



# **TIERRA FSI SPLIT- SEDIMENT SAMPLING REPORT**

Lower Passaic River  
Newark, New Jersey

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## **1. INTRODUCTION**

In January 2012, Tierra Solutions, Inc. (Tierra) implemented a sediment sampling program in the Lower Passaic River (LPR) Study Area. The scope of Tierra's investigation was described in the "Focused Sediment Investigation Work Plan, Quality Assurance Project Plan, Revision 1" (QAPP) dated December 2011. Woodard & Curran (W&C) was contracted by counsel for the Passaic River Joint Defense Group (JDG) to observe the sampling program and to collect representative split samples for laboratory analysis and archiving. This report has been prepared by W&C on behalf of the JDG to document field observations and the results of split-sample analyses. Work on this project is being performed under Site Inspection Guidelines implemented by the Court in a pending action (NJDEP et al. v. Occidental et al., Docket No. L-9868-05 (PASR) (Litigation).

W&C observed field sampling activities at seven sediment core locations between river mile (RM) 7.8 and 11.5 in the LPR (FSI Study Area). Sampling was performed by Hart-Crowser (H-C) on behalf of Tierra. Sample cores were obtained using Vibracore drilling techniques from a vessel operated by Ocean Surveys, Inc. (OSI). Samples were processed at a property located at 80 Lister Avenue in Newark, New Jersey (Processing Site). Copies of figures from the QAPP that depict sediment core locations are included in Appendix A. W&C obtained a total of twelve (12) split samples and one rinse blank sample for laboratory analysis at the Processing Site. A further 54 split-samples were collected at the Processing Site and placed into frozen storage during this project.

This report presents raw data only. Validated data are presented in the separate Data Validation Report prepared by W&C for this project and posted to the Case Vantage site in the Litigation on May 14, 2012.

### **1.1 SITE BACKGROUND**

This project was implemented in conjunction with remediation of the LPR adjacent to the Diamond Alkali Superfund Site Operable Unit 1 (OU-1) located in Newark, New Jersey. In 1983, sampling by the United States Environmental Protection Agency (USEPA) confirmed detections of dioxin at the 80 Lister Avenue property (part of OU-1). Tierra has agreed to fund and perform the removal and disposal of 200,000 cubic yards (CY) of sediment in the Passaic River, designated Operable Unit 2 (OU-2).

Previous sediment sampling data indicate that elevated levels of various chemicals, including 2,3,7,8-tetrachlorodibenzo-p-dioxin, are present in the Phase I Work Area. These data indicate that some of the sediment is characteristic hazardous waste and exceeds the universal treatment standard for dioxins.

### **1.2 FIELD TEAM**

The field team for this project included representatives of the following organizations:

- W&C, East Windsor, New Jersey provided personnel for sample collection observation on behalf of JDG. W&C personnel present at the site were:
  - R.David Dinsmore: Observed sediment coring activities aboard the sampling vessel
  - Ralph Simon: Observed core processing and sampling activities
  - Michael Kelly: Managed sample containers



- H-C, Seattle, Washington provided personnel for sample collection, sample management, and site health and safety on behalf of Tierra;
  - Roger McGinnis, project manager, field lead aboard sampling vessel
  - Ann Conrad, health and safety
  - Colleen Rust, sample processing
  - Brian Payne, sample processing
  - Brian Mickucki, sample processing
  - Emily Duncansen, sample processing
  - Adrienne Stutes, sample management
- Cardno Entrix (C-E), New Castle, Delaware provided personnel for sample collection observation on behalf of Givaudan. C-E personnel noted by W&C were:
  - Ryan Rupprecht, aboard the sampling vessel
  - Beth Williams, split-sampling
- Clifford Firstenberg of Firstenberg Consulting LLC, (FC) Williamsburg, Virginia was present for oversight of field operations on behalf of Tierra, and;
- OSI, Old Saybrook, Connecticut, provided personnel and equipment to collect sediment cores on behalf of Tierra.
  - John Beam, Captain
  - Jason DiLorenzo, OSI Deck Boss

## 2. TECHNICAL OVERVIEW

The investigation consisted of the collection and analysis of sediment samples from cores at seven target locations within the Study Area. (Only six of the seven locations were successfully sampled by H-C.) The field sampling program consisted of the following activities:

1. Sediment Core Collection
2. Core Processing and Split Sample Collection

### 2.1 MOBILIZATION ACTIVITIES

On January 9, 2012, the field sampling team and observers including representatives of Tierra, H-C, FC, OSI, C-E, and W&C, mobilized to the vessel launch area located at Kelways Industrial Complex, 1 Madison Street, Rutherford, New Jersey. OSI mobilized the “CanDu” a 37- by 16-foot research vessel (see Appendix B, Photograph 1). The CanDu was equipped with a Vibracore™ Model 1200 with a 4-inch outside diameter core barrel and 3 ½-inch inside diameter core liner (see Appendix B, Photograph 2). Locations were determined using a Trimble® 4000 Global Positioning System (GPS) device. A lead-line was used to measure water depth.

#### 2.1.1 Land-Based Sample Processing Area

A land-based sample processing area was setup by Tierra’s contractors at the 80 Lister Avenue site. Tierra would not permit access to the Lister Avenue Site by W&C personnel on January 9, 2012.

The land-based sample processing area was established in two rooms within an existing structure at the Lister Avenue site. An outer room was set up for sample management and support (see Appendix B, Photographs 22 through 24). An inner room was established for core processing and sample collection (See Appendix B, Photograph 25). Access to the core processing room was restricted through a controlled access point (see Appendix B, Photograph 22).

On January 10, 2012, the first day of sample processing, W&C was permitted access to the outer room at the Lister Avenue Site. However, H-C and FC initially denied W&C personnel access to the inner core processing room, because W&C personnel wore safety work boots without disposable boot covers. W&C noted that Tierra’s health and safety plan specified “Safety Boots” as a minimum requirement and did not specify boot covers. However, W&C agreed to comply with this requirement and requested to borrow boot covers to be replaced later in the day so that the W&C observer could enter the room. FC and H-C initially refused to lend boot covers, stating that all companies must provide their own personal protective equipment. H-C subsequently agreed to lend boot covers. (As can be seen in many of the site photographs H-C personnel in the sample processing room did not wear disposable boot covers.) FC also indicated that the W&C observer could not enter the core processing room until open questions regarding sample weights and collection priority were resolved. By 11:13 a.m., W&C had secured its own disposable boot covers, sample split issues had been largely resolved and W&C was cleared to enter the processing area. By the time W&C was permitted to enter the room, H-C had already begun processing the first core, B1.

At 11:33 a.m., on January 10, Clifford Firstenberg issued an e-mail message confirming the following protocol for filling sample containers:

After Tierra fills its sample jars according to the minimums described in the previously circulated spreadsheet showing available vs. required sample mass, Hart-Crowser (Tierra's consultant) will fill jars as follows:

1. Fill W-C's and CE's jars with the minimum required sample mass as follows (note, these minimum masses are less than Tierra estimated in its spreadsheet):

Company	Jar Description	Capacity	Mass of sediment
W&C	Gray cap; clear glass	4 oz	50 g
W&C	Blue cap; clear glass	4 oz	120 g
C-E	White cap; amber glass	8 oz	100 g

2. Distribute excess sediment, if available, in the following sequence:

Company	Jar Description	Capacity	Sequence
C-E	White cap; amber glass	8 oz	1 – fill to capacity
W&C	Gray cap; clear glass	4 oz	2 – fill to capacity
W&C	Blue cap; clear glass	4 oz	3 – fill to capacity
C-E	White cap; clear glass	8 oz	4 – fill to capacity

## 2.1.2 Field Instrument Calibration

Field instruments were maintained by H-C and included a RAE® Systems MultiRAE photoionization detector (PID) equipped with a 10.6 electron volt lamp. During sample processing on the morning of January 12, H-C reported that their PID detected relatively high background concentrations of organic vapors: 1.0 to 4.0 relative parts per million by volume (ppmv). W&C asked if H-C could explain the cause of the elevated readings and was advised that H-C suspected the high readings were due to high humidity. While this is a possible cause, typically a field team will assess this type of condition by using a backup instrument and/or by recalibrating the primary instrument. H-C did neither, therefore, the PID readings obtained on this date should be considered suspect. Background readings dropped to 0 ppmv by 11:35 a.m., H-C reported that calibration checks were performed each day. However, W&C did not observe any field calibration checks in either room at the sample processing building during this project.

## 2.1.3 Observation of Vibracore Drilling Procedures

The cores were advanced using Vibracore drilling techniques from the sampling vessel. Coring was performed using a Vibracore equipped with a 4-inch diameter steel core barrel. A 3 ½-inch inside diameter acetate core liner was inserted into the core barrel to recover the sediment cores. OSI navigated the CanDu to the approximate coordinates indicated in the QAPP. The vessel was anchored and the driller measured the approximate depth to sediment using a lead line. The Vibracore assembly was lowered into the water through a trap door on the vessel's deck. As the

assembly approached the sediment depth the motor was turned on. When the Vibracore assembly reached the final depth the motor was shut off and the assembly was allowed to stabilize for a minimum of 10 minutes prior to recovery.

After the stabilization period the Vibracore assembly was raised slowly from the water. The Vibracore assembly was raised and maintained in a vertical position as the interior core liner was removed and capped. Cores A1, A2, A3 and B2 were cut into two segments. Shorter cores B1 and C1 were each recovered as single segments. Photographs 5 through 16 in Appendix B show sampling activities at each of the core locations.

Cores were placed into a chilled container onboard the sampling vessel (see Photograph 17). The cores were transported to a chilled container strapped into the bed of a pickup truck (see Photographs 18 and 19) for transport to the Lister Avenue property. The cores were maintained in a large cooler at the Lister Avenue site until processing (see Photographs 20 and 21).

## **2.2 OBSERVATION OF SPLIT SAMPLE PROCESSING**

Ralph Simon of W&C and Beth Williams of C-E were authorized to enter the core processing room to observe the split sampling process by H-C beginning on January 10, 2012. W&C observed H-C implement the following general procedures:

1. Each core segment to be processed was first placed into a plastic tub and maintained vertically in a core support (see Appendix B, Photograph 27).
2. The length of the sediment within the transparent core liner was measured to calculate sample recovery (see Appendix B, Photograph 28). H-C used this measurement to calculate the total recovery. H-C then calculated the adjusted length of each 6-inch sample segment based on apparent compression of the overall sample.
3. Instruments used to open and monitor the core liners included a RAE Systems MiniRAE 2000 PID, reusable electric drill, reusable electric shears, and a reusable electric saw (see Appendix B, Photograph 29).
4. If necessary H-C drilled one or more holes through the core liner, above the sediment and excess water was allowed to drain into the plastic tub (see Appendix B, Photograph 30).
5. The core liner was then uncapped and the PID was used to measure organic vapors (see Appendix B, Photograph 31).
6. A stainless steel ladle was used to remove excess liquid from the top of the sample as well as flakes of plastic liner material from drilling and/or cutting the core liner (see Appendix B, Photograph 32).
7. The core was then transferred to the sample processing table. Wooden boards were used to brace the cylindrical core so that it would not roll off of the table. The outside of the core liner was then marked to indicate the calculated length of each sample (see Appendix B, Photograph 33).
8. Reusable electric shears were used to cut open the core liner (see Appendix B, Photograph 34).

9. A portion of the core liner was either removed to expose the side of the core (see Appendix B, Photograph 35) or the core was split along its axis and the two halves of the core were placed side-by-side on the sample table (see Appendix B, Photograph 36).
10. Field decontaminated stainless steel spatulas were placed between each of the measured sample segments (see Appendix B, Photograph 36),
11. The same pair of wooden boards was used to brace each of the cores. W&C noted that during the course of the project the boards became increasingly stained with sediment (see Appendix B, Photograph 37) and that the stainless-steel sampling tools were placed directly on the stained boards (see Appendix B, Photograph 38). This procedure could increase the potential for cross-contamination between sample cores.
12. Each sample was removed from the core liner and placed into a field-decontaminated stainless steel mixing bowl for homogenization. Photograph 39 in Appendix B shows the steel bowls after decontamination. Photographs of Core C1 in Appendix C show homogenized sample material in a steel bowl.
13. Sample material was homogenized by mixing by hand using the sampling spoons. H-C then transferred the sample material into their prepared laboratory sample bottles. After the H-C sample bottles were filled, H-C filled the two sample bottles provided by W&C and the one sample bottle provided by C-E (see Appendix B, Photograph 40).
14. Sediment scraped from sampling equipment, used core liners and spent personal protective equipment (PPE) were placed into a drum (see Appendix B, Photograph 31) for management by Tierra as investigation-derived waste.
15. Filled sample containers were transferred out of the core processing room to the sample management and support area where the sample information was recorded and chain-of-custody records were completed. The sample bottles were then placed into portable coolers with wet ice for shipment to the laboratories (see Appendix B, Photographs 22 and 24)

W&C observed core processing and logging by H-C. Appendix C presents W&C photographs of each of the cores. During the first day of sampling Cliff Firstenberg of FC advised the observers that copies of the logs and notes would be made available at the end of each day. At the end of the day, FC reversed this decision, indicating that providing copies on a daily basis was impracticable and that copies of the notes would be provided at the end of the project. W&C photographed copies of the field lithologic logs as practicable during the remainder of the sampling program. Appendix D includes photographs of H-C logs for cores A1, A2, A3 and C1. W&C was unable to photograph the logs for cores B1 and B2 because H-C had already removed these logs before advising that they would not provide copies daily. FC denied W&C's request to photograph the two logs.

H-C encountered a problem while processing the core from location C1 (C1-B). W&C's observation of the problem is summarized below:

- During core recovery the field sampling team was unable to remove the cutting head assembly from the core liner. This was likely due to particles that became lodged between the liner and cutting head. The core liner was transported to the core processing area with the cutting head attached (see Appendix B, Photograph 41).

- The sediment from this location appeared to have a high water content, making the sample difficult to manage (see Appendix B, Photograph 42).
- Initially H-C placed the core into the plastic tub and maintained the core in a vertical position using a support.
- H-C cut the core liner just above the top of sediment (see Appendix B, Photograph 43).
- H-C then fabricated a temporary plug using aluminum foil and cardboard (see Appendix B, Photograph 44).
- The plug was inserted into the top of the sample in the core liner to keep the sample material stable for transfer to the core processing table (see Appendix B, Photographs 45 and 46).
- While attempting to move the core to the processing table the cutting head separated from the collar used to attach the assembly to the liner. This resulted in sediment spilling out of the bottom of the liner into the plastic tub (see Appendix B, Photograph 47).
- H-C returned the core to the support to prevent further spillage (see Appendix B, Photograph 48). H-C estimated that approximately 0.5 feet of material was spilled from the bottom of the sediment column.
- The C1 core was maintained in a vertical position during sampling and sample material was removed using a ladle (see Appendix B, Photograph 49). This approach made it difficult to prepare a comprehensive log of the this core because only a small portion of the core material was visible at any given time.
- The excess liner material was cut off after each sample segment was collected (see Appendix B, Photograph 50).

### 2.2.1 Sample Handling

W&C collected sample aliquots for analysis by two laboratories:

- Sample aliquots for dioxin/furans (PCDD/F) were sent to Analytical Perspectives (AP) laboratory, in Wilmington, North Carolina; primary contact: Bryan Vining.
- Sample aliquots for analysis of pesticides (DDx) and moisture were sent to Test America Laboratory (TA) in Burlington, Vermont.
- Givaudan collected and analyzed all of the samples for Cs137.

On January 10<sup>th</sup>, the C-E inspector advised H-C to completely fill an 8-ounce jar, regardless of weight, for the Cs137 aliquot before filling the two W&C jars. W&C expressed concern that this would not leave sufficient material for PCDD/F and DDx aliquots in the split samples. W&C and C-E delayed providing sample jars for splits until the issue could be resolved. H-C set aside material for the first splits and continued processing the core (B1) for their own samples. After review of the sampling process, C-E agreed to the original protocol wherein all three sample containers would be filled to the minimum weights before additional material, if any, was provided to C-E.

Table 1 presents a summary of samples collected during this project for analysis and freezing. With one exception, W&C and C-E obtained split samples from each of the sediment intervals sampled by H-C. On January 11, H-C chose to take a complete duplicate for the sample designated "A01-SDI-018-024." This left insufficient material for a full split sample. After weighing the samples, H-C provided 50.3 grams for DDx (50 grams required), 120 grams for PCDD/F (120 grams required) and only 11.7 grams for Cs137 (100 grams required). H-C completed sampling Core A1 at 3:48 p.m., and initially refused to provide the bottles containing sample A01-SDI-018-024 to W&C and C-E. The H-C sampler, Colleen Rust, stated that she was "not authorized" to release the split-sample for the 18- to 24-inch interval. Ms. Rust double-bagged the sample containers and placed them into a locked cooler. After several telephone conferences Cliff Firstenberg agreed to release the sample at 4:20 p.m.

Based on initial discussions, JDG understood that Tierra had previously agreed to resample any core for which they were unable to provide a complete set of split samples. However, Tierra did not resample Core A1.

Due to a field error, labels for two of the coolers shipped by W&C on the January 11, 2012, were switched. The cooler destined for TA was received at the AP laboratory and the cooler destined for AP was received at the TA laboratory. Each laboratory immediately repackaged the respective cooler and forwarded it to the correct laboratory. This error had no impact on holding times or other data quality parameters.

## **2.2.2 Sample Designation**

Split-samples were identified using Tierra's nomenclature. The sediment sample used the following procedures:

- Two-digit sample location (e.g., 01 for location number 1) preceded by the letter "A", "B", or "C" to denote the location of the core (e.g. A01 to designate core location A1).
- "SDI" designation specified by Tierra
- Three digits to indicate the depth to the top of the sample interval in inches calculated from the top of the sample recovered.
- Three digits to indicate the depth to the bottom of the interval in inches.

For example, the sample collected at A03 from 6 to 12 inches was designated A03-SDI-006-012. Each sample container was labeled prior to collecting the sample material. The sample identifier, site name, date and time of sampling, and analytical parameters were written on the label in waterproof ink and recorded on the chain-of-custody record. Copies of the chain-of-custody records were maintained in the field with the field logbooks.

## **2.2.3 Quality Control Samples**

One rinse blank sample was collected for W&C during the sampling program. The rinse blank sample was collected by H-C in bottles prepared by the laboratory. The rinse blank sample was collected by passing water provided by the laboratory over field decontaminated sampling equipment into an empty set of bottles.

No trip blank samples were required for the parameters analyzed.

H-C refused to provide additional sample material to W&C for laboratory-blind duplicate samples and/or project-specific matrix spike/matrix spike duplicate samples (MS/MSD).

## **2.3 SAMPLE ANALYSIS**

### **2.3.1 Analyze Immediate Samples**

Initially, the laboratories were directed to analyze two samples from each core. W&C recommended the samples for immediate analysis based on the following criteria, in order of priority:

1. Evidence of contamination such as elevated PID readings and/or odors;
2. Shallowest interval collected;
3. First change in lithology, and/or;
4. Deepest interval collected.

Analytical results for the samples analyzed for PCDD/F, DDx and moisture are summarized on Table 2. Data and associated New Jersey Department of Environmental Protection (NJDEP) electronic data deliverables are presented in unvalidated format consistent with standard NJDEP requirements. Appendix E contains a CD-ROM with the unvalidated laboratory results. Appendix F contains a CD-ROM with the NJDEP electronic data deliverable files. Validated results are provided under separate cover.

### **2.3.2 Frozen Samples**

The sample aliquots that were not analyzed are being held in frozen storage by the AP and TA laboratories. Additional samples may be analyzed as deemed necessary by the project team. Samples not analyzed will be disposed by the laboratory after 365 days from receipt. Prior to disposal, the laboratory will contact W&C and/or the JDG and provide the option of either (1) disposing of the stored samples or (2) maintaining the samples in storage beyond the 365-day period specified.

## **2.4 DEMOBILIZATION**

Field demobilization activities for W&C personnel took place on January 13, 2012 and included transportation of necessary personnel, equipment, and materials off the Site. W&C's investigation-derived waste consisted of used Tyvek™ splash suits, boot covers and gloves. At H-C's direction, W&C placed this material into H-C's waste containers for management with the rest of H-C's investigation-derived waste.

## **2.5 H-C FIELD DOCUMENTATION**

After completion of the project, H-C provided electronic copies of their field notes including:

- Core processing photo log book



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- Decontamination log
  - Residual disposal logbook
  - Sample handling and shipping log book
  - Vessel photo logbook
  - Vibracore field notebook
  - Vibracore processing logbook

A CD-ROM containing electronic copies of the documents provided by H-C is included in Appendix G. Copies of W&C field notebooks are provided in Appendix H.

### 3. FIELD SAMPLING PROGRAM

This section presents a day-by-day summary of the work completed during this field sampling project.

#### Monday, January 9, 2012 Sampling Vessel Observations

- R. David Dinsmore of W&C met with the H-C and OSI sampling team at 6:00 a.m. Personnel included Cliff Firstenberg (FC), Roger McGinnis (H-C), Ann Conrad (H-C), Ryan Rupprecht (C-E), John Beam (OSI) and Jason DiLorenzo (OSI).
- OSI and H-C were preparing the vessel to leave so that they could be on station by high tide at approximately 8:00 a.m., Mr. Dinsmore left the area for a replacement hard hat and returned approximately 15 minutes prior to the vessel's departure.
- The sampling vessel arrived on station B1 at RM 11.49 and began anchoring at 8:03 a.m.
- The core penetrated approximately 5 feet below the top of sediment; 4.3 feet of recovery was measured onboard the sampling vessel suggesting the sediment column compacted within the liner or some material was lost during retrieval.
- The liner with sediment from location B1 was extracted from the core barrel in one piece.
- At 9:15 a.m., the anchors were pulled and the vessel moved downstream approximately 100 feet to location B2 (Note: W&C considered this sampling approach to be unusual. Although not specifically required by Tierra's QAPP, typically sediment sampling programs proceed from downstream to upstream locations to reduce the potential for cross-contamination by disturbed upstream sediments.)
- At 10:05 a.m., the coring tools reached a total penetration depth of 7.5 feet at B2; the total core recovery measured on board was 8.4 feet, suggesting the sample expanded into the liner and/or the depth to the top of sediment was not measured accurately.
- The liner with sediment from location B2 was cut into two pieces using a hacksaw. The hacksaw blade was changed after cutting. The bottom 6 to 8 inches of recovered core was cut off and discarded.
- The vessel returned to the dock for unloading at 11:45 a.m. OSI captain John Beam left the area to record the water level at the staff gauge located at the DeJessa Bridge at approximately RM 9 (see Appendix B, Photograph 5).
- Cores were transported by H-C to the sample processing area at 80 Lister Avenue. Tierra would not permit W&C access to 80 Lister Avenue until the following day, January 10, when core processing was scheduled to begin.

#### Tuesday, January 10, 2012 Sampling Vessel Observations

- Mr. Dinsmore (W&C) met at the dock with OSI (Mr. Beam and Mr. DiLorenzo), H-C (Ms. Conrad) and C-E (R. Rupprecht).
- The sampling vessel departed from the dock at 6:43 a.m.
- The sampling vessel arrived at core location A2 (RM 10.92) at 7:20 a.m. Water depth was reported to be 6.2 feet to the top of sediment.

- The core penetrated approximately 7.5 feet below the top of sediment; 6.4 feet of recovery was measured onboard the sampling vessel.
- The liner with sediment from location A2 was cut into two pieces using a hacksaw. The hacksaw blade was changed after cutting. The bottom 6 inches of recovered core was cut off and discarded.
- At 9:20 a.m., the sampling vessel arrived at core location A3 (RM 10.87) approximately 200 feet downstream from location A2. Water depth was reported to be 9.7 feet.
- At 9:37 a.m., the core reached final penetration depth of 8.2 feet at A3; 7.0 feet of recovery was measured onboard the sampling vessel.
- The liner with sediment from location A3 was cut into two pieces using a hacksaw. The hacksaw blade was changed after cutting the sample. The bottom 6 inches of recovered core was cut off and placed into a plastic bag
- At 10:40 a.m., the sampling vessel arrived at location A1, approximately 300 feet upstream from location A2. OSI reported the depth to the top of sediment to be 10.1 feet.
- At 10:47 a.m., the core reached final penetration depth of 8.5 feet; 8.6 feet of recovery was measured onboard the sampling vessel.
- The liner with sediment from location A3 was cut into two pieces using a hacksaw. The hacksaw blade was changed after cutting. The bottom 18 inches of recovered core was cut off and placed into a bag which was then put into a bucket.
- The sampling vessel proceeded to the staff gauge at the DeJessa Bridge. The following water levels were recorded:
  - 5.68 feet at 11:45 a.m.
  - 5.60 feet at 11:48 a.m.
  - 5.48 feet at 11:54 a.m.
- The vessel returned to the dock for unloading at 12:30 p.m.
- At 1:20 p.m., Mr. McGinnis arrived with a truck to transport the samples to the sample processing area at 80 Lister Avenue.
- The samples arrived at the 80 Lister Avenue at 3:20 p.m. Mr. Dinsmore (W&C) assisted H-C with transferring the cores from the truck to the cooler at the processing area.

#### Tuesday, January 10, 2012 Processing Area Observations

- H-C began processing Core B1 at 8:00 a.m. FC and H-C initially denied W&C entry to the processing room due to issues related to PPE and sample splits (see discussion in Section 2.1.1). Due to this delay W&C was unable to observe the upper portion of the first core processed, B1.
- At 1:56 p.m., H-C completed processing the first core, B1. None of the samples exhibited evidence of contamination. W&C selected two samples for immediate analysis:
  - B01-SDI-000-006 – First interval
  - B01-SDI-018-024 – First change in lithology

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#### Wednesday, January 11, 2012 Sampling Vessel Observations

- Field personnel were the same as those on January 10.
- The sampling vessel departed from the dock at 8:35 a.m., to go to the final two locations, C1 (RM 7.80) and C2 (RM 7.73). This required passing the DeJessa Bridge, a swing bridge located at approximately RM 9.
- At 9:00 a.m., the sampling vessel arrived at the DeJessa Bridge and found that it was not open. The staff gauge at this location read 7.8 feet. OSI's captain, John Beam, stated that the specific value of the reading was meaningless. Mr. DiLorenzo downloaded data from two transducers that had been placed at the bridge. According to OSI and H-C, the transducers recorded water levels every 6 minutes. The staff gauge readings are used to verify the readings from the transducers.
- The bridge was experiencing mechanical problems and at 9:43 a.m., workers on the bridge indicated it would require another 45 minutes before the bridge could be opened. Repair delays continued and the bridge was finally opened at 1:16 p.m. The sampling vessel continued downstream to the Route 7 Bridge which remained closed but the tide was low enough to allow the vessel to proceed.
- The sampling vessel reached location C1 (subsequently designated C1-A) and began coring at 2:27 p.m. The water depth was recorded at 12.3 feet.
- At 2:31 p.m., the core reached final penetration depth of 6.5 feet, 4.7 feet of recovery was initially measured onboard the sampling vessel. By 3:08 p.m., recovery had increased to 4.9 feet after disturbed material had settled. H-C noted clay at the end of the core and opined that the presence of the clay was an "anomaly." Due to this suspected anomaly and the low calculated recovery (72%) H-C elected to collect a second core from this area.
- At 3:48 p.m., the sampling vessel moved to the second core location, designated C1-B, approximately 5 feet south (downstream) of C1-A. Water depth measured at this location was 11.4 feet.
- At 3:50 p.m., the sampling device reached refusal at 4.5 feet; 3.9 feet of recovery was measured on board the sampling vessel. A 1.5-inch cobble fell out of the bottom of the core barrel. The field team was unable to remove the cutting head assembly from the core liner.
- At 4:52 p.m., the sampling vessel reached core location C2. Water depth was reported to be 15.2 feet.
- At 5:06 p.m., the sampling device encountered refusal at 2 feet below the top of sediment. Upon recovery small stones fell out of the bottom of the core barrel and the recovered sediment was discarded. Due to the late hour and changing tide, OSI returned to the dock without making a further attempt at location C2. H-C and OSI planned to return the next day, January 12, for a second attempt to core at location C2 during favorable tidal conditions.

#### Wednesday, January 11, 2012 Processing Area Observations

- H-C began processing the upper segment of Core B2 at 6:15 a.m. The total core length was measured to be 3.6 feet. H-C identified this as the first 48 inches of recovery as adjusted by H-C for apparent sample compaction.
- At 7:20 a.m., the lower portion of Core B2 was brought into the sample processing room and placed vertically in the plastic tub for initial processing (see Section 2.2 for processing steps).

- At 8:40 a.m., the lower portion of Core B2 was transferred to the core processing table, opened, logged and sampled.
- At approximately 9:30 a.m., H-C completed processing the lower portion of core, B2 and the upper section of Core A1 had been placed into the core holder and plastic tub. None of the samples from Core B2 exhibited evidence of contamination. A PID reading of 0.1 ppmv was briefly noted at the 60- to 66-inch interval but this was not deemed to be significant. W&C selected two samples for immediate analysis:
  - B02-SDI-000-006 – First interval
  - B02-SDI-042-048 – First change in lithology
- At 12:52 p.m., H-C completed processing the upper segment from Core A1.
- At 2:23 p.m., H-C had opened the lower segment from Core A1 on the sample processing table.
- Sampling of Core A1 was completed by 3:33 p.m. Elevated PID readings and odors were noted in this core. W&C selected two samples for immediate analysis:
  - A01-SDI-036-042 – Elevated PID readings and odors
  - A01-SDI-060-066 – Elevated PID readings
- H-C provided insufficient material for a complete split of sample A01-SDI-018-024 (see Section 2.2.1 for details).

#### Thursday, January 12, 2012 Sampling Vessel Observations

- At 8:30, Ms. Conrad of H-C reported that the sampling vessel would depart at 11:00 a.m., if arrangements could be made for the bridges to be opened. Mr. Dinsmore of W&C proceeded to the sample processing area to assist with sample management pending the scheduled vessel departure.
- Due to heavy rain low tide was not low enough for the sampling vessel to pass beneath all of the bridges and H-C was unable to make arrangements for both of the bridges to be opened. Therefore, at 12:15 p.m., FC and H-C decided to postpone the final sampling at location C2 until the following day.

#### Thursday, January 12, 2012 Processing Area Observations

- H-C began processing the upper segment of Core A2 at 6:00 a.m.
- At 6:54 a.m., H-C had opened and screened the upper segment of Core A2. The total length recovered was measured to be 2.78 feet.
- H-C began collecting samples at 7:00 a.m.
- At 7:30 a.m., H-C reported elevated background readings detected by the PID. See Section 2.1.2 for further details.
- At 8:55 a.m., H-C placed the lower segment of Core A2 on the processing table, opened and logged the core.
- Sample processing was completed at about 10:30 a.m.
- At 11:30 a.m., the upper segment of Core A3 was placed into the core holder and measured. H-C calculated sample interval lengths.

- At 11:45 a.m., the upper segment of Core A3 was transferred to the processing table and was opened by 12:00 p.m. Strong odors were noted throughout this core segment. H-C reported the strongest odors in the dense silt material beginning at 12 inches.
- Processing of the upper segment of Core A3 was complete by 1:40 p.m., and the lower portion had been placed into the core holder for measurement and initial processing.
- At 2:00 p.m., W&C requested additional sample material for a laboratory-blind duplicate sample. H-C refused to provide additional material.
- Sampling of the upper segment of Core A3 was complete by 3:45 p.m. At 3:55 p.m., A. Stutes of H-C advised R. Simon of W&C that W&C could not collect a rinse blank at that time but would pass W&C's request for a rinse blank sample to "someone with the authority to answer."
- At 4:05 p.m., C. Firstenberg initially stated that W&C could not collect a rinse blank but he agreed to refer the question to Tierra.
- W&C selected the following samples for immediate analysis:
  - A02-SDI-000-006 – First interval
  - A02-SDI-024-030 – First change in lithology
  - A03-SDI-000-006 – First interval
  - A03-SDI-012-018 – Odors

#### Friday, January 13, 2012 Sampling Vessel Observations

- Mr. Dinsmore (W&C) arrived at the vessel launch area at 7:45 a.m. The same personnel were present as on previous sample days.
- The sampling vessel left the dock at 8:45 a.m., and arrived at the DeJessa Bridge at 9:48 a.m. The staff gauge reading at this time was 7.17.
- The DeJessa Bridge opened at 10:00 a.m.
- The sampling vessel arrived at the Route 7 Bridge at 10:11 a.m., which opened at 10:15 a.m.
- The sampling vessel reached location C2 at 11:10 a.m.; reported water depth was 21.3 feet.
- At 11:21 a.m., the sampling device encountered refusal at 1.4 feet below the top of sediment. The core was empty upon recovery. The core liner was rinsed for reuse.
- The sampling vessel was repositioned approximately 5 to 10 feet upstream of location C2 and the sampling device was redeployed for a second attempt at 11:43 a.m. At that time the reported water depth was 21.2 feet.
- At 11:45 a.m., the sampling device encountered refusal at 1.5 feet below the top of sediment. When the sampling device was recovered small cobbles and gravel fell out of the end of the core barrel. The core liner was empty and several 1- to 2-inch diameter cobbles were trapped inside the cutting head assembly (see Appendix B, Photograph 16). H-C retained the cobbles in a resealable plastic bag and made the decision to abandon sampling efforts at location C2.

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Friday, January 13, 2012 Processing Area Observations

- At 8:00 a.m., H-C moved Core C1 from the cooler to the processing room.
- At 9:00 a.m., H-C attempted to measure the recovery but had difficulty due to the attached drill cutting head. H-C voiced a concern that because the core encountered refusal there may be important sediment inside the cutting head. H-C decided to postpone processing of Core C1 until Core C2 was collected.
- At 11:48 a.m., the team was advised that the second attempt at location C2 encountered refusal. H-C proceeded with processing of Core C1.
- Details regarding difficulties encountered during processing Core C1 are discussed in Section 2.2.
- At 5:00 p.m., H-C completed processing the samples from Core C1. H-C chose to discard the material from the 36- to 42-inch interval due to possible disturbance and cross contamination from the core catcher. As discussed in Section 2.2, approximately six inches of the lower portion of the sediment core was spilled during processing.
- At 6:18 p.m., H-C began collecting rinse blank samples for W&C and for their own analysis.
- W&C selected the following samples for immediate analysis:
  - C01-SDI-000-006 – First interval
  - C01-SDI-030-036 – Last interval
- The site was secured and W&C demobilized at 7:15 p.m.

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## 4. ACRONYMS AND ABBREVIATIONS

AP	Analytical Perspectives Laboratory
CIL	Cambridge Isotope Laboratories
C-E	Cardno Entrix
Cs137	Cesium 137
CY	Cubic yards
DDx	Pesticides DDD, DDE and DDT
PCDD/F	Dioxin/furans
EDS	Environmental Data Services Limited
FC	Firstenberg Consulting LLC,
GPS	Global Positioning System
H-C	Hart Crowser
JDG	Passaic River Joint Defense Group
LPR	Lower Passaic River
MS/MSD	Matrix spike/matrix spike duplicate samples
MDS	Method development study
NJDEP	New Jersey Department of Environmental Protection
OSI	Ocean Surveys, Inc.
OU-1	Operable Unit 1
OU-2	Operable Unit 2
PPE	Personal protective equipment
ppmv	Parts per million by volume
PID	Photoionization detector
QAPP	Focused Sediment Investigation Work Plan, Quality Assurance Project Plan, Revision 1
RM	River mile
TA	Test America Laboratory
Tierra	Tierra Solutions, Inc.
USEPA	United States Environmental Protection Agency
W&C	Woodard & Curran



Table 1. Sample Summary  
 Focused Sediment Investigation Split-Sample Program  
 Lower Passaic River Study Area

Core	Field Sample ID	Date Collected	Date Processed	Sample Time	Shipped	Top	Bottom	Interval	Instructions	Sample Selection Rationale
A01	A01-SDI-000-006	1/10/2012	1/11/2012	10:30	1/12/2012 17:20	0	6	0-6	Freeze	---
A01	A01-SDI-006-012	1/10/2012	1/11/2012	10:40	1/12/2012 17:20	6	12	6-12	Freeze	---
A01	A01-SDI-012-018	1/10/2012	1/11/2012	10:48	1/12/2012 17:20	12	18	12-18	Freeze	---
A01	A01-SDI-018-024	1/10/2012	1/11/2012	10:57	1/12/2012 17:20	18	24	18-24	Freeze	---
A01	A01-SDI-024-030	1/10/2012	1/11/2012	11:07	1/12/2012 17:20	24	30	24-30	Freeze	---
A01	A01-SDI-030-036	1/10/2012	1/11/2012	11:20	1/12/2012 17:20	30	36	30-36	Freeze	---
A01	A01-SDI-036-042	1/10/2012	1/11/2012	11:35	1/12/2012 17:20	36	42	36-42	Analyze	Elevated PID, odors
A01	A01-SDI-042-048	1/10/2012	1/11/2012	11:48	1/12/2012 17:20	42	48	42-48	Freeze	---
A01	A01-SDI-048-054	1/10/2012	1/11/2012	14:35	1/12/2012 17:20	48	54	48-54	Freeze	---
A01	A01-SDI-054-060	1/10/2012	1/11/2012	14:45	1/12/2012 17:20	54	60	54-60	Freeze	---
A01	A01-SDI-060-066	1/10/2012	1/11/2012	14:55	1/12/2012 17:20	60	66	60-66	Analyze	Elevated PID
A01	A01-SDI-066-072	1/10/2012	1/11/2012	15:08	1/12/2012 17:20	66	72	66-72	Freeze	---
A01	A01-SDI-072-078	1/10/2012	1/11/2012	15:22	1/12/2012 17:20	72	78	72-78	Freeze	---
A01	A01-SDI-078-084	1/10/2012	1/11/2012	15:33	1/12/2012 17:20	78	84	78-84	Freeze	---
A02	A02-SDI-000-006	1/10/2012	1/12/2012	7:05	1/12/2012 16:44	0	6	0-6	Analyze	First Interval
A02	A02-SDI-006-012	1/10/2012	1/12/2012	7:20	1/12/2012 16:44	6	12	6-12	Freeze	---
A02	A02-SDI-012-018	1/10/2012	1/12/2012	7:34	1/12/2012 16:44	12	18	12-18	Freeze	---
A02	A02-SDI-018-024	1/10/2012	1/12/2012	7:44	1/12/2012 16:44	18	24	18-24	Freeze	---
A02	A02-SDI-024-030	1/10/2012	1/12/2012	7:57	1/12/2012 16:44	24	30	24-30	Analyze	Change in Lithology
A02	A02-SDI-030-036	1/10/2012	1/12/2012	8:38	1/12/2012 16:44	30	36	30-36	Freeze	---
A02	A02-SDI-036-042	1/10/2012	1/12/2012	9:04	1/12/2012 16:44	36	42	36-42	Freeze	---
A02	A02-SDI-042-048	1/10/2012	1/12/2012	9:20	1/12/2012 16:44	42	48	42-48	Freeze	---
A02	A02-SDI-048-054	1/10/2012	1/12/2012	9:30	1/12/2012 16:44	48	54	48-54	Freeze	---
A02	A02-SDI-054-060	1/10/2012	1/12/2012	9:50	1/12/2012 16:44	54	60	54-60	Freeze	---
A02	A02-SDI-060-066	1/10/2012	1/12/2012	10:00	1/12/2012 16:44	60	66	60-66	Freeze	---
A02	A02-SDI-066-072	1/10/2012	1/12/2012	10:10	1/12/2012 16:44	66	72	66-72	Freeze	---
A03	A03-SDI-000-006	1/10/2012	1/12/2012	12:11	1/12/2012 16:44	0	6	0-6	Analyze	First Interval
A03	A03-SDI-006-012	1/10/2012	1/12/2012	12:22	1/12/2012 16:44	6	12	6-12	Freeze	---
A03	A03-SDI-012-018	1/10/2012	1/12/2012	12:36	1/12/2012 16:44	12	18	12-18	Analyze	Odors
A03	A03-SDI-018-024	1/10/2012	1/12/2012	12:40	1/12/2012 16:44	18	24	18-24	Freeze	---
A03	A03-SDI-024-030	1/10/2012	1/12/2012	12:52	1/12/2012 16:44	24	30	24-30	Freeze	---
A03	A03-SDI-030-036	1/10/2012	1/12/2012	13:05	1/12/2012 16:44	30	36	30-36	Freeze	---
A03	A03-SDI-036-042	1/10/2012	1/12/2012	13:20	1/12/2012 16:44	36	42	36-42	Freeze	---
A03	A03-SDI-042-048	1/10/2012	1/12/2012	13:39	1/12/2012 16:44	42	48	42-48	Freeze	---
A03	A03-SDI-048-054	1/10/2012	1/12/2012	14:39	1/12/2012 16:44	48	54	48-54	Freeze	---
A03	A03-SDI-054-060	1/10/2012	1/12/2012	14:57	1/12/2012 16:44	54	60	54-60	Freeze	---
A03	A03-SDI-060-066	1/10/2012	1/12/2012	15:10	1/12/2012 16:44	60	66	60-66	Freeze	---
A03	A03-SDI-066-072	1/10/2012	1/12/2012	15:20	1/12/2012 16:44	66	72	66-72	Freeze	---
A03	A03-SDI-072-078	1/10/2012	1/12/2012	15:31	1/12/2012 16:44	72	78	72-78	Freeze	---
A03	A03-SDI-078-084	1/10/2012	1/12/2012	15:43	1/12/2012 16:44	78	84	78-84	Freeze	---
B01	B01-SDI-000-006	1/9/2012	1/10/2012	9:40	1/10/2012 16:39	0	6	0-6	Analyze	First Interval
B01	B01-SDI-006-012	1/9/2012	1/10/2012	10:30	1/10/2012 16:39	6	12	6-12	Freeze	---
B01	B01-SDI-012-018	1/9/2012	1/10/2012	10:45	1/10/2012 16:39	12	18	12-18	Freeze	---
B01	B01-SDI-018-024	1/9/2012	1/10/2012	10:59	1/10/2012 16:39	18	24	18-24	Analyze	Change in Lithology
B01	B01-SDI-024-030	1/9/2012	1/10/2012	11:23	1/10/2012 16:39	24	30	24-30	Freeze	---
B01	B01-SDI-030-036	1/9/2012	1/10/2012	11:36	1/10/2012 16:39	30	36	30-36	Freeze	---
B01	B01-SDI-036-042	1/9/2012	1/10/2012	12:11	1/10/2012 16:39	36	42	36-42	Freeze	---
B01	B01-SDI-042-048	1/9/2012	1/10/2012	12:27	1/10/2012 16:39	42	48	42-48	Freeze	---

Table 1. Sample Summary  
 Focused Sediment Investigation Split-Sample Program  
 Lower Passaic River Study Area

Core	Field Sample ID	Date Collected	Date Processed	Sample Time	Shipped	Top	Bottom	Interval	Instructions	Sample Selection Rationale
B02	B02-SDI-000-006	1/9/2012	1/11/2012	6:31	1/11/2012 17:20	0	6	0-6	Analyze	First Interval
B02	B02-SDI-006-012	1/9/2012	1/11/2012	6:47	1/11/2012 17:20	6	12	6-12	Freeze	---
B02	B02-SDI-012-018	1/9/2012	1/11/2012	6:55	1/11/2012 17:20	12	18	12-18	Freeze	---
B02	B02-SDI-018-024	1/9/2012	1/11/2012	6:58	1/11/2012 17:20	18	24	18-24	Freeze	---
B02	B02-SDI-024-030	1/9/2012	1/11/2012	7:05	1/11/2012 17:20	24	30	24-30	Freeze	---
B02	B02-SDI-030-036	1/9/2012	1/11/2012	7:16	1/11/2012 17:20	30	36	30-36	Freeze	---
B02	B02-SDI-036-042	1/9/2012	1/11/2012	7:22	1/11/2012 17:20	36	42	36-42	Freeze	---
B02	B02-SDI-042-048	1/9/2012	1/11/2012	7:54	1/11/2012 17:20	42	48	42-48	Analyze	Change in Lithology
B02	B02-SDI-048-054	1/9/2012	1/11/2012	9:00	1/11/2012 17:20	48	54	48-54	Freeze	---
B02	B02-SDI-054-060	1/9/2012	1/11/2012	9:07	1/11/2012 17:20	54	60	54-60	Freeze	---
B02	B02-SDI-060-066	1/9/2012	1/11/2012	9:15	1/11/2012 17:20	60	66	60-66	Freeze	---
B02	B02-SDI-066-072	1/9/2012	1/11/2012	9:21	1/11/2012 17:20	66	72	66-72	Freeze	---
C01	C01-SDI-000-006	1/11/2012	1/13/2012	13:14	1/13/2012 18:46	0	6	0-6	Analyze	First Interval
C01	C01-SDI-006-012	1/11/2012	1/13/2012	15:02	1/13/2012 18:46	6	12	6-12	Freeze	---
C01	C01-SDI-012-018	1/11/2012	1/13/2012	15:22	1/13/2012 18:46	12	18	12-18	Freeze	---
C01	C01-SDI-018-024	1/11/2012	1/13/2012	15:35	1/13/2012 18:46	18	24	18-24	Freeze	---
C01	C01-SDI-024-030	1/11/2012	1/13/2012	16:04	1/13/2012 18:46	24	30	24-30	Freeze	---
C01	C01-SDI-030-036	1/11/2012	1/13/2012	16:40	1/13/2012 18:46	30	36	30-36	Analyze	Last interval
QC	RB20111231	1/13/2012	1/13/2012	18:30	1/13/2012 18:46	NA	NA	NA	Analyze	Rinse Blank

Table 2 - Unvalidated Dioxin Congener and DDx Data Summary - Split Samples  
Lower Passaic River Focused Sediment Investigation

Field Sample ID:	A01-SDI-036-042	A01-SDI-060-066	A02-SDI-000-006	A02-SDI-024-030
Core Location:	A1 - RM 10.98	A1 - RM 10.98	A2 - RM 10.92	A2 - RM 10.92
Sample Depth (inches):	36 to 42	60 to 66	0 to 6	24 to 30
Target Northing:	723378.10	723378.10	723193.04	723193.04
Target Easting:	593405.51	593405.51	593175.60	593175.60
Sample Date:	1/11/12	1/11/12	1/12/12	1/12/12
AP Lab Project ID:	A3889	A3889	A3899	A3889
AP Lab Sample ID:	A3900_9459_DF_007	A3900_9459_DF_011	A3901_9543_DF_001-R-R	A3901_9498_DF_005-R
AP Batch No.:	9459	9459	9543	9498
TA Lab Sample ID:	200-00008919-001	200-00008919-002	200-00008914-001	200-00008914-002
Analyte	Units	Conc MDL Q	Conc MDL Q	Conc MDL Q
Analytical Perspectives				
Tetra-Dioxins				
1368D	pg/g	444	634	418
1379D	pg/g	[89.4]	50	110
1369D	pg/g	<21.5 21.5	<13.2 13.2	8.88
1469D	pg/g	<21.5 21.5	<13.2 13.2	<0.154 0.154
1247D	pg/g	[24.3]	<13.2 13.2	28.3
1378D	pg/g	597	222	601
1268D	pg/g	<21.5 21.5	<13.2 13.2	10.3
1478D	pg/g	[34.9]	<13.2 13.2	31.1
1279D	pg/g	<21.5 21.5	<13.2 13.2	8.96
1234/1269D	pg/g	<21.5 21.5	<13.2 13.2	9.13
1236D	pg/g	<21.5 21.5	<13.2 13.2	3.27
1237/1238D	pg/g	57.4	21.4	60.5
1239D	pg/g	<21.5 21.5	<13.2 13.2	<0.154 0.154
2378D	pg/g	20100	11600	27000 E
1278D	pg/g	<21.5 21.5	<13.2 13.2	121
1267D	pg/g	<21.5 21.5	<13.2 13.2	<0.154 0.154
1289D	pg/g	<21.5 21.5	<13.2 13.2	<0.154 0.154
Total	pg/g	21,200	12,500	28,400
EMPC	pg/g	21,300	12,500	28,400
Penta-Dioxins				
12479/12468D	pg/g	148	89.2	132
12469D	pg/g	<30.3 30.3	<30.5 30.5	12.8
12368D	pg/g	85.3 J	80.3 J	90.6
12478D	pg/g	95.2 J	[19.5] J	68.2
12379D	pg/g	[29.5] J	<30.5 30.5	34
12369D	pg/g	<30.3 30.3	<30.5 30.5	32.9
12346/12347D	pg/g	25.9 J	<30.5 30.5	20.6
12378D	pg/g	[59.9] J	[19.4] J	63.8
12367D	pg/g	15.2 J	<30.5 30.5	9.99
12389D	pg/g	<30.3 30.3	<30.5 30.5	13.2
Total	pg/g	370	170	479
EMPC	pg/g	459	208	479
Hexa-Dioxins				
124679/124689D	pg/g	263	195	256
123468D	pg/g	110 J	60.6 J	98
123679/123689D	pg/g	555	[325]	461
123469D	pg/g	[34.8] J	<20.1 20.1	20
123478D	pg/g	[38.9] J	<20.4 20.4	35.2
123678D	pg/g	183	116	189
123467D	pg/g	41.3 J	<20.1 20.1	27.6
123789D	pg/g	[77.2] J	43.2 J	86.6
Total	pg/g	1,150	415	1,170
EMPC	pg/g	1,300	740	1,170
Octa-Dioxin				
OCDD	pg/g	31200	41800	28500 E
ITEF TEQs				
TEQ: ND=0	pg/g	Conc. EMPC	Conc. EMPC	Conc. EMPC
TEQ: ND=DL/2	pg/g	20,500 20,600	11,800 11,800	27,300 27,300
TEQ: ND=DL	pg/g	20,600 20,600	11,800 11,800	27,300 27,300
Total PCDD/Fs	pg/g	98,700 99,800	83,100 84,000	103,000 103,000

Table 2 - Unvalidated Dioxin Congener and DDx Data Summary - Split Samples  
Lower Passaic River Focused Sediment Investigation

Field Sample ID:	A01-SDI-036-042	A01-SDI-060-066	A02-SDI-000-006	A02-SDI-024-030
Core Location:	A1 - RM 10.98	A1 - RM 10.98	A2 - RM 10.92	A2 - RM 10.92
Sample Depth (inches):	36 to 42	60 to 66	0 to 6	24 to 30
Target Northing:	723378.10	723378.10	723193.04	723193.04
Target Easting:	593405.51	593405.51	593175.60	593175.60
Sample Date:	1/11/12	1/11/12	1/12/12	1/12/12
AP Lab Project ID:	A3889	A3889	A3899	A3889
AP Lab Sample ID:	A3900_9459_DF_007	A3900_9459_DF_011	A3901_9543_DF_001-R-R	A3901_9498_DF_005-R
AP Batch No.:	9459	9459	9543	9498
TA Lab Sample ID:	200-00008919-001	200-00008919-002	200-00008914-001	200-00008914-002
Analyte	Units	Conc MDL Q	Conc MDL Q	Conc MDL Q
Tetra-Furans				
1368F	pg/g	70	31.1	63.3
1468F	pg/g	138	80.4	158
2468F	pg/g	669	384	888
1346/1246F	pg/g	183	61.4	214
1347F	pg/g	249	42	293
1348F	pg/g	<11.8 11.8	<11.5 11.5	<0.899 0.899
1248F	pg/g	2700	549	3450 E
1268F	pg/g	359	279	465
1467F	pg/g	[63.6]	<11.5 11.5	48.5
1478F	pg/g	[98.6]	[38]	108
1369/1237F	pg/g	<11.8 11.8	<11.5 11.5	13.1
2467F	pg/g	[45.1]	[23.1]	55.4
2368F	pg/g	1080	332	967
1238F	pg/g	1300	319	2130 E
1278F	pg/g	119	[145]	142
1349F	pg/g	<11.8 11.8	<11.5 11.5	<0.899 0.899
1267F	pg/g	<11.8 11.8	23.2	30.5
2346/1249F	pg/g	307	48	422
2347/1279F	pg/g	83.4	<11.5 11.5	42.9
2348F	pg/g	3560	732	4460 E
2378F	pg/g	253	323	217
2367/3467F	pg/g	118	60.7	97
1269F	pg/g	<11.8 11.8	<11.5 11.5	16.5
1239F	pg/g	<11.8 11.8	<11.5 11.5	18.9
1289F	pg/g	[89.9]	64.9	[58.7]
Total	pg/g	11,200	3,330	14,300
EMPC	pg/g	11,500	3,540	14,400
Penta-Furans				
13468/12468F	pg/g	2390	1420	2210
13678F	pg/g	139	53 J	136
12368F	pg/g	1460	424	1480
14678F	pg/g	<25.5 25.5	<16.8 16.8	57.1
13479F	pg/g	<25.5 25.5	<16.8 16.8	<0.883 0.883
13469/12479F	pg/g	<25.5 25.5	<16.8 16.8	14.5
12346F	pg/g	31.2 J	<16.8 16.8	25.4
23468/12469F	pg/g	2480	555	3100
12347F	pg/g	136	<16.8 16.8	<0.883 0.883
12348F	pg/g	486	68.9 J	508
12378F	pg/g	78.8 J	<17.3 17.3	67.6
12678/12367F	pg/g	163	[77.6] J	134
12379F	pg/g	<25.5 25.5	<16.8 16.8	<0.883 0.883
12679F	pg/g	<25.5 25.5	<16.8 16.8	<0.883 0.883
23467/12369F	pg/g	[45.1] J	[16.2] J	37.9
23478F	pg/g	295	150	<0.869 0.869
23478/12489F	pg/g	<25.5 25.5	<16.2 16.2	<0.869 0.869
12489F	pg/g	<25.5 25.5	<16.8 16.8	255
12349F	pg/g	<25.5 25.5	<16.8 16.8	3.4
12389F	pg/g	<25.5 25.5	<16.8 16.8	3.94
Total	pg/g	7,650	2,670	8,030
EMPC	pg/g	7,700	2,760	8,030

Table 2 - Unvalidated Dioxin Congener and DDx Data Summary - Split Samples  
Lower Passaic River Focused Sediment Investigation

Field Sample ID:	A01-SDI-036-042	A01-SDI-060-066	A02-SDI-000-006	A02-SDI-024-030
Core Location:	A1 - RM 10.98	A1 - RM 10.98	A2 - RM 10.92	A2 - RM 10.92
Sample Depth (inches):	36 to 42	60 to 66	0 to 6	24 to 30
Target Northing:	723378.10	723378.10	723193.04	723193.04
Target Easting	593405.51	593405.51	593175.60	593175.60
Sample Date	1/11/12	1/11/12	1/12/12	1/12/12
AP Lab Project ID:	A3889	A3889	A3899	A3889
AP Lab Sample ID:	A3900_9459_DF_007	A3900_9459_DF_011	A3901_9543_DF_001-R-R	A3901_9498_DF_005-R
AP Batch No.:	9459	9459	9543	9498
TA Lab Sample ID:	200-00008919-001	200-00008919-002	200-00008914-001	200-00008914-002
Analyte	Units	Conc MDL Q	Conc MDL Q	Conc MDL Q
Hepta-Furans				
1234678F	pg/g	4870	1820	3440
1234679F	pg/g	143	<27.2 27.2	99
1234689F	pg/g	1860	4460	1770
1234789F	pg/g	171	<33.4 33.4	135
Total	pg/g	7,040	6,270	5,440
EMPC	pg/g	7,040	6,270	5,440
Octa-Furan				
OCDF	pg/g	9390	6260	7820
Test America Data				
PESTICIDES/PCBs				
2,4'-DDD	mg/kg	0.049 0.00064	0.21 0.0097	0.022 0.00043
2,4'-DDE	mg/kg	0.09 0.00069 p	0.16 0.01 p	0.07 0.00047 E p
2,4'-DDT	mg/kg	0.016 0.00081	0.067 0.012	0.011 0.00055
4,4'-DDD	mg/kg	0.11 0.00047 E	0.61 0.0071	0.066 0.00032 E
4,4'-DDE	mg/kg	0.3 0.0005 E p	0.48 0.0075	0.25 0.00034 E
4,4'-DDT	mg/kg	0.043 0.00069 p	4.1 0.01 E	0.049 0.00047 p
WET CHEMISTRY				
Percent Solids	%	40.4 0.25	54.7 0.25	36.7 0.25

Note:

pg/g Picograms per gram

mg/kg Milligrams per kilogram

% Percent

ITEF International Toxic Equivalent Factors

TEQ Toxic Equivalent

[ ] or EMPC Estimated Maximum Possible Concentration

Conc Reported concentration

MDL Method detection limit

< Less than method detection limit indicated

Q Laboratory data qualifier

J Estimated concentration

p The %RPD between the primary and confirmation column/detector is >40%. The lower value is reported.

E Reported concentration exceeds the calibration range

Table 2 - Unvalidated Dioxin Congener and DDX Data Summary - Split Samples  
Lower Passaic River Focused Sediment Investigation

Field Sample ID:	A03-SDI-000-006	A03-SDI-012-018	B01-SDI-000-006	B01-SDI-018-024
Core Location:	A3 - RM 10.87	A3 - RM 10.87	B1 - RM 11.49	B1 - RM 11.49
Sample Depth (inches):	0 to 6	12 to 18	0 to 6	18 to 24
Target Northing:	723107.84	723107.84	724482.53	724482.53
Target Easting	592915.84	592915.84	595821.83	595821.83
Sample Date	1/12/12	1/12/12	1/10/12	1/10/12
AP Lab Project ID:	A3889	A3889	A3889	A3889
AP Lab Sample ID:	A3902_9459_DF_001	A3902_9459_DF_003	A3889_9498_DF_001-R	A3889_9498_DF_004-R
AP Batch No.:	9459	9459	9498	9498
TA Lab Sample ID:	200-00008914-003	200-00008914-004	200-00008825-001	200-00008825-002
Analyte	Units	Conc MDL Q	Conc MDL Q	Conc MDL Q
Analytical Perspectives				
Tetra-Dioxins				
1368D	pg/g	[357]	414	8.33
1379D	pg/g	[96.6]	87.4	2.67
1369D	pg/g	<23.3 23.3	<17.5 17.5	<0.299 0.299
1469D	pg/g	<23.3 23.3	<17.5 17.5	<0.299 0.299
1247D	pg/g	[32.4]	[80.1]	[0.456] J
1378D	pg/g	554	1070	[0.892]
1268D	pg/g	<23.3 23.3	<17.5 17.5	0.294 J
1478D	pg/g	<23.3 23.3	148	<0.299 0.299
1279D	pg/g	<23.3 23.3	<17.5 17.5	<0.299 0.299
1234/1269D	pg/g	<23.3 23.3	<17.5 17.5	[0.417] J
1236D	pg/g	<23.3 23.3	<17.5 17.5	<0.299 0.299
1237/1238D	pg/g	44.7	58.7	4.68
1239D	pg/g	<23.3 23.3	<17.5 17.5	<0.299 0.299
2378D	pg/g	17300	6530	11.1
1278D	pg/g	<23.3 23.3	195	[0.204] J
1267D	pg/g	<23.3 23.3	<17.5 17.5	<0.299 0.299
1289D	pg/g	<23.3 23.3	<17.5 17.5	<0.299 0.299
Total	pg/g	17,900	8,490	27.1
EMPC	pg/g	18,400	8,570	29
Penta-Dioxins				
12479/12468D	pg/g	[113]	[113]	4
12469D	pg/g	<39.9 39.9	<31.7 31.7	<0.422 0.422
12368D	pg/g	76.3 J	62.9 J	2.01 J
12478D	pg/g	[60.2] J	367	1.38 J
12379D	pg/g	<39.9 39.9	<31.7 31.7	1.01 J
12369D	pg/g	<39.9 39.9	<31.7 31.7	[0.84] J
12346/12347D	pg/g	<39.9 39.9	<31.7 31.7	[0.53] J
12378D	pg/g	[40.3] J	97.7 J	[0.904] J
12367D	pg/g	<39.9 39.9	<31.7 31.7	<0.422 0.422
12389D	pg/g	<39.9 39.9	<31.7 31.7	<0.422 0.422
Total	pg/g	76.3	528	8.39
EMPC	pg/g	290	641	10.7
Hexa-Dioxins				
124679/124689D	pg/g	231	249	10.2
123468D	pg/g	[76.6] J	78.9 J	2.62
123679/123689D	pg/g	414	427	13.2
123469D	pg/g	<30.5 30.5	38.6 J	[0.972] J
123478D	pg/g	42.3 J	31.7 J	[0.945] J
123678D	pg/g	144	123	4.15
123467D	pg/g	<30.5 30.5	<27.3 27.3	0.732 J
123789D	pg/g	[63.8] J	48 J	2.49
Total	pg/g	832	996	33.4
EMPC	pg/g	972	996	35.4
Octa-Dioxin				
OCDD	pg/g	25300	31900	1040
ITEF TEQs				
TEQ: ND=0	pg/g	17,600	6,850	16.7
TEQ: ND=DL/2	pg/g	17,700	6,850	16.8
TEQ: ND=DL	pg/g	17,700	6,850	17
Total PCDD/Fs	pg/g	76,000	65,200	1,690
EMPC				
EMPC				

Table 2 - Unvalidated Dioxin Congener and DDx Data Summary - Split Samples  
Lower Passaic River Focused Sediment Investigation

Field Sample ID:	A03-SDI-000-006	A03-SDI-012-018	B01-SDI-000-006	B01-SDI-018-024
Core Location:	A3 - RM 10.87	A3 - RM 10.87	B1 - RM 11.49	B1 - RM 11.49
Sample Depth (inches):	0 to 6	12 to 18	0 to 6	18 to 24
Target Northing:	723107.84	723107.84	724482.53	724482.53
Target Easting	592915.84	592915.84	595821.83	595821.83
Sample Date	1/12/12	1/12/12	1/10/12	1/10/12
AP Lab Project ID:	A3889	A3889	A3889	A3889
AP Lab Sample ID:	A3902_9459_DF_001	A3902_9459_DF_003	A3889_9498_DF_001-R	A3889_9498_DF_004-R
AP Batch No.:	9459	9459	9498	9498
TA Lab Sample ID:	200-00008914-003	200-00008914-004	200-00008825-001	200-00008825-002
Analyte	Units	Conc MDL Q	Conc MDL Q	Conc MDL Q
<b>Tetra-Furans</b>				
1368F	pg/g	<22.2 22.2	47	1.17
1468F	pg/g	123	118	1.73
2468F	pg/g	744	383	6.53
1346/1246F	pg/g	220	116	2.06
1347F	pg/g	233	177	2.47
1348F	pg/g	<22.2 22.2	<15.4 15.4	<0.365 0.365
1248F	pg/g	<22.2 22.2	926	8.13
1268F	pg/g	430	243	5.03
1467F	pg/g	<22.2 22.2	81	1.53
1478F	pg/g	[132]	121	3.14
1369/1237F	pg/g	<22.2 22.2	<15.4 15.4	[0.389] J
2467F	pg/g	<22.2 22.2	[47.1]	[1.4]
2368F	pg/g	2550	444	6.38
1238F	pg/g	<22.2 22.2	1080	3.26
1278F	pg/g	129	95.5	3.59
1349F	pg/g	<22.2 22.2	<15.4 15.4	<0.365 0.365
1267F	pg/g	<22.2 22.2	<15.4 15.4	1.2
2346/1249F	pg/g	340	179	[1.34]
2347/1279F	pg/g	<22.2 22.2	[28.7]	0.934
2348F	pg/g	3480	1430	3.94
2378F	pg/g	384	136	5.06
2367/3467F	pg/g	[95.6]	[101]	3.35
1269F	pg/g	<22.2 22.2	<15.4 15.4	<0.365 0.365
1239F	pg/g	<22.2 22.2	<15.4 15.4	<0.365 0.365
1289F	pg/g	99.4	55	[1.67]
Total	pg/g	8,730	5,630	59.5
EMPC	pg/g	8,960	5,810	64.3
<b>Penta-Furans</b>				
13468/12468F	pg/g	1940	1130	36.7
13678F	pg/g	89.3 J	137	3.97
12368F	pg/g	1340	965	17.6
14678F	pg/g	<27.2 27.2	<19.8 19.8	<0.309 0.309
13479F	pg/g	<27.2 27.2	<19.8 19.8	<0.309 0.309
13469/12479F	pg/g	<27.2 27.2	<19.8 19.8	0.68 J
12346F	pg/g	<27.2 27.2	[16.4] J	0.69 J
23468/12469F	pg/g	2600	1200	6.57
12347F	pg/g	<27.2 27.2	<19.8 19.8	0.655 J
12348F	pg/g	471	259	1.11 J
12378F	pg/g	<27.1 27.1	59.5 J	[1.41] J
12678/12367F	pg/g	125	97.6 J	3.11
12379F	pg/g	<27.2 27.2	<19.8 19.8	<0.309 0.309
12679F	pg/g	<27.2 27.2	<19.8 19.8	<0.309 0.309
23467/12369F	pg/g	<27.2 27.2	[32.6] J	1.51 J
23478F	pg/g	231	180	1.14 J
23478/12489F	pg/g	<27.3 27.3	<18.4 18.4	<0.295 0.295
12489F	pg/g	<27.2 27.2	<19.8 19.8	<0.309 0.309
12349F	pg/g	<27.2 27.2	<19.8 19.8	<0.309 0.309
12389F	pg/g	<27.2 27.2	<19.8 19.8	<0.309 0.309
Total	pg/g	6,790	4,020	73.7
EMPC	pg/g	6,790	4,070	75.1

Table 2 - Unvalidated Dioxin Congener and DDx Data Summary - Split Samples  
Lower Passaic River Focused Sediment Investigation

Field Sample ID:	A03-SDI-000-006	A03-SDI-012-018	B01-SDI-000-006	B01-SDI-018-024
Core Location:	A3 - RM 10.87	A3 - RM 10.87	B1 - RM 11.49	B1 - RM 11.49
Sample Depth (inches):	0 to 6	12 to 18	0 to 6	18 to 24
Target Northing:	723107.84	723107.84	724482.53	724482.53
Target Easting	592915.84	592915.84	595821.83	595821.83
Sample Date	1/12/12	1/12/12	1/10/12	1/10/12
AP Lab Project ID:	A3889	A3889	A3889	A3889
AP Lab Sample ID:	A3902_9459_DF_001	A3902_9459_DF_003	A3889_9498_DF_001-R	A3889_9498_DF_004-R
AP Batch No.:	9459	9459	9498	9498
TA Lab Sample ID:	200-00008914-003	200-00008914-004	200-00008825-001	200-00008825-002
Analyte	Units	Conc MDL Q	Conc MDL Q	Conc MDL Q
Hepta-Furans				
1234678F	pg/g	2760	1710	39.6
1234679F	pg/g	<34.1 34.1	74.2 J	[1.3] J
1234689F	pg/g	1480	1410	51.5
1234789F	pg/g	[112]	<45.6 45.6	2.44
Total	pg/g	4,240	3,190	93.6
EMPC	pg/g	4,350	3,190	94.9
Octa-Furan				
OCDF	pg/g	4900	2980	81.5
Test America Data				
PESTICIDES/PCBs				
2,4'-DDD	mg/kg	0.014 0.00024 p	0.037 0.00058	0.0051 0.000068 p
2,4'-DDE	mg/kg	0.031 0.00026 p	0.078 0.00062 p	0.0023 0.000073 p
2,4'-DDT	mg/kg	0.0043 0.0003 p	0.012 0.00073 p	0.0032 0.000086
4,4'-DDD	mg/kg	0.027 0.00017	0.07 0.00043	0.016 0.00005 E
4,4'-DDE	mg/kg	0.1 0.00018 E	0.25 0.00045 E p	0.0057 0.000053
4,4'-DDT	mg/kg	0.017 0.00026 p	0.031 0.00062 p	0.0096 0.000073 p
WET CHEMISTRY				
Percent Solids	%	43.9 0.25	44.6 0.25	74.4 0.25

Note:

pg/g Picograms per gram

mg/kg Milligrams per kilogram

% Percent

ITEF International Toxic Equivalent Factors

TEQ Toxic Equivalent

[ ] or EMPC Estimated Maximum Possible Concentration

Conc Reported concentration

MDL Method detection limit

< Less than method detection limit indicated

Q Laboratory data qualifier

J Estimated concentration

p The %RPD between the primary and confirmation column/detector is >40%. The lower value is reported.

E Reported concentration exceeds the calibration range

0



Table 2 - Unvalidated Dioxin Congener and DDx Data Summary - Split Samples  
Lower Passaic River Focused Sediment Investigation

Field Sample ID:	B02-SDI-000-006	B02-SDI-042-048	C01-SDI-000-006	C01-SDI-030-036
Core Location:	B2 - RM 11.44	B2 - RM 11.44	C1 - RM 7.80	C1 - RM 7.80
Sample Depth (inches):	0 to 6	42 to 48	0 to 6	30 to 36
Target Northing:	724299.51	724299.51	708051.18	708051.18
Target Easting:	595629.74	595629.74	588849.01	588849.01
Sample Date:	1/11/12	1/11/12	1/13/12	1/13/12
AP Lab Project ID:	A3899	A3899	A3889	A3889
AP Lab Sample ID:	A3899_9543_DF_001-R-R	A3899_9543_DF_008-R-R	A3906_9498_DF_001-R	A3906_9498_DF_006-R
AP Batch No.:	9543	9543	9498	9498
TA Lab Sample ID:	200-00008917-001	200-00008917-002	200-00008897-001	200-00008897-002
Analyte	Units	Conc MDL Q	Conc MDL Q	Conc MDL Q
Analytical Perspectives				
Tetra-Dioxins				
1368D	pg/g	3.85	264	82.7
1379D	pg/g	1.17	6.03	20
1369D	pg/g	0.145 J	1.12	4.86
1469D	pg/g	<0.0992 0.0992	<0.0719 0.0719	<0.43 0.43
1247D	pg/g	0.321 J	5.41	14.3
1378D	pg/g	0.58	4.15	89.6
1268D	pg/g	[0.0887] J	1.19	3.83
1478D	pg/g	<0.0992 0.0992	0.566	14.1
1279D	pg/g	0.118 J	1.39	3.23
1234/1269D	pg/g	[0.152] J	0.778	3.5
1236D	pg/g	<0.0992 0.0992	2.22	<0.43 0.43
1237/1238D	pg/g	2.52	15.7	27.7
1239D	pg/g	<0.0992 0.0992	0.433 J	<0.43 0.43
2378D	pg/g	7.17	11.5	835
1278D	pg/g	[0.12] J	1.24	17.7
1267D	pg/g	<0.0992 0.0992	<0.0719 0.0719	<0.43 0.43
1289D	pg/g	<0.0992 0.0992	0.515	<0.43 0.43
Total	pg/g	15.9	316	1,120
EMPC	pg/g	16.2	316	1,120
Penta-Dioxins				
12479/12468D	pg/g	2.16 J	21.3	44.6
12469D	pg/g	[0.31] J	2.14 J	7.31
12368D	pg/g	0.998 J	22.1	25.8
12478D	pg/g	0.555 J	7.02	45.2
12379D	pg/g	0.544 J	5.28	12.5
12369D	pg/g	0.573 J	6.11	13.2
12346/12347D	pg/g	0.272 J	2.7	7.13
12378D	pg/g	0.569 J	5.14	18.6
12367D	pg/g	<0.122 0.122	1.34 J	3.16
12389D	pg/g	0.223 J	2.09 J	3.35
Total	pg/g	5.9	75.2	181
EMPC	pg/g	6.21	75.2	181
Hexa-Dioxins				
124679/124689D	pg/g	4.6	32.2	99.6
123468D	pg/g	1.31 J	12.6	39.2
123679/123689D	pg/g	6.94	67.2	159
123469D	pg/g	0.623 J	2.49 J	7.84
123478D	pg/g	0.576 J	3.95	12.4
123678D	pg/g	2.17 J	17.8	48.2
123467D	pg/g	[0.327] J	2.96	7.76
123789D	pg/g	1.57 J	9.76	27.7
Total	pg/g	17.8	149	402
EMPC	pg/g	18.1	149	402
Octa-Dioxin				
OCDD	pg/g	439	2530	12200 E
ITEF TEQs				
TEQ: ND=0	pg/g	Conc. 9.95 EMPC 9.96	Conc. 37.4 EMPC 37.4	Conc. 973 EMPC 973
TEQ: ND=DL/2	pg/g	9.97 9.98	37.5 37.5	973 973
TEQ: ND=DL	pg/g	10 10	37.5 37.5	973 973
Total PCDD/Fs	pg/g	747 754	6,540 6,540	22,500 22,600

Table 2 - Unvalidated Dioxin Congener and DDx Data Summary - Split Samples  
Lower Passaic River Focused Sediment Investigation

Field Sample ID:	B02-SDI-000-006	B02-SDI-042-048	C01-SDI-000-006	C01-SDI-030-036
Core Location:	B2 - RM 11.44	B2 - RM 11.44	C1 - RM 7.80	C1 - RM 7.80
Sample Depth (inches):	0 to 6	42 to 48	0 to 6	30 to 36
Target Northing:	724299.51	724299.51	708051.18	708051.18
Target Easting:	595629.74	595629.74	588849.01	588849.01
Sample Date:	1/11/12	1/11/12	1/13/12	1/13/12
AP Lab Project ID:	A3899	A3899	A3889	A3889
AP Lab Sample ID:	A3899_9543_DF_001-R-R	A3899_9543_DF_008-R-R	A3906_9498_DF_001-R	A3906_9498_DF_006-R
AP Batch No.:	9543	9543	9498	9498
TA Lab Sample ID:	200-00008917-001	200-00008917-002	200-00008897-001	200-00008897-002
Analyte	Units	Conc MDL Q	Conc MDL Q	Conc MDL Q
<b>Tetra-Furans</b>				
1368F	pg/g	0.556	5.28	17.6
1468F	pg/g	0.979	16.8	25.3
2468F	pg/g	3.76	102	75.8
1346/1246F	pg/g	0.865	8.01	26.2
1347F	pg/g	1.46	10.9	56.1
1348F	pg/g	0.49	4.58	<0.494 0.494
1248F	pg/g	3.86	52.9	197
1268F	pg/g	2.58	79.4	55.6
1467F	pg/g	0.796	5.04	17.5
1478F	pg/g	1.34	9.73	34.1
1369/1237F	pg/g	0.231 J	2.26	7.72
2467F	pg/g	0.67	<0.208 0.208	16.4
2368F	pg/g	3.39	71.4	83.5
1238F	pg/g	[1.63]	12	160
1278F	pg/g	1.54	16.4	31.8
1349F	pg/g	<0.121 0.121	<0.208 0.208	<0.494 0.494
1267F	pg/g	0.551	4.4	11.8
2346/1249F	pg/g	0.623	3.93	28.7
2347/1279F	pg/g	0.385 J	3.3	18.3
2348F	pg/g	2.69	12.4	214
2378F	pg/g	2.45	13.7	44.2
2367/3467F	pg/g	1.66	11.5	34.8
1269F	pg/g	0.211 J	2.06	6.33
1239F	pg/g	<0.121 0.121	0.279 J	1.13
1289F	pg/g	0.987	16.7	[11.9]
Total	pg/g	32.1	465	1,160
EMPC	pg/g	33.7	465	1,180
<b>Penta-Furans</b>				
13468/12468F	pg/g	21.9	492	272
13678F	pg/g	2.02 J	20.5	61.8
12368F	pg/g	8.92	201	226
14678F	pg/g	0.995 J	9.39	21.5
13479F	pg/g	<0.0748 0.0748	<0.194 0.194	6.88
13469/12479F	pg/g	[0.307] J B	3.03	7.14
12346F	pg/g	0.193 J	1.86 J	8.89
23468/12469F	pg/g	3.75	67.7	189
12347F	pg/g	[0.331] J	3.06	22.7
12348F	pg/g	0.608 J	6.3	49.9
12378F	pg/g	0.784 J	7.83	26.1
12678/12367F	pg/g	[1.32] J	26.2	44.4
12379F	pg/g	<0.0748 0.0748	0.459 J	<0.601 0.601
12679F	pg/g	<0.0748 0.0748	0.892 J	1.76 J
23467/12369F	pg/g	0.738 J	6.15	20.8
23478F	pg/g	<0.0739 0.0739	<0.182 0.182	74.4
23478/12489F	pg/g	<0.0739 0.0739	<0.182 0.182	<0.569 0.569
12489F	pg/g	3.42	87.7	<0.601 0.601
12349F	pg/g	<0.0748 0.0748	<0.194 0.194	<0.601 0.601
12389F	pg/g	<0.0748 0.0748	1.13 J	1.58 J
Total	pg/g	43.3	935	1,040
EMPC	pg/g	45.3	935	1,040

Table 2 - Unvalidated Dioxin Congener and DDx Data Summary - Split Samples  
Lower Passaic River Focused Sediment Investigation

Field Sample ID:	B02-SDI-000-006	B02-SDI-042-048	C01-SDI-000-006	C01-SDI-030-036
Core Location:	B2 - RM 11.44	B2 - RM 11.44	C1 - RM 7.80	C1 - RM 7.80
Sample Depth (inches):	0 to 6	42 to 48	0 to 6	30 to 36
Target Northing:	724299.51	724299.51	708051.18	708051.18
Target Easting:	595629.74	595629.74	588849.01	588849.01
Sample Date:	1/11/12	1/11/12	1/13/12	1/13/12
AP Lab Project ID:	A3899	A3899	A3889	A3889
AP Lab Sample ID:	A3899_9543_DF_001-R-R	A3899_9543_DF_008-R-R	A3906_9498_DF_001-R	A3906_9498_DF_006-R
AP Batch No.:	9543	9543	9498	9498
TA Lab Sample ID:	200-00008917-001	200-00008917-002	200-00008897-001	200-00008897-002
Analyte	Units	Conc MDL Q	Conc MDL Q	Conc MDL Q
Hepta-Furans				
1234678F	pg/g	17.1	328	1200
1234679F	pg/g	0.639 J	10.9	33.8
1234689F	pg/g	21.3	294	432
1234789F	pg/g	[0.933] J	11	38.7
Total	pg/g	39.1	644	1,700
EMPC	pg/g	40	644	1,700
Octa-Furan				
OCDF	pg/g	31.7	267	1640
Test America Data				
PESTICIDES/PCBs				
2,4'-DDD	mg/kg	0.0069 0.000068 p	0.015 0.00015 p	0.0093 0.00015 p
2,4'-DDE	mg/kg	0.0032 0.000073 p	0.017 0.00016 p	0.0092 0.00016 p
2,4'-DDT	mg/kg	0.0019 0.000086 p	0.0032 0.00019	0.0069 0.00019
4,4'-DDD	mg/kg	0.0059 0.00005	0.032 0.00011 E	0.024 0.00011 E
4,4'-DDE	mg/kg	0.0038 0.000053 p	0.084 0.00012 E	0.017 0.00012 p
4,4'-DDT	mg/kg	0.01 0.000073 p	0.017 0.00016	0.047 0.00016 E
WET CHEMISTRY				
Percent Solids	%	77.9 0.25	69.5 0.25	35.1 0.25

Note:

pg/g Picograms per gram

mg/kg Milligrams per kilogram

% Percent

ITEF International Toxic Equivalent Factors

TEQ Toxic Equivalent

[ ] or EMPC Estimated Maximum Possible Concentration

Conc Reported concentration

MDL Method detection limit

< Less than method detection limit indicated

Q Laboratory data qualifier

J Estimated concentration

p The %RPD between the primary and confirmation column/detector is >40%. The lower value is reported.

E Reported concentration exceeds the calibration range

0

Table 2. Unvalidated Dioxin Toxic Equivalent Data Summary - Split Samples  
Lower Passaic River Focused Sediment Investigation

Field Sample ID:	A01-SDI-036-042						A01-SDI-060-066						A02-SDI-000-006						
Core Location:	A1 - RM 10.98						A1 - RM 10.98						A2 - RM 10.92						
Sample Depth (inches):	36 to 42						60 to 66						0 to 6						
Target Northing:	723378.10						723378.10						723193.04						
Target Easting	593405.51						593405.51						593175.60						
Sample Date:	1/11/12						1/11/12						n/a						
AP Lab Project ID:	A3889						A3889						A3899						
AP Lab Sample ID:	A3900_9459_DF_007						A3900_9459_DF_011						A3901_9543_DF_001-R-R						
AP Batch No.:	9459						9459						9543						
Analyte	Units	Result	Q	DLs	I-TEQ	WHO-1998	WHO-2005	Result	Q	DLs	I-TEQ	WHO-1998	WHO-2005	Result	Q	DLs	I-TEQ	WHO-1998	WHO-2005
2378-TCDD	pg/g	20100		21.5	20100	20100	20100	11600		13.2	11600	11600	11600	27000	E	0.154	27000	27000	27000
12378-PeCDD	pg/g	[59.9]	J	30.3	[29.9]	[59.9]	[59.9]	[19.4]	J	30.5	[9.71]	[19.4]	[19.4]	63.8		0.368	31.9	63.8	63.8
123478-HxCDD	pg/g	[38.9]	J	22.9	[3.89]	[3.89]	[3.89]	<20.4		20.4	<2.04	<2.04	<2.04	35.2		0.783	3.52	3.52	3.52
123678-HxCDD	pg/g	183		21.6	18.3	18.3	18.3	116		16.2	11.6	11.6	11.6	189		0.823	18.9	18.9	18.9
123789-HxCDD	pg/g	[77.2]	J	23.5	[7.72]	[7.72]	[7.72]	43.2	J	25.1	4.32	4.32	4.32	86.6		0.801	8.66	8.66	8.66
1234678-HpCDD	pg/g	2910		29.5	29.1	29.1	29.1	4010		27	40.1	40.1	40.1	2540		0.516	25.4	25.4	25.4
OCDD		31200		36.6	31.2	3.12	9.36	41800		57.6	41.8	4.18	12.5	28500	E	0.232	28.5	2.85	8.54
2378-TCDF	pg/g	253		11.8	25.3	25.3	25.3	323		11.5	32.3	32.3	32.3	217		0.899	21.7	21.7	21.7
12378-PeCDF	pg/g	78.8	J	25.5	3.94	3.94	2.36	<17.3		17.3	<0.865	<0.865	<0.519	67.6		0.898	3.38	3.38	2.03
23478-PeCDF	pg/g	295		25.5	148	148	88.5	150		16.2	75.1	75.1	45	<0.869		0.869	<0.435	<0.435	<0.261
123478-HxCDF	pg/g	1260		21.7	126	126	126	[174]		15.7	[17.4]	[17.4]	[17.4]	815		0.809	81.5	81.5	81.5
123678-HxCDF	pg/g	[218]		20.8	[21.8]	[21.8]	[21.8]	[77.7]	J	15	[7.77]	[7.77]	[7.77]	201		0.825	20.1	20.1	20.1
234678-HxCDF	pg/g	176		18.7	17.6	17.6	17.6	73.2	J	15.3	7.32	7.32	7.32	144		0.964	14.4	14.4	14.4
123789-HxCDF	pg/g	<31.3		31.3	<3.13	<3.13	<3.13	<25		25	<2.5	<2.5	<2.5	<0.93		0.93	<0.093	<0.093	<0.093
1234678-HpCDF	pg/g	4870		24.3	48.7	48.7	48.7	1820		21.7	18.2	18.2	18.2	3440		1.12	34.4	34.4	34.4
1234789-HpCDF	pg/g	171		38.1	1.71	1.71	1.71	<33.4		33.4	<0.334	<0.334	<0.334	135		1.6	1.35	1.35	1.35
OCDF		9390		34.2	9.39	0.939	2.82	6260		49.8	6.26	0.626	1.88	7820		0.278	7.82	0.782	2.35
TEQ Summaries																			
EMPC = 0, ND = 0	pg/g	20500 20500 20500						11800 11800 11700						27300 27300 27300					
EMPC = 0, ND = DL / 2	pg/g	20600 20500 20500						11800 11800 11800						27300 27300 27300					
EMPC = 0, ND = DL	pg/g	20600 20500 20500						11800 11800 11800						27300 27300 27300					
EMPC = 0, < J-level = 0	pg/g	20500 20500 20500						11800 11800 11700						27300 27300 27300					
EMPC = EMPC, ND = 0	pg/g	20600 20600 20500						11800 11800 11800						27300 27300 27300					
EMPC = EMPC, ND = DL / 2	pg/g	20600 20600 20600						11800 11800 11800						27300 27300 27300					
EMPC = EMPC, ND = DL	pg/g	20600 20600 20600						11800 11800 11800						27300 27300 27300					
EMPC = EMPC, < J-level = 0	pg/g	20600 20600 20500						11800 11800 11800						27300 27300 27300					

Note:

pg/g                      Picograms per gram  
 <                          Less than method detection limit indicated  
 TEQ                        Toxic Equivalent  
 [ ] or EMPC              Estimated Maximum Possible Concentration  
 Result                      Reported concentration  
 DL                          Detection limit  
 Q                            Laboratory data qualifier  
 J                              Estimated concentration

Table 2. Unvalidated Dioxin Toxic Equivalent Data Summary - Split Samples  
Lower Passaic River Focused Sediment Investigation

Field Sample ID:	A02-SDI-024-030	A03-SDI-000-006					A03-SDI-012-018												
Core Location:	A2 - RM 10.92	A3 - RM 10.87					A3 - RM 10.87												
Sample Depth (inches):	24 to 30	0 to 6					12 to 18												
Target Northing:	723193.04	723107.84					723107.84												
Target Easting	593175.60	592915.84					592915.84												
Sample Date:	1/12/12	1/12/12					1/12/12												
AP Lab Project ID:	A3889	A3889					A3889												
AP Lab Sample ID:	A3901_9498_DF_005-R	A3902_9459_DF_001					A3902_9459_DF_003												
AP Batch No.:	9498	9459					9459												
Analyte	Units	Result	Q	DLs	I-TEQ	WHO-1998	WHO-2005	Result	Q	DLs	I-TEQ	WHO-1998	WHO-2005	Result	Q	DLs	I-TEQ	WHO-1998	WHO-2005
2378-TCDD	pg/g	21.3		0.54	21.3	21.3	21.3	17300		23.3	17300	17300	17300	6530		17.5	6530	6530	6530
12378-PeCDD	pg/g	<0.513		0.513	<0.257	<0.513	<0.513	[40.3]	J	39.9	[20.1]	[40.3]	[40.3]	97.7	J	31.7	48.9	97.7	97.7
123478-HxCDD	pg/g	<0.51		0.51	<0.051	<0.051	<0.051	42.3	J	29.7	4.23	4.23	4.23	31.7	J	25.1	3.17	3.17	3.17
123678-HxCDD	pg/g	[0.518]	J	0.543	[0.0518]	[0.0518]	[0.0518]	144		28.3	14.4	14.4	14.4	123		23.4	12.3	12.3	12.3
123789-HxCDD	pg/g	[0.516]	J	0.561	[0.0516]	[0.0516]	[0.0516]	[63.8]	J	34	[6.38]	[6.38]	[6.38]	48	J	35.2	4.8	4.8	4.8
1234678-HpCDD	pg/g	22.8		0.842	0.228	0.228	0.228	2140		45.9	21.4	21.4	21.4	2420		36.3	24.2	24.2	24.2
OCDD		903		1.19	0.903	0.0903	0.271	25300		83.3	25.3	2.53	7.58	31900		69.6	31.9	3.19	9.58
2378-TCDF	pg/g	3.37		0.446	0.337	0.337	0.337	384		22.2	38.4	38.4	38.4	136		15.4	13.6	13.6	13.6
12378-PeCDF	pg/g	[0.47]	J	0.416	[0.0235]	[0.0235]	[0.0141]	<27.1		27.1	<1.36	<1.36	<0.813	59.5	J	21.2	2.98	2.98	1.79
23478-PeCDF	pg/g	1	J	0.359	0.5	0.5	0.3	231		27.3	116	116	69.4	180		18.4	89.8	89.8	53.9
123478-HxCDF	pg/g	2.26	J	0.372	0.226	0.226	0.226	649		27	64.9	64.9	64.9	408		19.8	40.8	40.8	40.8
123678-HxCDF	pg/g	0.78	J	0.394	0.078	0.078	0.078	186		24	18.6	18.6	18.6	156		18.9	15.6	15.6	15.6
234678-HxCDF	pg/g	[0.429]	J	0.341	[0.0429]	[0.0429]	[0.0429]	116		25	11.6	11.6	11.6	114		21.6	11.4	11.4	11.4
123789-HxCDF	pg/g	<0.46		0.46	<0.046	<0.046	<0.046	<45.4		45.4	<4.54	<4.54	<4.54	<36.7		36.7	<3.67	<3.67	<3.67
1234678-HpCDF	pg/g	8.79		0.375	0.0879	0.0879	0.0879	2760		27.6	27.6	27.6	27.6	1710		30.2	17.1	17.1	17.1
1234789-HpCDF	pg/g	0.7	J	0.471	0.007	0.007	0.007	[112]		41.6	[1.12]	[1.12]	[1.12]	<45.6		45.6	<0.456	<0.456	<0.456
OCDF		19.6		0.896	0.0196	0.00196	0.00589	4900		52.2	4.9	0.49	1.47	2980		67.7	2.98	0.298	0.894
TEQ Summaries																			
EMPC = 0, ND = 0	pg/g	23.7				22.8	22.8	17600				17600	17600	6850				6860	6830
EMPC = 0, ND = DL / 2	pg/g	23.9				23.2	23.2	17700				17600	17600	6850				6860	6830
EMPC = 0, ND = DL	pg/g	24.2				23.6	23.6	17700				17700	17600	6850				6870	6840
EMPC = 0, < J-level = 0	pg/g	22.9				22	22.2	17600				17600	17600	6790				6750	6720
EMPC = EMPC, ND = 0	pg/g	23.8				23	23	17700				17700	17600	6850				6860	6830
EMPC = EMPC, ND = DL / 2	pg/g	24				23.3	23.3	17700				17700	17600	6850				6860	6830
EMPC = EMPC, ND = DL	pg/g	24.2				23.6	23.6	17700				17700	17600	6850				6870	6840
EMPC = EMPC, < J-level = 0	pg/g	23				22.2	22.4	17700				17700	17600	6790				6750	6720

Note:

pg/g Picograms per gram  
 < Less than method detection limit indicated  
 TEQ Toxic Equivalent  
 [ ] or EMPC Estimated Maximum Possible Concentration  
 Result Reported concentration  
 DL Detection limit  
 Q Laboratory data qualifier  
 J Estimated concentration

Table 2. Unvalidated Dioxin Toxic Equivalent Data Summary - Split Samples  
Lower Passaic River Focused Sediment Investigation

Field Sample ID:	BOI-SDI-000-006							BOI-SDI-018-024							B02-SDI-000-006						
Core Location:	B1 - RM 11.49							B1 - RM 11.49							B2 - RM 11.44						
Sample Depth (inches):	0 to 6							18 to 24							0 to 6						
Target Northing:	724482.53							724482.53							724299.51						
Target Easting	595821.83							595821.83							595629.74						
Sample Date:	1/10/12							1/10/12							n/a						
AP Lab Project ID:	A3889							A3889							A3899						
AP Lab Sample ID:	A3889_9498_DF_001-R							A3889_9498_DF_004-R							A3899_9543_DF_001-R-R						
AP Batch No.:	9498							9498							9543						
Analyte	Units	Result	Q	DLs	I-TEQ	WHO-1998	WHO-2005	Result	Q	DLs	I-TEQ	WHO-1998	WHO-2005	Result	Q	DLs	I-TEQ	WHO-1998	WHO-2005		
2378-TCDD	pg/g	11.1		0.299	11.1	11.1	11.1	29.3		0.2	29.3	29.3	29.3	7.17		0.0992	7.17	7.17	7.17		
12378-PeCDD	pg/g	[0.904]	J	0.422	[0.452]	[0.904]	[0.904]	1.28	J	0.35	0.64	1.28	1.28	0.569	J	0.122	0.285	0.569	0.569		
123478-HxCDD	pg/g	[0.945]	J	0.481	[0.0945]	[0.0945]	[0.0945]	1.4	J	0.38	0.14	0.14	0.14	0.576	J	0.112	0.0576	0.0576	0.0576		
123678-HxCDD	pg/g	4.15		0.458	0.415	0.415	0.415	4.23		0.359	0.423	0.423	0.423	2.17	J	0.121	0.217	0.217	0.217		
123789-HxCDD	pg/g	2.49		0.532	0.249	0.249	0.249	2.54		0.372	0.254	0.254	0.254	1.57	J	0.132	0.157	0.157	0.157		
1234678-HpCDD	pg/g	92.5		0.677	0.925	0.925	0.925	89.5		0.5	0.895	0.895	0.895	43.1		0.22	0.431	0.431	0.431		
OCDD		1040		0.47	1.04	0.104	0.311	864		0.5	0.864	0.0864	0.259	439		0.177	0.439	0.0439	0.132		
2378-TCDF	pg/g	5.06		0.365	0.506	0.506	0.506	4.52		0.192	0.452	0.452	0.452	2.45		0.121	0.245	0.245	0.245		
12378-PeCDF	pg/g	[1.41]	J	0.324	[0.0707]	[0.0707]	[0.0424]	1.56	J	0.297	0.0778	0.0778	0.0467	0.784	J	0.0757	0.0392	0.0392	0.0235		
23478-PeCDF	pg/g	1.14	J	0.295	0.57	0.57	0.342	2.3	J	0.249	1.15	1.15	0.689	<0.0739		0.0739	<0.037	<0.037	<0.0222		
123478-HxCDF	pg/g	5.91		0.289	0.591	0.591	0.591	6.26		0.238	0.626	0.626	0.626	2.58		0.085	0.258	0.258	0.258		
123678-HxCDF	pg/g	3.34		0.281	0.334	0.334	0.334	3.84		0.241	0.384	0.384	0.384	1.98	J	0.0814	0.198	0.198	0.198		
234678-HxCDF	pg/g	4.23		0.284	0.423	0.423	0.423	4.68		0.231	0.468	0.468	0.468	2.49		0.0805	0.249	0.249	0.249		
123789-HxCDF	pg/g	<0.362		0.362	<0.0362	<0.0362	<0.0362	<0.289		0.289	<0.0289	<0.0289	<0.0289	<0.0915		0.0915	<0.00915	<0.00915	<0.00915		
1234678-HpCDF	pg/g	39.6		0.459	0.396	0.396	0.396	41.4		0.307	0.414	0.414	0.414	17.1		0.106	0.171	0.171	0.171		
1234789-HpCDF	pg/g	2.44		0.609	0.0244	0.0244	0.0244	2.08	J	0.369	0.0208	0.0208	0.0208	[0.933]	J	0.151	[0.00933]	[0.00933]	[0.00933]		
OCDF		81.5		0.527	0.0815	0.00815	0.0244	69.2		0.499	0.0692	0.00692	0.0207	31.7		0.111	0.0317	0.00317	0.00952		
TEQ Summaries																					
EMPC = 0, ND = 0	pg/g	16.7					15.6	15.6	36.1					35.9	35.6	9.95					
EMPC = 0, ND = DL / 2	pg/g	16.8					15.9	15.9	36.2					36	35.7	9.97					
EMPC = 0, ND = DL	pg/g	17					16.2	16.2	36.2					36	35.7	10					
EMPC = 0, < J-level = 0	pg/g	16.1					15.1	15.3	34.1					33.3	33.5	8.99					
EMPC = EMPC, ND = 0	pg/g	17.3					16.7	16.7	36.1					35.9	35.6	9.96					
EMPC = EMPC, ND = DL / 2	pg/g	17.3					16.7	16.7	36.2					36	35.7	9.98					
EMPC = EMPC, ND = DL	pg/g	17.3					16.8	16.7	36.2					36	35.7	10					
EMPC = EMPC, < J-level = 0	pg/g	16.7					16.1	16.3	34.1					33.3	33.5	9					

Note:

pg/g

Picograms per gram

<

Less than method detection limit indicated

TEQ

Toxic Equivalent

[ ] or EMPC

Estimated Maximum Possible Concentration

Result

Reported concentration

DL

Detection limit

Q

Laboratory data qualifier

J

Estimated concentration

Table 2. Unvalidated Dioxin Toxic Equivalent Data Summary - Split Samples  
Lower Passaic River Focused Sediment Investigation

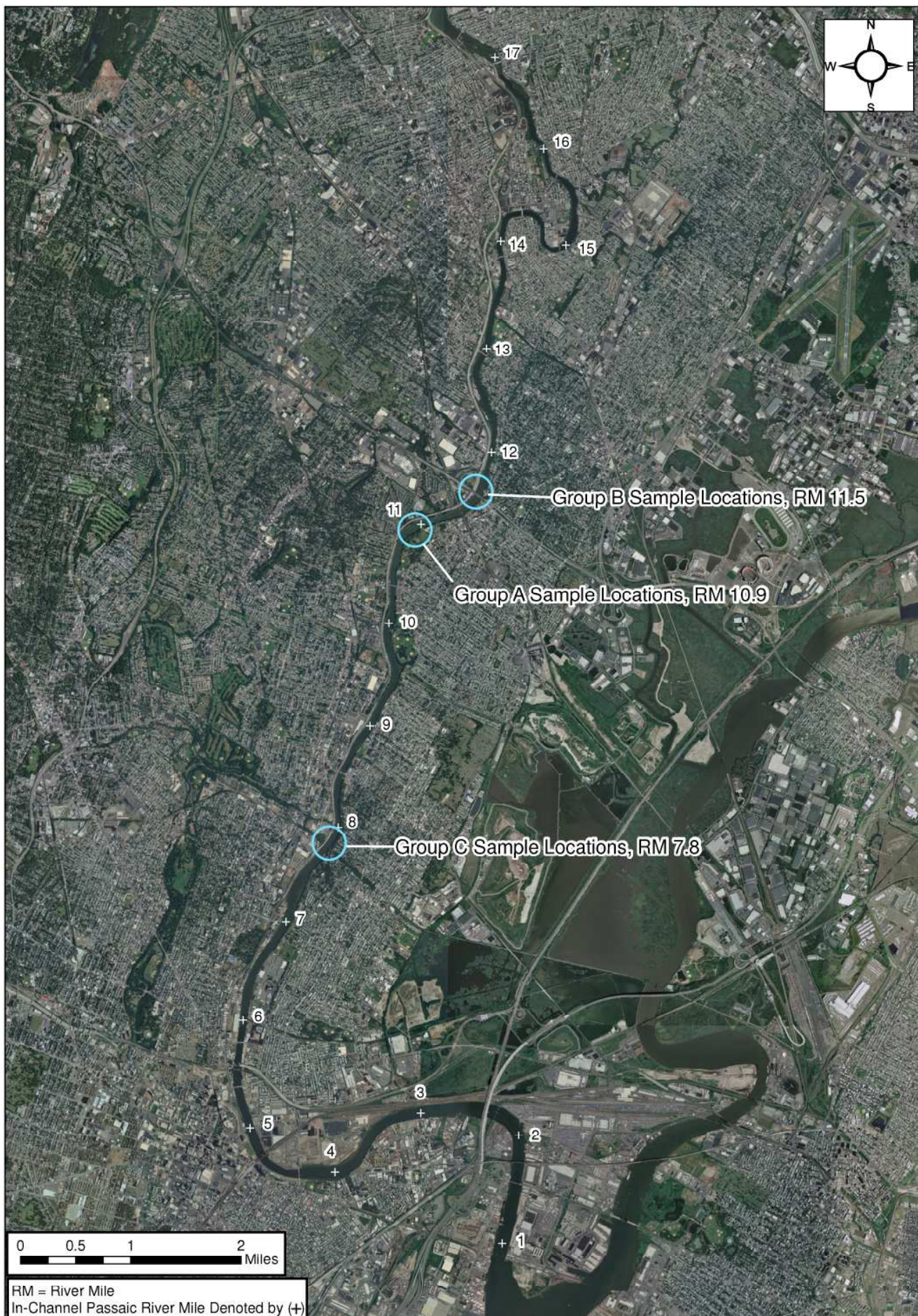
Field Sample ID:	B02-SDI-042-048	C01-SDI-000-006					C01-SDI-030-036																	
Core Location:	B2 - RM 11.44	C1 - RM 7.80					C1 - RM 7.80																	
Sample Depth (inches):	42 to 48	0 to 6					30 to 36																	
Target Northing:	724299.51	708051.18					708051.18																	
Target Easting:	595629.74	588849.01					588849.01																	
Sample Date:	n/a	1/13/12					1/13/12																	
AP Lab Project ID:	A3899	A3889					A3889																	
AP Lab Sample ID:	A3899_9543_DF_008-R-R	A3906_9498_DF_001-R					A3906_9498_DF_006-R																	
AP Batch No.:	9543	9498					9498																	
Analyte	Units	Result	Q	DLs	I-TEQ	WHO-1998	WHO-2005	Result	Q	DLs	I-TEQ	WHO-1998	WHO-2005	Result	Q	DLs	I-TEQ	WHO-1998	WHO-2005					
2378-TCDD	pg/g	11.5		0.0719	11.5	11.5	11.5	835		0.43	835	835	835	597		0.507	597	597	597					
12378-PeCDD	pg/g	5.14		0.14	2.57	5.14	5.14	18.6		0.953	9.29	18.6	18.6	9.47		0.988	4.74	9.47	9.47					
123478-HxCDD	pg/g	3.95		0.132	0.395	0.395	0.395	12.4		0.953	1.24	1.24	1.24	9.22		1.16	0.922	0.922	0.922					
123678-HxCDD	pg/g	17.8		0.123	1.78	1.78	1.78	48.2		1.08	4.82	4.82	4.82	36.3		1.18	3.63	3.63	3.63					
123789-HxCDD	pg/g	9.76		0.147	0.976	0.976	0.976	27.7		1.04	2.77	2.77	2.77	21.7		1.14	2.17	2.17	2.17					
1234678-HpCDD	pg/g	243		0.186	2.43	2.43	2.43	954		1.26	9.54	9.54	9.54	700		0.776	7	7	7					
OCDD		2530		0.151	2.53	0.253	0.759	12200	E	0.794	12.2	1.22	3.65	8810		0.968	8.81	0.881	2.64					
2378-TCDF	pg/g	13.7		0.208	1.37	1.37	1.37	44.2		0.494	4.42	4.42	4.42	30.5		0.496	3.05	3.05	3.05					
12378-PeCDF	pg/g	7.83		0.206	0.391	0.391	0.235	26.1		0.635	1.3	1.3	0.783	15.5		0.778	0.775	0.775	0.465					
23478-PeCDF	pg/g	<0.182		0.182	<0.091	<0.091	<0.0546	74.4		0.569	37.2	37.2	22.3	49		0.686	24.5	24.5	14.7					
123478-HxCDF	pg/g	29.8		0.249	2.98	2.98	2.98	291		0.892	29.1	29.1	29.1	157		0.71	15.7	15.7	15.7					
123678-HxCDF	pg/g	23.5		0.241	2.35	2.35	2.35	80.4		0.882	8.04	8.04	8.04	48.8		0.796	4.88	4.88	4.88					
234678-HxCDF	pg/g	44.5		0.246	4.45	4.45	4.45	45.4		0.884	4.54	4.54	4.54	31.3		0.762	3.13	3.13	3.13					
123789-HxCDF	pg/g	<0.254		0.254	<0.0254	<0.0254	<0.0254	<1.08		1.08	<0.108	<0.108	<0.108	<0.95		0.95	<0.095	<0.095	<0.095					
1234678-HpCDF	pg/g	328		0.277	3.28	3.28	3.28	1200		1.11	12	12	12	753		1.07	7.53	7.53	7.53					
1234789-HpCDF	pg/g	11		0.337	0.11	0.11	0.11	38.7		1.44	0.387	0.387	0.387	27		1.58	0.27	0.27	0.27					
OCDF		267		0.113	0.267	0.0267	0.0801	1640		0.723	1.64	0.164	0.493	1170		0.927	1.17	0.117	0.352					
TEQ Summaries																								
EMPC = 0, ND = 0	pg/g	37.4						37.4	973						970	957						686	681	673
EMPC = 0, ND = DL / 2	pg/g	37.5						37.5	973						970	957						686	681	673
EMPC = 0, ND = DL	pg/g	37.5						37.6	973						970	957						686	681	673
EMPC = 0, < J-level = 0	pg/g	37.4						37.4	973						970	957						686	681	673
EMPC = EMPC, ND = 0	pg/g	37.4						37.4	973						970	957						686	681	673
EMPC = EMPC, ND = DL / 2	pg/g	37.5						37.5	973						970	957						686	681	673
EMPC = EMPC, ND = DL	pg/g	37.5						37.6	973						970	957						686	681	673
EMPC = EMPC, < J-level = 0	pg/g	37.4						37.4	973						970	957						686	681	673

Note:

pg/g Picograms per gram  
 < Less than method detection limit indicated  
 TEQ Toxic Equivalent  
 [ ] or EMPC Estimated Maximum Possible Concentration  
 Result Reported concentration  
 DL Detection limit  
 Q Laboratory data qualifier  
 J Estimated concentration

## **APPENDIX A: TIERRA SAMPLE LOCATION MAPS**

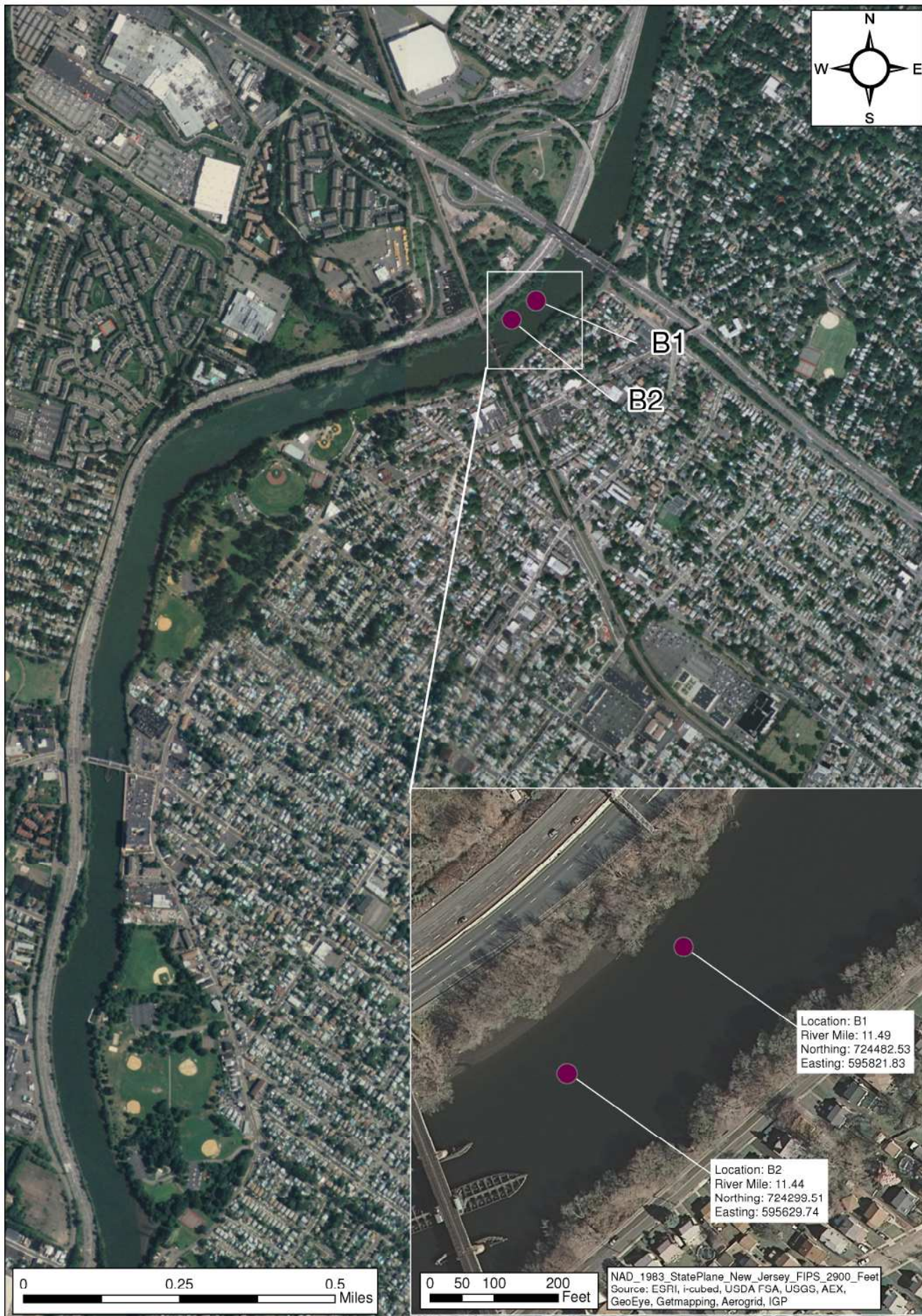
















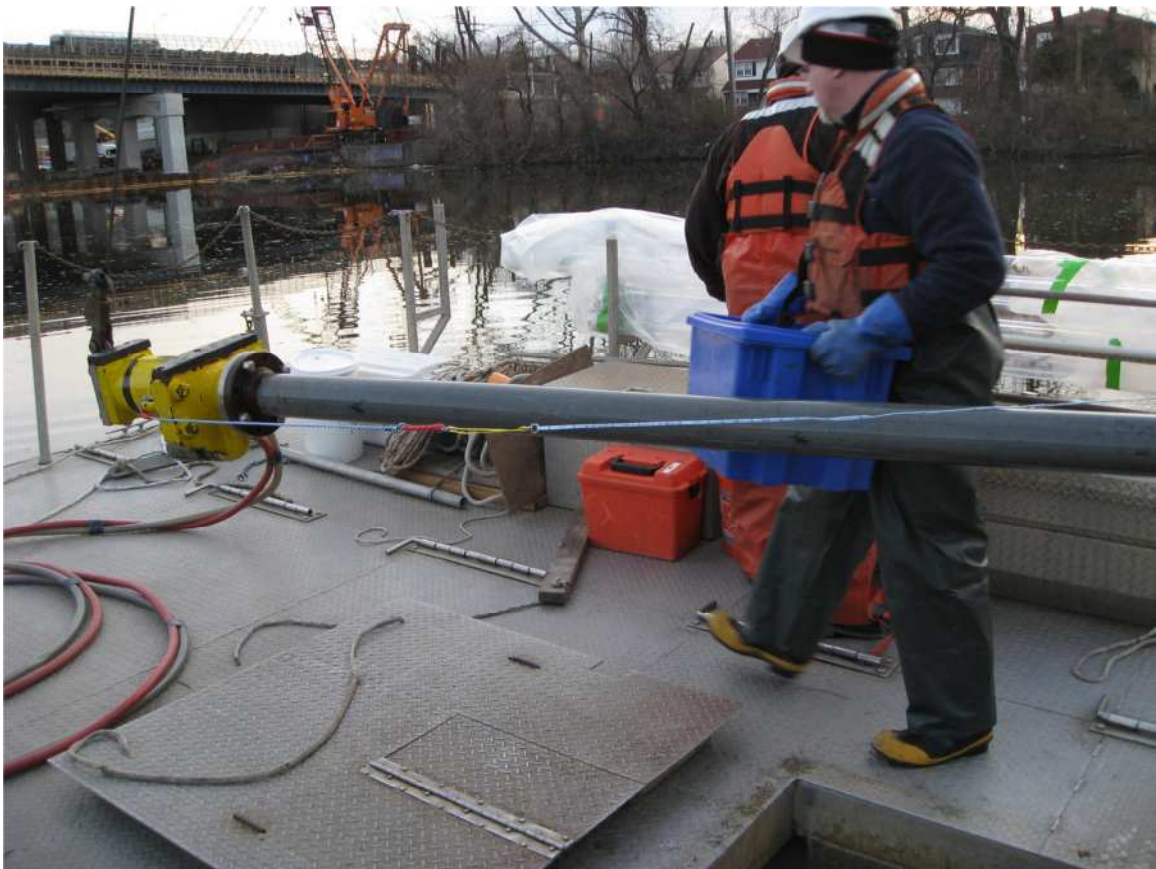


## **APPENDIX B: PROJECT PHOTOGRAPHS**

## APPENDIX B - PROJECT PHOTOGRAPHS



Photograph 1. Sampling Vessel

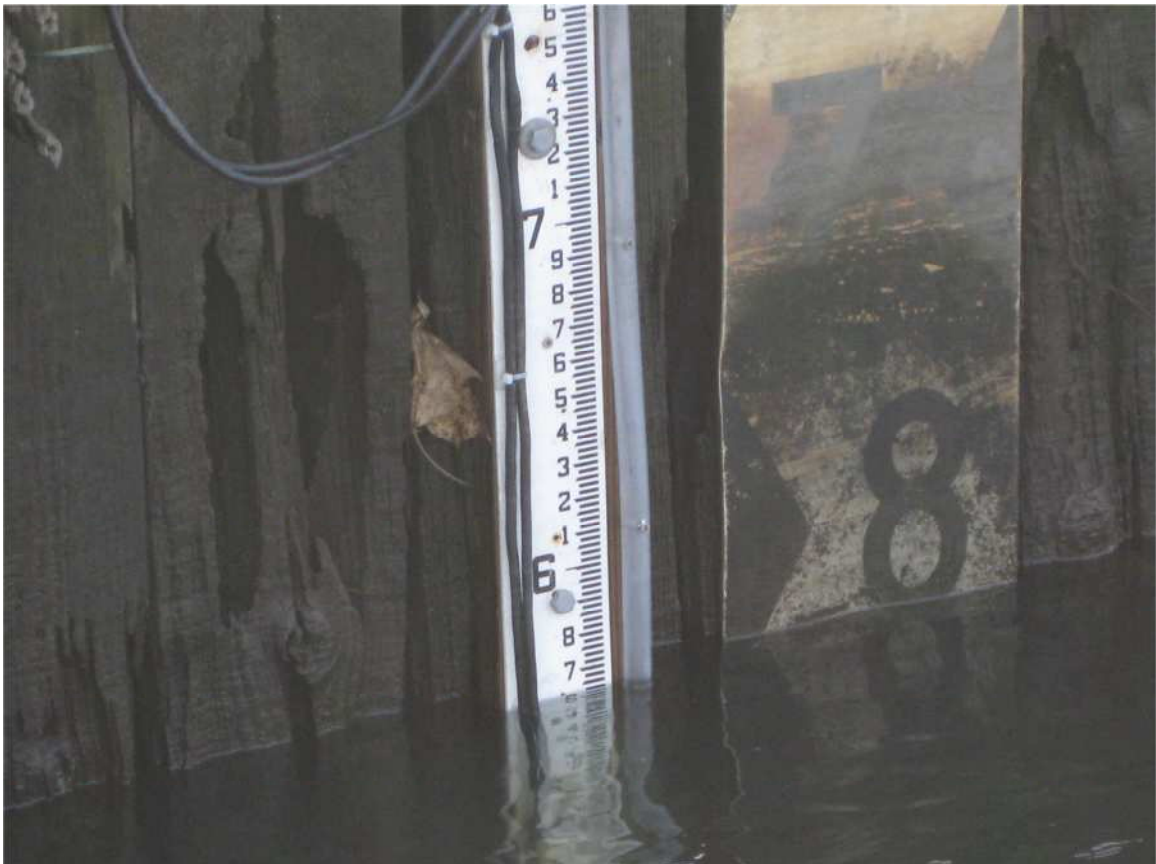


Photograph 2. Core barrel and Vibracore motor housing

## APPENDIX B - PROJECT PHOTOGRAPHS



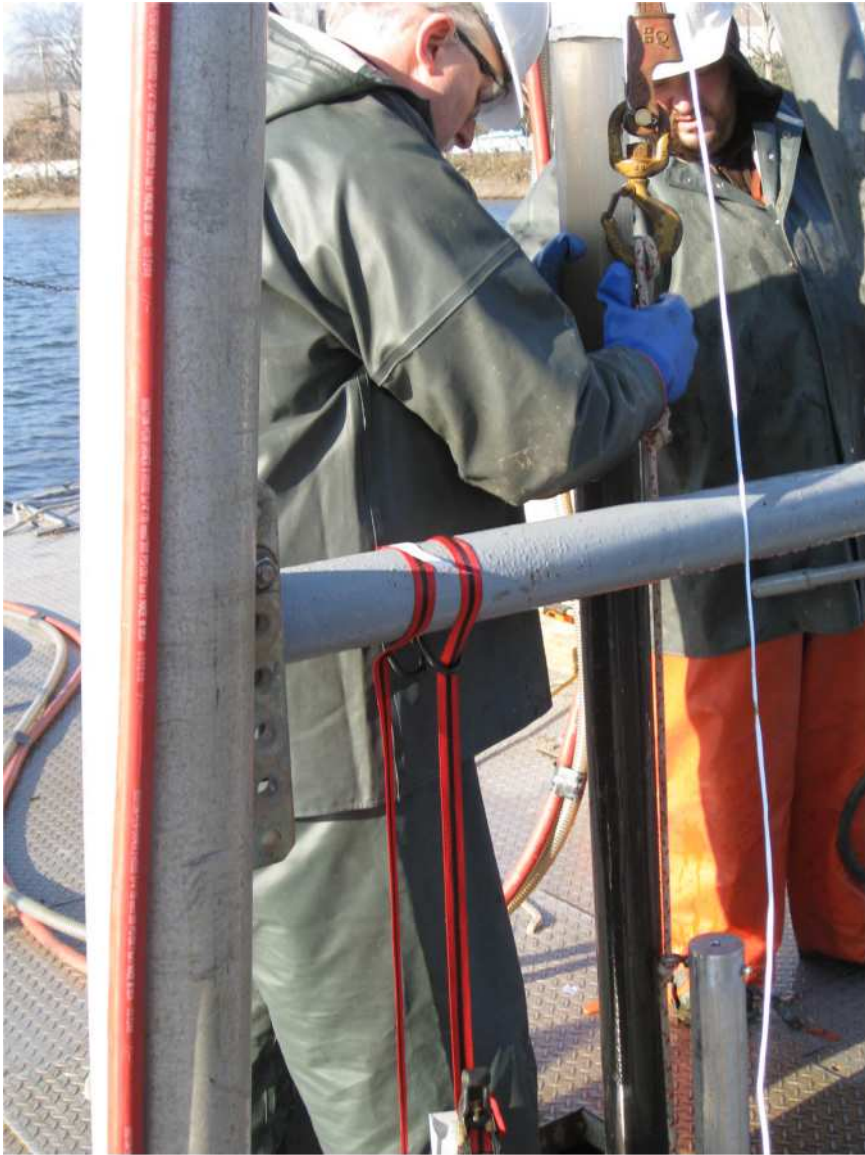
Photograph 3. Cutting shoe/core catcher assembly



Photograph 4. Staff gauge used for tide measurements



APPENDIX B - PROJECT PHOTOGRAPHS



Photograph 5. Recovery of Core A1



Photograph 6. Recovery of Core A2



APPENDIX B - PROJECT PHOTOGRAPHS



Photograph 7. Bottom portion of Core A2 retained on cutting head after extraction



Photograph 8. Lower segment of Core A3



APPENDIX B - PROJECT PHOTOGRAPHS



Photograph 9. Lower segment of Core A3 retained in cutting head



Photograph 10. Deployment of Vibracore at location B1

APPENDIX B - PROJECT PHOTOGRAPHS



Photograph 11. Upper portion of Core B2



Photograph 12. Cutting recovered core B2 using hacksaw



APPENDIX B - PROJECT PHOTOGRAPHS



Photograph 13. Recovery of Core C1A



Photograph 14. Deployment of Vibracore at location C1B

APPENDIX B - PROJECT PHOTOGRAPHS



Photograph 15. Core C2 second attempt no recovery



Photograph 16. Gravel and cobbles trapped in core catcher at location C2



APPENDIX B - PROJECT PHOTOGRAPHS



Photograph 17. Core storage aboard sampling vessel



Photograph 18. Interior of core transporter

## APPENDIX B - PROJECT PHOTOGRAPHS



Photograph 19. Core transporter



Photograph 20. Cooler used for storage of cores at the Lister Avenue site.



## APPENDIX B - PROJECT PHOTOGRAPHS



Photograph 21. Interior of cooler used for core storage at Lister Avenue site.



Photograph 22. Sample management and support zone. Controlled access to sample processing area visible at left.



## APPENDIX B - PROJECT PHOTOGRAPHS



Photograph 23. Sample cooler storage area.



Photograph 24. Sample management area

## APPENDIX B - PROJECT PHOTOGRAPHS



Photograph 25. Sample management in sample processing area.



Photograph 26. Sample scales and mixing bowls.



APPENDIX B - PROJECT PHOTOGRAPHS



Photograph 27. Core support in processing room.



Photograph 28. Measuring sample recovery.

APPENDIX B - PROJECT PHOTOGRAPHS



Photograph 29. H-C Core Processing tools



Photograph 30. Drilling through core liner to release excess standing water above sample

APPENDIX B - PROJECT PHOTOGRAPHS



Photograph 31. Core uncapped and organic vapor readings recorded.



Photograph 32. Excess liquid and flakes of cut core liner removed from top of sample using a stainless-steel ladle.



## APPENDIX B - PROJECT PHOTOGRAPHS



Photograph 33. Cores placed on table and calculated sample segments marked on outside of liner. Plastic sheeting changed occasionally but not prior to every core processed.



Photograph 34. Core liner cut open.

## APPENDIX B - PROJECT PHOTOGRAPHS



Photograph 35. Exposing core. Sides of core braced with wood boards.



Photograph 36. Spatulas placed to demarcate each sample segment. Organic vapor readings taken above each segment. Same wood boards reused to brace each core.



## APPENDIX B - PROJECT PHOTOGRAPHS



Photograph 37. Wood boards became increasingly stained with sediment.



Photograph 38. Sampling tools came into contact with wood boards increasing potential for cross-contamination.



## APPENDIX B - PROJECT PHOTOGRAPHS



Photograph 39. Sample material transferred to field-decontaminated bowls for homogenization

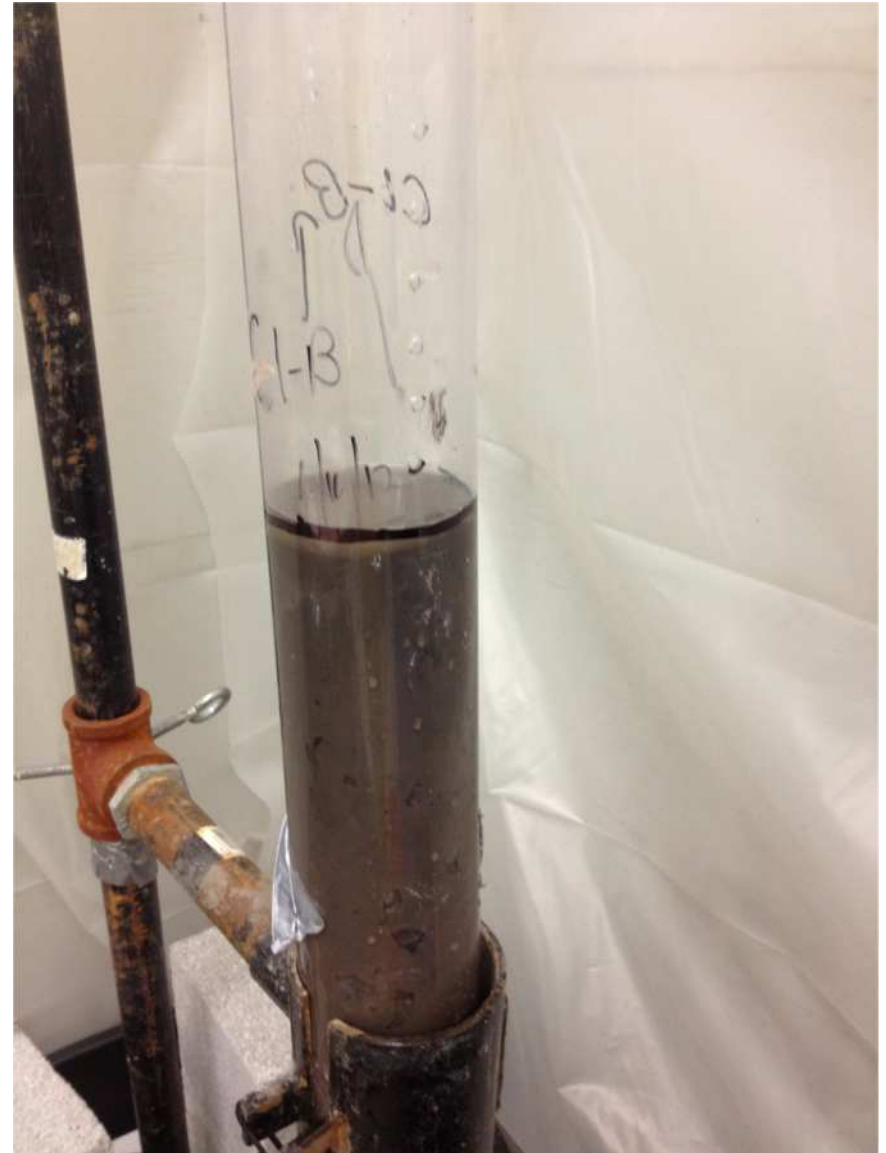


Photograph 40. Hart-Crowser sample bottles filled first (located in aluminum tray). Remaining sample material used to fill Cardno-Entrix and Woodard&Curran sample bottles (three bottles at right).

APPENDIX B - PROJECT PHOTOGRAPHS



Photograph 41. Sampling crew was unable to remove the cutting head from the core liner recovered at location C1-B.



Photograph 42. Sample material from location C1 had high water content



APPENDIX B - PROJECT PHOTOGRAPHS



Photograph 43. Core liner cut just above sediment and ladle used to remove excess liquid and liner particles.



Photograph 44. Samplers fabricated a temporary plug of aluminum foil and cardboard to keep material stable while transferring the core to the processing table.

## APPENDIX B - PROJECT PHOTOGRAPHS



Photograph 45. Plug placed in top of core liner.



Photograph 46. Core liner with plug in place.

## APPENDIX B - PROJECT PHOTOGRAPHS



Photograph 47. While attempting to move the core to the processing table, the cutting head became separated from the bottom of the core allowing sediment to spill out.



Photograph 48. Core was returned to the support to prevent further spillage. Hart-Crowser estimated 0.5 feet lost.



## APPENDIX B - PROJECT PHOTOGRAPHS



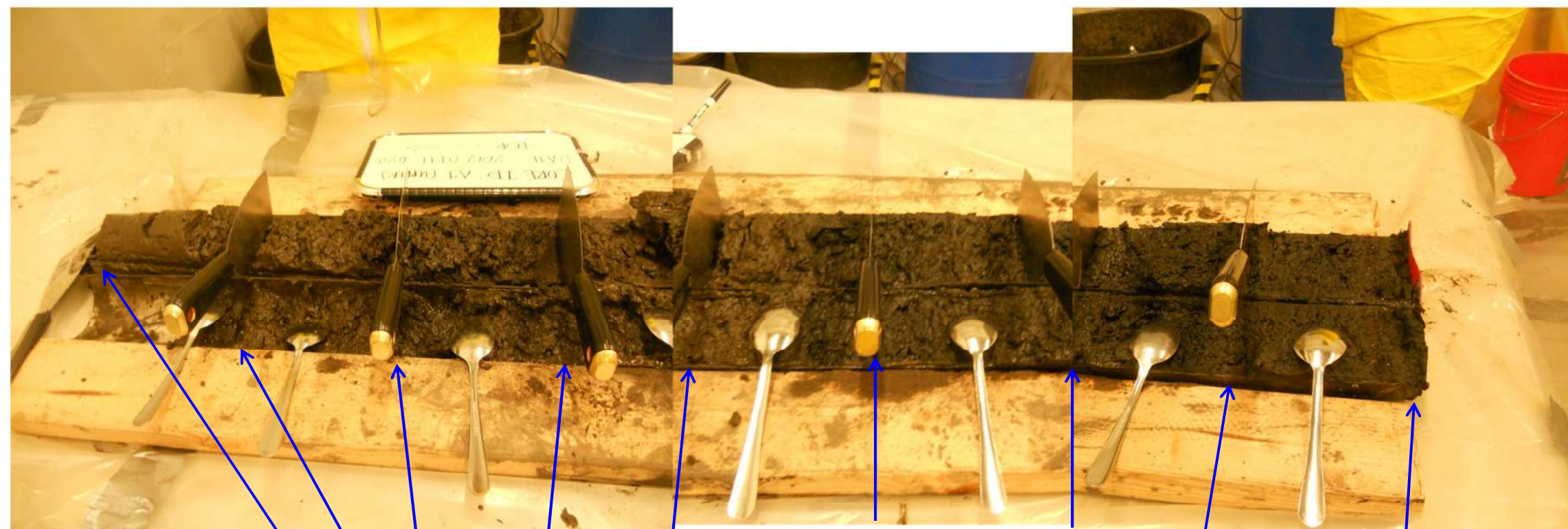
Photograph 49. Core was maintained in vertical position for sampling. Sample material removed from each interval using a ladle.



Photograph 50. Core liner cut after sampling each interval.

## **APPENDIX C: CORE PHOTOGRAPHS**





Core A1 0 to 48 inches

0

6

12

18

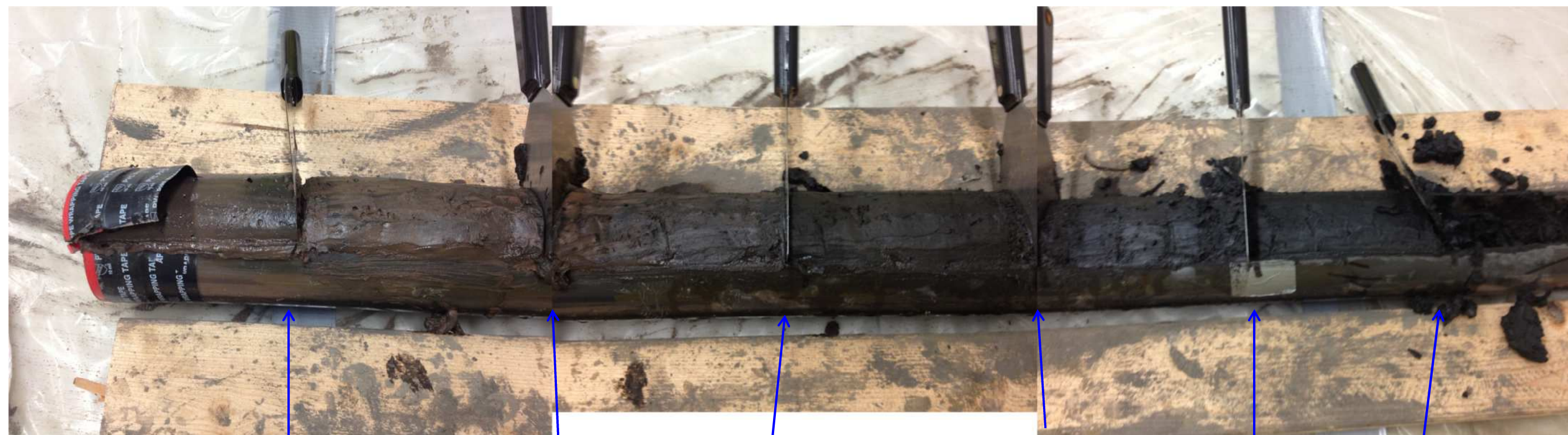
24

30

36

42

48



Core A1 54 to End (inches)

84

78

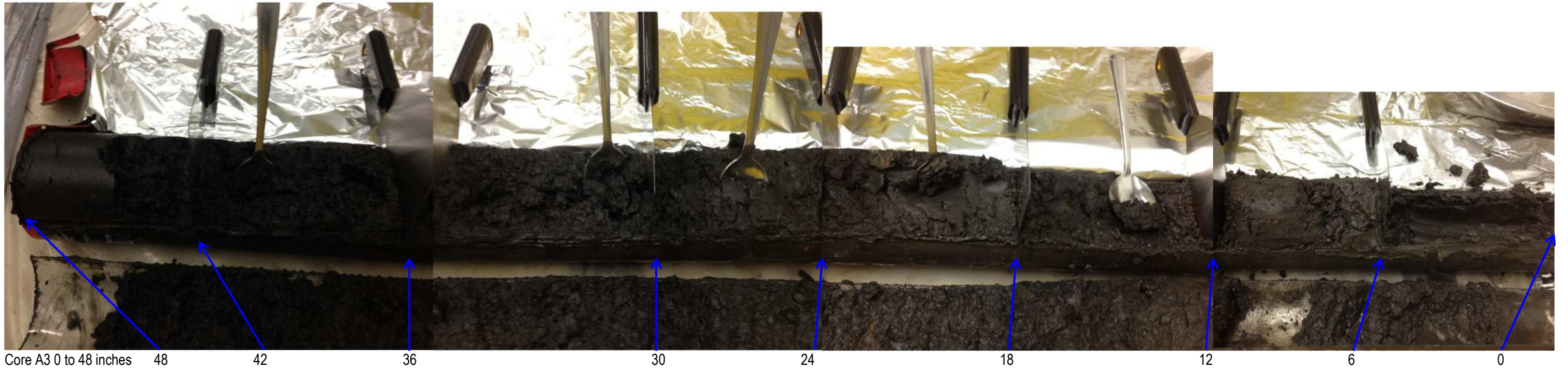
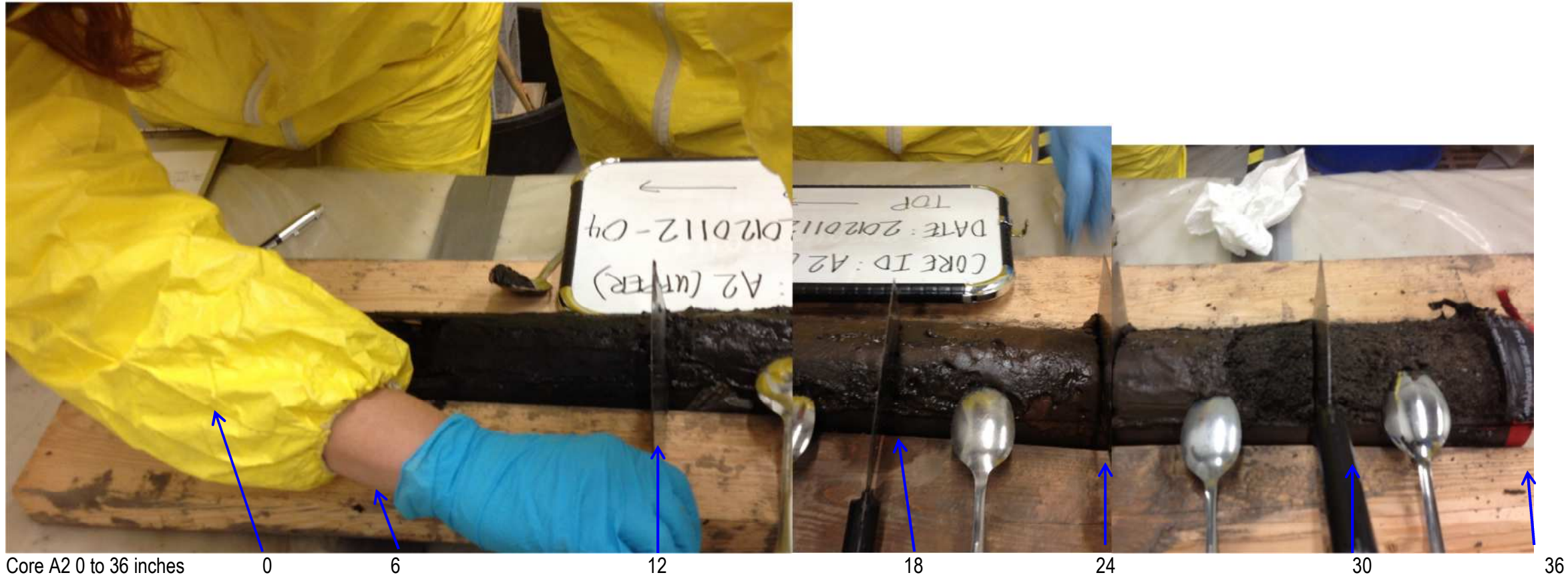
72

66

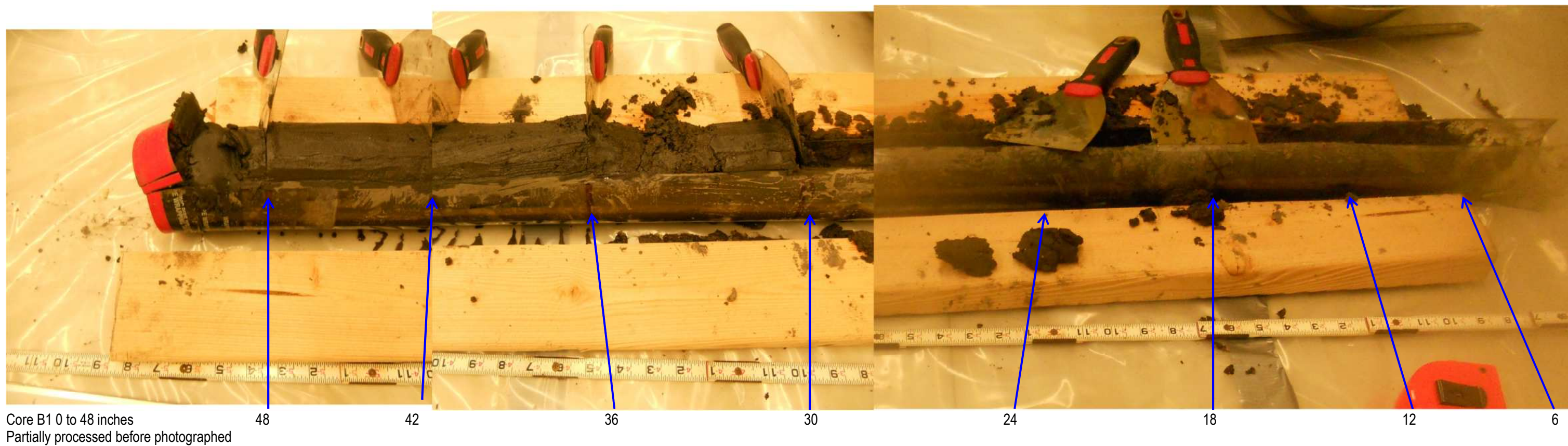
60

54

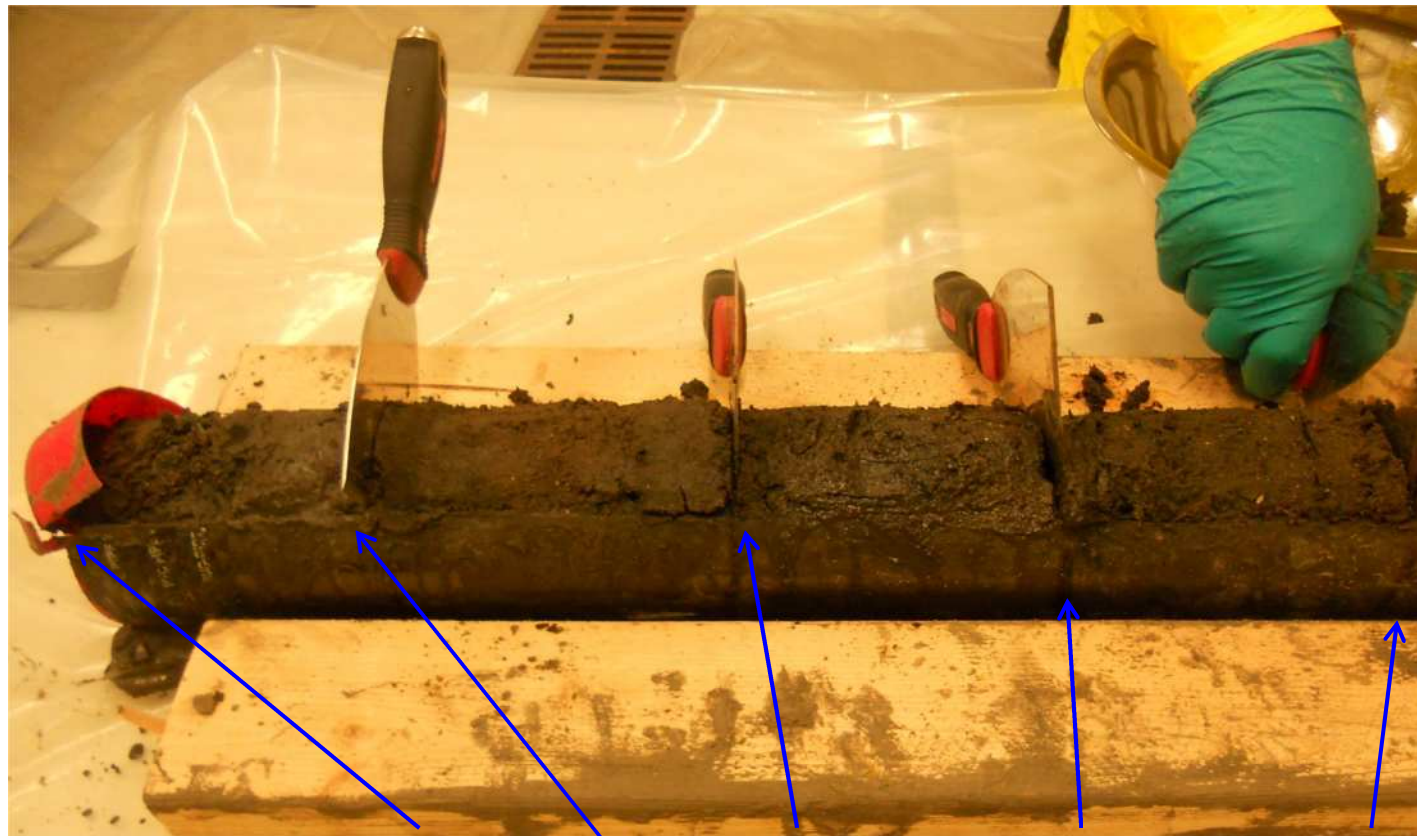












Core B2 0 to 45 inches



Core B2 Lower Section



72

66

60

54

48





Core C1



Sampling Core C1 0- to 6-inch interval



Core C1 Sample material from 6 to 12 inches



Core C1 Top of 18- to 24-inch interval



Core C1 Top of 24- to 30-inch interval



Core C1 Top of 30- to 36-inch interval





Core C1 Sample material from 30- to-36 inch interval



Core C1 Top of 36- to 42-inch interval



Core C1 36- to 42-inch interval and gap where material was lost during processing.

## APPENDIX D: CORE LOG PHOTOGRAPHS

**CORE LITHOLOGY/DESCRIPTION FORM**  
**FOCUSED SEDIMENT INVESTIGATION**  
 (Sheet 2 of 2)

Date of Core Collection: 1/11/2012 Date of Core Processing: 1/11/2012  
 Core ID: A01

Depth (Feet Below Sediment Surface in Core)	PID Screening (ppm)	Description	Engineer's/Geologist's Notes
0.0 - 2.2' ML (GRAY BLACK)	SWR-0000 000-006 (0.0 P/B) 006-012 (0.0 P/B)	0.0' (SOFT TO VERY SOFT) GRAY BLACK VERY SLIGHTLY SANDY SILT (ML) WITH A FAINT ORGANIC (ANODIC) ODOR	* NO OBSERVABLE ORGANICS OR LEAF LITER AT SURFACE
2.2 - 7.39' ML	012-018 (0.0 P/B) 018-024 (0.0 P/B) 024-030 (0.0 P/B) 030-036 (0.0 P/B)	0.5 FEET PRESENCE OF A MODERATE ORGANIC ODOR THICK ORGANIC DEBRIS IN SILT	* NOTABLE CHANGE IN ODOR STRENGTH AT 2.2 FEET.
7.39' - 13.0'	036-042 (0.0 P/B) 042-048 (0.0 P/B) 048-054 (0.0 P/B) 054-060 (0.0 P/B) 060-066 (0.0 P/B) 066-072 (0.0 P/B) 072-078 (0.0 P/B) 078-084 (0.0 P/B)	3.3' (SOFT TO VERY SOFT) DARK BLACK-GRAY, VERY SLIGHTLY SANDY SILT (ML) WITH A MODERATE TO FAINT ORGANIC ODOR AT CONTACT BECOMES STRONG ORGANIC ODOR WITH DEPTH 3.6' FINE SAND LENS 4.1' FINE TO MEDIUM SAND LENS 4.0' BECOMES DARK BLACK (MEDIUM STIFF TO STIFF) SILT (ML) 5.0' DISTINCT LENS OF COARSE SAND, LEAD DEBRIS AND CLEAR PLASTIC 5.3-5.4' LENS OF COARSE SAND BECOMES (MEDIUM STIFF), TAN BROWN SILT (ML) WITH THICK SAND	3.87' BOTTOM OF UPPER SECTION 7.39' BOTTOM OF LOWER SECTION

A01  
UPPER

VIBROCORE TUBE LENGTH = 4.05 FEET  
 TOP OF TUBE TO SED. INTERFACE = 0.18 FEET  
 LENGTH OF SED = 3.87 FEET

% RECOVERY = 95.6%

CORRECTION SECTION = 5.73 INCH (0.48 FEET)

→ 0.44 FEET (REMAINING SED OF 042-048)

A01  
LOWER

VIBROCORE TUBE LENGTH = 3.53 FEET  
 TOP OF TUBE TO SED. INTERFACE = 0.04 FT  
 LENGTH OF SED = 3.52 FT

% RECOVERY = 99.7%

CORRECTION SECTION = 5.98 INCH (0.50 FEET)



**CORE LITHOLOGY/DESCRIPTION FORM**  
**FOCUSED SEDIMENT INVESTIGATION**  
 (Sheet 2 of 2)

Date of Core Collection: 1/10/2012 Date of Core Processing: 1/12/2012  
 Core ID: A02

Depth (Feet Below Sediment Surface in Core)	PID Screening (ppm)	Description	Engineer's/Geologist's Notes
0.0 - 0.9' (ML)	SURFACE (PID 10)	NO LATE LITER AT SURFACE NO NOTABLE ORGANISMS AT SURFACE	* NO BACKGROUND HAPD
0.9' - 1.8' (ML)	000-006 (TAPES 38 PD)	0.9' (SOFT TO VERY SOFT) DARK BLACK, SLIGHTLY SANDY SILT (ML)	* NOTABLE MODERATE TO STRONG ORGANIC ODOUR IN 0.0 - 0.9' SECTION
1.8' - 2.2' (SM)	006-012 (2.1 PD)	WITH A MODERATE TO STRONG ORGANIC ODOUR	
2.2' - 3.0' (SP)	012-018 (3.3 PD)	0.9' (SOFT TO MEDIUM STIFF) TAN BROWN, SLIGHTLY SANDY SILT (ML)	
3.0' - 3.8' (SP)	018-024 (3.7 PD)	1.8' (MEDIUM STIFF) DARK BROWN VERY SANDY SILT (SM)	
3.8' - 5.47' (SM)	024-030 (3.5 PD)	2.3' (LOOSE) DARK BROWN, VERY SLIGHTLY SILTY FINE TO MEDIUM SAND (SP), VERY SUBMODERATE	PIECE OF FINE SAND, 3 INCHES OF CONTACT
BOTTOM @ 5.47'	030-036 (3.5 PD)	1' BECOMES COARSE SAND (SP)	PIECE OF FINE SAND, 3 INCHES OF CONTACT
	036-042 (1.7 PD)	3.0' - 3.8' (MEDIUM DENSE TO DARK BROWN SILTY SAND (SP)	
	042-048 (1.8 PD)	FINE TO COARSE SAND (SP)	
	048-054 (1.8 PD)	SILT LOOSELY ORGANIC ODOUR	
	054-060 (1.8 PD)	3.8' - 5.1' (MEDIUM DENSE TO LOOSE) DARK SILTY SILTY SAND, FINE TO COARSE SAND,	
	060-066 (1.8 PD)	NO NOTABLE ODOUR (SP)	
	066-072 (1.9 PD)	5.1' BECOMES TAN BROWN SILTY SILTY SAND FINE TO COARSE SAND	
-13			

A02  
UPPER  
CORE TUBE LENGTH = 3.0 FEET  
TOP TO SED INTERFACE = 0.31 FEET  
LENGTH OF SED = 2.72 FEET

% RECOVERY = 90.7%  
 GINCH SECTION = 5.44 INCH (0.45 FEET)

A02  
LOWER  
CORE TUBE LENGTH = 3.0 FEET  
TOP TO SED INTERFACE = 0.25 FEET  
LENGTH OF SED = 2.75 FEET

% RECOVERY = 91.7%  
 GINCH SECTION = 5.5 INCH (0.46 FEET)



**CORE LITHOLOGY/DESCRIPTION FORM**  
**FOCUSED SEDIMENT INVESTIGATION**  
 (Sheet 2 of 2)

Date of Core Collection: 1/12/2012

Core ID: A03

Depth (Feet Below Sediment Surface in Core)	PID Screening (ppm)	Description	Engineer's/Geologist's Notes
0.0 - 0.6 (ML)	000-006 (0.0 PID)	0.0' Flat surface w/ no organic debris or moderate organic	
0.6 - 1.0	006-012 (0.0 PID)	(SOFT) DARK BROWN, SLIGHTLY SANDY SILT (ML) WITH A SLIGHT ORGANIC ODOOR.	
-2 1.0 - 5.4' (ML)	012-018 (0.0 PID)	016-1.0 (LOOSE), DARK BROWN SILTY MEDIUM TO FINE SANDS	3.3' Sand piece of aluminum in silt
-3	018-024 (0.0 PID)	1.0-5.4 (SOFT TO MEDIUM SAND, VERY SLIGHTLY SANDY, VERY SLIGHTLY ORGANIC ODOOR IN DARK SILT (ML) WITH ABUNDANT ORGANIC ODOOR.	
-4	024-030 (0.0 PID)	5.4-6.34' (SP)	
-5	030-036 (0.0 PID)	Bottom @ 6.34'	
-6	036-042 (0.0 PID)		
-7	042-048 (0.0 PID)		
-8	048-054 (0.0 PID)		
-9	054-060 (0.0 PID)		
-10	060-066 (0.0 PID)	5.4-6.34' (LOOSE), DARK BROWN TO GRAY AFTER SLIGHTLY SILTY MEDIUM TO COARSE SAND (SP) WITH GRAVEL PIECES.	
-11	066-072 (0.0 PID)		
-12	072-078 (0.0 PID)		
-13			

A03  
 UPPER [ TUBE LENGTH = 4.0 FEET  $\star$  REMAINING  
 SED INTERFACE = 0.2 FEET 0.42 % RECOVERY = 95.2%  
 LENGTH OF SED = 3.81 FEET (CUT SECTION = 5.12 FEET (0.48 FEET))

A03  
 LOWER [ TUBE LENGTH = 3.53 FEET  
 SED INTERFACE = 0.0 FEET % RECOVERY = 100%  
 LENGTH OF SED = 3.53 FEET (CUT SECTION = 6.0 FEET (0.5 FEET))

**CORE LITHOLOGY/DESCRIPTION FORM**  
**FOCUSED SEDIMENT INVESTIGATION**  
 (Sheet 2 of 2)

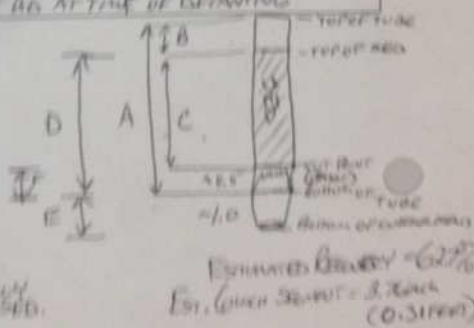
Date of Core Collection: 1/11/12 Date of Core Processing: 1/13/12  
 Core ID: C01  
CPL 1/13/12

Depth (Feet Below Sediment Surface in Core)	PID Screening (ppm)	Description	Engineer's/Geologist's Notes
-1 0-0 - (ML)	SURFACE (0.0 PID) 000-006 (0.0 PID)	0.0' NO LEAF LITTER OR EVIDENCE OF ORGANISMS, SURFACE IS VERY SOFT.	SAMPLED WITH CORE VERTICAL
-2	006-012 (0.0 PID)	0.0' (VERY SOFT), GRAY, VERY SLIGHTLY SANDY	DUE TO SOFT CONDITIONS, AND UNSTABLE CORE LATCHER.
-3	012-018 (0.0 PID)	<u>SILT (ML)</u>	
-4	018-024 (0.0 PID)		
-5	024-030 (0.0 PID)		
-6			
-7			
-8			
-9			
-10			
-11			
-12			
-13			

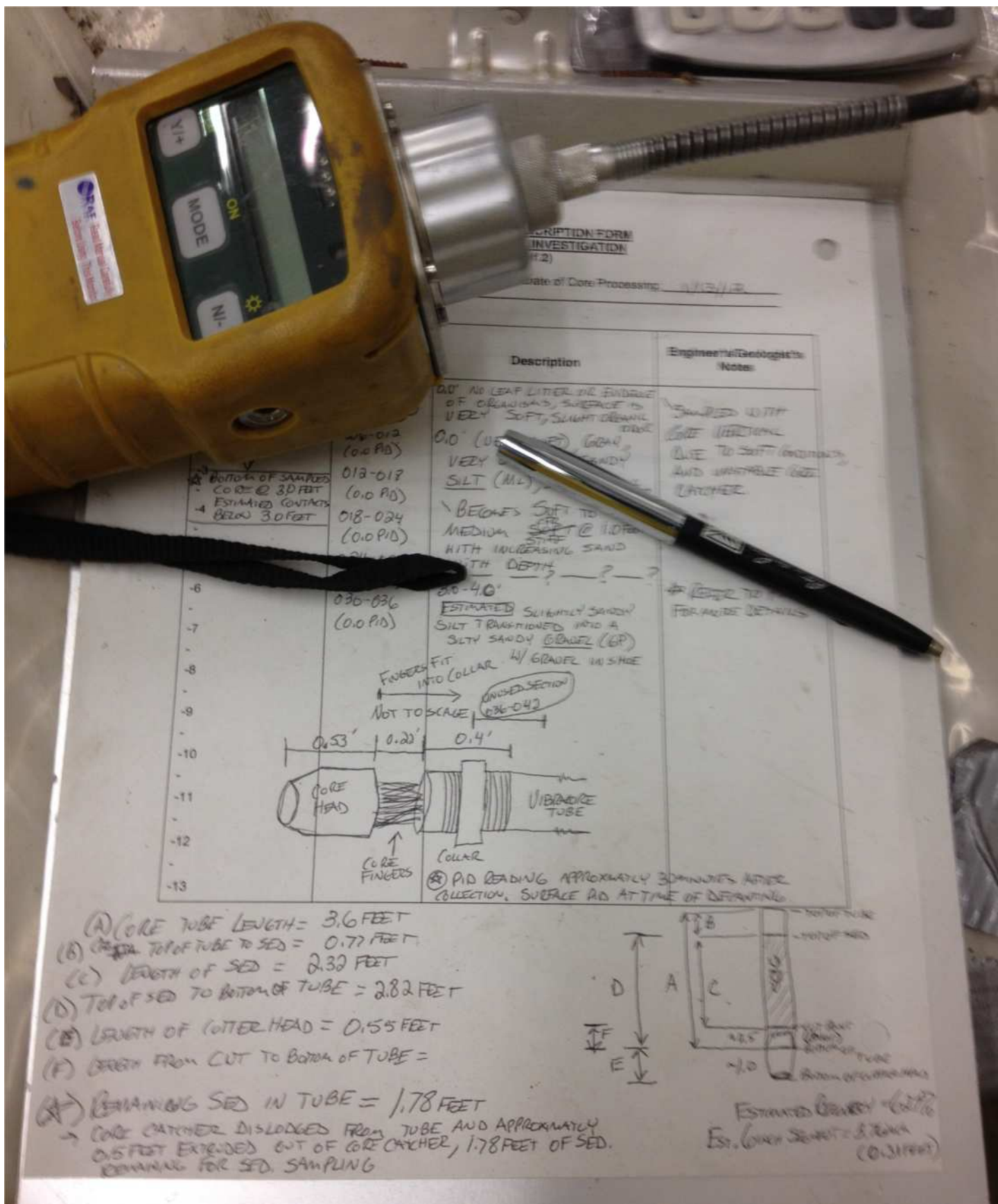
⑤ PID READ NORMALLY 30 MINUTES AFTER  
 CATCHER IS RELEASED AT TIME OF DEPARTING

- (A) CORE TUBE LENGTH = 3.6 FEET
- (B) ~~CUT~~ TOP OF TUBE TO SED = 0.77 FEET
- (C) LENGTH OF SED = 2.32 FEET
- (D) TOP OF SED TO BOTTOM OF TUBE = 2.82 FEET
- (E) LENGTH OF CUTTER HEAD = 0.55 FEET
- (F) LENGTH FROM CUT TO BOTTOM OF TUBE =

(\*) REMAINING SED IN TUBE = 1.78 FEET  
 CORE CATCHER DISLOADED FROM TUBE AND APPROXIMATELY  
 0.5 FEET EXTENDED OUT OF CORE CATCHER, 1.78 FEET OF SED.  
 REMAINING FOR SED. SAMPLING



ESTIMATED REMAINING = 62.7%  
 EST. LENGTH REMAINING = 3.76 FEET  
 (0.51 FEET)



Core Log C1 with diagram of cutting head, January 13, 2012, 5:40 p.m.



## **APPENDIX E: SPLIT SAMPLE LABORATORY RESULTS (CD ROM)**

## **APPENDIX F: SPLIT SAMPLE ELECTRONIC DATA DELIVERABLES (CD-ROM)**

## **APPENDIX G: HART CROWSER FIELD NOTES (CD-ROM)**



## **APPENDIX H: WOODARD & CURRAN FIELD NOTES**

6am conditions  
Cloudy, 32°F

01-09-12

0600 Arrived at marina to  
meet Clifton Firstenberg of  
Tierra and Roger McGinn  
Firstenberg Associates

Incoming tide

High tide @ 756 } Belleville  
Low tide @ 1526 }

John Bean - Ocean Survey.

Anne Conrad - Hart Crawler.

Ryan

Rupprecht - Cadna Entrix

Jason Di Lorenzo OSI deck  
boss.

Can Du - research vessel.

Vibracore Model 1200.

Trimble 4000 GPS.

Lead line used for depths.

B1 Position

N 724482.49

E 595821.57

0738

Set up @ First "B" location.

River mile 11.5 B01

Extended mast. Attached core  
barrel, 4" diameter to cable.  
Inside core barrel diameter 3 1/2".

Inserted core liner and cutting  
shoe on core barrel.

0803 Begin setting Anchor.

0815 Anchors set. Turned Vibracore  
@ 0827.

0830 End of Vibracore operation.

0842 Retrieve vibracore.

Penetration depth = 5.0'

River mile 11.49

B1

Northing 724482.53 } from QAPP  
Easting 595821.83 }

B2

River mile 11.44

Northing 724299.51 } from  
Easting 595629.74 } QAPP

B1 recovery = 4.3' from 5' depth penetration.

0915 Insert new liner into core barrel. Pull anchors and move to next sample location.

B2 downstream of F1 approx. 100'.

0926 Begin setting anchors near downstream train overpass.

"~~Central~~ Lyndhurst Draw"  
Conrail

Roger says they are analyzing for dioxin, HX, CS137. Also, said Captain needs to take <sup>elevation</sup> coordinates at tide gauge for GPS.

0959 On station @ B2. water depth = 12'

1003 lowered vibracore to bottom.

B2 Position  
Northings 724209.66  
Eastings 595630.08

1004 Turn on vibracore

1005 Vibracore off.  
Penetration depth = 7.5'

1018-

1019 Retrieved vibracore from B2 location.

1020-1023 Having trouble removing cutting shoe from core barrel.

1030-1033 Remove liner from inside core barrel and then drill hole above sediments to drain out water.

1035 Added water to top of core from what was above sediments.

Total recovery B2 core = 8.4'

Core was cut w/ hacksaw into 2 sections. Changed blade in hacksaw after cutting.

Cut off very bottom of bottom section of core. Estimated 6-8"



1112 Lower mast, anchors in.  
Depart for next location.

No more Cores today.

1145 Return to dock and unload boat.

John went to tide gauge on river to get depth during low tide in the afternoon. By correlating gauge readings to time and thus stage of tide, possible to get elevations at sample locations.

~~1-10-12~~ 1-10-12

Tide gauge location

Swing Bridge Belleville, NJ

DeJessa Bridge <sup>to open bridge</sup> phone # 201-336-7700

Reading of:

5.68' @ 1145 on 1-10-12

5.60' @ 1154 " "

There is <sup>pk</sup> nail w/ survey tape.

just above gauge and along electrical conduit.

5.48' @ 1154 1-10-12

1-10-12 Weather: Clr, 35°F  
Anne Conrad <sup>Hart</sup> Cruiser John Bean - OSI  
Ryan Ruppert, Catho, John Di Lorenzo - OSI

0600 Arrived @ boat. Anne C. and Ryan R. are already here.  
High tide 0830

0643 Depart dock and lower mast  
Today headed to "A" sample locations further down river from where we were yesterday.

0720 to 0741 Set up at  
Sample location A2.

Position of A2

Nothing  
Easting

Water depth h = 6.2'  
Revised g = 6.4'  
Penetration = 0.5'

0745 \*Saw other barge OSI headed downstream.

0748 Inserted liner in Core barrel, core catcher and cutting shoe.

0756-0814 Reposition boat A2.

0823 Core barrel over and into

river.

\* Jason said other crew going to mile 8 and working down river to bay. They are setting for CUS.

0826 Vibrometer shut off.

0835 Retrieve core.

0844 Drill hole above sed., collect  
some of the water in the cap.

A2 recovery length =

8538 recovery

Used hacksaw to cut off top  
part of liner.

Core cut into 2 sections. Both sections  
labeled then taken to storage unit on  
ice.

Bottom of core cut off approx. 6"  
from bottom of cutting shoe.

0912 Depart A2.

Core barrel decom consists of running  
river water through it.

0920-0930 Jetting up at A3.  
Depth = 9.7'

Boat facing 240°

Nothing  
Easting

Position A3

0936 Begin A3 Core

0937 End core penetration.

0947 Retrieve Core Barrel from sed.

Penetration = 8.2'

Recovery = 7.9'

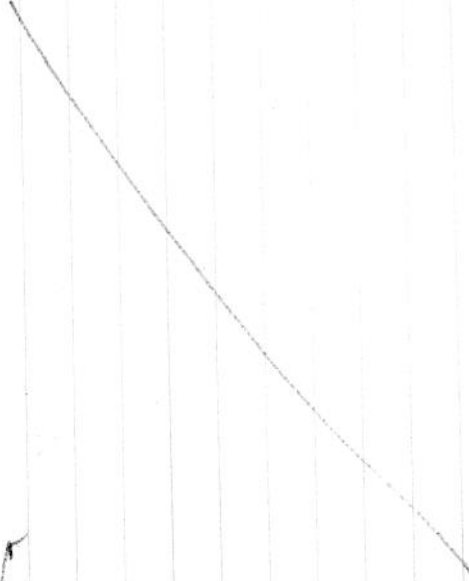
Core cut into 2 sections. Both sections  
labeled (top & bottom) Sin. section (very  
bottom saved in plastic bag).

1025

Pull anchors and off station A3.

1032-1042 Move to A1. Set anchors.

1025



Nothing  
Eastings  
Position A1

1040 Set up at A1.

Water depth = 10.1'

1046 Begin core penetration into sed.

1047 End core penetration.

Penetration depth = 8.5'

1058 Retrieve Core

(End of core) Sed. appear brown w/ black streaks

Recovery A1 = 8.6'

Core cut into 2 sections.

Approx. 1.5' of very bottom of core  
left as small third section. Put  
last section in bag and put in  
bucket.

1137 Leave A1 travel downstream  
to tide gauge. See reading page 6.

1200 Travel back to dock.

1230 Arrive back @ dock.

1240 Jan, Jason verify GPS by  
measuring distance from midships to  
PK nail on piling @ dock. Measured distance  
= 25.4'

Meeting boat + crew @ 0745  
on 1-11-12

1300 Anne waiting for rest of crew to  
show up with pickup truck. Pick up  
truck has locker on back to accommodate  
the Ceres in a vertical orientation.

1320 Roger McGuinness showed up  
w/ pickup that has storage area for  
vertical cores. Transferred cores from  
storage area on barge to storage on pickup  
truck. Roger signed Chain of Custody  
after receiving them from Anne.

Get lunch for Ralph + Mike.

1500 Arrived at 80 Lister Ave

1530-1550 Helped Roger transfer today's  
Ceres A1, A2 + A3 into Ceres outside  
processing area.



1600-1645

Help Ralph + Mike to prep. Samples  
for shipment. 2 coolers

1700 Leave Lister Ave. Site.

1-10-12

*David Dorman*

Keep On

@ 7:30

Weather: 30°F

1-11-12

0740 Arrived @ marina

0835 Leave marina dock,

High tide 0910 } Belleville  
Low tide 1045 }

0900 Check tide gauge @ De Jessa Bridge

Capt. Said

← This # meaningless.

Reading = 7.8' @ 0900  
0943

The workers on the bridge @ De Jessa  
have said 45 minutes to open so  
we can access downstream sample  
locations.

John downloaded tide elevation data.  
There are 2 transducers taking water  
level measurements every 6 minutes.  
The staff gauge readings are used to  
verify the readings from the transducers.

1130 Mechanical problems w/ bridge.

Operators say they are working on it. NISDOT says there is an emergency so they will not be able to open the next bridge downstream. Waiting for tide to drop so barge can fit under bridge.

Rte. 7 bridge is second bridge that we need to be able to get under.

1316 County personnel tell us they will be able to open De Jessa bridge. Tide was low enough to get under Route 7 bridge.

## C1A

Depth = 12.3'

Depth of penetration = 6.5'

1427 Drop core to river bottom and turn on vibracore.

1431 Stop Vibracore

It appeared as if the vibracore hit something solid that slowed its advance into sed.

1440 Retrieve C1A core

Approx. <sup>4'5"</sup> Water on top of core. Layer change (see photo) approx. 2' from bottom of core. hgt. brown color transition to black (bottom to top).

Discussion about whether enough recover to accept the core.

1508 Bore holes in core liner w/ drill  
Approx. half of core liner cut off after draining water off top of core. Still about 1' of water in core.

Recovery = 4.7'

after settling 4.9'

Originally 72% recovery of material.  
~~Core~~ encountered chip @ end of  
 Core. Core was retained since  
 suspended fines, upon settling, increased  
 recovery %. Since recovery so close  
 to 75% criteria, decision was made  
 collect another core approximately  
 5' away. It ~~could be that~~ <sup>was better than</sup> the clay

that was encountered was an anomaly. Second  
 core will have Id C1B.

More to station @ C1B @ 1548, 1-11-12  
 Water Depth = 11.4'

Approximately 5' South of C1A.

Tougher to penetrate sediments  
 than at upstream (B and A)  
 locations.

## C1B

1550 Lowered core barrel to  
 bottom and begin penetration into sed.  
 Only able to penetrate 4.5'. Core barrel  
 appeared unable to advance beyond this  
 depth - refusal.

1555 Vibracore turned off.

1605 Retrieve core barrel from bottom.

1 1/2" diameter stone came out of bottom  
 of core barrel. Unable to remove  
 Core Catcher. Core Catcher still in ~~sample~~ <sup>core</sup>.

Recovery = 39" or 87%.

Decision made to Keep Core.

Approx. 6" of water covering top.

Rinsed core barrel w/ river water,  
 insert new Core liner.

1640 Pull anchor @ C1B

B.A.  
 1/2/12



C2

1652 On station at C2. Closer to middle of river.

Water depth = 15.2'

1657 Core barrel lowered to river bottom and Vibracore turned on.

1706 Retrieve core barrel from bottom.

Refused @ 2'.

Core not kept. Small stones fell out of bottom of core barrel.

1815 Return to dock.

1-11-12

~~David Dymov~~

Weather: Rain, 44°

1-12-12

0830 Received call from Anne Conrad at Hart Crawler that barge may go out on river at 11AM if the bridges can be opened by operators. River is 2' above normal so we may not be on the river today at all. Also, asked Anne if it was possible to make copies of log sheets and this was ~~note~~ on copier at Lister Avenue. Anne referred me to Cliff Firstenberg's e-mail which indicated all log sheets would be distributed to the interested parties sometime next week.

0850 Arrived @ Lister Ave.

0850-1650

Helped Mike K. and Ralph pack samples, Fill out chain of custody.

1800 Drop off samples @ FedEx.

1-13-12 Windy  
Weather: Clr., 43°

0745 Arrived @ dock. High winds.  
Only one more location to collect  
core, C2. 2 more attempts to get core.

GPS check - midships to PK nail on  
piling 25.3'

High Tide 1043

Low Tide 1806

0825 Underway to sample location.

0848 Arrived at De Jessa bridge

7.17 tide gauge reading.

1000 Bridge opened.

1011 Rte. 7 bridge arrival.

1015 Bridge opened

C2

1110 On station  
Water depth = 21.3'

1114 Lower vibracore to bottom.

1115 Turn on vibracore.

1121 Turn off vibracore.  
Penetration = 1.4' to refusal.

1131 Retrieve vibracore  
Empty core. Rinsed core liner  
for reuse.

Drifted about 5-10' upstream for  
2nd attempt (3rd overall) today to  
get core.

Water depth = 21.2'

1143 Redeploy core to bottom and  
turn on vibracore.  
Water

1145 Turn off vibracore.

Penetration = 1.5' to refusal.

1158 Retrieve core and reel.

C2

Sm. rocks came out of end of  
core barrel. Empty core

1-2" rocks in core mount  
holder (see photo). Hart Crawler saved  
material in Ziploc bag.

1225 Pull anchors and head back  
to dock.

1350 Back @ dock.

1525 Arrived @ Lister Ave.

1525-1910 Helped R. Simon  
and M. Kelly log samples,  
pack coolers.

1915 Left site

~~David D. Quinn~~ 1-13-12



1/10/2012

# Passaic River Tien Sampling

Weather: 40°F, P. Cloudy

0700 Arrival @ site

- Harte (Transect) already on site
- discuss how split samples will be collected
- discuss PPE needs
- told by HC that we can not enter EZ without boots, gloves, double gloves + eye protection

RTS 1/10/12

0730 ~~Cliff~~ Entrex (CE) onsite

- Cliff Firstenberg onsite
- Call Pme for PPE delivery
- discuss samples needed w/ CE
- discuss weights needed w/ Cliff
- begin discussion w/ WTC, CE, + Project managers to determine sampling procedure and weights needed
- Determine that initial weights from plans will be used, then CS-137 will be filled, then DDX, then D/F
- discuss this w/ Cliff
- Cliff sends out email to all parties summarizing plan
- WTC + CE 1 person from each enters EZ, 1 from each stays outside for sample management +

Raph T Simon

1/10/2012

- 11:13. Enter processing exclusion zone  
 • talk w/ Colleen Rust Re: where to stand, what they are doing.  
 • Currently sampling 24-30"  
 • goes to sample bucketing in 48"  
 • approximately 3" @ end will not be sampled  
 • this is core B.1

11:38. From HC lith. log  
 0.12-1.0' very slightly silty fine sand  
 1.55-2.10' V.S.L. silty fine sand

- Recommend collecting sample to analyze @ 0-6" or 6-12"
- Second to analyze 18-24"

11:50. Discuss how they will sample our bottles + label etc.  
 w/ Colleen + Cliff

- They will fill out sampler, time, + weight
- sampling method is to fill bowl, leaving material near core barrel
- check weight of SS bowl, top up w/ extra material if needed then homogenize
- then fill jars while weighing
- then clean + label jars, verify labels and send to CRZ
- In CRZ they double check sufficient mass of jars and handle samples

- HC is recording weights for themselves for all of our jars

12:12. @ start of day HC began collecting the sands from core + bottling their samples

- extra sediment for WTC + CE were saved in labeled ~~be~~ bowls covered w/ aluminum foil
- Began bottling samples for WTC + CE now; collecting final sediment from core simultaneously

- Floor trough is lined w/ plastic
- Decan fluids caught in SS gal drum

- HC samples are being filled first from homogenized bowl, then WTC + CE samples are being filled from remainder

1/10/2012

12:47. began filling our ~~sample~~ 030-036 sample  
 • simultaneously placing dirty core liner in SS gal drum

12:56. discuss final weights w/ Colleen  
 • each of 3 jars is filled slightly over minimum

12:59. Filling our 006-012 samples RT5

- HC personnel clean empty core liner before discarding

13:04. Filling 012-018 our jars  
 • table wiped off w/ paper towels to remove gross sediment

13:10. began filling 018-024 of our jars

13:20. began filling 024-030 of our jars

13:28. began filling their jars for 036-042 from covered bowl

13:33. began filling our jars for 036-042

13:44. began filling HC jars for 042-048

13:50. began filling WTC + CE jars for 042-048

13:56. First core is completely sampled

- all jars were filled beyond the minimum
- taking a break

- Samples to analyze immediately are  
 B01-SD1-000-006\*

B01-SD1-018-024

Rough 75 min 1/10/2012



1/10/2012

405 RTs 11/10/12

1605 CE offsite

181615. WTC offsite

All Cs-137 samples were taken by CE-a  
analy sis

WTC sample summary

Sample

RTs

Analysees

note

		DDX, Dioxins Furans		Analyse
BCI-SD1-000-006	0440			Freeze
BCI-SD1-006-012	1030			Freeze
BCI-SD1-007-018	1045			Analyse
BCI-SD1-018-024	1051			Freeze
BCI-SD1-024-030	1123			Freeze
BCI-SD1-030-036	1136			Freeze
BCI-SD1-036-042	1211			Freeze
BCI-SD1-042-048	1221			Freeze

Barry Smith

1/10/2012

Scale: 1 square =

0615 WTC, CE, HC on site

Core B02 (upper) is on the table

0-48"

Lithology is being documented

top interval is being removed from core

Access nows from about 5-10' away to view from out of the way  
top of core was removed before WTC arrived  
material that was in contact w/ core liner is being removed from surface

Colleen H. is logging lithology

worm is seen at 1.7' depth

photos were taken of core before sampling

photos were taken of interesting features (worm)

Brian is collecting sample from core + filling bottles

Cliff is cleaning jars and organizing jars and filling jars

Sample homogenization is being conducted by string with a spoon, not EPA method

homogenizing OR-018, putting COG-018 in jars

Emily is taking pictures, keeping log book; saving/handling samples

RTs 11/11/12

5' extra material below <sup>304</sup>

Total length of sediment is 3.6' - initial measurement

basic lith log (All PTD readings are 0.0 ppm)

0.0-0.08' (PT/mL) leaf litter + silt

\* 0.08-1.9' (SW) slightly silty fine SAND (Dense) (sample 000-006)\*

1.9-2.2' (SM) slightly silty fine sand (loose; leaf litter)

2.2-2.7' (ML) sandy silt (medium stiff to sat; leaf litter)

(SM) slightly silty fine sand (medium dense) - silt lenses

\* Cable, wood debris, leaves, trash @ 2.5' (not sampled, set aside) (later)

RTs 11/11/12

RTs 11/11/12

This section was sampled along with material from the top of B2 (lower)

bottom piece was big enough to use for sample 042-048

wood piece removed from sample

\* stiff silt/lense w/ M to C sand below silt/lense (Sample 042-048)\*

note: \* - possible logs to Analyze

Scale: 1 square =

Scale: 1 square =



• Air monitoring with MiniPac 2000

0720 • Bring in lower core section

• placed in vertical ~~in~~ holder

• ~~top cap removed~~ ~~miniPac 2000~~ (RTS 11/11/12)

• Total length of sediment measured and empty space at top of

core liner measured

• measurements taken by Colleen + checked by Emily

• Sampling B2 (upper) continues

0740 • Brian is decoring + cleaning core tubes

• all gross sediment is removed into a segregated drum prior to cleaning/decontagated

(RTS 11/12)

• Adrian and Roger are outside doing sample management and

Support

• HC did not touch sample material with hands

• Decored and faltered spoons were used to collect samples

• Decored SS pitby knives were used to separate sample intervals

• Decored SS spatulas were used to investigate core

• Decore procedure is:

• liquid, nix + H<sub>2</sub>O

H<sub>2</sub>O

H<sub>2</sub>O

DI

methanol

Hexane

methanol

DIx5

0818 • Table has been cleared of B02 upper

• Table is wiped w/ paper towels prior to placing next core section

• plastic sheet is not replaced

0823 • Sample ~~B02~~ B02-SD1-042-048 was last collected before break

0825 • take 15 minute break

0850 • Place core on table and mark sample intervals on core sleeve

• 3" section of sleeve removed w/ power snips

• PID measurement taken above core, core was not disturbed

• Clean spoon set at each sample interval

• photos taken and documented with white board for each interval

Scale: 1 square =

Scale: 1 square =

0859 • Sample collection starts immediately after logging/photo/PID of 1<sup>st</sup> interval, 13 cm  
• Core penetrated several (12) Feet deeper than deepest sample needed

Lith Log B02 (lower)

361-40' slightly sandy SILT (ML) (stiff)

\* 41.0-274' medium dense V slightly silty Fine Sand, Tr. C. Sand (Sept 2006-0)

0936 • Core A1 (upper) is set in core holder-

0946 • Begin opening/measuring A1 (upper)

• open top cap + measure PID

• Drill hole @ 1" hole to release water

1004 • little more water from top

• Core placed on table, opened, split in half by itself, so sample

will be taken from both halves

• 7 whole sample intervals + 1 @ bottom

• Sediment appears more wet than previous cores

• color changes brown to black @ about 27"

• 18 to 30" appears wet and shiny

• mostly appears silty; 2" sand lense @ bottom

HC Lithology Log Summary

total Sed length is 3.87 feet

PID is 0.0, except 036-042 = 0.1 ppm (for upper section)

0-2.2 (ML) Soft to very soft v. slightly sandy silt

• tan + organic / Anoxic color

• moderate organic color @ 0.5'

\* 2.2-7.39 (ML) Soft to very soft dark black-gray, v. silty sandy silt

• moderate to faint organic color @ 2.2

• stronger color w/ depth (036-042)\*

• 3.6' fine sand lense

• 4.1' F-M Sand lense

• 4.0' becomes stiff dark brn silt

• 5.0' CFS sand lense, void, plastic

• 6.5' becomes m. stiff tan silt, tr. SAND

PID Lower is 0.0 except 060-066" PID = 0.1 (060-066)\*



1/11/12

- HC samples change gloves when sorted, not between each sample
- power tri strips used to open core
- vibrating cut off saw used to cut spent core (was prior to ch. special)
- Samples selected for analysis are:

B02-SD1-000-006  
B02-SD1-042-048  
A01-SD1-024-030 sample time is 1107  
A01-SD1-030-036 sample time is 1120  
A01-SD1-036-042 sample time is 1120

- 1158 • Sample discussion w/ Cliff, Roger & Adrian
- 90g short of our minimum
- Expect A02 + A03 same problem

- interval 18-24 - they need dips on this
- discussed sampling issue w/ Jason Shuttle
- 24-30
- 30-36
- R. Simon stepping out for break

WAC sample summary

sample	sample time	weight (g)	Analyze	note
B02-SD1-000-006	0631	51.4	Dioxins/Furans, DDX	Analyze
B02-SD1-006-012	0647	53.5		Freeze
B02-SD1-012-018	0655	54.1		
B02-SD1-018-024	0658	54.3		
B02-SD1-024-030	0705	62.2		
B02-SD1-030-036	0716	50.7		
B02-SD1-036-042	0722	82.2		
B02-SD1-042-048	0754	55.7		Analyze
B02-SD1-048-054	0900	54.3		Freeze
B02-SD1-054-060	0907	61.9		Freeze
B02-SD1-060-066	0915	50.3		Freeze
B02-SD1-066-072	0921	57.5g	Dioxins/Furans, DDX	Freeze

1/11/12

- 1252 • HC Sample team Finished B02-SD1-048
- lunch break
- HC gave us a COCs from 1/10/12 review

Time	PCODs/PDFs	HCX	Cs-137	Extra value
B01-SD1-006-012	X	X	X	X
B01-SD1-018-024	X	X	X	X
B01-SD1-030-036	X	X	X	X
B01-SD1-042-048	X	X	X	X

RTS 1/11/12

- SD-00-B01-042
- B01-SD1-000-006
- B01-SD1-012-018
- B01-SD1-024-030
- B01-SD1-036-042

- All HC Cs-137 samples being held
- Alternating intervals in Bad C cores are being held @ lab

1400 • A01 (lower) is in processing room

- surface under removed
- placed on table

1423 • Core opened

- Putty knives placed in core
- taking PID measurements over the core
- Sediment appears to be primarily dark brown silt

1435 • Sample A01-SD1-048-054 collected - First from lower section

- @ ~75" change to lighter brown
- total length of sediment is 3.52'
- Approximately 6" at the bottom will not be sampled

1533 • Sample A01-SD1-078-084 collected - last from lower section

- began equipment decon
- Final sample jars are filled
- HC beginning clean up

- Sample A01-SD1-018-024 split is being double bagged & placed in HC's cooler, locked
- Spoke to Jason regarding this

1/11/12

1620: Ask Cliff about AOI SDI-018-034  
He gave us the sample

WTC Sample Summary continued  
time weight Analysis

Sample	53577 Dioxins/Furans, DDX	
AOI-SDI-000-006	1030	Freeze
AOI-SDI-006-012	1040	
AOI-SDI-012-018	1048	
AOI-SDI-018-024	1057	
AOI-SDI-024-030	1107	
AOI-SDI-030-036	1120	
AOI-SDI-036-042	1135	Analyze Freeze
AOI-SDI-042-048	1148	
AOI-SDI-048-054	1435	
AOI-SDI-054-060	1445	
AOI-SDI-060-066	1455	
AOI-SDI-066-072	1508	Analyze Freeze
AOI-SDI-072-078	1522	
AOI-SDI-078-084	1533	

1820

WTC offsite

Supply T Simon 1/11/12

0604: WTC, HC, CE onsite

0620: Discuss w/ Cliff + CE

0633: CE wants Cs-137 filled to 100g 1st then other 2 parameters

0633: begin processing AZ (upper)

0711/12: Brian Mikacki in processing room to help open core

HC ladders soft material from top of core into sampling bowl

PID Reading taken

total sediment measurement after collection and amount of recovery

Decision to fill Cs-137 jars 1st was in an email:

Frank Harg (log turn

CC: Bill Hotfield

Cowille Etere-Otero

0654: Core is opened on table

taking PID

0700: HC has taken photos

Logging lithology

Collecting 1st sample from core into bowl

0706: HC begins filling 1st sample jars

AZ (upper) core observations:

0-1' Dark Brn silt to 1'

1'-2.25' Brn silt

2.25'-3' Brn m. sand tr. gravel

0730: PID background is 2.8 - 1.5 ppm; no solvent usage

0737: Brian (HC) says they calibrate PID + scales each morning + log is kept

Sampling room personnel are

Colleen Rust

Brian Payne

Erly Duncanson



1/12/12

## A02 (upper) Lithology from HC

0-0.9' (ML) silt + v. silt Dk Brn. Slightly sandy silt

med. to organic color to strong color

0.9-1.8' (ML) silt + m. silt Tan Brn. slightly sandy silt

med. organic color

1.8-2.2' (SM) m. silt + silt Dk Brn. v. sandy silt

slight organic color

2.2-3.0 (SP) loose Dk Brn. v. slightly silty F.-m. Sand (0.30-0.56) \*

v. slight color

3.0-3.8 (SP) m. Dense to Dense Dk Brn. silt

Fine to C. Sand w/ silt Lense

3.8-5.1 (SP) m. Dense to loose gray silty poorly sorted F-C Sand

no color

5.1-5.47 (SP) Tan Brown silty poorly sorted F to C Sand

Scale: 1 square =

0759. A2 (Lower) placed in core holder

0826. HC decides to use 030-036 for last interval of A2 (upper)

total length of Sed = 2.78'

Brian is showing Emily procedure for collecting sed. from core

Brian M. is cleaning & organizing jars

0835. PTD measured @ top of A2 (lower) core

0847. A2 (Lower) placed on table

Lengths of sample segments based on recovery & comparison are predetermined

Sample segments are measured and marked with a marker on outside of the liner before opening

0855. Core A2 (Lower) is open

WAC observations

36-42" Dk Brn Sand, to F. m. gravel

42-60" Grayish Brn Sand some silt

60-66" Light Brn. C. Sand some F.-m. gravel rounded to redish Brn

HC taking photos, set up Pithy knives, logging Lithology

Last sample will be A02-SD1-060-066

0904. First sample has been removed from core and is being bottled

total length of lower section is 2.75 feet

Core Summary to date:

Scale: 1 square =

1/12/12

1021. Talk to collector R.

- They attribute high background PID to high humidity
- Difference between measured depth on lith. log and total depth of sample intervals is due to expansion
- sample intervals are shortened based on comparison from original length
- lith log is measured directly from sediment after compaction

1028. Sample crew takes a break

- Dave Driscoll is onsite
- Boat will not be going out today

1131. Core A3 (upper) is in holder in sampling room

- Roger is calculating sample interval length this

1137. Begin measuring and marking sample depth on outside of core

- water @ top is let out a hole w/ adill
- excess water is removed w/ ladle

1145. Core A3 (upper) is on table

- sample intervals are checked w/ decimal tape measure

1148. opening core liner w/ power snips

1200. Core is open

- odors are strong
- WTC observations:
  - 0-12" dark brown wet silt; sand lens @ 12"
  - 12-48" black silt; organic debris @ 22-24"
  - no visual evidence of contamination
  - some organic material throughout

1205. begin collecting 000-006 from core

- WTC observations:
  - > 0-12" odor seems strongest; deeper parts have not yet been disturbed
  - > after observing the entire sampling of A3 (upper) the entire section has a strong odor

A3 HC Lith. Log summary all PID = 0.0 ppm whole core

0-0.6 (ML) Soft drk. brn. slightly sandy silt w/ slight organic odor

0.6-1 (SM) loose Drk brn silty mto F. Sand

1-5.4 (ML) soft to med stiff very slightly sandy silt abundant organics and a moderate to strong organic odor

top section = 3.81'  
bottom section = 3.53'

5.4-6.34' (SP) loose Drk brn to gray slightly silty m. to C. Sand w/ gravel pieces

Rephot Stone

1/12/12



1307. Spoke to Brian P. about Dean procedure

- All equipment was decontaminated w/ solvents prior to solvent storage <sup>(RIS 1/15/11)</sup>
- Project and merged into file
- Clean equipment was segregated into groups and rinsate blanks were collected before starting project for each group
- after being used equipment was washed w/ ligand and rinsed w/ tap water

1336. ~~042-048~~ 042-048 is deepest ~~core~~ interval from upper section

1347. A3 (lower ~~upper~~) set in holder

1350. Measuring A3 (lower)

1400. Discuss possibility of collecting duplicates

- Gallen and Brian M. refuse to give separate dup. jars
- talk to J. Schindler + CE personnel regarding this
- R. Simon broke for lunch

1445. R. Simon re-enter sampling room

- case A3 (lower) open on table
- Sample 048-054 has been collected
- WtC observations

48-80" dark brown silt

80-90" brown F.-G. Sand and some F.-G. gravel

- strong general odor in core
- no visual evidence of contamination

1546. Talk to J. Schindler - samples from A3 to analyze

000-006

012-018

1555. Ralph Step out side sampling room

Adrienne Stutts (Hot Crowder) told me that I could not take a field blank at this time

- Said she would pose the question to someone with the authority to answer this question

1605. Cliff's answer was no, but he will pose the question to higher up people

WtC Sample Summary

Sample	Time	Analyses	Notes
A02-SD1-000-006	0705	DDMS/Furns, DDX	Analyze Freeze
A02-SD1-006-012	0720		
A02-SD1-012-018	0734		
A02-SD1-018-024	0744		
A02-SD1-024-030	0757		Analyze Freeze
A02-SD1-036-042	0838 0704		
A02-SD1-042-048	0844 0720		
A02-SD1-048-054	0822 0730		
A02-SD1-054-060	0950		
A02-SD1-060-066	1000		
A02-SD1-030-036	0858	DDMS/Furns, DDX	Analyze Freeze
A03-SD1-000-006	1211		Analyze Freeze
A03-SD1-006-012	1222		Analyze Freeze
A03-SD1-012-018	1236		
A03-SD1-018-024	1240		
A03-SD1-024-030	1252		
A03-SD1-030-036	1305		
A03-SD1-036-042	1320		
A03-SD1-042-048	1339		
A03-SD1-048-054	1439		
A03-SD1-054-060	1457		
A03-SD1-060-066	1510		
A03-SD1-066-072	1520		
A03-SD1-072-078	1531		
A03-SD1-078-084	1543		



1/12/12

HC Summary of COC from 1/11/12

Sample	Time	Cs137	Extra Volume	PCDDs/PCDFs	HCH
B02-SD1-000-006	0631	X		X	X
B02-SD1-07-018	0655	X		X	X
B02-SD1-07-024-030	0705	X		X	X
B02-SD1-030-042	0722	X		X	X
B02-SD1-048-054	0900	X		X	X
B02-SD1-060-066	0915	X	X	X	X
A01-SD1-000-006	1030	X		X	X
A01-SD1-006-012	1040	X		X	X
A01-SD1-012-018	1048	X		X	X
SD-00-A01-018		X			
A01-SD1-018-024	1057	X		X	X
A01-SD1-024-030	1107	X		X	X
A01-SD1-030-036	1120	X		X	X
A01-SD1-036-042	1135	X		X	X
A01-SD1-042-048	1148	X		X	X
B02-SD1-006-012	0647	X		X	X
B02-SD1-018-024	0658	X		X	X
B02-SD1-030-036	0716	X		X	X
B02-SD1-042-048	0754	X		X	X
B02-SD1-054-060	0907	X		X	X
SD-00-B02-054		X			
B02-SD1-066-072	0921	X		X	X
A01-SD1-048-054	1435	X		X	X
A01-SD1-054-060	1445	X		X	X
A01-SD1-060-066	1455	X		X	X
A01-SD1-066-072	1508	X		X	X
A01-SD1-072-078	1522	X		X	X
A01-SD1-078-084	1533	X		X	X
SD-00-B02-30				X	X
SD-00-B02-12					
SD-00-A01-030				X	X
SD-00-A01-078					

Scale: 1 square =

Scale: 1 square =

1610 - All samples from core A03 have been collected

• Packing up samples

1714 - WTC offsite

PHOTO

1/12/12

11/13/12

1000 hrs - 1000 hrs

1000 hrs - 1000 hrs

0720 - WAC was 2 + Brian M. (Terra)

- HC and JCI are still
- Duct to processing is locked
- CE on site
- LBG onsite

1146 - CE preparing glassware

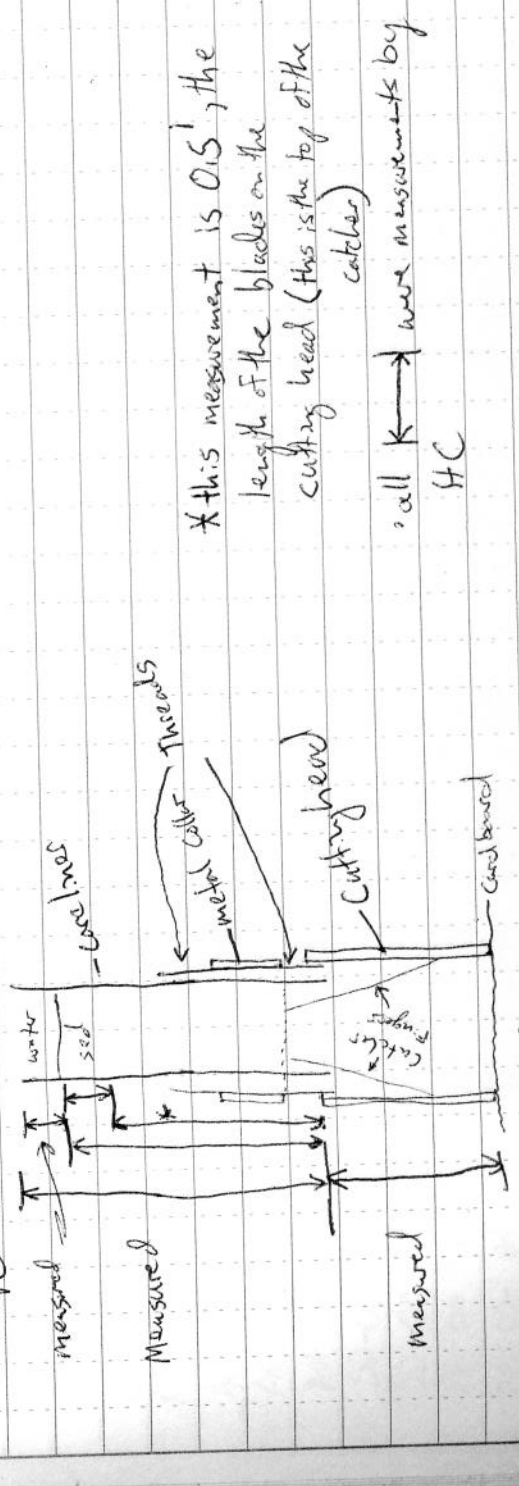
• HC preparing sample processing room - 1146  
to sample from core - 1146  
to sample from core - 1146

0824 - R. in processing room

- Emily D., Brian M., Colleen R. in processing room
- HC taking field notes, starting lithology log
- Core CI is in core holder
- there was brief confusion over core naming convention
- plan for day is to process core CI in morning and collect core CO2, core CO2 will be processed in the afternoon
- Core CO1 is short with cutting head still attached and plastic bag over cutting head

0906 - HC is having trouble measuring total length of sediment because bottom

- is inside cutting head
- Roger M. is brought in to decide how to measure and open core
- Since core hit refusal there may be important sediment inside the cutting head, which they are trying not to lose
- setup @ bottom of core



I can not see down here

11/13/12

0926 - Break taken by HC to sort out a SDG ms/msd issue because there may not be enough material for their QA/QC

- Diane Waldshmidt has been onsite on and off throughout project
- Env. Data Systems - EDS

1000 - We are told by Adrienne S. that they will wait to processing the until they find out if CO2 was collected

- this may take at least 2 or possibly 3 hours
- If CO2 is not collected there will not be enough material for HC to collect their QA/QC samples
- If CO2 is collected they should have just enough material to spend the QA/QC samples across both cores
- Also, they will not work this weekend because labs and Felix will be closed
- 1138 - Second attempt @ CO2 core did not get enough penetration
- will begin processing CO1 right now, planning that CO2 will not be collected in three attempts
- According to QAPP after 3 attempts they will abandon the CO2 core

1146 - Enter Processing room w/ HC team

• preparing to open CO1 core

1158 - remove water @ top w/ drill and ladle and take PID from surface

1204 - Start cutting excess core liner from above sediment

1207 - top of liner is cut off; removing flakes of liner material from surface of water at the top of the core + remove last of the water from over the sediment

- in processing room today is:

Colleen R.

Emily D.

Brian M.

1214 - Mark depth of 1st sample interval on core sleeve

- take soft material from surface - 1st 6" sample

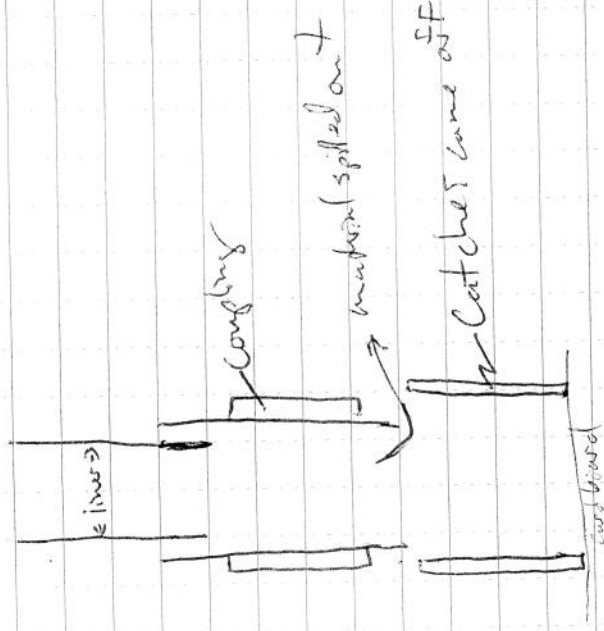
1220 - HC cutting a circle from 1" thick cardboard and covering it w/ aluminum foil to create a plug; material is removed from sides of core liner where soft material was removed; plug placed to hold top from slumping

1223 - Picking up core, catcher disconnected @ bottom and soft material spilled out into plastic container

- material all slid down inside the liner by about 6"
- Roger enters sampling room to discuss what to do



- 1235 • trying to stabilize the core, wrap up the connection between the catcher and the core liner
- approximately 6" of material was lost from above the bottom of the steel coupling



- 1247 • sediment column above the catcher is measured again to determine the loss
- they will collect samples w/ a label w/ core in vertical position
  - will cut liner above sample interval off
  - will discard a small portion of each sample after cutting lines to remove chips of liner
  - piece of plastic drum lines and duct tape was used to hold catcher and steel coupling together

- 1302 • Sampling crew takes a break

- Original length of sediment that can be sampled = 2.32'

- RTS/1313 • ~~length of sediment that can be~~
- 6" sample removed from top - but the actual sample length was less than 6" due to compaction
  - sediment was then lost during moving of the tube
  - remaining sediment is 1.78'

- 1313 • begin making sample intervals on outside of core liner

- 1331 • Port Crouse is taking a break; discussing making calculations
- waiting to hear from Cliff on how to proceed

- Sample times represent the time sample was homogenized

- 1414 • Adrienne tells us HC with will collect samples from C1
- will not collect Cs-137 in order to leave enough material for all parameters & splits needed

- 1435 • Sampling crew re-enters sampling room

- begin placing 000-006 into jars

- 1440 • Clifford Roger have agreed to supply WTC or Field Blank For D/F and DDx

- 1450 • cut excess core liner off

- 1454 • clean chips of liner from top of sample + discard small amount of top of sample

- 1457 • ladle out 000-012 interval

- WTC observations: (total length of sed was  $\approx 3.38'$ )

- 0-006 wet loose Brn silt

- 006-036

- 036-37 becomes light Brn, and very wet @ 36"

- 37-50" loose wet brn silt as above, more firm

- 50-55" silty gray, m. to C. gravel, subangular to rounded

approx. moisture measurements

- 1509" cut excess core liner

- material that came out the bottom of core liner is sandy and gravelly
- at about 1315 sample 000-006 was homogenized
- at 1331 Colleen R. told us that they did not write down the sample time when they homogenized sample 000-006
- Beth W. supplied the time from her notes

- 1515 • top of sample 012-018 ~~discarded~~ discarded and sample collected

- 1523 • cut off excess core liner

- 1526 • scrape surface of 018-024 interval + collect sample

- hack saw blades were switched w/ a new decontaminated blade after each cut

- 1535 • measure next sample interval and mark on outside of core liner

- 1537 • cut excess core liner



1541 • Scrape top of 030-030

• Samples are being photographed, described, and PID measured in bowl after collection from the core and prior to homogenization

• R. Simon step out of sampling room to discuss Field blanks

• HC will take the Field Blank into our bottles

1620 • HC taking core out of stand to collect lower samples

• core kept vertical; set clamp @ top of liner

• cut core liner above next sample interval (030-036)

1628 • Scrape top of <sup>030-036</sup> and collect sample with spoon

1647 • placing sample 030-036 (last sample) into jars and cleaning equipment

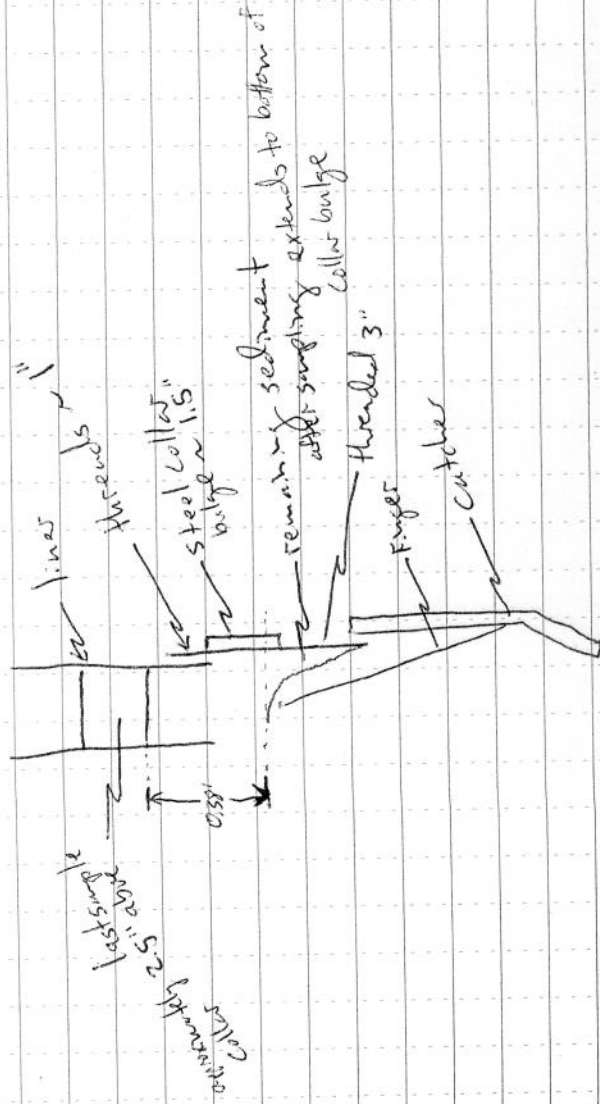
• last sample was just at the top of the steel collar  
(bottom)

1655 • move core catcher and core liner to table

• HC takes photos and logs lithology

• Separate catcher and collar

• taking measurements to determine length of sed remaining above catcher



• 36-42" section was not sampled due to possible disturbance and contamination from catcher fingers

1724 • HC decontaminating equipment

• R. Simon step outside

1746 • R. Simon talk w/ J. Schindler

• will sample 030-SD1-030-036

030-SD1-030-036

1800 • R. Simon in sampling room to view Rose blank collection

1818 • HC collects rinse blanks for themselves, WTC, & CE

• decontaminated Stainless steel large spoon, sm. spoon, spatula, putty knife and ladle placed in Stainless steel bowl

• DI placed over hole in bowl and poured into 1L amber jar with stainless funnel

• hexane <sup>as supplied</sup> poured in bowl, then bottle for Dicans/Furns

1830 • Rinse blanks finished

• Packing up samples and equipment

1915 • WTC at site