:20
Reported: 08/27/2014 08:28

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

PR262 SDG#: POM22-14

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	7.36	0.214	2.14	10
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	56.7	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711003	08/05/2014 11:48	Damary Valentin	10
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711003	08/05/2014 08:26	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	14218820004A	08/06/2014 19:42	Scott W Freisher	1

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

Sample Description: SD073014-RPR-27-0.5-1.0 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7550178
LL Group # 1492797
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/30/2014 11:30 by JC

Submitted: 07/31/2014 09:20
Reported: 08/27/2014 08:28

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

PR272 SDG#: POM22-15

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	1.12	0.0354	0.354	2.5
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	29.5	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711003	08/05/2014 11:50	Damary Valentin	2.5
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711003	08/05/2014 08:26	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	14218820004A	08/06/2014 19:42	Scott W Freisher	1

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

Sample Description: SD073014-RPR-26-0.0-0.5-D Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7550179
LL Group # 1492797
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/30/2014 15:45 by JC

Submitted: 07/31/2014 09:20
Reported: 08/27/2014 08:28

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

PR263 SDG#: POM22-16FD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	5.95	0.178	1.78	5
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	57,500	2,810	8,440	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	99.9	0.50	0.50	1
07103	4.75 mm	n.a.	94.6	0.50	0.50	1
07103	3.35 mm	n.a.	92.2	0.50	0.50	1
07103	2.36 mm	n.a.	89.8	0.50	0.50	1
07103	1.18 mm	n.a.	87.1	0.50	0.50	1
07103	0.6 mm	n.a.	83.3	0.50	0.50	1
07103	0.3 mm	n.a.	76.3	0.50	0.50	1
07103	0.15 mm	n.a.	58.0	0.50	0.50	1
07103	0.075 mm	n.a.	32.8	0.50	0.50	1
07103	0.064 mm	n.a.	29.0	0.50	0.50	1
07103	0.05 mm	n.a.	25.0	0.50	0.50	1
07103	0.02 mm	n.a.	15.0	0.50	0.50	1
07103	0.005 mm	n.a.	6.0	0.50	0.50	1
07103	0.002 mm	n.a.	4.0	0.50	0.50	1
07103	0.001 mm	n.a.	4.0	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	73.6	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711003	08/05/2014 11:52	Damary Valentin	5
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711003	08/05/2014 08:26	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14216049531A	08/05/2014 00:40	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14213710301A	08/01/2014 00:35	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14218820004A	08/06/2014 19:42	Scott W Freisher	1

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

Sample Description: SDW073014-FB-3 Blank Water
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # WW 7550180
LL Group # 1492797
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/30/2014 18:00 by JC

Submitted: 07/31/2014 09:20
Reported: 08/27/2014 08:28

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

RPRB3 SDG#: POM22-17FB*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 7470A**		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000060 U	0.000060	0.00020	1
Wet Chemistry	**SM 5310 C-2000**		**mg/l**	**mg/l**	**mg/l**	
00273	Total Organic Carbon	n.a.	2.9	0.50	1.0	1

General Sample Comments

State of New Jersey Lab Certification No. PA011

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
00259	Mercury	SW-846 7470A	1	142125713004	08/04/2014 13:44	Damary Valentin	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	142125713004	08/01/2014 08:02	Christopher M Klumpp	1
00273	Total Organic Carbon	SM 5310 C-2000	1	14216049501A	08/04/2014 05:28	James S Mathiot	1

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

Quality Control Summary

Client Name: CRG-E.I.DuPont de Nemours & Co Group Number: 1492797
Reported: 08/27/14 at 08:28 AM

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

Analysis Name	Blank Result	Blank MDL**	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 142125713004	Sample number(s): 7550180								
Mercury	0.000060 U	0.00006	0.00020	mg/l	102		80-120		
	U	0							
Batch number: 142165711003	Sample number(s): 7550161-7550179								
Mercury	0.0100 U	0.0100	0.100	mg/kg	95		80-120		
Batch number: 14216049501A	Sample number(s): 7550180								
Total Organic Carbon	0.50 U	0.50	1.0	mg/l	105		91-113		
Batch number: 14216049531A	Sample number(s): 7550161-7550163,7550165-7550166,7550169-7550171,7550173-7550175,7550179								
TOC by Lloyd Kahn	100 U	100.	300	mg/kg	101		47-143		
Batch number: 14218820004A	Sample number(s): 7550161-7550179								
Moisture					100		99-101		
Moisture					100		99-101		
Moisture Duplicate					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

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 142125713004	Sample number(s): 7550180 UNSPK: P550365 BKG: P550365								
Mercury	106	109	80-120	3	20	0.00016 J	0.00018 J	14 (1)	20
Batch number: 142165711003	Sample number(s): 7550161-7550179 UNSPK: 7550170 BKG: 7550170								
Mercury	83	114	80-120	13	20	0.164	0.118	32* (1)	20
Batch number: 14216049501A	Sample number(s): 7550180 UNSPK: P549459 BKG: P549459								
Total Organic Carbon	118		63-142			3.6	3.6	2 (1)	4
Batch number: 14216049531A	Sample number(s): 7550161-7550163,7550165-7550166,7550169-7550171,7550173-7550175,7550179 UNSPK: 7550170 BKG: 7550170								
TOC by Lloyd Kahn	94		59-125			8,380	7,110	16* (1)	15
Batch number: 14218820004A	Sample number(s): 7550161-7550179 BKG: 7550170								

*- 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 Group Number: 1492797
Reported: 08/27/14 at 08:28 AM

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

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Moisture						47.2	44.2	7*	5
Moisture						47.2	44.2	7*	5
Moisture Duplicate						47.2	44.2	7*	5

*- 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.

eurofins Lancaster Laboratories

Analysis Request / Environmental Services Chain of Custody

For Lancaster Laboratories Use Only
Group No.: 1492797 Sample Nos.: 7550161-80
Acc't: 07032 SF: 209603 SCR No.: ~~159055~~ Cooler No.: 167814 29580
Cooler Temperature upon receipt: 0.5 °C Container No.: 1

Facility Name: Pompton Lakes	Project Manager: Gary Long
Facility Contact: Josh Collins	Facility Contact Phone No.: 609.602.4694
Facility Address: Pompton Lakes Works	Job No.: 9267 7720100C WH06 50
2000 Cannonball Road	Release No.:
Pompton Lakes NJ 07442	PO Number: LBIO-66380
Sampler(s): JC, VM	
Project Name: RAMAPO RIVER SEDIMENT SAMPLING 7/14	

Comments: Intact

Condition upon receipt:

Sample Identification	Date Collected	Time Collected	Matrix	Containers Volume (ml)	Containers Preserv	Containers No.	Grain Size (ASTM D422)	Hg (7471A)	Moisture (2540 G)	TOC (Lloyd Kahn)
SD0730 14-RPR-28-0.0-0.5	7/30/14	1040	SW	125	None	1		X	X	X
SD0730 14-RPR-28-0.0-0.5	↓	1040	SW	500	None	1	X			
SD0730 14-RPR-29-0.0-0.5		1015	SW	125	None	1		X	X	X
SD0730 14-RPR-29-0.0-0.5		1015	SW	500	None	1	X			
SD0730 14-RPR-30-0.0-0.5		1000	SW	125	None	1		X	X	X
SD0730 14-RPR-30-0.0-0.5		1000	SW	500	None	1	X			
SD073014-RPR-29-0.5-0.75	↓	1015	SW	125	None	1		X	X	

DRAFT

Turnaround Time Requested (please circle): (Standard) RUSH Number of days: 8

Special Instructions: **Full Deliverables needed**

Bottles Relinquished by:	Date	Time	Bottles Received by:	Date:	Time:
SDerlo [signature]	7/28/14	11:30			
VMusumeci [signature]	7/30/14	1830			
			[signature]	7-31-14	920

Eurofins Lancaster Laboratories Environmental • 2425 New Holland Pike, Lancaster, PA 17601 • (717) 656-2300

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

Analysis Request / Environmental Services Chain of Custody

eurofins | Lancaster Laboratories

For Lancaster Laboratories Use Only
Group No.: 1492797 Sample Nos.: 7550161-80 16780
Acc't: 07032 SF: 209603 SCR No.: 159055 Cooler No.: 1
Cooler Temperature upon receipt: 0.5 °C Container No.: 1

29578

Facility Name: Pompton Lakes	Project Manager: Gary Long
Facility Contact: Josh Collins	Facility Contact Phone No.: 609.602.4694
Facility Address: Pompton Lakes Works	Job No.: 9267 7720100C WH06 50
2000 Cannonball Road	Release No.:
Pompton Lakes NJ 07442	PO Number: LBIO-66380

Sampler(s): Josh Collins, Victoria Musumeci

Project Name: RAMAPO RIVER SEDIMENT SAMPLING 7/14

Sample Identification	Date Collected	Time Collected	Matrix	Containers Volume (ml)	Preserv	No.	Grain Size (ASTM D422)	Hg (7471A)	Moisture (2540 G)	TOC (Lloyd Kahn)
SD07 30 14-RPR-20-0.0-0.5	7/30/14	1345	SW	125	None	1		X	X	X
SD07 30 14-RPR-20-0.0-0.5		1345	SW	500	None	1	X			
SD07 30 14-RPR-21-0.0-0.5		1415	SW	125	None	1		X	X	X
SD07 30 14-RPR-21-0.0-0.5		1415	SW	500	None	1	X			
~~SD07 14-RPR-22-0.0~~			SW	125	None	1		X	X	X
~~SD07 14-RPR-22-0.0-~~			SW	500	None	1	X			
~~SD07 14-RPR-23-0.0-~~			SW	125	None	1		X	X	X
~~SD07 14-RPR-23-0.0-~~			SW	500	None	1	X			
SD073014-RPR-20-0.5-1.0	7/30/14	1345	SW	125	None	1		X	X	
SD073014-RPR-20-1.0-1.4	7/30/14	1345	SW	125	None	1		X	X	

Analyses Required

Comments:

Intact

Condition upon receipt:

DRAFT

Turnaround Time Requested (please circle): (Standard) RUSH Number of days: 8

Special Instructions: Full Deliverables needed

	Date	Time
Bottles Relinquished by:	7/28/14	11:30
Bottles Relinquished by:	7/30/14	1830
Bottles Relinquished by:		
Bottles Relinquished by:		

	Date	Time
Bottles Received by:		
Bottles Received by:		
Bottles Received by:		
Bottles Received by:	7/31/14	920

Analysis Request / Environmental Services Chain of Custody

eurofins | Lancaster Laboratories

For Lancaster Laboratories Use Only
Group No.: 1492797 Sample Nos.: 7550161-80 167820
Acc't: 07032 SF: 209603 SCR No.: 159055 Cooler No.: 1
Cooler Temperature upon receipt: 0.5 °C Container No.: 1

29578

Facility Name: Pompton Lakes	Project Manager: Gary Long
Facility Contact: Josh Collins	Facility Contact Phone No.: 609.602.4694
Facility Address: Pompton Lakes Works	Job No.: 9267 7720100C WH06 50
2000 Cannonball Road	Release No.:
Pompton Lakes NJ 07442	PO Number: LBIO-66380
Sampler(s): Josh Collins, Victoria Musumeci	
Project Name: RAMAPO RIVER SEDIMENT SAMPLING 7/14	

Sample Identification	Date Collected	Time Collected	Matrix	Containers Volume (ml)	Preserv	No.	Grain Size (ASTM D422)	Hg (7471A)	Moisture (2540 G)	TOC (Lloyd Kahn)	Comments: / Condition upon receipt:
SD07 30 14-RPR-20-0.0-0.5	7/30/14	1345	SW	125	None	1		X	X	X	
SD07 30 14-RPR-20-0.0-0.5		1345	SW	500	None	1	X				
SD07 30 14-RPR-~~21~~ 22 -0.0-0.5		1415	SW	125	None	1		X	X	X	
SD07 30 14-RPR-~~21~~ 22 -0.0-0.5		1415	SW	500	None	1	X				
~~SD07 14-RPR-22-0.0-~~			SW	125	None	1		X	X	X	
~~SD07 14-RPR-22-0.0~~			SW	500	None	1	X				
~~SD07 14-RPR-23-0.0-~~			SW	125	None	1		X	X	X	
~~SD07 14-RPR-23-0.0~~			SW	500	None	1	X				
SD07 30 14-RPR-20-0.5-1.0	7/30/14	1345	SW	125	None	1		X	X		
SD07 30 14-RPR-20-1.0-1.4	7/30/14	1345	SW	125	None	1		X	X		

Analyses Required

Turnaround Time Requested (please circle): (Standard) RUSH Number of days: 8

Special Instructions: Full Deliverables needed

	Date	Time	Bottles Received by:	Date:	Time:
Bottles Relinquished by:	7/30/14	1730			
Bottles Relinquished by: VMusumeci	7/30/14	1830			
Bottles Relinquished by:					
Bottles Relinquished by:					

eurofins | Lancaster Laboratories

Analysis Request / Environmental Services Chain of Custody

For Lancaster Laboratories Use Only
Group No.: 1492797 Sample Nos.: 7550161-80
Acc't: 07032 SF: 209603 SCR No.: 159055 Cooler No.: 16782
Cooler Temperature upon receipt: 0 °C Container No.: 2

29579

Facility Name: Pompton Lakes	Project Manager: Gary Long
Facility Contact: Josh Collins	Facility Contact Phone No.: 609.602.4694
Facility Address: Pompton Lakes Works	Job No.: 9267 7720100C WH06 50
2000 Cannonball Road	Release No.:
Pompton Lakes NJ 07442	PO Number: LBIO-66380
Sampler(s): JC, VM	
Project Name: RAMAPO RIVER SEDIMENT SAMPLING 7/14	

Sample Identification	Date Collected	Time Collected	Matrix	Containers Volume (ml)	Preserv	No.	Grain Size (ASTM D422)	Hg (7471A)	Moisture (2540 G)	TOC (Lloyd Kahn)
SD07 30 14-RPR-24-0.0-0.5	7/30/14	1445	SW	125	None	1		X	X	X
SD07 30 14-RPR-24-0.0-0.5		1445	SW	500	None	1	X			
SD07 30 14-RPR-25-0.0-0.5		1515	SW	125	None	1		X	X	X
SD07 30 14-RPR-25-0.0-0.5		1515	SW	500	None	1	X			
SD07 30 14-RPR-26-0.0-0.5		1545	SW	125	None	1		X	X	X
SD07 30 14-RPR-26-0.0-0.5		1545	SW	500	None	1	X			
SD07 30 14-RPR-27-0.0-0.5		1130	SW	125	None	1		X	X	X
SD07 30 14-RPR-27-0.0-0.5		1130	SW	500	None	1	X			
SD073014-RPR-25-0.5-0.95		1515	SW	125	None	1		X	X	
SD073014-RPR-26-0.5-1.0		1545	SW	125	None	1		X	X	
SD073014-RPR-27-0.5-1.0		1130	SW	125	None	1		X	X	

Analyses Required

Comments:

Intact

Condition upon receipt:

Turnaround Time Requested (please circle): (Standard) RUSH Number of days: 8

Special Instructions: **Full Deliverables needed**

	Date	Time		Date	Time
Bottles Relinquished by:	7/28/14	11:30	Bottles Received by:		
Bottles Relinquished by:	7/30/14	1830	Bottles Received by:		
Bottles Relinquished by:			Bottles Received by:		
Bottles Relinquished by:			Bottles Received by:	7.31.14	920

Analysis Request / Environmental Services Chain of Custody

eurofins | Lancaster Laboratories

For Lancaster Laboratories Use Only
Group No.: 1492797 Sample Nos.: 7550161-80 167849 29581
Acc't: 07032 SF: 209603 SCR No.: 159055 Cooler No.: 2
Cooler Temperature upon receipt: 0.6 °C Container No.:

Facility Name: Pompton Lakes	Project Manager: Gary Long
Facility Contact: Josh Collins	Facility Contact Phone No.: 609.602.4694
Facility Address: Pompton Lakes Works	Job No.: 9267 7720100C WH06 50
2000 Cannonball Road	Release No.:
Pompton Lakes NJ 07442	PO Number: LBIO-66380
Sampler(s): JC, VM	
Project Name: RAMAPO RIVER SEDIMENT SAMPLING 7/14	

Sample Identification	Date Collected	Time Collected	Matrix	Containers Volume (ml)	Preserv	No.	Grain Size (ASTM D422)	Hg (7471A)	Moisture (2540 G)	TOC (Lloyd Kahn)	Comments: Condition upon receipt: Intact
SD07 30 14-RPR- 25 -0.0- 0.5 - MS	7/30/14	1515	SW	125	None	1		X	X	X	MS
SD07 30 14-RPR- 25 -0.0- 0.5 - MSD	7/30/14	1515	SW	125	None	1		X	X	X	MSD
~~SD07 14-RPR- -0.0-~~			SW	500	None	1	X				~~MSD~~
SD07 30 14-RPR- 26 -0.0- 0.5 -D	7/30/14	1545	SW	125	None	1		X	X	X	
SD07 30 14-RPR- 26 -0.0- 0.5 -D	7/30/14	1545	SW	500	None	1	X				

Turnaround Time Requested (please circle) : (Standard) RUSH Number of days: 8

Special Instructions: Full Deliverables needed

	Date	Time		Date:	Time:
Bottles Relinquished by: S DeRue	7/28/14	11:30	Bottles Received by:		
Bottles Relinquished by: VM Musmeci	7/30/14	1830	Bottles Received by:		
Bottles Relinquished by:	Date	Time	Bottles Received by:		
Bottles Relinquished by:	Date	Time	Bottles Received by:	7.31.14	920

Analysis Request / Environmental Services Chain of Custody

eurofins | Lancaster Laboratories

29582

For Lancaster Laboratories Use Only
Group No.: 1492797 Sample Nos.: 7550161-80
Acc't: 07032 SF: 209603 SCR No.: 159055 Cooler No.: 17722
Cooler Temperature upon receipt: 0.5 °C Container No.: 1

Facility Name: Pompton Lakes	Project Manager: Gary Long
Facility Contact: Josh Collins	Facility Contact Phone No.: 609.602.4694
Facility Address: Pompton Lakes Works	Job No.: 9267 7720100C WH06 50
2000 Cannonball Road	Release No.:
Pompton Lakes NJ 07442	PO Number: LBIO-66380
Sampler(s): JC, VM	
Project Name: RAMAPO RIVER SEDIMENT SAMPLING 7/14	

Sample Identification	Date Collected	Time Collected	Matrix	Containers Volume (ml)	Preserv	No.	Hg (7470A)	TOC (5310C)
SDW07 30 14-FB-3	7/30/14	1800	WW	250	HNO3	1	X	
SDW07 30 14-FB-3	7/30/14	1800	WW	40	H3PO4	2		X

Analyses Required

Comments:

Intact

Condition upon receipt:

Turnaround Time Requested (please circle): (Standard) RUSH Number of days: 8

Special Instructions: Full Deliverables needed

	Date	Time
Bottles Relinquished by:	7/28/14	11:45
Bottles Relinquished by:	7/30/14	1800
Bottles Relinquished by:		
Bottles Relinquished by:		

	Date:	Time:
Bottles Received by:		
Bottles Received by:		
Bottles Received by:		
Bottles Received by:	7/31/14	420

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 21996

Group Number(s): 1492797

Client: Dupont

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	07/31/2014 9:20
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	NJ		

Arrival Condition Summary

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

Unpacked by Brandy Barclay (2299) at 11:24 on 07/31/2014

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	DT146	0.5	DT	Wet	Y	Bagged	N	N
2	DT146	0.8	DT	Wet	Y	Bagged	N	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

eurofins | Lancaster Laboratories Environmental

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 ≥ 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 ≥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.

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

August 27, 2014

Project: POM - RAMAPO RIVER SEDIMENT SAMPLING

Submittal Date: 08/01/2014
Group Number: 1493166
SDG: POM23
PO Number: LBIO-66380
State of Sample Origin: NJ

Client Sample Description	Lancaster Labs (LL) #
SD073114-RPR-31-0.0-0.5 Sediment	7552069
SD073114-RPR-32-0.0-0.5 Sediment	7552070
SD073114-RPR-33-0.0-0.5 Sediment	7552071
SD073114-RPR-34-0.0-0.5 Sediment	7552072
SD073114-RPR-31-0.5-0.9 Sediment	7552073
SD073114-RPR-32-0.5-1.0 Sediment	7552074
SD073114-RPR-34-0.5-0.75 Sediment	7552075
SDW073114-FB-4 Blank Water	7552076
SD073114-RPR-21-0.0-0.5 Sediment	7552077
SD073114-RPR-21-0.5-1.0 Sediment	7552078
SD073114-RPR-21-1.0-1.2 Sediment	7552079
SD073114-RPR-23-0.0-0.5 Sediment	7552080
SD073114-RPR-23-0.5-0.9 Sediment	7552081

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

1 COPY TO Data Package Group

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Sample Description: SD073114-RPR-31-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7552069
LL Group # 1493166
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/31/2014 11:00 by JC

Submitted: 08/01/2014 09:20
Reported: 08/27/2014 08:38

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

R3100 SDG#: POM23-01

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.196	0.0130	0.130	1
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	2,260	286	859	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	100	0.50	0.50	1
07103	4.75 mm	n.a.	96.9	0.50	0.50	1
07103	3.35 mm	n.a.	93.4	0.50	0.50	1
07103	2.36 mm	n.a.	87.1	0.50	0.50	1
07103	1.18 mm	n.a.	61.8	0.50	0.50	1
07103	0.6 mm	n.a.	31.9	0.50	0.50	1
07103	0.3 mm	n.a.	15.4	0.50	0.50	1
07103	0.15 mm	n.a.	6.5	0.50	0.50	1
07103	0.075 mm	n.a.	3.0	0.50	0.50	1
07103	0.064 mm	n.a.	3.0	0.50	0.50	1
07103	0.05 mm	n.a.	3.0	0.50	0.50	1
07103	0.02 mm	n.a.	1.0	0.50	0.50	1
07103	0.005 mm	n.a.	1.0	0.50	0.50	1
07103	0.002 mm	n.a.	1.0	0.50	0.50	1
07103	0.001 mm	n.a.	1.0	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	27.0	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711002	08/05/2014 18:33	Katlin N Cataldi	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711002	08/05/2014 10:37	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14217049531A	08/06/2014 00:49	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14214710301A	08/02/2014 10:45	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14219820001A	08/07/2014 19:06	Scott W Freisher	1

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

Sample Description: SD073114-RPR-32-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7552070
LL Group # 1493166
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/31/2014 11:30 by JC

Submitted: 08/01/2014 09:20
Reported: 08/27/2014 08:38

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

R3200 SDG#: POM23-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.169 J	0.0194	0.194	1
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	19,700	850	2,550	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	100	0.50	0.50	1
07103	4.75 mm	n.a.	87.9	0.50	0.50	1
07103	3.35 mm	n.a.	84.4	0.50	0.50	1
07103	2.36 mm	n.a.	81.8	0.50	0.50	1
07103	1.18 mm	n.a.	77.9	0.50	0.50	1
07103	0.6 mm	n.a.	71.7	0.50	0.50	1
07103	0.3 mm	n.a.	52.7	0.50	0.50	1
07103	0.15 mm	n.a.	27.0	0.50	0.50	1
07103	0.075 mm	n.a.	16.1	0.50	0.50	1
07103	0.064 mm	n.a.	14.0	0.50	0.50	1
07103	0.05 mm	n.a.	11.0	0.50	0.50	1
07103	0.02 mm	n.a.	7.0	0.50	0.50	1
07103	0.005 mm	n.a.	3.0	0.50	0.50	1
07103	0.002 mm	n.a.	2.0	0.50	0.50	1
07103	0.001 mm	n.a.	2.0	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	49.9	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711002	08/05/2014 18:35	Katlin N Cataldi	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711002	08/05/2014 10:37	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14217049531A	08/06/2014 00:57	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14214710301A	08/02/2014 10:45	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14219820001A	08/07/2014 19:06	Scott W Freisher	1

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

Sample Description: SD073114-RPR-33-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7552071
LL Group # 1493166
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/31/2014 12:30 by JC

Submitted: 08/01/2014 09:20
Reported: 08/27/2014 08:38

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

R3300 SDG#: POM23-03

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0643 J	0.0115	0.115	1
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	264 J	124	372	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	90.6	0.50	0.50	1
07103	4.75 mm	n.a.	47.2	0.50	0.50	1
07103	3.35 mm	n.a.	39.3	0.50	0.50	1
07103	2.36 mm	n.a.	34.7	0.50	0.50	1
07103	1.18 mm	n.a.	30.3	0.50	0.50	1
07103	0.6 mm	n.a.	27.1	0.50	0.50	1
07103	0.3 mm	n.a.	17.0	0.50	0.50	1
07103	0.15 mm	n.a.	4.9	0.50	0.50	1
07103	0.075 mm	n.a.	2.2	0.50	0.50	1
07103	0.064 mm	n.a.	2.0	0.50	0.50	1
07103	0.05 mm	n.a.	1.0	0.50	0.50	1
07103	0.02 mm	n.a.	1.0	0.50	0.50	1
07103	0.005 mm	n.a.	1.0	0.50	0.50	1
07103	0.002 mm	n.a.	1.0	0.50	0.50	1
07103	0.001 mm	n.a.	1.0	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	19.4	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711002	08/05/2014 18:37	Katlin N Cataldi	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711002	08/05/2014 10:37	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14217049531A	08/06/2014 02:27	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14214710301A	08/02/2014 10:45	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14219820001A	08/07/2014 19:06	Scott W Freisher	1

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

Sample Description: SD073114-RPR-34-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7552072
LL Group # 1493166
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/31/2014 13:30 by JC

Submitted: 08/01/2014 09:20
Reported: 08/27/2014 08:38

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

R3400 SDG#: POM23-04

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0353 J	0.0134	0.134	1
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	1,540	301	902	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	100	0.50	0.50	1
07103	4.75 mm	n.a.	98.9	0.50	0.50	1
07103	3.35 mm	n.a.	96.7	0.50	0.50	1
07103	2.36 mm	n.a.	94.8	0.50	0.50	1
07103	1.18 mm	n.a.	92.1	0.50	0.50	1
07103	0.6 mm	n.a.	82.6	0.50	0.50	1
07103	0.3 mm	n.a.	80.8	0.50	0.50	1
07103	0.15 mm	n.a.	78.7	0.50	0.50	1
07103	0.075 mm	n.a.	77.7	0.50	0.50	1
07103	0.064 mm	n.a.	77.0	0.50	0.50	1
07103	0.05 mm	n.a.	76.0	0.50	0.50	1
07103	0.02 mm	n.a.	64.0	0.50	0.50	1
07103	0.005 mm	n.a.	25.0	0.50	0.50	1
07103	0.002 mm	n.a.	13.0	0.50	0.50	1
07103	0.001 mm	n.a.	7.0	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	26.8	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711002	08/05/2014 18:39	Katlin N Cataldi	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711002	08/05/2014 10:37	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14217049531A	08/06/2014 01:22	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14214710301A	08/02/2014 10:45	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14219820001A	08/07/2014 19:06	Scott W Freisher	1

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

Sample Description: SD073114-RPR-31-0.5-0.9 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7552073
LL Group # 1493166
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/31/2014 11:00 by JC

Submitted: 08/01/2014 09:20
Reported: 08/27/2014 08:38

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

R3105 SDG#: POM23-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.101	J	0.0116	0.116	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	20.3		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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711002	08/05/2014 18:41	Katlin N Cataldi	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711002	08/05/2014 10:37	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	14219820001A	08/07/2014 19:06	Scott W Freisher	1

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

Sample Description: SD073114-RPR-32-0.5-1.0 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7552074
LL Group # 1493166
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/31/2014 11:30 by JC

Submitted: 08/01/2014 09:20
Reported: 08/27/2014 08:38

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

R3205 SDG#: POM23-06

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0123 U	0.0123	0.123	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	24.6	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711002	08/05/2014 18:43	Katlin N Cataldi	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711002	08/05/2014 10:37	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	14219820001A	08/07/2014 19:06	Scott W Freisher	1

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

Sample Description: SD073114-RPR-34-0.5-0.75 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7552075
LL Group # 1493166
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/31/2014 13:30 by JC

Submitted: 08/01/2014 09:20
Reported: 08/27/2014 08:38

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

R3405 SDG#: POM23-07

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0122 U	0.0122	0.122	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	23.3	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711002	08/05/2014 19:30	Katlin N Cataldi	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711002	08/05/2014 10:37	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	14219820001A	08/07/2014 19:06	Scott W Freisher	1

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

Sample Description: SDW073114-FB-4 Blank Water
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # WW 7552076
LL Group # 1493166
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/31/2014 15:00 by JC

Submitted: 08/01/2014 09:20
Reported: 08/27/2014 08:38

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

RFB-4 SDG#: POM23-08FB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 7470A**		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000060 U	0.000060	0.00020	1
Wet Chemistry	**SM 5310 C-2000**		**mg/l**	**mg/l**	**mg/l**	
00273	Total Organic Carbon	n.a.	0.97 J	0.50	1.0	1

General Sample Comments

State of New Jersey Lab Certification No. PA011

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
00259	Mercury	SW-846 7470A	1	142165713001	08/05/2014 07:35	Damary Valentin	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	142165713001	08/05/2014 00:10	Annamaria Kuhns	1
00273	Total Organic Carbon	SM 5310 C-2000	1	14217049501A	08/05/2014 05:47	James S Mathiot	1

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

Sample Description: SD073114-RPR-21-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7552077
LL Group # 1493166
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/31/2014 08:45 by JC

Submitted: 08/01/2014 09:20
Reported: 08/27/2014 08:38

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

R2100 SDG#: POM23-09

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	3.31	0.0580	0.580	2
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	31,600	2,740	8,230	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	100	0.50	0.50	1
07103	4.75 mm	n.a.	97.5	0.50	0.50	1
07103	3.35 mm	n.a.	95.6	0.50	0.50	1
07103	2.36 mm	n.a.	92.0	0.50	0.50	1
07103	1.18 mm	n.a.	89.5	0.50	0.50	1
07103	0.6 mm	n.a.	87.6	0.50	0.50	1
07103	0.3 mm	n.a.	84.2	0.50	0.50	1
07103	0.15 mm	n.a.	73.6	0.50	0.50	1
07103	0.075 mm	n.a.	49.1	0.50	0.50	1
07103	0.064 mm	n.a.	45.0	0.50	0.50	1
07103	0.05 mm	n.a.	38.0	0.50	0.50	1
07103	0.02 mm	n.a.	22.0	0.50	0.50	1
07103	0.005 mm	n.a.	7.0	0.50	0.50	1
07103	0.002 mm	n.a.	5.0	0.50	0.50	1
07103	0.001 mm	n.a.	3.0	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	66.5	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711002	08/05/2014 19:42	Katlin N Cataldi	2
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711002	08/05/2014 10:37	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14217049531A	08/06/2014 01:30	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14214710301A	08/02/2014 10:45	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14219820001A	08/07/2014 19:06	Scott W Freisher	1

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

Sample Description: SD073114-RPR-21-0.5-1.0 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7552078
LL Group # 1493166
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/31/2014 08:45 by JC

Submitted: 08/01/2014 09:20
Reported: 08/27/2014 08:38

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

R2105 SDG#: POM23-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.192	J	0.0262	0.262	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	63.8		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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711002	08/05/2014 19:34	Katlin N Cataldi	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711002	08/05/2014 10:37	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	14219820001A	08/07/2014 19:06	Scott W Freisher	1

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

Sample Description: SD073114-RPR-21-1.0-1.2 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7552079
LL Group # 1493166
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/31/2014 08:45 by JC

Submitted: 08/01/2014 09:20
Reported: 08/27/2014 08:38

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

R2110 SDG#: POM23-11

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.476	0.0182	0.182	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	47.4	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711002	08/05/2014 19:36	Katlin N Cataldi	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711002	08/05/2014 10:37	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	14219820001A	08/07/2014 19:06	Scott W Freisher	1

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

Sample Description: SD073114-RPR-23-0.0-0.5 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7552080
LL Group # 1493166
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/31/2014 09:15 by JC

Submitted: 08/01/2014 09:20
Reported: 08/27/2014 08:38

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

R2300 SDG#: POM23-12

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	1.86	0.0349	0.349	1
Wet Chemistry	**Lloyd Kahn modified**		**mg/kg**	**mg/kg**	**mg/kg**	
00383	TOC by Lloyd Kahn	n.a.	46,400	2,680	8,030	1
Wet Chemistry	**ASTM D422**		**% Passing**	**% Passing**	**% Passing**	
07103	75 mm	n.a.	100	0.50	0.50	1
07103	37.5 mm	n.a.	100	0.50	0.50	1
07103	19 mm	n.a.	99.7	0.50	0.50	1
07103	4.75 mm	n.a.	95.5	0.50	0.50	1
07103	3.35 mm	n.a.	92.9	0.50	0.50	1
07103	2.36 mm	n.a.	86.7	0.50	0.50	1
07103	1.18 mm	n.a.	84.9	0.50	0.50	1
07103	0.6 mm	n.a.	83.4	0.50	0.50	1
07103	0.3 mm	n.a.	81.2	0.50	0.50	1
07103	0.15 mm	n.a.	74.8	0.50	0.50	1
07103	0.075 mm	n.a.	63.6	0.50	0.50	1
07103	0.064 mm	n.a.	62.0	0.50	0.50	1
07103	0.05 mm	n.a.	60.0	0.50	0.50	1
07103	0.02 mm	n.a.	38.0	0.50	0.50	1
07103	0.005 mm	n.a.	14.0	0.50	0.50	1
07103	0.002 mm	n.a.	7.0	0.50	0.50	1
07103	0.001 mm	n.a.	3.0	0.50	0.50	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	71.9	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711002	08/05/2014 19:38	Katlin N Cataldi	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711002	08/05/2014 10:37	Christopher M Klumpp	1
00383	TOC by Lloyd Kahn	Lloyd Kahn modified	1	14217049531A	08/06/2014 01:45	James S Mathiot	1
07103	Grain Size to 1 um	ASTM D422	1	14214710301A	08/02/2014 10:45	Daniel S Smith	1
00111	Moisture	SM 2540 G-1997	1	14219820001A	08/07/2014 19:06	Scott W Freisher	1

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

Sample Description: SD073114-RPR-23-0.5-0.9 Sediment
RAMAPO RIVER SEDIMENT SAMPLING 7/14

LL Sample # SW 7552081
LL Group # 1493166
Account # 07032

Project Name: POM - RAMAPO RIVER SEDIMENT SAMPLING

Collected: 07/31/2014 09:15 by JC

Submitted: 08/01/2014 09:20
Reported: 08/27/2014 08:38

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

R2305 SDG#: POM23-13*

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.141	0.0141	0.141	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	34.2	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 New Jersey Lab Certification No. PA011

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
00159	Mercury	SW-846 7471A	1	142165711002	08/05/2014 19:40	Katlin N Cataldi	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142165711002	08/05/2014 10:37	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	14219820001A	08/07/2014 19:06	Scott W Freisher	1

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

Quality Control Summary

Client Name: CRG-E.I.DuPont de Nemours & Co Group Number: 1493166
Reported: 08/27/14 at 08:38 AM

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

Analysis Name	Blank Result	Blank MDL**	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 142165711002	Sample number(s): 7552069-7552075,7552077-7552081								
Mercury	0.0100 U	0.0100	0.100	mg/kg	95		80-120		
Batch number: 142165713001	Sample number(s): 7552076								
Mercury	0.000060 U	0.00006 0	0.00020	mg/l	92		80-120		
Batch number: 14217049501A	Sample number(s): 7552076								
Total Organic Carbon	0.50 U	0.50	1.0	mg/l	107	105	91-113	1	20
Batch number: 14217049531A	Sample number(s): 7552069-7552072,7552077,7552080								
TOC by Lloyd Kahn	100 U	100.	300	mg/kg	96		47-143		
Batch number: 14219820001A	Sample number(s): 7552069-7552075,7552077-7552081								
Moisture					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

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 142165711002	Sample number(s): 7552069-7552075,7552077-7552081 UNSPK: P550983 BKG: P550983								
Mercury	111	37*	80-120	26*	20	0.334	0.448	29* (1)	20
Batch number: 142165713001	Sample number(s): 7552076 UNSPK: P551435 BKG: P551435								
Mercury	93	89	80-120	3	20	0.000060 U	0.000060 U	0 (1)	20
Batch number: 14217049501A	Sample number(s): 7552076 UNSPK: P550935 BKG: P550935								
Total Organic Carbon	113		63-142			9.3	9.5	3	4
Batch number: 14217049531A	Sample number(s): 7552069-7552072,7552077,7552080 UNSPK: 7552080 BKG: 7552080								
TOC by Lloyd Kahn	81		59-125			13,000	12,100	8	15
Batch number: 14219820001A	Sample number(s): 7552069-7552075,7552077-7552081 BKG: P555761								
Moisture						8.1	8.4	3	5

*- 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 Group Number: 1493166
Reported: 08/27/14 at 08:38 AM

*- 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.

Analysis Request / Environmental Services Chain of Custody

eurofins | Lancaster Laboratories

For Lancaster Laboratories Use Only
Group No.: 14931666 Sample Nos.: 7552069-81 27196 29606
Acc't: 07032 SF: 209603 SCR No.: 159200 Cooler No.:
Cooler Temperature upon receipt: 1.6 °C Container No.: 1

Facility Name: Pompton Lakes	Project Manager: Gary Long
Facility Contact: Josh Collins	Facility Contact Phone No.: 609.602.4694
Facility Address: Pompton Lakes Works	Job No.: 9267 7720100C WH06 50
2000 Cannonball Road	Release No.:
Pompton Lakes NJ 07442	PO Number: LBIO-66380

Sampler(s): Josh Collins, Victoria Musumeci, Bill Reese

Project Name: RAMAPO RIVER SEDIMENT SAMPLING 7/14

Sample Identification	Date Collected	Time Collected	Matrix	Containers: Volume (ml)	Preserv	No.	Grain Size (ASTM D422)	Hg (7471A)	Moisture (2540 G)	TOC (Lloyd Kahn)
SD07 31 14-RPR-31-0.0-0.5	7/31/14	1100	SW	125	None	1		X	X	X
SD07 31 14-RPR-31-0.0-0.5		1100	SW	500	None	1	X			
SD07 31 14-RPR-32-0.0-0.5		1130	SW	125	None	1		X	X	X
SD07 31 14-RPR-32-0.0-0.5		1130	SW	500	None	1	X			
SD07 31 14-RPR-33-0.0-0.5		1230	SW	125	None	1		X	X	X
SD07 31 14-RPR-33-0.0-0.5		1230	SW	500	None	1	X			
SD07 31 14-RPR-34-0.0-0.5		1330	SW	125	None	1		X	X	X
SD07 31 14-RPR-34-0.0-0.5		1330	SW	500	None	1	X			
SD073114-RPR-31-0.5-0.9		1100	SW	125	None	1		X	X	
SD073114-RPR-32-0.5-1.0		1130	SW	125	None	1		X	X	
SD073114-RPR-34-0.5-0.75	↓	1330	SW	125	None	1		X	X	

Analyses Required

Comments:

Condition upon receipt: intact

Turnaround Time Requested (please circle): (Standard) RUSH Number of days: 8

Special Instructions: Full Deliverables needed

	Date	Time		Date	Time
Bottles Relinquished by: Lisa Megahlo	7/30/14	11:03	Bottles Received by:		
Bottles Relinquished by: V Musumeci	7/31/14	1600	Bottles Received by:		
Bottles Relinquished by:	Date	Time	Bottles Received by:		
Bottles Relinquished by:	Date	Time	Bottles Received by:	8/1/14	920

Analysis Request / Environmental Services Chain of Custody

eurofins | Lancaster Laboratories

For Lancaster Laboratories Use Only
Group No.: 1493166 Sample Nos.: 755202-81
Acc't: 07032 SF: 209603 SCR No.: 159055 Cooler No.: 7722
Cooler Temperature upon receipt: 1.6 °C Container No.: 1

29583

Facility Name: Pompton Lakes	Project Manager: Gary Long
Facility Contact: Josh Collins	Facility Contact Phone No.: 609.602.4694
Facility Address: Pompton Lakes Works	Job No.: 9267 7720100C WH06 50
2000 Cannonball Road	Release No.:
Pompton Lakes NJ 07442	PO Number: LBIO-66380

Sampler(s): JC, VM

Project Name: RAMAPO RIVER SEDIMENT SAMPLING 7/14

Sample Identification	Date Collected	Time Collected	Matrix	Containers: Volume (ml)	Preserv	No.	Hg (7470A)	TOC (5310 C)	Moisture (2540 G)	Grain Size (ASTM D422)	TOC (Lloyd Kahn)	Comments
SDW07 31 14-FB-4	7/31/14	1500	WW	250	HNO3	1	X					Condition upon receipt: Intact
SDW07 31 14-FB-4	7/31/14	1500	WW	40	H3PO4	2		X				
SD073114-RPR-21-0.0-0.5	7/31/14	0845	SW	125	None	1	X		X		X	
SD073114-RPR-21-0.0-0.5	7/31/14	0845	SW	500	None	1				X		
SD073114-RPR-21-0.5-1.0	7/31/14	0845	SW	125	None	1	X		X			
SD073114-RPR-21-1.0-1.2	7/31/14	0845	SW	125	None	1	X		X			
SD073114-RPR-23-0.0-0.5	7/31/14	0915	SW	125	None	1	X		X		X	
SD073114-RPR-23-0.5-0.9	7/31/14	0915	SW	125	None	1	X		X			
SD073114-RPR-23-0.0-0.5	7/31/14	0915	SW	500	None	1				X		

Analyses Required

Turnaround Time Requested (please circle): (Standard) RUSH Number of days: 8

Special Instructions: Full Deliverables needed

	Date	Time		Date	Time
Bottles Relinquished by: SDelue	7/28/14	11:45	Bottles Received by:		
Bottles Relinquished by: VMusumeci	7/31/14	1600	Bottles Received by:		
Bottles Relinquished by:			Bottles Received by:		
Bottles Relinquished by:			Bottles Received by:	8/1/14	920

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 22263

Group Number(s): 1493166

Client: Dupont Pompton Lakes

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	08/01/2014 9:20
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	NJ		

Arrival Condition Summary

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

Unpacked by Wesley Miller (2308) at 12:47 on 08/01/2014

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	1.6	DT	Wet	Y	Bagged	N	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.cor

eurofins | Lancaster Laboratories Environmental

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 ≥ 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 ≥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.

Appendix D

Sediment Coring Photographic Log

APPENDIX D
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986635.00002

Photo No. 1	Date: 7/29/14

Sample Location:

RPR-01

Description:

Gray
sandy silt

Photo No. 2	Date: 7/29/14

Sample Location:

RPR-02

Description:

Dark brown gray
Fine sandy silt

AECOM

APPENDIX D
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986635.00002

Photo No.	Date:
3	7/28/14

Sample Location:

RPR-03

Description:

Dark gray
Fine sandy silt

Photo No.	Date:
4	7/28/14

Sample Location:

RPR-04

Description:

Gray/brown
Sandy silt

APPENDIX D
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986635.00002

Photo No. 5	Date: 7/28/14

Sample Location:

RPR-05

Description:

Dark gray, brown
Silty fine sand

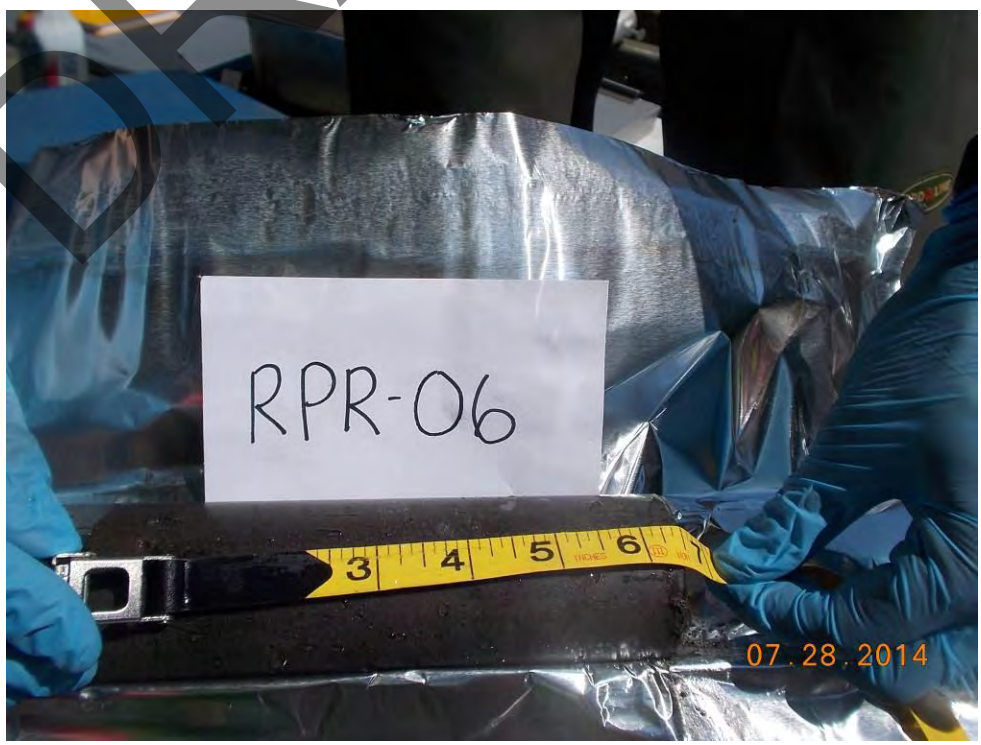
Photo No. 6	Date: 7/28/14

Sample Location:

RPR-06

Description:

Dark brown
Silty fine sand



APPENDIX D
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986635.00002

Photo No.	Date:
7	7/28/14

Sample Location:

RPR-07

Description:

Dark Brown
Clayey silt

Photo No.	Date:
8	7/28/14

Sample Location:

RPR-08

Description:

Dark brown grey
Medium sandy silt

APPENDIX D
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986635.00002

Photo No. 9	Date: 7/29/14

Sample Location:

RPR-09

Description:

Dark brown
Fine sandy silt

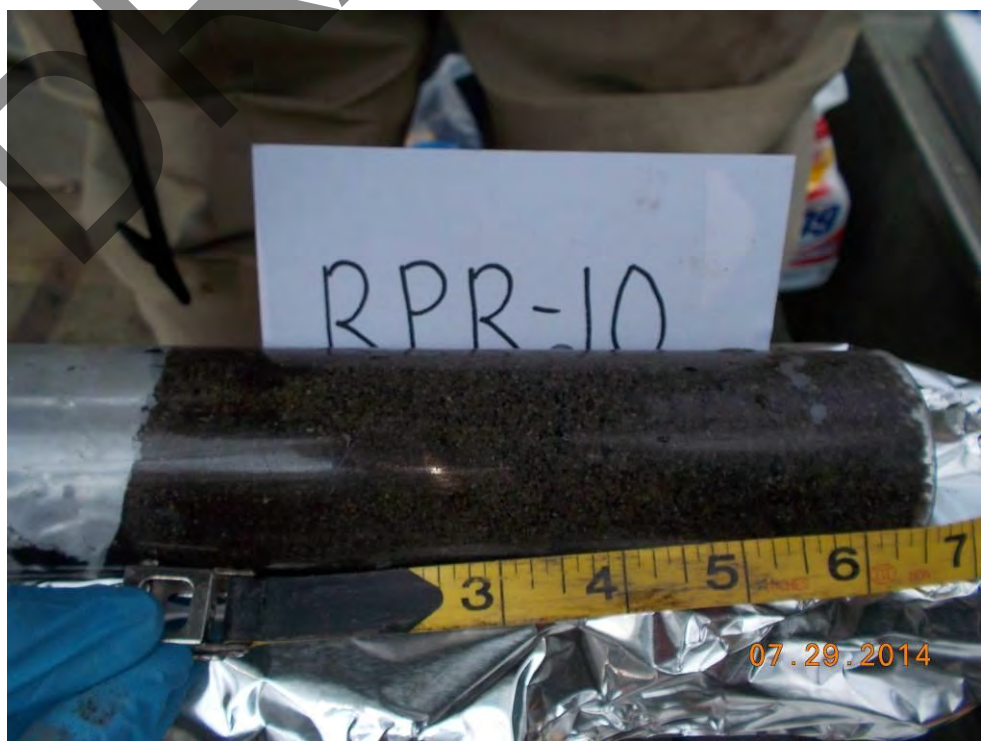
Photo No. 10	Date: 7/29/14

Sample Location:

RPR-10

Description:

Light tan grey
Fine moderate sand w/ trace coarse sand



APPENDIX D
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986635.00002

Photo No.	Date:
11	7/29/14

Sample Location:

RPR-11

Description:

Brown
Fine to moderate sand

Photo No.	Date:
12	7/29/14

Sample Location:

RPR-12

Description:

Dark brown
Fine sandy silt

APPENDIX D
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986635.00002

Photo No.	Date:
13	7/29/14

Sample Location:

RPR-13

Description:

Dark brown
Silty w/ fine sand

Photo No.	Date:
14	7/29/14

Sample Location:

RPR-14

Description:

Dark brown
Clayey silt

APPENDIX D
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986635.00002

Photo No. 15	Date: 7/29/14

Sample Location:

RPR-15

Description:

Dark brown
Clayey silt

Photo No. 16	Date: 7/29/14

Sample Location:

RPR-16

Description:

Dark brown grey
Fine sandy silt

APPENDIX D
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986635.00002

Photo No.	Date:
17	7/29/14

Sample Location:

RPR-17

Description:

Dark grey
Sandy silt

Photo No.	Date:
18	7/29/14

Sample Location:

RPR-18

Description:

Dark brown grey
Fine sandy silt

APPENDIX D
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986635.00002

Photo No.	Date:
19	7/29/14

Sample Location:

RPR-19

Description:

Dark grey
Fine sandy silt

Photo No.	Date:
20	7/30/14

Sample Location:

RPR-20

Description:

Light brown/grey
Silty sand

APPENDIX D
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986635.00002

Photo No.	Date:
21	7/31/14

Sample Location:

RPR-21

Description:

Dark brown
Clayey silt w/ trace fine sand

Photo No.	Date:
22	7/30/14

Sample Location:

RPR-22

Description:

Dark brown
Sandy silt

APPENDIX D
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986635.00002

Photo No. 23	Date: 7/31/14

Sample Location:

RPR-23

Description:

Dark brown
Clayey silt

Photo No. 24	Date: 7/30/14

Sample Location:

RPR-24

Description:

Dark grey
Silty sand

APPENDIX D
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986635.00002

Photo No.	Date:
25	7/30/14

Sample Location:

RPR-25

Description:

Dark brown
Silty sand

Photo No.	Date:
26	7/30/14

Sample Location:

RPR-26

Description:

Dark brown
Silt w/ trace sand – fluidized silt

APPENDIX D
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986635.00002

Photo No.	Date:
27	7/30/14

Sample Location:

RPR-27

Description:

Brown
Silty sand

Photo No.	Date:
28	7/30/14

Sample Location:

RPR-28

Description:

Dark brown
Clayey silt

APPENDIX D
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986635.00002

Photo No.	Date:
29	7/30/14

Sample Location:

RPR-29

Description:

Dark brown grey
Clayey silt w/ trace sand

Photo No.	Date:
30	7/30/14

Sample Location:

RPR-30

Description:

Dark brown
Fine to medium sandy silt

APPENDIX D
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986635.00002

Photo No.	Date:
31	7/31/14

Sample Location:

RPR-31

Description:

Brown
Silty sand

Photo No.	Date:
32	7/31/14

Sample Location:

RPR-32

Description:

Brown
Sandy clayey silt

APPENDIX D
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Chemours	Ramapo River/Pompton River, Morris and Passaic Counties, New Jersey	18986635.00002

Photo No.	Date:
33	7/31/14

Sample Location:

RPR-33

Description:

Brown
Silty sandy gravel

Photo No.	Date:
34	7/31/14

Sample Location:

RPR-34

Description:

Grey brown
Gravely clay

Appendix E

Field Data Sheets

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION:	NORTHING:	EASTING:
RPR- 01		
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins (Musumeci)	**DATE:** 7/29/14 **TIME:** 13:00	**WATER DEPTH:** 1'

WEATHER CONDITIONS

Now	Past 24 hours	
☐	☑	storm
☐	☑	rain
☐	☐	showers
☐	☐	partly cloudy
☑	☐	clear/sunny

Has there been a heavy rain in the last 7 days? (Yes) / No

Air Temperature 75 °F

Other:

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	55
Silt	0.004-0.06mm	45
Clay	<0.004 mm (slick)	

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	trace
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	~~NONE~~ trace

SEDIMENT CHARACTERIZATION

Substrate color: Grey

Substrate consistency: Sandy Silt

Floc layer present: 2-3 mm

Moisture conditions: moderate to low

Benthic fauna: Oligochaete + Chironomid

Odors

Normal Sewage Petroleum

Chemical Anaerobic (H_2S) None

Other Slight hydrocarbon

Oils

(Absent) Slight Moderate Profuse

CORE LOG:

0"

8"

- consistent throughout
- see description on left

NEAR BOTTOM WATER QUALITY:

Temperature (°C):	25.25
DO (mg/L):	0.35
DO (% Sat):	4.0
pH:	9.25
Conductivity (mS/cm):	0.465
ORP (mV):	49.1

QA/QC:

Duplicate Sample Station? (Y (N)

RPR- -DUP

MS/MSD Sample Station? (Y (N))

RPR= -MS

RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0 - 0.5	0.5 - 0.75	-
THg	☐	☐	☐
Grain Size/TOC	☐		
Moisture	☐	☐	☐

NOTES:

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION:	NORTHING:	EASTING:
RPR-02		
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins (Musumeci)	**DATE:** 7/29/14 **TIME:** 12:45	**WATER DEPTH:** 1'

WEATHER CONDITIONS

Now	Past 24 hours		Has there been a heavy rain in the last 7 days?
☐	☑	storm	(Yes) / No
☐	☑	rain	
☐	☐	showers	Air Temperature 75 °F
☐	☐	partly cloudy	
☑	☐	clear/sunny	Other:

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	75 - fine
Silt	0.004-0.06mm	75
Clay	<0.004 mm (slick)	

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	5%
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	none

SEDIMENT CHARACTERIZATION

Substrate color: Dark Brown Grey
Substrate consistency: Fine Sandy Silt
Floc layer present: 4mm
Moisture conditions: moderate
Benthic fauna: chironomids & oligochaetes

Odors

Normal Sewage Petroleum
Chemical (Anaerobic (H_2S)) None
Other _____

Oils

(Absent) Slight Moderate Profuse

CORE LOG:

0"

4"

NEAR BOTTOM WATER QUALITY:

Temperature (°C): 24.71
DO (mg/L): 0.38 DO (% Sat): 4.5
pH: 8.83
Conductivity (mS/cm): 0.405
ORP (mV): 50.7

QA/QC:

Duplicate Sample Station? (Y / (N))
RPR- -DUP

MS/MSD Sample Station? (Y / (N))
RPR= -MS
RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0 - 0.5	-	-
THg	☑	☐	☐
Grain Size/TOC	☑		
Moisture	☑	☐	☐

NOTES:

- only collected 4"
- hit refusal @ 4"

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION: RPR- 03	**NORTHING:** 781945.48 N	**EASTING:** 552245.50 E
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins (Musumeci)	**DATE:** 7/28/14 **TIME:** 12:55	**WATER DEPTH:** 2'

WEATHER CONDITIONS

Now	Past 24 hours	
☐	☑	storm
☐	☑	rain
☐	☐	showers
☐	☐	partly cloudy
☑	☐	clear/sunny

Has there been a heavy rain in the last 7 days? (Yes) / No

Air Temperature 78 °F

Other:

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	15
Silt	0.004-0.06mm	80
Clay	<0.004 mm (slick)	5

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	trace
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	none

SEDIMENT CHARACTERIZATION

Substrate color: dark grey

Substrate consistency: Fine sandy silt

Floc layer present: none observed

Moisture conditions: moderate

Benthic fauna: none

Odors

Normal Sewage Petroleum

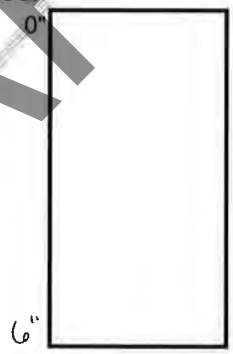
Chemical Anaerobic (H_2S) None

Other Slight hydrocarbon

Oils

(Absent) Slight Moderate Profuse

CORE LOG:



See description to left - no stratification or layering observed

NEAR BOTTOM WATER QUALITY:

Temperature (°C): 21.37

DO (mg/L): 3.56 DO (% Sat): 40.3

pH: 7.02

Conductivity (mS/cm): 0.396

ORP (mV): 75.4

QA/QC:

Duplicate Sample Station? (Y (N)

RPR- -DUP

MS/MSD Sample Station? (Y (N)

RPR= -MS

RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0 -0.5'	-	-
THg	☑	☐	☐
Grain Size/TOC	☑		
Moisture	☑	☐	☐

NOTES:

- collected w/ 3' core

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION:	NORTHING:	EASTING:
RPR- 04	781830.44N	552055.74E
INVESTIGATORS: Collins Musumeci	**RIVER REACH:**	
FORM COMPLETED BY: Collins Musumeci	**DATE:** 7/25/14 **TIME:** 13:30	**WATER DEPTH:** 2.5

WEATHER CONDITIONS

Now	Past 24 hours	
☐	☒	storm
☐	☐	rain
☐	☐	showers
☐	☐	partly cloudy
☒	☒	clear/sunny

Has there been a heavy rain in the last 7 days? Yes / (No)

Air Temperature 85 °F

Other:

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	15 fine
Silt	0.004-0.06mm	80
Clay	<0.004 mm (slick)	5

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	trace
Muck-Mud	black, very fine organic (FPOM)	none obs
Marl	grey, shell fragments	

SEDIMENT CHARACTERIZATION

Substrate color: gray/brown

Substrate consistency: Sandy silt

Floc layer present: 2mm

Moisture conditions: Moderate

Benthic fauna: None Observed

Odors

Normal Sewage Petroleum

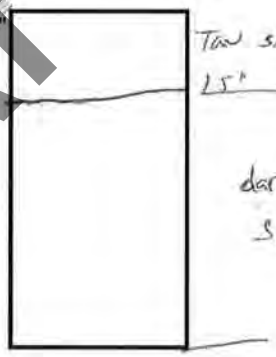
Chemical slight Anaerobic (H_2S) None

Other

Oils

Absent Slight Moderate Profuse

CORE LOG:



NEAR BOTTOM WATER QUALITY:

Temperature (°C):	21.63
DO (mg/L):	1.76
DO (% Sat):	20.0
pH:	7.17
Conductivity (mS/cm):	0.396
ORP (mV):	142.9

QA/QC:

Duplicate Sample Station? (Y (N)

RPR- -DUP

MS/MSD Sample Station? (Y (N)

RPR= -MS

RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0 - 0.5	-	-
THg	☒	☐	☐
Grain Size/TOC	☒		
Moisture	☒	☐	☐

NOTES:

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION: RPR-05	**NORTHING:**	**EASTING:**
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins (Musumeci)	**DATE:** 7/28/14 **TIME:** 14:00	**WATER DEPTH:** 1'

WEATHER CONDITIONS

Now	Past 24 hours	
☐	☑	storm
☐	☑	rain
☐	☐	showers
☐	☐	partly cloudy
☑	☐	clear/sunny

Has there been a heavy rain in the last 7 days? Yes / (No)

Air Temperature 80 °F

Other:

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	60
Silt	0.004-0.06mm	40
Clay	<0.004 mm (slick)	

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	trace
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	none

SEDIMENT CHARACTERIZATION

Substrate color: dark grey, brown
Substrate consistency: silty fine sand
Floc layer present: 2mm
Moisture conditions: moderate to low
Benthic fauna: few chironomids & nematodes

Odors

Normal Sewage Petroleum
Chemical Anaerobic (H_2S) (None)
Other _____

Oils

(Absent) Slight Moderate Profuse

CORE LOG:

0"

8"

- sampled 0-6"
- 6-8" not sampled due to insufficient material
- more cores attempted but material not recovered

NEAR BOTTOM WATER QUALITY:

Temperature (°C):	21.83
DO (mg/L):	1.42
DO (% Sat):	16.2
pH:	7.18
Conductivity (mS/cm):	0.396
ORP (mV):	179.7

QA/QC:

Duplicate Sample Station? (Y / (N))
RPR- -DUP

MS/MSD Sample Station? (Y / (N))
RPR= -MS
RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0 - 0.5	-	-
THg	☑	☐	☐
Grain Size/TOC	☑		
Moisture	☑	☐	☐

NOTES:

-- recovered 8" - sampled top 6"

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION:	NORTHING:	EASTING:
RPR- 06		
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins (Musumeci)	**DATE:** 7/28/14 **TIME:** 14 30	**WATER DEPTH:** 1-1.5'

WEATHER CONDITIONS

Now	Past 24 hours	
☐	☑	storm
☐	☑	rain
☐	☐	showers
☐	☐	partly cloudy
☑	☐	clear/sunny

Has there been a heavy rain in the last 7 days? (Yes) / No

Air Temperature 82 °F

Other:

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	50
Silt	0.004-0.06mm	50
Clay	<0.004 mm (slick)	

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	10%
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	none

SEDIMENT CHARACTERIZATION

Substrate color:

Substrate consistency: Silty fine sand

Floc layer present: 2 mm

Moisture conditions: moderate to low

Benthic fauna: corbicula, chironomus ~2

Odors

Normal Sewage Petroleum

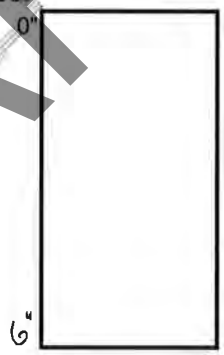
Chemical (Anaerobic (H_2S)) None

Other

Oils

(Absent) Slight Moderate Profuse

CORE LOG:



- no layers
- see description to left

NEAR BOTTOM WATER QUALITY:

Temperature (°C): 22.15	
DO (mg/L): 0.83	DO (% Sat): 9.5
pH: 7.22	
Conductivity (mS/cm): 0.396	
ORP (mV): 136.7	

QA/QC:

Duplicate Sample Station? (Y / (N)

RPR- -DUP

MS/MSD Sample Station? (Y / (N)

RPR= -MS

RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0 - 0.5	-	-
THg	☑	☐	☐
Grain Size/TOC	☑		
Moisture	☑	☐	☐

NOTES:

- moved sample 75' upstream due to low water & heavy woody debris

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION:	NORTHING:	EASTING:
RPR- 07		
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins Musumeci	**DATE:** 7/28/14 **TIME:** 15:15	**WATER DEPTH:** 1'

WEATHER CONDITIONS

Now	Past 24 hours	
☐	☑	storm
☐	☑	rain
☐	☐	showers
☐	☐	partly cloudy
☑	☐	clear/sunny

Has there been a heavy rain in the last 7 days? (Yes) / No

Air Temperature 80 °F

Other:

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	~~Trace~~ 5 fine sand
Silt	0.004-0.06mm	75
Clay	<0.004 mm (slick)	20

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	trace
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	none

SEDIMENT CHARACTERIZATION

Substrate color: dark brown

Substrate consistency: clayey silt

Floc layer present: none

Moisture conditions: moderate

Benthic fauna: Chironomidae - few

Odors

Normal Sewage Petroleum

Chemical (Anaerobic (H_2S)) None

Other _____

Oils

(Absent) Slight Moderate Profuse

CORE LOG:

0"

9"

0-6" - See notes to the left

6-9" - light brown clayey silt

NEAR BOTTOM WATER QUALITY:

Temperature (°C):	22.52
DO (mg/L):	0.67
DO (% Sat):	10.6
pH:	7.12
Conductivity (mS/cm):	0.595
ORP (mV):	86.1

QA/QC:

Duplicate Sample Station? (Y (N))

RPR- -DUP

MS/MSD Sample Station? (Y) / N)

RPR-07-0.0-0.5-MS

RPR-07-0.0-0.5-MSD

SEDIMENT ANALYSES:

Parameter	0-0.5	6"-9"	-
THg	☑	☑	☐
Grain Size/TOC	☑		
Moisture	☑	☑	☐

NOTES:

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION:	NORTHING:	EASTING:
RPR-08		
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins (Musumeci)	**DATE:** 7/28/14 **TIME:** 15:45	**WATER DEPTH:**

WEATHER CONDITIONS

Now	Past 24 hours	
☐	☑	storm
☐	☑	rain
☐	☐	showers
☐	☐	partly cloudy
☑	☐	clear/sunny

Has there been a heavy rain in the last 7 days? (Yes) / No

Air Temperature 80 °F

Other:

INORGANIC SUBSTRATE COMPONENTS
(should add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	10
Silt	0.004-0.06mm	85
Clay	<0.004 mm (slick)	5

ORGANIC SUBSTRATE COMPONENTS
(does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	5%
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	none

SEDIMENT CHARACTERIZATION

Substrate color: dark brown grey
Substrate consistency: medium sandy silt
Floc layer present: none
Moisture conditions: moderate
Benthic fauna: none

Odors

Normal Sewage Petroleum
Chemical (Anaerobic (H_2S)) None
Other _____

Oils

(Absent) Slight Moderate Profuse

CORE LOG:

0"

12"

- no layers or stratification
- see description to left

NEAR BOTTOM WATER QUALITY:

Temperature (°C):	23.20
DO (mg/L):	0.12
DO (% Sat):	1.2
pH:	7.14
Conductivity (mS/cm):	0.395
ORP (mV):	-30.4

QA/QC:

Duplicate Sample Station? (Y / (N))
RPR- -DUP

MS/MSD Sample Station? (Y / (N))
RPR= -MS
RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0-0.5'	0.5-1'	-
THg	☑	☑	☐
Grain Size/TOC	☑		
Moisture	☑	☑	☐

NOTES:

- moved to left bank due to form center of channel

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION: RPR-09	**NORTHING:**	**EASTING:**
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins (Musumeci)	**DATE:** 7/29/14 **TIME:** 10:15	**WATER DEPTH:** 6"

WEATHER CONDITIONS

Now	Past 24 hours	
☐	☑	storm
☐	☑	rain
☐	☐	showers
☐	☐	partly cloudy
☑	☐	clear/sunny

Has there been a heavy rain in the last 7 days? (Yes) / No

Air Temperature 65 °F

Other:

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	30 - fine
Silt	0.004-0.06mm	70
Clay	<0.004 mm (slick)	

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	10-15% leaf pack twigs
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	none

SEDIMENT CHARACTERIZATION

Substrate color: dark Brown
Substrate consistency: fine sandy silt
Floc layer present: none
Moisture conditions: moderate
Benthic fauna: ~~none~~ observed (chironomid)

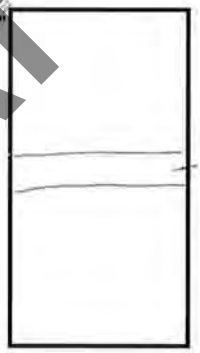
Odors

Normal / Sewage / Petroleum
Chemical / (Anaerobic (H_2S)) / None
Other _____

Oils

(Absent) / Slight / Moderate / Profuse

CORE LOG:



NEAR BOTTOM WATER QUALITY:

Temperature (°C):	19.77
DO (mg/L):	0.41
DO (% Sat):	4.5
pH:	7.20
Conductivity (mS/cm):	0.405
ORP (mV):	155.4

QA/QC:

Duplicate Sample Station? (Y (N))
RPR- -DUP

MS/MSD Sample Station? (Y / (N))
RPR= -MS
RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0-0.5	-	-
THg	☑	☐	☐
Grain Size/TOC	☑		
Moisture	☑	☐	☐

NOTES:

- Relocated station to backwater area / shag due to coarse sand @ original location

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION: RPR- 10	**NORTHING:**	**EASTING:**
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins (Musumeci)	**DATE:** 7/29/14 **TIME:** 09:45	**WATER DEPTH:** 1.5 - 2'

WEATHER CONDITIONS

Now	Past 24 hours	
☐	☑	storm
☐	☑	rain
☐	☐	showers
☐	☐	partly cloudy
☑	☐	clear/sunny

Has there been a heavy rain in the last 7 days? (Yes) / No

Air Temperature 65 °F

Other:

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	95 - fine to moderate
Silt	0.004-0.06mm	5
Clay	<0.004 mm (slick)	

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	none
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	trace

SEDIMENT CHARACTERIZATION

Substrate color: light tan grey

Substrate consistency: fine moderate sand w/ trace coarse

Floc layer present: 3mm

Moisture conditions: moderate to low

Benthic fauna: corbicula & snails

Odors

Normal Sewage Petroleum

Chemical Anaerobic (H_2S) None

Other Slight Biological odor (fishy)

Oils

(Absent) Slight Moderate Profuse

CORE LOG:

0"

6"

- see description to left

NEAR BOTTOM WATER QUALITY:

Temperature (°C): 19.49

DO (mg/L): 0.34 DO (% Sat): 3.7

pH: 7.11

Conductivity (mS/cm): 0.405

ORP (mV): 157.4

QA/QC:

Duplicate Sample Station? (Y (N)

RPR- -DUP

MS/MSD Sample Station? (Y (N)

RPR= -MS

RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0 -0.5	-	-
THg	☑	☐	☐
Grain Size/TOC	☑		
Moisture	☑	☐	☐

NOTES:

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION: RPR- 11	**NORTHING:**	**EASTING:**
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins (Musumeci)	**DATE:** 7/29/14 **TIME:** 09:15	**WATER DEPTH:**

WEATHER CONDITIONS

Now	Past 24 hours	
☐	☑	storm
☐	☑	rain
☐	☐	showers
☐	☐	partly cloudy
☑	☐	clear/sunny

Has there been a heavy rain in the last 7 days? (Yes) / No

Air Temperature 65 °F

Other:

INORGANIC SUBSTRATE COMPONENTS
(should add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	5-coarse 90-fine to med
Silt	0.004-0.06mm	5
Clay	<0.004 mm (slick)	

ORGANIC SUBSTRATE COMPONENTS
(does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	trace
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	trace

SEDIMENT CHARACTERIZATION

Substrate color: Brown

Substrate consistency: fine to moderate sand

Floc layer present: 2mm

Moisture conditions: moderate to low

Benthic fauna: corbicula

Odors

Normal Sewage Petroleum

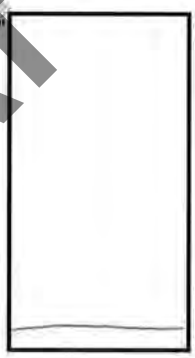
Chemical (Anaerobic (H_2S)) None

Other _____

Oils

(Absent) Slight Moderate Profuse

CORE LOG:



- see description to 6 ft
- 5.5-6" coarser sand

NEAR BOTTOM WATER QUALITY:

Temperature (°C):	19.42
DO (mg/L):	0.38
DO (% Sat):	4.1
pH:	7.09
Conductivity (mS/cm):	0.403
ORP (mV):	178.3

QA/QC:

Duplicate Sample Station? (Y / (N))

RPR- -DUP

MS/MSD Sample Station? (Y / (N))

RPR= -MS

RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0-0.5	-	-
THg	☑	☐	☐
Grain Size/TOC	☑		
Moisture	☑	☐	☐

NOTES:

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION:	NORTHING:	EASTING:
RPR- 12		
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins (Musumeci)	**DATE:** 7/29/14 **TIME:** 8:40	**WATER DEPTH:** 1.5'

WEATHER CONDITIONS

Now	Past 24 hours	
☐	☑	storm
☐	☑	rain
☐	☐	showers
☐	☐	partly cloudy
☑	☐	clear/sunny

Has there been a heavy rain in the last 7 days? (Yes) / No

Air Temperature 60 °F

Other:

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	10
Silt	0.004-0.06mm	85
Clay	<0.004 mm (slick)	5

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	10
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	none

SEDIMENT CHARACTERIZATION

Substrate color: dark brown

Substrate consistency: fine sandy silt

Floc layer present: trace

Moisture conditions: high

Benthic fauna: none observed

Odors

(Normal) Sewage Petroleum

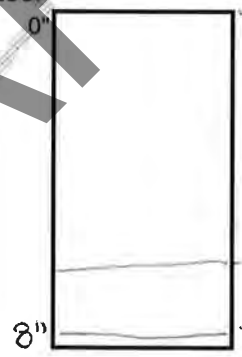
Chemical Anaerobic (H_2S) None

Other _____

Oils

(Absent) Slight Moderate Profuse

CORE LOG:



NEAR BOTTOM WATER QUALITY:

Temperature (°C): 19.70

DO (mg/L): 0.41 DO (% Sat): 4.5

pH: 6.92

Conductivity (mS/cm): 0.399

ORP (mV): 197.1

QA/QC:

Duplicate Sample Station? (Y / (N)

RPR- -DUP

MS/MSD Sample Station? (Y / (N)

RPR= -MS

RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0-0.5	0.5-0.7	-
THg	☑	☑	☐
Grain Size/TOC	☑		
Moisture	☑	☑	☐

NOTES:

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION:	NORTHING:	EASTING:
RPR-13		
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins (Musumeci)	**DATE:** 7/29/14 **TIME:** 12:00	**WATER DEPTH:** 1'

WEATHER CONDITIONS

Now	Past 24 hours		
☐	☑	storm	Has there been a heavy rain in the last 7 days? (Yes) / No
☐	☑	rain	
☐	☐	showers	Air Temperature 75 °F
☐	☐	partly cloudy	
☑	☐	clear/sunny	Other:

INORGANIC SUBSTRATE COMPONENTS
(should add up to 100%) 0-6"

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	5 fine
Silt	0.004-0.06mm	90
Clay	<0.004 mm (slick)	5

ORGANIC SUBSTRATE COMPONENTS
(does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	5
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	none

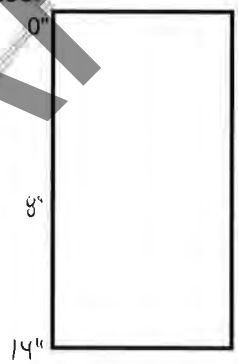
SEDIMENT CHARACTERIZATION

Substrate color: Dark Brown
Substrate consistency:
Floc layer present: 5mm
Moisture conditions: moderate
Benthic fauna: none observed

Odors
Normal Sewage Petroleum
Chemical (Anaerobic (H_2S)) None
Other _____

Oils
(Absent) Slight Moderate Profuse

CORE LOG:



0-8": silt w/ trace fine sand 5% Detritus

8-14": silty sand 60- fine sand 40- silt

NEAR BOTTOM WATER QUALITY:

Temperature (°C):	12.45
DO (mg/L):	0.19
DO (% Sat):	2.2
pH:	7.12
Conductivity (mS/cm):	0.386
ORP (mV):	-116.8

QA/QC:
Duplicate Sample Station? (Y (N))
RPR- -DUP

MS/MSD Sample Station? (Y (N))
RPR= -MS
RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0 - 0.5	0.5 - 1.0	1.0 - 1.1
THg	☑	☑	☑
Grain Size/TOC	☑		
Moisture	☑	☑	☑

NOTES:

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION:	NORTHING:	EASTING:
RPR-14		
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins (Musumeci)	**DATE:** 7/29/14 **TIME:** 11:30	**WATER DEPTH:** 1.5'

WEATHER CONDITIONS

Now	Past 24 hours	
☐	☑	storm
☐	☑	rain
☐	☐	showers
☐	☐	partly cloudy
☑	☐	clear/sunny

Has there been a heavy rain in the last 7 days? (Yes) / No

Air Temperature 70 °F

Other:

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 0-6"

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	5 - fine
Silt	0.004-0.06mm	85 90
Clay	<0.004 mm (slick)	5

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%) 0-6"

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	trace
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	none

SEDIMENT CHARACTERIZATION

Substrate color: Dark Brown
Substrate consistency: clayey silt
Floc layer present: 3mm
Moisture conditions: moderate
Benthic fauna: none observed

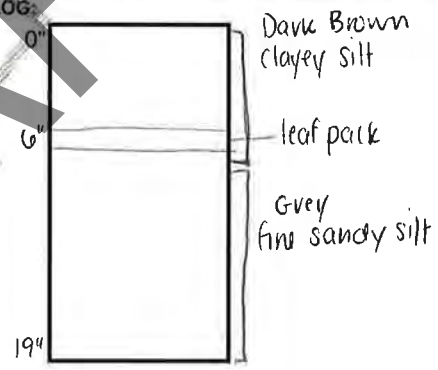
Odors

Normal Sewage Petroleum
Chemical Anaerobic (H_2S) None
Other Slight hydrocarbon

Oils

(Absent) Slight Moderate Profuse

CORE LOG:



NEAR BOTTOM WATER QUALITY:

Temperature (°C): 23.75
DO (mg/L): 0.08 DO (% Sat): 0.9
pH: 7.09
Conductivity (mS/cm):
ORP (mV): -69.1

QA/QC:

Duplicate Sample Station? (Y (N)
RPR- -DUP

MS/MSD Sample Station? (Y / (N))
RPR= -MS
RPR- -MSD

SEDIMENT ANALYSES: 1.5

Parameter	0-0.5	0.5-1.0	1.0-1.5
THg	☑	☑	☑
Grain Size/TOC	☑		
Moisture	☑	☑	☑

NOTES:

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION:	NORTHING:	EASTING:
RPR- 15		
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins (Musumeci)	**DATE:** 7/29/14 **TIME:** 11:00	**WATER DEPTH:** 1'

WEATHER CONDITIONS

Now	Past 24 hours	
☐	☑	storm
☐	☑	rain
☐	☐	showers
☐	☐	partly cloudy
☑	☐	clear/sunny

Has there been a heavy rain in the last 7 days? (Yes) / No

Air Temperature 65 °F

Other:

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	5 - fine
Silt	0.004-0.06mm	65
Clay	<0.004 mm (slick)	30

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	trace
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	none

SEDIMENT CHARACTERIZATION

Substrate color: Dark Brown

Substrate consistency: Clayey silt

Floc layer present: trace

Moisture conditions: low

Benthic fauna: none observed

Odors

Normal Sewage Petroleum

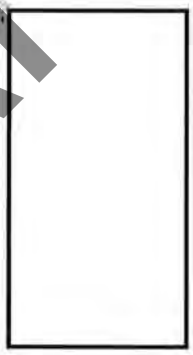
Chemical Anaerobic (H_2S) None

Other Slight hydrocarbon

Oils

(Absent) Slight Moderate Profuse

CORE LOG:



- consistent throughout
- see description on left

NEAR BOTTOM WATER QUALITY:

Temperature (°C): 23.96

DO (mg/L): 0.58 DO (% Sat): 6.8

pH: 8.94

Conductivity (mS/cm): 0.406

ORP (mV): 116.0

QA/QC:

Duplicate Sample Station? (Y / N)

- mercury
- grain size

RPR-15-0.0-0.5-DUP

MS/MSD Sample Station? (Y (N)

RPR= -MS

RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0 - 0.5	0.5 - 1.0	-
THg	☑	☑	☐
Grain Size/TOC	☑		
Moisture	☑	☑	☐

NOTES:

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION:	NORTHING:	EASTING:
RPR- 16		
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins Musumeci	**DATE:** 7/29/14 **TIME:** 16:00	**WATER DEPTH:** 1'

WEATHER CONDITIONS

Now	Past 24 hours		Has there been a heavy rain in the last 7 days?
☐	☑	storm	(Yes) / No
☐	☑	rain	
☐	☐	showers	Air Temperature 75 °F
☐	☐	partly cloudy	
☑	☐	clear/sunny	Other:

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	25
Silt	0.004-0.06mm	75
Clay	<0.004 mm (slick)	

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	5
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	none

SEDIMENT CHARACTERIZATION

Substrate color: Dark Brown Grey
Substrate consistency: Fine Sandy Silt
Floc layer present: 3mm
Moisture conditions: moderate
Benthic fauna: Chironomids

Odors

Normal Sewage Petroleum
Chemical (Anaerobic (H_2S)) None
Other _____

Oils

(Absent) Slight Moderate Profuse

CORE LOG:

0"

6"

- consistent throughout
- See description on left

NEAR BOTTOM WATER QUALITY:

Temperature (°C):	25.4
DO (mg/L):	8.12
DO (% Sat):	99.2
pH:	9.4
Conductivity (mS/cm):	0.408
ORP (mV):	54.4

QA/QC:

Duplicate Sample Station? (Y / (N))
RPR- -DUP

MS/MSD Sample Station? (Y (N))
RPR= -MS
RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0 - 0.5	-	-
THg	☑	☐	☐
Grain Size/TOC	☑		
Moisture	☑	☐	☐

NOTES:

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION:	NORTHING:	EASTING:
RPR- 17		
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins (Musumeci)	**DATE:** 7/29/14 **TIME:** 15:30	**WATER DEPTH:** 1'

WEATHER CONDITIONS

Now	Past 24 hours	
☐	☑	storm
☐	☑	rain
☐	☐	showers
☐	☐	partly cloudy
☑	☐	clear/sunny

Has there been a heavy rain in the last 7 days? (Yes) / No

Air Temperature 75 °F

Other:

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	20 - fine
Silt	0.004-0.06mm	80
Clay	<0.004 mm (slick)	

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	trace
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	none

SEDIMENT CHARACTERIZATION

Substrate color: Dark Gray
Substrate consistency: sandy silt
Floc layer present: 1-2mm
Moisture conditions: moderate to high
Benthic fauna: none observed

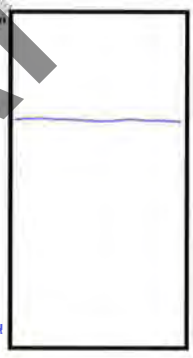
Odors

Normal Sewage Petroleum
Chemical (Anaerobic (H_2S)) None
Other _____

Oils

(Absent) Slight Moderate Profuse

CORE LOG:



NEAR BOTTOM WATER QUALITY:

Temperature (°C): 24.20
DO (mg/L): 6.41 DO (% Sat): 76.1
pH: 9.02
Conductivity (mS/cm): 0.407
ORP (mV): 44.8

QA/QC:

Duplicate Sample Station? (Y (N)
RPR- -DUP

MS/MSD Sample Station? (Y (N)
RPR= -MS
RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0 - 0.5	0.5 - 1.0	-
THg	☑	☐	☐
Grain Size/TOC	☑		
Moisture	☑	☐	☐

NOTES:

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION:	NORTHING:	EASTING:
RPR- 18		
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins (Musumeci)	**DATE:** 7/29/14 **TIME:** 15 00	**WATER DEPTH:** 1'

WEATHER CONDITIONS

Now	Past 24 hours	
☐	☑	storm
☐	☑	rain
☐	☐	showers
☐	☐	partly cloudy
☑	☐	clear/sunny

Has there been a heavy rain in the last 7 days? Yes / (No)

Air Temperature 75 °F

Other:

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	20 - fine
Silt	0.004-0.06mm	80
Clay	<0.004 mm (slick)	

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	5% Sticks Decaying SAV
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	none

SEDIMENT CHARACTERIZATION

Substrate color: Dark Brown Grey

Substrate consistency: fine sandy silt

Floc layer present: 2mm

Moisture conditions: moderate - high

Benthic fauna: none observed

Odors

Normal Sewage Petroleum

Chemical (Anaerobic (H_2S)) None

Other _____

Oils

(Absent) Slight Moderate Profuse

CORE LOG:

0"

10"

- consistent throughout
- see description on left

NEAR BOTTOM WATER QUALITY:

Temperature (°C):	24.39
DO (mg/L):	7.26
DO (% Sat):	87.2
pH:	9.33
Conductivity (mS/cm):	0.399
ORP (mV):	-32.2

QA/QC:

Duplicate Sample Station? (Y / (N))

RPR- -DUP

MS/MSD Sample Station? (Y / (N))

RPR= -MS

RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0 - 0.5	0.5 - 0.8	-
THg	☐	☐	☐
Grain Size/TOC	☐		
Moisture	☐	☐	☐

NOTES:

- attempted to collect w/ AMS & direct push
- 10" was most recovered
- 3' deposit

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION:	NORTHING:	EASTING:
RPR- ~~20~~ 19		
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins (Musumeci)	**DATE:** 7/29/14 **TIME:** 14:30	**WATER DEPTH:** 2'

WEATHER CONDITIONS

Now	Past 24 hours	
☐	☑	storm
☐	☑	rain
☐	☐	showers
☐	☐	partly cloudy
☑	☐	clear/sunny

Has there been a heavy rain in the last 7 days? (Yes) / No

Air Temperature 75 °F

Other:

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	20
Silt	0.004-0.06mm	80
Clay	<0.004 mm (slick)	

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	5%
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	none

SEDIMENT CHARACTERIZATION

Substrate color: Dark Grey

Substrate consistency: fine sandy silt

Floc layer present: 4-5 mm

Moisture conditions: high

Benthic fauna: corbicula

Odors

Normal Sewage Petroleum

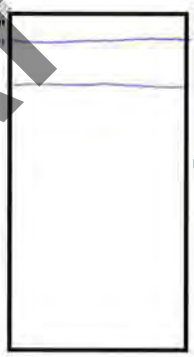
Chemical (Anaerobic (H_2S)) None

Other _____

Oils

(Absent) Slight Moderate Profuse

CORE LOG:



- top inch SAV mixture
- fine sandy silt
  - 80 - silt
  - 20 - sand
- fine sandy silt
  - 60 - silt
  - 40 - fine sand

NEAR BOTTOM WATER QUALITY:

Temperature (°C):	24.17
DO (mg/L):	5.99
DO (% Sat):	70.9
pH:	9.02
Conductivity (mS/cm):	0.406
ORP (mV):	49.7

QA/QC:

Duplicate Sample Station? (Y / (N))

RPR- -DUP

MS/MSD Sample Station? (Y / (N))

RPR= -MS

RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0 - 0.5	0.5 - 0.8	-
THg	☑	☑	☐
Grain Size/TOC	☑		
Moisture	☑	☑	☐

NOTES:

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION:	NORTHING:	EASTING:
RPR- 20		
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins (Musumeci)	**DATE:** 7/30/14 **TIME:** 13:45	**WATER DEPTH:** 3'

WEATHER CONDITIONS

Now	Past 24 hours		Has there been a heavy rain in the last 7 days?
☐	☐	storm	(Yes) / No
☐	☐	rain	
☐	☐	showers	Air Temperature 80 °F
☐	☐	partly cloudy	
☑	☑	clear/sunny	Other:

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	65
Silt	0.004-0.06mm	35
Clay	<0.004 mm (slick)	

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood coarse plant materials (CPOM)	
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	none

SEDIMENT CHARACTERIZATION

Substrate color:
Substrate consistency: Silty Sand
Floc layer present: 4mm
Moisture conditions: high
Benthic fauna: None observed

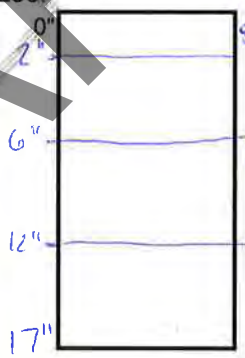
Odors

Normal Sewage Petroleum
Chemical (Anaerobic (H_2S)) None
Other _____

Oils

(Absent) Slight Moderate Profuse

CORE LOG:



NEAR BOTTOM WATER QUALITY:

Temperature (°C): 23.48
DO (mg/L): 5.87 DO (% Sat): 69.2
pH: 8.97
Conductivity (mS/cm): 0.476
ORP (mV): 44.1

QA/QC:

Duplicate Sample Station? (Y (N))
RPR- -DUP

MS/MSD Sample Station? (Y (N))
RPR= -MS
RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0 - 0.5	0.5 - 1.0	1.0 - 1.4
THg	☑	☑	☑
Grain Size/TOC	☑		
Moisture	☑	☑	☑

NOTES:

- collected w/ AMS
- abundant SAV & woody debris

DRAFT

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION:	NORTHING:	EASTING:
RPR- 21		
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins Musumeci	**DATE:** 7/31/14 **TIME:** 0845	**WATER DEPTH:** 1'

WEATHER CONDITIONS

Now	Past 24 hours	
☐	☐	storm
☐	☐	rain
☑	☐	showers
☑	☐	partly cloudy
☐	☑	clear/sunny

Has there been a heavy rain in the last 7 days? Yes / (No)

Air Temperature 65 °F

Other:

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 0-6"

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	5
Silt	0.004-0.06mm	85
Clay	<0.004 mm (slick)	10

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	5%
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	none

SEDIMENT CHARACTERIZATION

Substrate color: Dark Brown

Substrate consistency: clayey silt w/ trace fine sand

Floc layer present: 4mm

Moisture conditions: High

Benthic fauna: none observed

Odors

Normal Sewage Petroleum

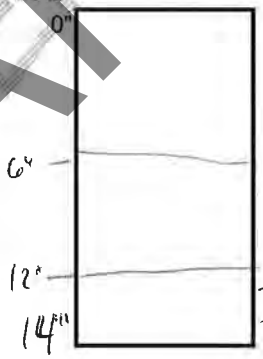
Chemical (Anaerobic (H_2S)) None

Other _____

Oils

(Absent) Slight Moderate Profuse

CORE LOG:



80% silt, 15% clay, 5% sand

75% silt, 20% clay, 10% fine sand

70

NEAR BOTTOM WATER QUALITY:

Temperature (°C):	21.15
DO (mg/L):	53.8 *
DO (% Sat):	396.8 *
pH:	7.24
Conductivity (mS/cm):	0.477
ORP (mV):	188.4

QA/QC:

Duplicate Sample Station? (Y / (N))

RPR- -DUP

MS/MSD Sample Station? (Y (N))

RPR= -MS

RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0-0.5	0.5-1.0	1.0-1.2
THg	☑	☑	☑
Grain Size/TOC	☑		
Moisture	☑	☑	☑

NOTES:

- Deposit is ~20-22" w/ 14" recovery
- heavy SAV

* DO - likely not accurate

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION: RPR- ~~21~~ 22 (VM)	**NORTHING:**	**EASTING:**
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins (Musumeci)	**DATE:** 7/30/14 **TIME:** 1415	**WATER DEPTH:** 2'

WEATHER CONDITIONS

Now	Past 24 hours	
☐	☐	storm
☐	☐	rain
☐	☐	showers
☐	☐	partly cloudy
☑	☑	clear/sunny

Has there been a heavy rain in the last 7 days? (Yes) / No

Air Temperature 80 °F

Other:

INORGANIC SUBSTRATE COMPONENTS
(should add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	15
Silt	0.004-0.06mm	85
Clay	<0.004 mm (slick)	

ORGANIC SUBSTRATE COMPONENTS
(does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	10-15%
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	none

SEDIMENT CHARACTERIZATION

Substrate color: Dark Brown

Substrate consistency: Sandy Silt

Floc layer present: trace

Moisture conditions: High

Benthic fauna: none observed

Odors

Normal | Sewage | Petroleum

Chemical | (Anaerobic (H_2S)) | None

Other _____

Oils

(Absent) | Slight | Moderate | Profuse

CORE LOG:

0"

6"

NEAR BOTTOM WATER QUALITY:

Temperature (°C): 23.37

DO (mg/L): 5.10 DO (% Sat): 60.2

pH: 6.78

Conductivity (mS/cm): 0.473

ORP (mV): 53.2

QA/QC:

Duplicate Sample Station? (Y / (N))

RPR- -DUP

MS/MSD Sample Station? (Y / (N))

RPR= -MS

RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0 - 0.5	-	-
THg	☑	☐	☐
Grain Size/TOC	☑		
Moisture	☑	☐	☐

NOTES:

- abundant SAV & woody debris

DRAFT

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION:	NORTHING:	EASTING:
RPR- 23		
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins (Musumeci)	**DATE:** 7/31/14 **TIME:** 09:15	**WATER DEPTH:** 1'

WEATHER CONDITIONS

Now	Past 24 hours	
☐	☐	storm
☐	☐	rain
☑	☐	showers
☑	☐	partly cloudy
☐	☑	clear/sunny

Has there been a heavy rain in the last 7 days? (Yes) No

Air Temperature 70 °F

Other:

INORGANIC SUBSTRATE COMPONENTS
(should add up to 100%) 0-6"

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	trace fine sand
Silt	0.004-0.06mm	85
Clay	<0.004 mm (slick)	15

ORGANIC SUBSTRATE COMPONENTS
(does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	5% fine roots
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	none

SEDIMENT CHARACTERIZATION

Substrate color: Dark Brown
Substrate consistency: Clayey Silt
Floc layer present: 2 mm
Moisture conditions: low to moderate
Benthic fauna: none observed

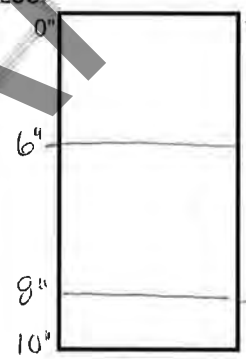
Odors

Normal Sewage Petroleum
Chemical (Anaerobic (H_2S)) None
Other

Oils

(Absent) Slight Moderate Profuse

CORE LOG:



- consistent throughout
- see description on left

silty fine sand
35% fine sand 65% silt

NEAR BOTTOM WATER QUALITY:

Temperature (°C):	21.55
DO (mg/L):	15.30 *
DO (% Sat):	173.0 *
pH:	7.73
Conductivity (mS/cm):	0.479
ORP (mV):	173.3

QA/QC:

Duplicate Sample Station? (Y (N)
RPR- -DUP

MS/MSD Sample Station? (Y (N)
RPR= -MS
RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0-0.5	0.5-0.9	-
THg	☑	☑	☐
Grain Size/TOC	☑		
Moisture	☑	☑	☐

NOTES:

- Deposit was ~14"

* DO - likely not accurate

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION:	NORTHING:	EASTING:
RPR- 24		
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins (Musumeci)	**DATE:** 7/30/14 **TIME:** 1445	**WATER DEPTH:** 2.5'

WEATHER CONDITIONS

Now	Past 24 hours	
☐	☐	storm
☐	☐	rain
☐	☐	showers
☐	☐	partly cloudy
☑	☑	clear/sunny

Has there been a heavy rain in the last 7 days? (Yes) / No

Air Temperature 80 °F

Other:

INORGANIC SUBSTRATE COMPONENTS
(should add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	65- very fine 45
Silt	0.004-0.06mm	
Clay	<0.004 mm (slick)	

ORGANIC SUBSTRATE COMPONENTS
(does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	5%
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	none

SEDIMENT CHARACTERIZATION

Substrate color: Dark Grey

Substrate consistency: Silty Sand

Floc layer present: 3mm

Moisture conditions: moderate

Benthic fauna: none observed

Odors

Normal | Sewage | Petroleum

Chemical | (Anaerobic (H_2S)) | None

Other _____

Oils

(Absent) | Slight | Moderate | Profuse

CORE LOG:

NEAR BOTTOM WATER QUALITY:

Temperature (°C):	23.59
DO (mg/L):	4.36
DO (% Sat):	51.4
pH:	8.53
Conductivity (mS/cm):	0.493
ORP (mV):	53.7

QA/QC:

Duplicate Sample Station? (Y / (N))

RPR- -DUP

MS/MSD Sample Station? (Y / (N))

RPR= -MS

RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0 - 0.5	-	-
THg	☑	☐	☐
Grain Size/TOC	☑		
Moisture	☑	☐	☐

NOTES:

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION:	NORTHING:	EASTING:
RPR- 25		
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins (Musumeci)	**DATE:** 7/30/14 **TIME:** 1515	**WATER DEPTH:** 1.5'

WEATHER CONDITIONS

Now	Past 24 hours	
☐	☐	storm
☐	☐	rain
☐	☐	showers
☐	☐	partly cloudy
☑	☑	clear/sunny

Has there been a heavy rain in the last 7 days? (Yes) / No

Air Temperature 80 °F

Other:

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	20 - fine
Silt	0.004-0.06mm	80
Clay	<0.004 mm (slick)	

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	15%
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	none

SEDIMENT CHARACTERIZATION

Substrate color: Dark Brown
Substrate consistency: Silty Sand
Floc layer present: 2mm
Moisture conditions: moderate
Benthic fauna: damsel fly

Odors

Normal | Sewage | Petroleum
Chemical | (Anaerobic (H_2S)) | None
Other _____

Oils

(Absent) | Slight | Moderate | Profuse

CORE LOG:

0"

11"

- consistent throughout
- see description on left

NEAR BOTTOM WATER QUALITY:

Temperature (°C): 23.94
DO (mg/L): 4.15 DO (% Sat): 53.2
pH: 8.98
Conductivity (mS/cm): 0.474
ORP (mV): 60.4

QA/QC:

Duplicate Sample Station? (Y / (N))
RPR- -DUP

MS/MSD Sample Station? ((Y) / N)
RPR-25-0.0-0.5 -MS
RPR- 25-0.0-0.5 -MSD

SEDIMENT ANALYSES:

Parameter	0 - 0.5	0.5 - 0.75	-
THg	☑	☑	☐
Grain Size/TOC	☑		
Moisture	☑	☑	☐

NOTES:

- SAV present
- Sed. deposit was ~12-18"

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION:	NORTHING:	EASTING:
RPR-26		
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins (Musumeci)	**DATE:** 7/30/14 **TIME:** 15:45	**WATER DEPTH:** 1'

WEATHER CONDITIONS

Now	Past 24 hours		Has there been a heavy rain in the last 7 days?
☐	☐	storm	(Yes) / No
☐	☐	rain	
☐	☐	showers	Air Temperature 80 °F
☐	☐	partly cloudy	
☑	☑	clear/sunny	Other:

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	5 - fine
Silt	0.004-0.06mm	95
Clay	<0.004 mm (slick)	

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	20%
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	none

SEDIMENT CHARACTERIZATION

Substrate color: Dark Brown
Substrate consistency: Silt w/ trace sand - fluidized silt
Floc layer present: 2-3mm
Moisture conditions: high
Benthic fauna: Chironomids

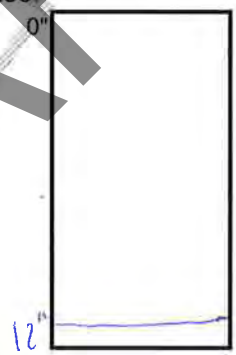
Odors

Normal Sewage Petroleum
Chemical (Anaerobic (H_2S)) None
Other _____

Oils

(Absent) Slight Moderate Profuse

CORE LOG:



- fluidized silt throughout
- consistant throughout
- see description on left
11" - 11-12" slightly firmer

NEAR BOTTOM WATER QUALITY:

Temperature (°C):	23.81
DO (mg/L):	5.55
DO (% Sat):	105.3
pH:	8.95
Conductivity (mS/cm):	0.474
ORP (mV):	75.7

QA/QC:

Duplicate Sample Station? (Y) / N)
RPR-26-0.0 0.5 -DUP

MS/MSD Sample Station? (Y (N)
RPR= -MS
RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0 - 0.5	0.5 - 1.0	-
THg	☑	☑	☐
Grain Size/TOC	☑		
Moisture	☑	☑	☐

NOTES:

- deposit was 12-15"

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION: RPR- 27	**NORTHING:**	**EASTING:**
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins Musumeci	**DATE:** 7/30/14 **TIME:** ~~1100~~ 1130	**WATER DEPTH:** 1'

WEATHER CONDITIONS

Now	Past 24 hours	
☐	☐	storm
☐	☐	rain
☐	☐	showers
☐	☐	partly cloudy
☑	☑	clear/sunny

Has there been a heavy rain in the last 7 days? Yes / No

Air Temperature 80 °F

Other:

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	90 FINE
Silt	0.004-0.06mm	10
Clay	<0.004 mm (slick)	

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	none
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	none

SEDIMENT CHARACTERIZATION

Substrate color: Brown

Substrate consistency: Silty Sand

Floc layer present: 1mm

Moisture conditions: low

Benthic fauna: none observed

Odors

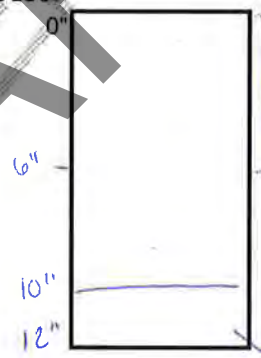
Normal / Chemical — Sewage — Anaerobic (H_2S) — Petroleum — None

Other _____

Oils

Absent — Slight — Moderate — Profuse

CORE LOG:



see description on back

0-12 - fine to moderate sand w/ trace silt
95% sand
5% silt
light Brown / tan

10-12 - higher sand

NEAR BOTTOM WATER QUALITY:

Temperature (°C): 23.36

DO (mg/L): 5.35 DO (% Sat): 62.5

pH: 7.79

Conductivity (mS/cm): 0.489

ORP (mV): 42.5

QA/QC:

Duplicate Sample Station? (Y / N)

RPR- -DUP

MS/MSD Sample Station? (Y / N)

RPR= -MS

RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0 - 0.5	0.5 - 1.0	-
THg	☑	☑	☐
Grain Size/TOC	☑		
Moisture	☑	☑	☐

NOTES:

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION:	NORTHING:	EASTING:
RPR- 78		
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins (Musumeci)	**DATE:** 7/30/14 **TIME:** 10:40	**WATER DEPTH:**

WEATHER CONDITIONS

Now	Past 24 hours	
☐	☐	storm
☐	☐	rain
☐	☐	showers
☐	☐	partly cloudy
☑	☐	clear/sunny

Has there been a heavy rain in the last 7 days? Yes / (No)

Air Temperature 75 °F

Other:

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	5% fine to medium
Silt	0.004-0.06mm	85
Clay	<0.004 mm (slick)	10

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	10% sticks & decaying leaves
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	none

SEDIMENT CHARACTERIZATION

Substrate color: Dark Brown

Substrate consistency: Clayey silt

Floc layer present: Comm

Moisture conditions: moderate to high

Benthic fauna: none observed

Odors

Normal Sewage Petroleum

Chemical Anaerobic (H_2S) None

Other Slight hydrocarbon

Oils

(Absent) Slight Moderate Profuse

CORE LOG:

0"
1"

0-1" - very fluidized

consistent throughout see description on left

NEAR BOTTOM WATER QUALITY:

Temperature (°C): 22.97

DO (mg/L): 0.20 DO (% Sat): 2.4

pH: 6.84

Conductivity (mS/cm): 0.474

ORP (mV): -125.7

QA/QC:

Duplicate Sample Station? (Y / (N))

RPR- -DUP

MS/MSD Sample Station? (Y / (N))

RPR= -MS

RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0 - 0.5	-	-
THg	☑	☐	☐
Grain Size/TOC	☑		
Moisture	☑	☐	☐

NOTES:

- total sediment depth 7"

DRAFT

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION:	NORTHING:	EASTING:
RPR- 29		
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins (Musumeci)	**DATE:** ~~7/25/14~~ 7/30/14 **TIME:** 1015	**WATER DEPTH:**

WEATHER CONDITIONS

Now	Past 24 hours	
☐	☐	storm
☐	☐	rain
☐	☐	showers
☐	☐	partly cloudy
☑	☑	clear/sunny

Has there been a heavy rain in the last 7 days? Yes / (No)

Air Temperature 75 °F

Other:

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 0.6

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	5 - fine
Silt	0.004-0.06mm	85
Clay	<0.004 mm (slick)	10

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	trace
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	trace

SEDIMENT CHARACTERIZATION

Substrate color: Dark Brown Grey

Substrate consistency: clayey silt w/ trace sand

Floc layer present: 3mm

Moisture conditions: moderate

Benthic fauna: corbicula

Odors

(Normal) Sewage Petroleum

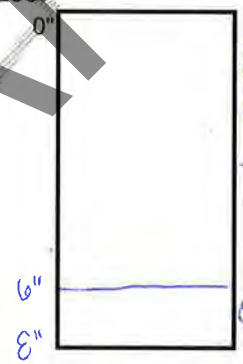
Chemical Anaerobic (H_2S) None

Other _____

Oils

(Absent) Slight Moderate Profuse

CORE LOG:



~~fine sandy silt~~
clayey silt w/ trace fine sand

sandy silt 85% silt 15% fine to medium sand

NEAR BOTTOM WATER QUALITY:

Temperature (°C):	20.55
DO (mg/L):	0.68
DO (% Sat):	7.2
pH:	6.90
Conductivity (mS/cm):	0.492
ORP (mV):	-121.6

QA/QC:

Duplicate Sample Station? (Y / (N))

RPR- -DUP

MS/MSD Sample Station? (Y / (N))

RPR= -MS

RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0 - 0.5	0.5 - 0.75	-
THg	☑	☑	☐
Grain Size/TOC	☑		
Moisture	☑	☑	☐

NOTES:

- Deposit 8" thick

DRAFT

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION:	NORTHING:	EASTING:
RPR-30		
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins (Musumeci)	**DATE:** 7/30/14 **TIME:** 1000	**WATER DEPTH:** 6"

WEATHER CONDITIONS

Now	Past 24 hours		
☐	☐	storm	
☐	☐	rain	
☐	☐	showers	
☐	☐	partly cloudy	
☑	☑	clear/sunny	

Has there been a heavy rain in the last 7 days? Yes / (No)

Air Temperature 75 °F

Other:

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	
Sand	0.06-2 mm (gritty)	30 fine to medium
Silt	0.004-0.06mm	70
Clay	<0.004 mm (slick)	

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	10%
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	none

SEDIMENT CHARACTERIZATION

Substrate color: Dark Brown

Substrate consistency: fine to medium sandy silt

Floc layer present: 2mm

Moisture conditions: moderate to high

Benthic fauna: none observed

Odors

Normal Sewage Petroleum

Chemical (Anaerobic (H_2S)) None

Other _____

Oils

(Absent) Slight Moderate Profuse

CORE LOG:

0"

6"

- consistent throughout
- see description on left

NEAR BOTTOM WATER QUALITY:

Temperature (°C):	20.16
DO (mg/L):	1.34
DO (% Sat):	15.1
pH:	7.14
Conductivity (mS/cm):	0.478
ORP (mV):	113.5

QA/QC:

Duplicate Sample Station? (Y / (N))

RPR- -DUP

MS/MSD Sample Station? (Y / (N))

RPR= -MS

RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0 - 0.5	-	-
THg	☑	☐	☐
Grain Size/TOC	☑		
Moisture	☑	☐	☐

NOTES:

- Sediment thickness was ~14"
- recovery was poor - only 6"
- moved north due to original location being dry

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION:	NORTHING:	EASTING:
RPR- 31		
INVESTIGATORS: Collins Musumeci	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins (Musumeci)	**DATE:** 7/31/14 **TIME:** 1100	**WATER DEPTH:** 2'

WEATHER CONDITIONS

Now	Past 24 hours	
☐	☐	storm
☐	☐	rain
☑	☐	showers
☐	☐	partly cloudy
☑	☑	clear/sunny

Has there been a heavy rain in the last 7 days? (Yes) / No

Air Temperature 70 °F

Other:

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 0-6"

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	5
Sand	0.06-2 mm (gritty)	85 - coarse
Silt	0.004-0.06mm	10
Clay	<0.004 mm (slick)	

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	5% sticks leaves
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	none

SEDIMENT CHARACTERIZATION

Substrate color: Brown
Substrate consistency: silty sand
Floc layer present: ~~trace~~ 2mm
Moisture conditions: High
Benthic fauna: Corbicula

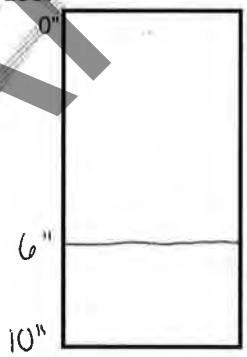
Odors

(Normal) Sewage Petroleum
Chemical Anaerobic (H_2S) None
Other _____

Oils

(Absent) Slight Moderate Profuse

CORE LOG:



- consistent through 0-6"

6" 5% silt 90% Sand 5% Gravel

NEAR BOTTOM WATER QUALITY:

Temperature (°C): 18.46
DO (mg/L): 3.76 DO (% Sat): 40.1
pH: 7.28
Conductivity (mS/cm): 0.407
ORP (mV): 87.1

QA/QC:

Duplicate Sample Station? (Y (N)
RPR- -DUP

MS/MSD Sample Station? (Y (N)
RPR= -MS
RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0-0.5	0.5-0.9	-
THg	☑	☑	☐
Grain Size/TOC	☑		
Moisture	☑	☑	☐

NOTES:

- Deposit was 10" - Full recovery

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION: RPR- 32	**NORTHING:**	**EASTING:**
INVESTIGATORS: Collins Musumeci Reese	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins (Musumeci)	**DATE:** 7/31/14 **TIME:** 1130	**WATER DEPTH:** 4'

WEATHER CONDITIONS

Now	Past 24 hours	
☐	☐	storm
☐	☐	rain
☐	☐	showers
☐	☐	partly cloudy
☑	☑	clear/sunny

Has there been a heavy rain in the last 7 days? (Yes) / No

Air Temperature 70 °F

Other:

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	trace
Sand	0.06-2 mm (gritty)	15% - fine
Silt	0.004-0.06mm	10%
Clay	<0.004 mm (slick)	15% clay

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	15%
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	none

SEDIMENT CHARACTERIZATION

Substrate color: brown

Substrate consistency: sandy ~~silt~~ clayey silt

Floc layer present: trace

Moisture conditions: high

Benthic fauna: none observed

Odors

(Normal) Sewage Petroleum

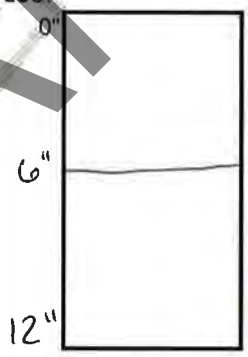
Chemical Anaerobic (H_2S) None

Other _____

Oils

(Absent) Slight Moderate Profuse

CORE LOG:



- see description on left

100% sand

trace silt

NEAR BOTTOM WATER QUALITY:

Temperature (°C):	18.60
DO (mg/L):	3.43
DO (% Sat):	32.6
pH:	7.28
Conductivity (mS/cm):	0.466
ORP (mV):	111.4

QA/QC:

Duplicate Sample Station? (Y (N))

RPR- -DUP

MS/MSD Sample Station? (Y (N))

RPR= -MS

RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0 - 0.5	0.5 - 1.0	-
THg	☐	☐	☐
Grain Size/TOC	☐		
Moisture	☐	☐	☐

NOTES:

- limited deposition
- mostly sandy bottom w/ cobble

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION:	NORTHING:	EASTING:
RPR- 33		
INVESTIGATORS: Collins Musumeci Reese	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins (Musumeci)	**DATE:** 7/31/14 **TIME:** 12:30	**WATER DEPTH:** 9'

WEATHER CONDITIONS

Now	Past 24 hours	
☐	☐	storm
☐	☐	rain
☐	☐	showers
☐	☐	partly cloudy
☑	☑	clear/sunny

Has there been a heavy rain in the last 7 days? (Yes) / No

Air Temperature 70 °F

Other:

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	50%
Sand	0.06-2 mm (gritty)	25%
Silt	0.004-0.06mm	25%
Clay	<0.004 mm (slick)	

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	trace
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	trace

SEDIMENT CHARACTERIZATION

Substrate color: Brown
Substrate consistency: Silty sandy Gravel
Floc layer present: N/A
Moisture conditions: ~~High~~ moderate to high
Benthic fauna: ~~none~~ Corbicula

Odors
(Normal) Sewage Petroleum
Chemical Anaerobic (H_2S) None
Other _____

Oils
(Absent) Slight Moderate Profuse

CORE LOG:

- consistent throughout
- see description on left

NEAR BOTTOM WATER QUALITY:

Temperature (°C):	21.65
DO (mg/L):	4.42
DO (% Sat):	50.5
pH:	8.08
Conductivity (mS/cm):	0.476
ORP (mV):	97.9

QA/QC:
Duplicate Sample Station? (Y / (N)
RPR- -DUP

MS/MSD Sample Station? (Y (N)
RPR= -MS
RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0 - 0.5	-	-
THg	☑	☐	☐
Grain Size/TOC	☑		
Moisture	☑	☐	☐

NOTES:
- probed several locations
- sediment consistant throughout
- depositional layer minimal

URS

SEDIMENT SAMPLE CHARACTERIZATION
RAMAPO-POMPTON RIVER INVESTIGATION
DUPONT POMPTON LAKES WORKS

SAMPLE IDENTIFICATION:	NORTHING:	EASTING:
RPR- 34		
INVESTIGATORS: Collins Musumeci Reese	**RIVER REACH:** N/A	
FORM COMPLETED BY: Collins (Musumeci)	**DATE:** 7/31/14 **TIME:** 1330	**WATER DEPTH:**

WEATHER CONDITIONS

Now	Past 24 hours	
☐	☐	storm
☐	☐	rain
☐	☐	showers
☐	☐	partly cloudy
☑	☑	clear/sunny

Has there been a heavy rain in the last 7 days? (Yes) No

Air Temperature 75 °F

Other:

INORGANIC SUBSTRATE COMPONENTS
(should add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5-10")	
Gravel	2-64 mm (0.1-2.5")	10
Sand	0.06-2 mm (gritty)	
Silt	0.004-0.06mm	
Clay	<0.004 mm (slick)	90

ORGANIC SUBSTRATE COMPONENTS
(does not necessarily add up to 100%)

Substrate Type	Characteristic	Approximate % Composition in Sample
Detritus	sticks, wood, coarse plant materials (CPOM)	none
Muck-Mud	black, very fine organic (FPOM)	none
Marl	grey, shell fragments	none

SEDIMENT CHARACTERIZATION

Substrate color: Grey Brown
Substrate consistency: Gravely clay
Floc layer present: N/A
Moisture conditions: moderate
Benthic fauna: Corbicula

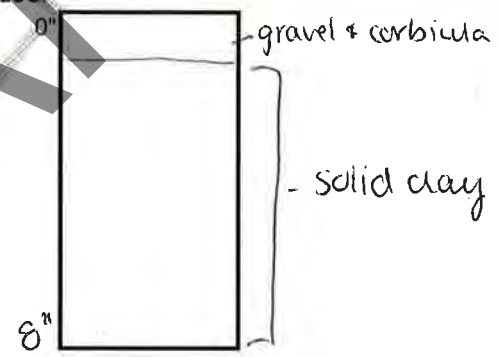
Odors

(Normal) Sewage Petroleum
Chemical Anaerobic (H_2S) None
Other _____

Oils

(Absent) Slight Moderate Profuse

CORE LOG:



NEAR BOTTOM WATER QUALITY:

Temperature (°C): 21.68
DO (mg/L): 4.43 DO (% Sat): 50.2
pH: 8.01
Conductivity (mS/cm): 0.478
ORP (mV): 107.8

QA/QC:

Duplicate Sample Station? (Y /(N))
RPR- -DUP

MS/MSD Sample Station? (Y /(N))
RPR= -MS
RPR- -MSD

SEDIMENT ANALYSES:

Parameter	0-0.5	0.5-0.75	-
THg	☑	☑	☐
Grain Size/TOC	☑		
Moisture	☑	☑	☐

NOTES: