



US Army Corps  
of Engineers

**U.S. Army Corps of Engineers  
Philadelphia District**

**Sediment Quality Analysis  
for  
Maintenance Dredging and Beneficial Use of Dredged Material  
within the New Jersey Intracoastal Waterway  
(Mordecai Island, Avalon, and Stone Harbor)**

**Biological and Environmental Services Related to Marine and Navigable Waterways Civil  
Works Activities in the Philadelphia District  
Contract No. W912BU-12-D-0021  
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## LIST OF ACRONYMS AND ABBREVIATIONS

|            |                                   |
|------------|-----------------------------------|
| COE        | Corps of Engineers                |
| CY         | Cubic Yards                       |
| mg/L       | Milligrams per Liter              |
| mg/kg      | Milligrams per Kilogram           |
| MLW        | Mean Low Water                    |
| msl        | Mean Sea Level                    |
| NJIWW      | New Jersey Intracoastal Water Way |
| PCB        | Polychlorinated Biphenyl          |
| SOW        | Statement of Work                 |
| SVOC       | Semi-Volatile Organic Compound    |
| TAL        | Target Analyte List               |
| TCL        | Target Compound List              |
| TDS        | Total Dissolved Solids            |
| TOC        | Total Organic Carbon              |
| TSS        | Total Suspended Solids            |
| Tetra Tech | Tetra Tech Inc.                   |
| ug/L       | Micrograms per Liter              |
| VOC        | Volatile Organic Compound         |



## 1.0 INTRODUCTION

### 1.1 Purpose

In December 2013, the U.S. Army Corps of Engineers, Philadelphia (Corps) initiated a project consisting of sediment sampling and analysis for three separate areas within the New Jersey Intracoastal Waterway (NJIWW) for the Federal navigation project. The purpose of this project was to collect surface water and sediment samples for analysis in planned dredging areas to characterize the physical and chemical properties of the material to be dredged and used beneficially for erosion control/island restoration.

This report presents a description of the work conducted and presents the results of the sediment and surface water collection and analysis. Specifically, this report is organized as follows:

- Section 1 presents the purpose and overview of the task and project area.
- Section 2 provides a description of the field activities.
- Section 3 presents the results of the sediment characterization and sample analysis.

Attachments with supporting information are also provided.

### 1.2 Study Area Description

The project on the NJIWW was adopted by Congress in 1939. This sea level inland waterway, extends along the New Jersey Coast from the Atlantic Ocean at Manasquan Inlet, about 26 miles south of Sandy Hook, NJ to the Delaware Bay about 3 miles north of Cape May Point. The waterway extends through the inlet and up the Manasquan River about 2 miles and thence through the Point Pleasant Canal about 2 miles to the head of Barnegat Bay. It then passes through a series of bays, lagoons and thoroughfares along the New Jersey coast to Cape May Harbor and thence across Cape May County to Delaware Bay (Cape May Canal). This channel is normally maintained to a depth of 6 feet Mean Low Water (MLW), except in the southern portion in the vicinity of the Cape May Canal where it is maintained to a depth of up to 12 feet MLW. The total project length is 117 miles. The three areas for sediment sampling and analysis were as follows:

Mordecai Island Area: Three sediment cores were collected in the vicinity of Mordecai Island in Little Egg Harbor, Beach Haven, NJ, between channel markers 107 and 108 (Figure 2-1).



Approximately 15,000 to 20,000 cubic yards of material would be dredged from this portion of the NJIWW.

Avalon Area: Five sediment cores were collected in the vicinity of Sturgeon Island, Avalon, NJ, between channel markers 386 and 397 (Figure 2-2). Approximately 75,000 cubic yards of material would be dredged from this portion of the channel.

Stone Harbor Area: One sediment core was collected from Great Channel in the vicinity of the Route 619 Ocean Drive Bridge, Stone Harbor, NJ, between channel markers 416 and 421 (Figure 2-3). Approximately 6,000 to 7,000 cubic yards of sand would be dredged from this portion of the NJIWW.



## 2.0 FIELD PROGRAM

A Work Plan and Health and Safety Plan (HASP) were prepared prior to implementation of the field program, to guide the field activities and ensure safe conduct. The Work Plan was based on the SOW provided by the Corps as well as relevant standards and guidance.

A boat equipped for sediment coring utilizing vibracore technology, a field crew, drilling and sampling equipment, and survey equipment to perform the sediment investigation was mobilized. The sampling vessel was launched from local access points – Beach Haven, New Jersey near the Mordecai Island Area, and Stone Harbor, New Jersey near the Avalon and Stone Harbor Areas. The sediment cores were collected from shoaling locations that the Corps coordinated with the New Jersey Department of Environmental Protection (NJDEP) (Figures 2-1 through 2-3). Differential GPS positioning was used to position the vessel at the sample locations.

Sediment cores were collected from the Avalon Area locations on 11 February 2014. Sediment cores could not be collected at the Mordecai Island Area locations at this time because of ice blockages in the bay and on the boat launches, which prevented launching and travel of the vessel. Collection of sediment cores at the Mordecai Island Area locations was completed on 11 March 2014. The sediment core in the vicinity of Stone Harbor was also collected on 11 March 2014.

### 2.1 Sediment Sampling

#### Mordecai Island Area Sediment Sampling

Sediment samples were collected from three core locations (MOR-01 through MOR-03) as shown on Figure 2-1.

The cores were collected to depths of seven feet below the top of sediment. The cores were then visually examined and characterized by the field geologist (Attachment A). In addition to recording the core composition, the examination determined the number of potential strata for sample collection. The cores at each of the three Mordecai Island Area locations were similar in composition throughout their length, therefore each core was homogenized as one sample.





### Avalon Area Sediment Sampling

Sediment samples were collected from the five core locations (AV-01 through AV-05) as shown on Figure 2-2.

The cores were collected to depths of four feet below the top of sediment. The cores were then visually examined and characterized by the field geologist (Attachment A). In addition to recording the core composition, the examination determined the number of potential strata for sample collection. The cores at the Avalon locations showed variability in composition across their strata, and as a result, cores were composited or divided for analysis as follows:

| <b>Sample designation</b> | <b>Core strata included in the sample</b>                 |
|---------------------------|---|
| AV-SED-01                 | Entire core length of AV-SED-01 location                  |
| AV-SED-02/03              | Composite of cores from locations AV-SED-02 and AV-SED-03 |
| AV-SED-04                 | Entire core length of AV-SED-04 location                  |
| AV-SED-05A                | The upper 2 feet of AV-SED-05                             |
| AV-SED-05B                | The bottom 2 feet of AV-SED-05                            |

The locations of the sediment cores are as follows:

| <b>NJ Intercoastal Waterway (Mordecai Island and Avalon Areas)</b> |                     |                    |
|--|---------------------|--------------------|
| <b>Location Coordinates</b>  |                     |                    |
| <b>Sample ID</b>   | <b>Northing (Y)</b> | <b>Easting (X)</b> |
| SH-SED-01*   | 77253.4             | 412768.7           |
| AV-SED-01  | 88476.8             | 415281.3           |
| AV-SED-02  | 89323.4             | 414670.3           |
| AV-SED-03  | 89903.3             | 414616.9           |
| AV-SED-04  | 91434.2             | 415254.3           |
| AV-SED-05  | 93186.7             | 415953             |
| MOR-SED-01   | 265995              | 561761.7           |
| MOR-SED-02   | 26677.6             | 562237.7           |
| MOR-SED-03   | 267236              | 563147.8           |

NAD 83/NJ State Plane, Zone 2900  
Denoted as AV-GS-01 in field notes



For both areas, samples were analyzed for grain size; TOC; Target Compound List (TCL) volatile organics (VOCs) and semi-volatile organics (SVOCs); TCL pesticides; Target Analyte List (TAL) inorganics, including total cyanide and total mercury; polychlorinated biphenyl (PCB) arochlors and PCB congeners/dioxins and furans. VOC fractions were collected directly from the sediment cores. The other sample fractions were collected after homogenization.

The samples were packed on ice and shipped via overnight carrier to the subcontractor laboratory, TestAmerica. This laboratory is accredited by the National Environmental Laboratory Accreditation Conference (NELAC) for analysis of non-potable water and solids. NELAC is a cooperative association of States and Federal agencies, formed to establish and promote mutually acceptable national performance standards for the operation of environmental laboratories. The standards cover both analytical testing of environmental samples and the laboratory accreditation process. The goal of NELAC is to foster the generation of environmental laboratory data of known and acceptable quality on which to base public health and environmental management decisions. TestAmerica's NELAC accreditation documents that the laboratory adheres to all NELAC quality assurance requirements. Specific requirements vary between analytical methods, but in general include the analysis of method blanks, laboratory control samples (LCS), matrix spikes (MS) and matrix spike duplicates (MSD). Specific criteria for each analytical method are documented in method-specific standard operating procedures (SOPs) maintained by each laboratory, and may include calibration linearity requirements, initial and continuing calibration verifications, calibration blanks, and instrument tuning requirements. Details on the quality assurance/quality control (QA/QC) results are included in the certificates of analyses presented in Attachment B.

#### Stone Harbor Area Sediment Sampling

One sediment core (SH-01) was collected from Great Channel in Stone Harbor, NJ (Figure 2-3). This core was only analyzed for grain size. A field boring log is provided in Attachment A.



## 2.2 Modified Elutriate and Surface Water Sampling

The sediment samples selected for bulk sediment analysis were used to prepare unfiltered (total) and filtered (dissolved) modified elutriate samples. In addition, one surface water sample (unfiltered) was collected from the Mordecai Island and Avalon areas.

The modified elutriate samples were analyzed for total and dissolved TCL SVOCs; total and dissolved TCL pesticides; total and dissolved TAL inorganics, including total cyanide and total mercury; total and dissolved PCB arochlors and total PCB congeners/dioxins and furans; and total suspended solids (TSS). The surface water samples used to prepare the elutriates were analyzed for total (unfiltered) concentrations of these parameters. TCL VOCs were also evaluated. Dissolved (filtered) concentrations were not evaluated for any parameter.

One rinseate blank was created at the Avalon location by pouring laboratory grade water over all sampling equipment that came in contact with the sediments (*e.g.*, stainless steel spoons, knives and bowls). The rinseate blank was created in the middle of the sampling, immediately after the equipment had been cleaned. The water was collected into an appropriate sample container after it had been poured over the equipment, and analyzed for TCL volatile and semi-volatile organics; TCL pesticides; TAL inorganics, including total cyanide and total mercury; PCB arochlors and PCB congeners dioxins and furans. Laboratory results for the rinseate blank are provided in Table 11.



The analytical methods used for each parameter category are as follows:

| <b>List of Parameter Specific Laboratory Methods Used for the Monitoring Program</b>  |                                     |   |
|---|-------------------------------------|---|
| <b>Parameter</b>  | <b>Analytical Method</b>            | <b>Preparation Method</b>               |
| <b>Inorganics</b>   |                                     |   |
| TAL Metals (ICP/MS), Sediment and Water (Total and Dissolved)   | SW846 6020A                         | SW846 3050B/3005A                       |
| Mercury, Sediment and Water   | SW846 7471B/7470A                   | SW846 7471B/7470A                       |
| Mercury, Sediment and Water, Low Level CVAFS  | EPA 1631E                           | EPA 1631E                               |
| Total Cyanide, Sediment and Water   | SW846 9012B                         | SW846 9012B                             |
| <b>Organics</b>   |                                     |   |
| TCL Volatile Organic Compounds (VOCs), GC/MS, Low Level, Sediment and Water   | SW846 8260B                         | SW846 5035/5030B                        |
| TCL Pesticides, Low Level, Sediment and Water   | SW846 8081B LL                      | SW846 3541/3640A/3510C                  |
| TCL Polychlorinated Biphenyls (PCBs), Low Level, Sediment and Water   | SW846 8082A                         | SW846 3541/3665A/3510C/                 |
| TCL Semi-volatile Organic Compounds (SVOCs), including Polycyclic Aromatic Hydrocarbons (PAHs), Low Level, Sediment and Water | SW846 8270D LL                      | SW846 3541/3520C                        |
| PCB Congeners, Sediment and Water   | EPA 1668                            | EPA 1668                                |
| Dioxins/Furans, Sediment and Water  | EPA 1613B                           | EPA-5 1613                              |
| <b>Miscellaneous</b>  |                                     |   |
| Total Suspended Solids  | SM 2540D                            |   |
| Total Organic Carbon, Sediment  | EPA Lloyd Kahn                      |   |
| Total Organic Carbon, Water   | SM 5310C                            |   |
| Grain Size/Particle Size  | ASTM D422                           |   |
| Percent Moisture  | SM 2540G (22 <sup>nd</sup> Edition) |   |
| Elutriate Preparation   |                                     | NJDEP Modified Elutriate Test Technique |





### 3.0 RESULTS

#### 3.1 Sediment Lithology and Physical Composition

The sediment cores collected at the Mordecai Island area showed fairly homogenous composition across and within cores. The cores ranged from 75 to 86% fine and medium sand, with varying amounts of silt. The sediment cores collected at the Avalon area demonstrated a greater degree of variability across and within cores. The amounts of sand in the Avalon Area cores were as follows:

|                         |            |
|-------------------------|------------|
| AV-SED-1                | 23.1% sand |
| AV-SED-2 and 03         | 9.8% sand  |
| AV-SED-4                | 17.9% sand |
| AV-SED-5 (upper strata) | 34.2% sand |
| AV-SED-5 (lower strata) | 61.2% sand |

All of the Avalon cores contained a substantial amount of organic material and some silt.

The sediment core collected in Stone Harbor was 96% sand. Chapter II-Section C Case 1 of NJDEP *The Management and Regulation of Dredging Activities and Dredged Material in New Jersey's Tidal Waters* (1997) indicates that no further testing is required if the material to be dredged is greater than 90% sand. For this reason, there was no analysis of the chemical quality of the Stone Harbor sediment core.

No debris, anthropogenic or otherwise, was observed in the sediment cores, and all cores were completed without encountering refusal. The grain size data is presented in Tables 1 through 3. The sediment core logs are provided in Attachment A, and the grain size laboratory data is provided in Attachment B.

#### 3.2 Analytical Results

The sediment analytical results were compared to NJDEP residential and non-residential direct contact cleanup criteria, as well as ecological screening criteria (ER-L and ER-M). Surface water and elutriate samples were compared to NJDEP Human Health Criteria, as well as NJDEP acute and chronic surface water quality criteria for the protection of aquatic life for saline waters.

To evaluate potential human health impacts associated with NJIWW sediments, bulk data were compared to NJDEP residential and non-residential soil cleanup criteria (NJDEP 2012). These



criteria were established to provide a technical basis for evaluating levels of chemical contamination, and the associated risks to human health. They are based on currently available information, and are periodically updated as scientific knowledge is refined. Compliance with the residential criteria allows maximum unrestricted future use of property, including residential use. Compliance with non-residential criteria is also acceptable provided the property owner agrees to limit future uses to non-residential activities such as an industrial work site. The soil criteria are derived through risk assessment procedures that are based on a number of assumptions. Depending on the contaminant, the human health criteria are based on an additional lifetime cancer risk of 1 of 1,000,000 or 1 of 100,000. Comparison of bulk sediment data to these human health criteria is considered to be a conservative evaluation. Individuals would not be exposed to the dredged material at the assumed frequencies.

The bulk sediment data for several parameters were also compared to sediment quality guidelines relating to the potential for adverse biological effects in estuarine sediments (NJDEP 2009). Adverse biological effects include measures of altered benthic communities, histopathological disorders in demersal fish, and toxicity. Long et al. (1995) conducted a comprehensive review of available data on sediment effects, Long established two guideline values. These two values are referred to as effects range-low (ER-L) and effects range-median (ER-M). Long et al. (1995) state: “The two guideline values, ER-L and ER-M, delineate three concentration ranges for a particular chemical. The concentrations below the ER-L value represent a minimal-effects range; a range intended to estimate conditions in which effects would be rarely observed. Concentrations equal to and above the ER-L, but below the ER-M, represent a possible-effects range within which effects would occasionally occur. Finally, the concentrations equivalent to and above the ER-M value represent a probable-effects range within which effects would frequently occur.”

NJDEP saline surface water quality criteria are from NJDEP *Surface Water Quality Standards* (NJDEP 2006). The acute and chronic criteria for the protection of aquatic life for arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver and zinc are expressed as dissolved criteria. As such, the filtered elutriate results apply to these criteria and the unfiltered results do not. Unfiltered results for these parameters are compared to criteria for informational purposes only, and are not discussed here.



### Mordecai Island Area

The analytical results for the sediment samples from the Mordecai Island Area are provided in Tables 4 and 5. The surface water and elutriate analytical results for this area are presented in Tables 6 through 9.

There were no contaminant parameters detected in Mordecai Island sediment that exceeded New Jersey residential or non-residential soil cleanup criteria. Diethyl phthalate exceeded the ER-M of 6 ug/Kg in one of three samples. The diethyl phthalate concentration was 17 ug/Kg and was flagged as an estimated concentration. Phthalates are widely used in the manufacture of plastics most notably PVC. Phthalates, including diethyl phthalate, are considered to be common laboratory contaminants by the USEPA, and diethyl phthalate was detected in a laboratory method blank. Mercury exceeded the ER-L of 150 ug/Kg in one of three samples. The mercury concentration was 290 ug/Kg and was flagged as a parameter also detected in the method blank. The ER-M for mercury is 710 ug/Kg. One sediment sample had a 2,3,7,8-TCDD concentration of 14 pg/g. This exceeded the ER-M of 3.6 pg/g.

Mordecai Island elutriate samples had at least one concentration of benzo(a)pyrene, dibenzo(a,h)anthracene, DDD, heptachlor, arsenic, cadmium, copper and thallium above a surface water criterion. The Mordecai Island water sample that was used to prepare the elutriates also had concentrations of dibenzo(a,h)anthracene, DDD, arsenic, copper and thallium above their respective criteria. As such, concentrations of these parameters in the elutriate samples are not reflective of the sediment alone.

One total elutriate sample had a benzo(a)pyrene concentration (0.036 ug/L) above the human health criterion of 0.018 ug/L. Two of the three dissolved elutriate samples and one total sample had heptachlor concentrations (0.001-0.0045 ug/L) above the human health criterion of 0.000079 ug/L. One dissolved elutriate had a heptachlor concentration (0.0045 ug/L) slightly above the protection of aquatic life chronic criterion of 0.0036 ug/L but well below the acute criterion of 0.053 ug/L. The rinseate field blank for the sampling had a heptachlor concentration of 0.0016 ug/L indicating some level of laboratory contamination. One of the dissolved elutriate samples had a cadmium concentration of 57 ug/L, which is above the human health, and acute and chronic protection of aquatic life criteria. Another dissolved elutriate sample had a cadmium concentration of 12 ug/L, which is above the chronic criterion of 8.8 ug/L.



### Avalon Area

The analytical results for the sediment samples from the Avalon Area are provided in Tables 10 and 11. The surface water and elutriate analytical results for this area are presented in Tables 12 through 15.

There were no contaminant parameters detected in the Avalon Area sediment that exceeded New Jersey residential or non-residential soil cleanup criteria. Diethyl phthalate exceeded the ER-M of 6 ug/Kg in four of five samples (28-52 ug/Kg). As previously stated, phthalates are considered to be common laboratory contaminants by the USEPA. Diethyl phthalate was detected in a laboratory method blank and the sediment samples were all flagged as estimated concentrations. The DDD concentration in the sediment duplicate was 2.1 ug/Kg. The five sediment samples all had DDD concentrations less than 0.5 ug/Kg. DDD was detected in a laboratory method blank. The DDD concentration of 2.1 ug/k was slightly above the ER-L of 2 ug/Kg and well below the ER-M of 20 ug/Kg.

Arsenic, manganese, mercury, nickel and selenium had one to three sample concentrations of the five samples above either the ER-L or ER-M values. Arsenic had three sample concentrations between 9.4 and 11 mg/Kg. These were slightly above the ER-L concentration of 8.2 mg/Kg, but well below the ER-M of 70 mg/Kg. Mercury had three sample concentrations between 180 and 200 ug/Kg. These were above the ER-L concentration of 150 ug/Kg, but well below the ER-M of 710 ug/Kg. Nickel had three sample concentrations between 23 and 26 mg/Kg. These were slightly above the ER-L concentration of 21 mg/Kg, but well below the ER-M of 52 mg/Kg. One of five samples had a manganese concentration of 280 mg/Kg. This is above the ER-M concentration of 260 mg/Kg. Three of five samples had selenium concentrations between 1.0 and 1.5 mg/Kg. These were equal to or above the ER-M concentration of 1.0 mg/Kg.

One total elutriate sample had five polynuclear aromatic hydrocarbons (PAHs) exceeding their respective human health criteria. Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene, were detected in the lower interval of AV-SED-05. PAHs were not detected in the dissolved elutriates. One total elutriate had a concentration of DDE (0.00089 ug/L) above the human health criterion of 0.00022 ug/L. The sample concentration was flagged as an approximate value. DDE was not detected in the dissolved elutriates. Total cyanide was detected in two of the five unfiltered elutriate samples ( 2 and 240 ug/L), which were above both the chronic and acute protection of aquatic life criteria of 1.0 ug/L. The higher concentration was also above the human health criterion of 140 ug/L. Cyanide is evaluated as total cyanide; dissolved cyanide is not measured. Four of five total and





dissolved elutriate samples had manganese concentrations above the human health criterion of 100 ug/L. The range of manganese concentrations including both total and dissolve elutriates was 160 to 490 ug/L. Arsenic was detected in all five dissolved samples at concentration between 14 and 29 ug/L. These concentrations were above the human health criterion of 0.061 ug/L. The dissolved elutriate duplicate sample had an arsenic concentration of 37 ug/L. This was slightly above the protection of aquatic life chronic criterion of 36 ug/L, but well below the acute criterion of 69 ug/L. The Avalon water sample used to prepare the sediment elutriates had an arsenic concentration of 13 ug/L, which is also above the human health criterion. As such, concentrations of arsenic in the elutriate samples are not reflective of the sediment alone.

It should be noted for all elutriate data that the results are conservative. The results predict the concentrations of contaminant parameters likely to occur at the point of effluent discharge. The regulations provide for a mixing zone and some dilution after discharge to a water body prior to applying the criteria. The dilution that would occur within an appropriately sized mixing zone was not considered as part of this analysis.



## 4.0 CONCLUSIONS

The following conclusions are made with respect to this investigation:

- All residential and non-residential soil cleanup criteria were met.
- There were few exceedances of ER-L/ER-M ecological screening criteria. Some parameters that exceeded values were also present in laboratory control samples or surface water collected from the sites, which indicates that the sediment was not solely responsible for the exceedances.
- For most parameters exceeding ER-L levels, sample concentrations were only slightly above the ER-L and well below the ER-M. This suggests that the potential for the sediment to have an adverse effect on ecological resources is small.
- The sediment elutriate samples had few exceedances of surface water quality criteria. Most parameters exceeding criteria were also detected in laboratory control samples or surface water collected from the sites. Because of the low concentrations, many detections were reported by the laboratory as approximate.
- Most elutriate sample contaminant concentrations above chronic protection of aquatic life criteria were well below acute criteria.
- The elutriate data is conservative because it does not consider dilution within a mixing zone as provided by the surface water quality regulations.



## 5.0 REFERENCES

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## TABLES

**Table 1:**  
**Grain Size - Mordecai Area**  
**NJIWW 2014**

| <b>Sample ID</b> | <b>MOR-SED-01</b> | <b>MOR-SED-02</b> | <b>MOR-SED-03</b> |
|------------------|-------------------|-------------------|-------------------|
| <b>Analyte</b>   | <b>(%)</b>        | <b>(%)</b>        | <b>(%)</b>        |
| Gravel           | 0.3               | 0.1               | 0.0               |
| Sand             | 76.2              | 85.2              | 85.0              |
| Coarse Sand      | 0.0               | 0.0               | 0.0               |
| Medium Sand      | 0.2               | 0.3               | 0.0               |
| Fine Sand        | 76.0              | 84.9              | 85.0              |
| Silt             | 18.7              | 8.5               | 7.9               |
| Clay             | 4.8               | 6.2               | 7.1               |

**Table 2:  
Grain Size - Avalon Area  
NJIWW 2014**

| <b>Sample ID</b> | <b>AV-SED-01</b> | <b>AV-SED-02/03</b> | <b>AV-SED-04</b> | <b>AV-SED-05A</b> | <b>AV-SED-05B</b> | <b>AV-SED-DUP</b> |
|------------------|------------------|---------------------|------------------|-------------------|-------------------|-------------------|
| <b>Analyte</b>   | <b>(%)</b>       | <b>(%)</b>          | <b>(%)</b>       | <b>(%)</b>        | <b>(%)</b>        | <b>(%)</b>        |
| Gravel           | 0.0              | 0.0                 | 0.0              | 0.0               | 0.0               | 0.0               |
| Sand             | 23.1             | 9.8                 | 17.9             | 34.2              | 61.2              | 8.8               |
| Coarse Sand      | 0.0              | 0.0                 | 0                | 0.0               | 0.0               | 0                 |
| Medium Sand      | 1.2              | 1.5                 | 1.3              | 0.5               | 0.4               | 0.7               |
| Fine Sand        | 21.9             | 8.3                 | 16.6             | 33.7              | 60.8              | 8.1               |
| Silt             | 53.5             | 61.1                | 60.1             | 49.4              | 21.0              | 52.7              |
| Clay             | 23.4             | 29.1                | 22               | 16.4              | 17.8              | 38.5              |

**Table 3:**  
**Grain Size - Stone Harbor Area**  
**NJIWW 2014**

| <b>Sample ID</b> | <b>SH-SED-01*</b> |
|------------------|-------------------|
| <b>Analyte</b>   | <b>(%)</b>        |
| Gravel           | 0.0               |
| Sand             | 96.2              |
| Coarse Sand      | 0.0               |
| Medium Sand      | 0.0               |
| Fine Sand        | 96.2              |
| Silt             | 1.6               |
| Clay             | 2.2               |

\*denoted as sample AV-GS-01 in field book.

**Table 4:  
Summary of Sediment Sample Results - Mordecai Area  
NJIWW Sediment 2014**

| Location ID<br>Sample ID<br>Sampling Date      | NJDEP Residential<br>Direct Contact SRS | NJDEP Non-<br>Residential Direct<br>Contact SRS | NJDEP Ecological<br>Screening Saline<br>Water Criteria ER-L | NJDEP Ecological<br>Screening Saline<br>Water Criteria ER-M | MOR-SED-01<br>180-30550-3<br>3/11/2014 10:00 | MOR-SED-02<br>180-30550-2<br>3/11/2014 9:40 | MOR-SED-03<br>180-30550-1<br>3/11/2014 9:30 |
|--|---|---|---|---|--|---|---|
| <b>Volatile Organic Compounds (ug/Kg)</b>      |   |   |   |   |  |   |   |
| 1,1,1-Trichloroethane                          | 290,000                                 | 4,200,000                                       | NC  | NC  | 0.61 U                                       | 0.50 U                                      | 0.71 U                                      |
| 1,1,2,2-Tetrachloroethane                      | 1,000                                   | 3,000   | NC  | NC  | 0.90 U                                       | 0.74 U                                      | 1.0 U                                       |
| 1,1,2-Trichloroethane                          | 2,000                                   | 6,000   | NC  | NC  | 1.0 U  | 0.85 U                                      | 1.2 U                                       |
| 1,1-Dichloroethane                             | 8,000                                   | 24,000  | NC  | NC  | 0.72 U                                       | 0.59 U                                      | 0.84 U                                      |
| 1,1-Dichloroethene                             | 11,000                                  | 150,000   | NC  | NC  | 1.1 U  | 0.87 U                                      | 1.2 U                                       |
| 1,2-Dichloroethane                             | 900                                     | 3,000   | NC  | NC  | 0.77 U                                       | 0.63 U                                      | 0.89 U                                      |
| 1,2-Dichloroethene, Total                      | 230,000                                 | NC  | NC  | NC  | 1.6 U  | 1.3 U                                       | 1.9 U                                       |
| 1,2-Dichloropropane                            | 2,000                                   | 5,000   | NC  | NC  | 0.68 U                                       | 0.56 U                                      | 0.79 U                                      |
| 2-Butanone (MEK)                               | 3,100,000                               | 44,000,000                                      | NC  | NC  | 1.1 U  | 0.90 U                                      | 1.3 U                                       |
| 2-Hexanone                                     | NC                                      | NC  | NC  | NC  | 0.86 U                                       | 0.71 U                                      | 1.0 U                                       |
| 4-Methyl-2-pentanone (MIBK)                    | NC                                      | NC  | NC  | NC  | 0.82 U                                       | 0.67 U                                      | 0.95 U                                      |
| Acetone  | 70,000,000                              | NC  | NC  | NC  | 6.2 U  | 5.1 U                                       | 7.3 U                                       |
| Benzene  | 2,000                                   | 5,000   | 340   | NC  | 0.84 U                                       | 0.69 U                                      | 0.98 U                                      |
| Bromodichloromethane                           | 1,000                                   | 3,000   | NC  | NC  | 0.70 U                                       | 0.57 U                                      | 0.82 U                                      |
| Bromoform                                      | 81,000                                  | 280,000   | NC  | NC  | 0.55 U                                       | 0.45 U                                      | 0.65 U                                      |
| Bromomethane                                   | 25,000                                  | 59,000  | NC  | NC  | 0.92 U                                       | 0.76 U                                      | 1.1 U                                       |
| Carbon disulfide                               | 7,800,000                               | 110,000,000                                     | NC  | NC  | 0.83 J                                       | 0.69 J                                      | 1.0 J                                       |
| Carbon tetrachloride                           | 600                                     | 2,000   | NC  | NC  | 0.56 U                                       | 0.46 U                                      | 0.65 U                                      |
| Chlorobenzene                                  | 510,000                                 | 7,400,000                                       | NC  | NC  | 0.95 U                                       | 0.78 U                                      | 1.1 U                                       |
| Chloroethane                                   | 220,000                                 | 1,100,000                                       | NC  | NC  | 1.9 U  | 1.6 U                                       | 2.3 U                                       |
| Chloroform                                     | 600                                     | 2,000   | NC  | NC  | 0.73 U                                       | 0.60 U                                      | 0.85 U                                      |
| Chloromethane                                  | 4,000                                   | 12,000  | NC  | NC  | 1.1 U  | 0.87 U                                      | 1.2 U                                       |
| cis-1,3-Dichloropropene                        | 2,000                                   | 7,000   | NC  | NC  | 0.85 U                                       | 0.69 U                                      | 0.99 U                                      |
| Dibromochloromethane                           | 3,000                                   | 8,000   | NC  | NC  | 0.89 U                                       | 0.73 U                                      | 1.0 U                                       |
| Ethylbenzene                                   | NC                                      | NC  | 1,400   | NC  | 0.80 U                                       | 0.66 U                                      | 0.94 U                                      |
| Methylene Chloride                             | 34,000                                  | 97,000  | NC  | NC  | 0.84 U                                       | 0.69 U                                      | 0.98 U                                      |
| Styrene  | 90,000                                  | 260,000   | NC  | NC  | 0.88 U                                       | 0.72 U                                      | 1.0 U                                       |
| Tetrachloroethene                              | 2,000                                   | 5,000   | NC  | NC  | 0.85 U                                       | 0.70 U                                      | 0.99 U                                      |
| Toluene  | 6,300,000                               | 91,000,000                                      | 2,500   | NC  | 0.91 U                                       | 0.75 U                                      | 1.1 U                                       |
| trans-1,3-Dichloropropene                      | 2,000                                   | 7,000   | NC  | NC  | 0.75 U                                       | 0.61 U                                      | 0.87 U                                      |
| Trichloroethene                                | 7,000                                   | 20,000  | NC  | NC  | 0.82 U                                       | 0.67 U                                      | 0.96 U                                      |
| Vinyl chloride                                 | 700                                     | 2,000   | NC  | NC  | 0.59 U                                       | 0.48 U                                      | 0.68 U                                      |
| Xylenes, Total                                 | 12,000,000                              | 170,000,000                                     | >120  | NC  | 2.8 U  | 2.3 U                                       | 3.3 U                                       |
| <b>Semi-Volatile Organic Compounds (ug/Kg)</b> |   |   |   |   |  |   |   |
| 1,2,4-Trichlorobenzene                         | 73,000                                  | NC  | NC  | >4.8  | 6.0 U  | 6.1 U                                       | 7.2 U                                       |
| 1,2-Dichlorobenzene                            | 5,300,000                               | 59,000,000                                      | NC  | 13  | 11 U   | 12 U  | 14 U  |
| 1,3-Dichlorobenzene                            | 5,300,000                               | 59,000,000                                      | NC  | NC  | 8.5 U  | 8.6 U                                       | 10 U  |
| 1,4-Dichlorobenzene                            | 5,000                                   | 13,000  | NC  | 110   | 7.8 U  | 7.9 U                                       | 9.3 U                                       |
| 2,2'-oxybis[1-chloropropane]                   | NC                                      | NC  | NC  | NC  | 2.3 U  | 2.4 U                                       | 2.8 U                                       |
| 2,4,5-Trichlorophenol                          | 6,100,000                               | 68,000,000                                      | NC  | 3   | 12 U   | 12 U  | 14 U  |
| 2,4,6-Trichlorophenol                          | 19,000                                  | 74,000  | NC  | 6   | 16 U   | 17 U  | 19 U  |



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Summary of Sediment Sample Results - Mordecai Area  
NJIWW Sediment 2014**

| Location ID<br>Sample ID<br>Sampling Date | NJDEP Residential<br>Direct Contact SRS | NJDEP Non-<br>Residential Direct<br>Contact SRS | NJDEP Ecological<br>Screening Saline<br>Water Criteria ER-L | NJDEP Ecological<br>Screening Saline<br>Water Criteria ER-M | MOR-SED-01<br>180-30550-3<br>3/11/2014 10:00 | MOR-SED-02<br>180-30550-2<br>3/11/2014 9:40 | MOR-SED-03<br>180-30550-1<br>3/11/2014 9:30 |
|---|---|---|---|---|--|---|---|
| 2,4-Dichlorophenol                        | 180,000                                 | 2,100,000                                       | NC  | 5   | 2.2 U  | 2.2 U                                       | 2.6 U                                       |
| 2,4-Dimethylphenol                        | NC                                      | NC  | NC  | NC  | 17 U   | 17 U  | 20 U  |
| 2,4-Dinitrophenol                         | 120,000                                 | 1,400,000                                       | NC  | NC  | 130 U  | 130 U                                       | 150 U                                       |
| 2,4-Dinitrotoluene                        | 700                                     | 3,000   | NC  | NC  | 8.8 U  | 9.0 U                                       | 10 U  |
| 2,6-Dinitrotoluene                        | 700                                     | 3,000   | NC  | NC  | 11 U   | 11 U  | 13 U  |
| 2-Chloronaphthalene                       | NC                                      | NC  | NC  | NC  | 2.3 U  | 2.3 U                                       | 2.7 U                                       |
| 2-Chlorophenol                            | 310,000                                 | 2,200,000                                       | NC  | 8   | 8.9 U  | 9.1 U                                       | 11 U  |
| 2-Methylnaphthalene                       | 230,000                                 | 2,400,000                                       | 70  | 670   | 2.0 U  | 2.0 U                                       | 2.3 U                                       |
| 2-Methylphenol                            | 310,000                                 | 3,400,000                                       | NC  | NC  | 7.6 U  | 7.8 U                                       | 9.0 U                                       |
| 2-Nitroaniline                            | 39,000                                  | 23,000,000                                      | NC  | NC  | 49 U   | 50 U  | 58 U  |
| 2-Nitrophenol                             | NC                                      | NC  | NC  | NC  | 12 U   | 12 U  | 14 U  |
| 3,3'-Dichlorobenzidine                    | 1,000                                   | 4,000   | NC  | NC  | 12 U   | 12 U  | 14 U  |
| 3-Nitroaniline                            | NC                                      | NC  | NC  | NC  | 45 U   | 46 U  | 53 U  |
| 4,6-Dinitro-2-methylphenol                | 6,000                                   | 68,000  | NC  | NC  | 44 U   | 45 U  | 52 U  |
| 4-Bromophenyl phenyl ether                | NC                                      | NC  | NC  | NC  | 9.5 U  | 9.7 U                                       | 11 U  |
| 4-Chloro-3-methylphenol                   | NC                                      | NC  | NC  | NC  | 10 U   | 10 U  | 12 U  |
| 4-Chloroaniline                           | NC                                      | NC  | NC  | NC  | 8.7 U  | 8.9 U                                       | 10 U  |
| 4-Chlorophenyl phenyl ether               | NC                                      | NC  | NC  | NC  | 12 U   | 12 U  | 14 U  |
| 4-Nitroaniline                            | NC                                      | NC  | NC  | NC  | 44 U   | 45 U  | 52 U  |
| 4-Nitrophenol                             | NC                                      | NC  | NC  | NC  | 40 U   | 41 U  | 47 U  |
| Acenaphthene                              | 3,400,000                               | 37,000,000                                      | 16  | 500   | 2.1 U  | 2.1 U                                       | 2.5 U                                       |
| Acenaphthylene                            | NC                                      | 300,000,000                                     | 44  | 640   | 5.7 J  | 7.5 J                                       | 11 J  |
| Anthracene                                | 17,000,000                              | 30,000,000                                      | 85  | 1,100   | 7.7 J  | 13 J  | 7.3 J                                       |
| Benzo[a]anthracene                        | 600                                     | 2,000   | 261   | 1,600   | 15 J   | 22  | 29  |
| Benzo[a]pyrene                            | 200                                     | 200   | 430   | 1,600   | 18 J   | 19 J  | 35  |
| Benzo[b]fluoranthene                      | 600                                     | 2,000   | NC  | 1,800   | 19 J   | 15 J  | 35  |
| Benzo[g,h,i]perylene                      | 380,000,000                             | 30,000,000                                      | 170   | NC  | 11 J   | 11 J  | 21 J  |
| Benzo[k]fluoranthene                      | 6,000                                   | 23,000  | 240   | NC  | 7.3 J  | 16 J  | 17 J  |
| Bis(2-chloroethoxy)methane                | NC                                      | NC  | NC  | NC  | 7.2 U  | 7.3 U                                       | 8.5 U                                       |
| Bis(2-chloroethyl)ether                   | 400                                     | 2,000   | NC  | NC  | 2.9 U  | 3.0 U                                       | 3.5 U                                       |
| Bis(2-ethylhexyl) phthalate               | 35,000                                  | 140,000   | 182   | 2,647   | 18 U   | 18 U  | 21 U  |
| Butyl benzyl phthalate                    | 1,200,000                               | 14,000,000                                      | NC  | 63  | 15 U   | 15 U  | 18 U  |
| Carbazole                                 | 24,000                                  | 96,000  | NC  | NC  | 2.0 U  | 2.0 U                                       | 2.4 U                                       |
| Chrysene                                  | 62,000                                  | 230,000   | 384   | 2,800   | 17 J   | 21 J  | 34  |
| Dibenz(a,h)anthracene                     | 200                                     | 200   | 63  | 260   | 2.4 U  | 2.5 U                                       | 2.9 U                                       |
| Dibenzofuran                              | NC                                      | NC  | NC  | NC  | 11 U   | 11 U  | 13 U  |
| Diethyl phthalate                         | 49,000,000                              | 550,000,000                                     | NC  | 6   | 12 U   | 12 U  | 17 J  |
| Dimethyl phthalate                        | NC                                      | NC  | NC  | NC  | 12 U   | 12 U  | 14 U  |
| Di-n-butyl phthalate                      | 6,100,000                               | 68,000,000                                      | NC  | 58  | 14 U   | 14 U  | 16 U  |
| Di-n-octyl phthalate                      | 2,400,000                               | 27,000,000                                      | NC  | NC  | 11 U   | 12 U  | 14 U  |
| Fluoranthene                              | 2,300,000                               | 24,000,000                                      | 600   | 5,100   | 26   | 37  | 32  |

**Table 4:**  
**Summary of Sediment Sample Results - Mordecai Area**  
**NJIWW Sediment 2014**

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|---|---|---|---|---|--|---|---|
| Fluorene                                  | 2,300,000                               | 24,000,000                                      | 19  | 540   | 2.9 U  | 2.9 U                                       | 3.4 U                                       |
| Hexachlorobenzene                         | 300                                     | 1,000   | NC  | NC  | 2.3 U  | 2.4 U                                       | 2.8 U                                       |
| Hexachlorobutadiene                       | NC                                      | NC  | NC  | 1.3   | 2.4 U  | 2.5 U                                       | 2.9 U                                       |
| Hexachlorocyclopentadiene                 | 45,000                                  | 110,000   | NC  | NC  | 12 U   | 12 U  | 14 U  |
| Hexachloroethane                          | 35,000                                  | 140,000   | NC  | 73  | 7.8 U  | 8.0 U                                       | 9.3 U                                       |
| Indeno[1,2,3-cd]pyrene                    | 600                                     | 2,000   | NC  | NC  | 8.7 J  | 12 J  | 18 J  |
| Isophorone                                | 510,000                                 | 2,000,000                                       | NC  | NC  | 8.2 U  | 8.4 U                                       | 9.7 U                                       |
| Methylphenol, 3 & 4                       | 31,000                                  | 340,000   | NC  | NC  | 11 U   | 11 U  | 13 U  |
| Naphthalene                               | 6,000                                   | 17,000  | 160   | 2,100   | 1.9 U  | 1.9 U                                       | 2.2 U                                       |
| Nitrobenzene                              | 31,000                                  | 340,000   | NC  | NC  | 9.1 U  | 9.3 U                                       | 11 U  |
| N-Nitrosodi-n-propylamine                 | 200                                     | NC  | NC  | NC  | 2.6 U  | 2.6 U                                       | 3.0 U                                       |
| N-Nitrosodiphenylamine                    | 99,000                                  | 390,000   | NC  | NC  | 10 U   | 10 U  | 12 U  |
| Pentachlorophenol                         | 3,000                                   | 10,000  | 23,000  | 17  | 9.7 U  | 9.9 U                                       | 12 U  |
| Phenanthrene                              | NC                                      | 300,000,000                                     | 240   | 1,500   | 15 J   | 20 J  | 12 J  |
| Phenol                                    | 18,000,000                              | 210,000,000                                     | NC  | 130   | 2.6 U  | 2.6 U                                       | 3.1 U                                       |
| Pyrene                                    | 1,700,000                               | 18,000,000                                      | 665   | 2,600   | 28   | 32  | 41  |
| <b>Pesticides (ug/Kg)</b>                 |   |   |   |   |  |   |   |
| 4,4'-DDD                                  | 3,000                                   | 13,000  | 2   | 20  | 0.12 J p                                     | 0.099 J p                                   | 0.35 p                                      |
| 4,4'-DDE                                  | 2,000                                   | 9,000   | 2   | 27  | 0.18 J                                       | 0.24 J                                      | 0.63  |
| 4,4'-DDT                                  | 2,000                                   | 8,000   | 1   | 7   | 0.22 J                                       | 0.042 U                                     | 0.049 U                                     |
| Aldrin                                    | 40                                      | 200   | NC  | NC  | 0.048 U                                      | 0.050 U                                     | 0.058 U                                     |
| alpha-BHC                                 | 100                                     | 500   | NC  | NC  | 0.044 U                                      | 0.045 U                                     | 0.053 U                                     |
| alpha-Chlordane                           | 200                                     | 1,000   | NC  | NC  | 0.054 U                                      | 0.055 U                                     | 0.064 U                                     |
| beta-BHC                                  | 400                                     | 2,000   | NC  | NC  | 0.070 U                                      | 0.072 U                                     | 0.084 U                                     |
| delta-BHC                                 | NC                                      | NC  | NC  | NC  | 0.042 U                                      | 0.043 U                                     | 0.083 J p B                                 |
| Dieldrin                                  | 40                                      | 200   | NC  | NC  | 0.045 U                                      | 0.046 U                                     | 0.074 J p                                   |
| Endosulfan I                              | 470,000                                 | 6,800,000                                       | NC  | NC  | 0.051 U                                      | 0.052 U                                     | 0.061 U                                     |
| Endosulfan II                             | 470,000                                 | 6,800,000                                       | NC  | NC  | 0.048 U                                      | 0.049 U                                     | 0.084 J p                                   |
| Endosulfan sulfate                        | 470,000                                 | 6,800,000                                       | NC  | NC  | 0.028 U                                      | 0.029 U                                     | 0.11 J                                      |
| Endrin                                    | 23,000                                  | 340,000   | NC  | NC  | 0.16 J                                       | 0.14 J                                      | 0.43  |
| Endrin aldehyde                           | NC                                      | NC  | NC  | NC  | 0.053 U                                      | 0.054 U                                     | 0.063 U                                     |
| Endrin ketone                             | NC                                      | NC  | NC  | NC  | 0.052 J                                      | 0.043 U                                     | 0.11 J p                                    |
| gamma-BHC (Lindane)                       | 400                                     | 2,000   | NC  | NC  | 0.047 U                                      | 0.049 U                                     | 0.057 U                                     |
| gamma-Chlordane                           | 200                                     | 1,000   | NC  | NC  | 0.056 J p                                    | 0.055 U                                     | 0.20 J p                                    |
| Heptachlor                                | 100                                     | 700   | NC  | 0.3   | 0.060 U                                      | 0.062 U                                     | 0.072 U                                     |
| Heptachlor epoxide                        | 70                                      | 300   | NC  | NC  | 0.053 U                                      | 0.054 U                                     | 0.10 J p                                    |
| Methoxychlor                              | 390,000                                 | 5,700,000                                       | NC  | NC  | 0.057 U                                      | 0.058 U                                     | 0.55 J p B                                  |
| Toxaphene                                 | 600                                     | 3,000   | NC  | NC  | 1.8 U  | 1.9 U                                       | 2.2 U                                       |
| <b>PCBs (ug/Kg)</b>                       |   |   |   |   |  |   |   |
| PCB-1016                                  | 200                                     | 1,000   | NC  | NC  | 0.40 U                                       | 0.41 U                                      | 0.48 U                                      |
| PCB-1221                                  | 200                                     | 1,000   | 23  | 180   | 0.52 U                                       | 0.53 U                                      | 0.62 U                                      |
| PCB-1232                                  | 200                                     | 1,000   | 23  | 180   | 0.46 U                                       | 0.48 U                                      | 0.55 U                                      |
| PCB-1242                                  | 200                                     | 1,000   | 23  | 180   | 0.44 U                                       | 0.45 U                                      | 0.53 U                                      |

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|---|---|---|---|---|--|---|---|
| PCB-1248                                  | 200                                     | 1,000   | NC  | NC  | 0.26 U                                       | 0.26 U                                      | 0.31 U                                      |
| PCB-1254                                  | 200                                     | 1,000   | NC  | NC  | 2.3 J  | 3.2   | 8.5   |
| PCB-1260                                  | 200                                     | 1,000   | NC  | NC  | 0.39 U                                       | 0.39 U                                      | 0.46 U                                      |
| <b>Inorganics (mg/Kg)</b>                 |   |   |   |   |  |   |   |
| Aluminum                                  | 78,000                                  | NC  | NC  | 18,000  | 3,700  | 2,800                                       | 4,900                                       |
| Antimony                                  | 31                                      | 450   | NC  | 9.3   | 0.035 J B                                    | 0.043 J B                                   | 0.075 J B                                   |
| Arsenic                                   | 19*                                     | 19*   | 8   | 70  | 2.8  | 1.8   | 3.4   |
| Barium                                    | 16,000                                  | 59,000  | NC  | 48  | 10 B   | 8.0 B                                       | 15 B  |
| Beryllium                                 | 16                                      | 140   | NC  | NC  | 0.17   | 0.14  | 0.25  |
| Cadmium                                   | 78                                      | 78  | 1   | 9.6   | 0.17   | 0.19  | 0.29  |
| Calcium                                   | NC                                      | NC  | NC  | NC  | 2,500 B                                      | 2,100 B                                     | 2,500 B                                     |
| Chromium                                  | NC                                      | NC  | 81  | 370   | 15 B   | 11 B  | 21 B  |
| Cobalt                                    | 1,600                                   | 590   | NC  | 10  | 2.7  | 2.1   | 3.4   |
| Copper                                    | 3,100                                   | 45,000  | 34  | 270   | 7.0  | 5.5   | 12  |
| Iron                                      | NC                                      | NC  | NC  | NC  | 7,700 B                                      | 5,500 B                                     | 9,800 B                                     |
| Lead                                      | 400                                     | 800   | 47  | 218   | 9.5  | 9.2   | 17  |
| Magnesium                                 | NC                                      | NC  | NC  | NC  | 2,300 B                                      | 1,900 B                                     | 3,200 B                                     |
| Manganese                                 | 11,000                                  | 5,900   | NC  | 260   | 76   | 55  | 96  |
| Nickel                                    | 1,600                                   | 23,000  | 21  | 52  | 6.8  | 5.3   | 9.1   |
| Potassium                                 | NC                                      | NC  | NC  | NC  | 1,000  | 780   | 1,300                                       |
| Selenium                                  | 390                                     | 5,700   | NC  | 1.0   | 0.32   | 0.27 J                                      | 0.50  |
| Silver                                    | 390                                     | 5,700   | 1   | 3.7   | 0.13   | 0.12  | 0.27  |
| Sodium                                    | NC                                      | NC  | NC  | NC  | 3,000 B                                      | 3,200 B                                     | 4,100 B                                     |
| Thallium                                  | 5                                       | 79  | NC  | NC  | 0.078  | 0.075                                       | 0.11  |
| Vanadium                                  | 78                                      | 1,100   | NC  | 57  | 12   | 9.4   | 17  |
| Zinc                                      | 23,000                                  | 110,000   | 150   | 410   | 28 B   | 25 B  | 42 B  |
| Cyanide, Total                            | 1,600                                   | 23,000  | NC  | NC  | 0.063 U                                      | 0.064 U                                     | 0.075 U                                     |
| Mercury                                   | 23                                      | 65  | 0.15  | 0.71  | 0.084 B                                      | 0.12 B                                      | 0.29 B                                      |
| <b>Dioxins (pg/g)</b>                     |   |   |   |   |  |   |   |
| 1,2,3,4,6,7,8-HpCDD                       | NC                                      | NC  | NC  | NC  | 16 B   | 25 B  | 63 B  |
| 1,2,3,4,6,7,8-HpCDF                       | NC                                      | NC  | NC  | NC  | 3.9 B  | 7.0 Q B                                     | 20 B  |
| 1,2,3,4,7,8,9-HpCDF                       | NC                                      | NC  | NC  | NC  | 0.25 Q B J                                   | 0.30 Q B J                                  | 1.2 B J                                     |
| 1,2,3,4,7,8-HxCDD                         | NC                                      | NC  | NC  | NC  | 0.30 Q J                                     | 0.51 J                                      | 1.5 J                                       |
| 1,2,3,4,7,8-HxCDF                         | NC                                      | NC  | NC  | NC  | 0.90 C J                                     | 1.8 J C                                     | 5.2 C                                       |
| 1,2,3,6,7,8-HxCDD                         | NC                                      | NC  | NC  | NC  | 1.0 Q B J                                    | 1.6 Q B J                                   | 5.0 B                                       |
| 1,2,3,6,7,8-HxCDF                         | NC                                      | NC  | NC  | NC  | 0.48 J                                       | 0.77 Q J                                    | 2.2 J                                       |
| 1,2,3,7,8,9-HxCDD                         | NC                                      | NC  | NC  | NC  | 1.2 Q J                                      | 1.7 Q J                                     | 5.0 C                                       |
| 1,2,3,7,8,9-HxCDF                         | NC                                      | NC  | NC  | NC  | ND U   | 0.077 Q B J                                 | 0.12 Q B J                                  |
| 1,2,3,7,8-PeCDD                           | NC                                      | NC  | NC  | NC  | 0.26 Q J                                     | 0.42 J                                      | 1.2 J                                       |
| 1,2,3,7,8-PeCDF                           | NC                                      | NC  | NC  | NC  | 0.41 Q J                                     | 0.87 Q J                                    | 2.2 J                                       |
| 2,3,4,6,7,8-HxCDF                         | NC                                      | NC  | NC  | NC  | 0.39 J                                       | 0.63 Q J                                    | 1.9 J                                       |
| 2,3,4,7,8-PeCDF                           | NC                                      | NC  | NC  | NC  | 0.53 J                                       | 1.1 J                                       | 2.9 J                                       |

**Table 4:  
Summary of Sediment Sample Results - Mordecai Area  
NJIWW Sediment 2014**

| Location ID<br>Sample ID<br>Sampling Date | NJDEP Residential<br>Direct Contact SRS | NJDEP Non-<br>Residential Direct<br>Contact SRS | NJDEP Ecological<br>Screening Saline<br>Water Criteria ER-L | NJDEP Ecological<br>Screening Saline<br>Water Criteria ER-M | MOR-SED-01<br>180-30550-3<br>3/11/2014 10:00 | MOR-SED-02<br>180-30550-2<br>3/11/2014 9:40 | MOR-SED-03<br>180-30550-1<br>3/11/2014 9:30 |
|---|---|---|---|---|--|---|---|
| 2,3,7,8-TCDD                              | NC                                      | NC  | NC  | 3.6   | 0.48 J                                       | 0.62 Q J                                    | 14  |
| 2,3,7,8-TCDF                              | NC                                      | NC  | NC  | NC  | 1.5  | 3.2   | 5.0 Q                                       |
| OCDD                                      | NC                                      | NC  | NC  | NC  | 160 B  | 230 B                                       | 650 B                                       |
| OCDF                                      | NC                                      | NC  | NC  | NC  | 4.1 Q B J                                    | 4.7 Q B J                                   | 17 Q B                                      |

Notes:

- B : Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- B J : Estimated result. Result is less than the reporting limit.
- C : Co-eluting isomer.
- C J : Estimated result. Result is less than the reporting limit.
- ER-L: Effects Range Low
- ER-M: Effects Range Medium
- J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
- J C : Estimated result. Result is less than the reporting limit.
- J B : Compound was found in the blank and sample.
- J p : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
- J p B : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
- mg/Kg: milligrams per kilogram
- NC: No criteria
- NJDEP: New Jersey Department of Environmental Protection
- p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
- pg/g: picograms per gram
- Q : Estimated maximum possible concentration (EMPC).
- Q B : Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- Q B J : Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- Q J : Estimated result. Result is less than the reporting limit.
- SRS: Soil Remediation Standard
- U : Indicates the analyte was analyzed for but not detected.
- ug/Kg: micrograms per kilogram
- \*The direct contact standard for arsenic is based on natural background

|  |
|--|
| Values shaded in purple exceed the NJDEP Residential Direct Contact SRS                |
| Values shaded in light orange exceed the NJDEP Non-Residential Direct Contact SRS      |
| Values shaded in red exceed the NJDEP Ecological Screening Saline Water Criteria ER-L  |
| Values shaded in blue exceed the NJDEP Ecological Screening Saline Water Criteria ER-M |
| Values shaded in orange exceed more than one criteria value                            |

**Table 5:  
PCB Congeners - Sediment Sample Results - Mordecai Area  
NJIWW Sediment 2014**

| Location ID<br>Sample ID<br>Sampling Date | MOR-SED-01<br>180-30550-3<br>3/11/2014 | MOR-SED-02<br>180-30550-2<br>3/11/2014 | MOR-SED-03<br>180-30550-1<br>3/11/2014 |
|---|--|--|--|
| <b>CONSTITUENT (ng/g)</b>                 |  |  |  |
| PCB 1 (BZ)                                | 0.015 B                                | 0.018 B                                | 0.037 B                                |
| PCB 2 (BZ)                                | 0.028 Q B                              | 0.030 B                                | 0.070 B                                |
| PCB 3 (BZ)                                | 0.014 B                                | 0.018 Q B                              | 0.044 B                                |
| PCB 4 (BZ)                                | 0.046 B                                | 0.082 B                                | 0.16 B                                 |
| PCB 5 (BZ)                                | 0.0097 U                               | 0.0015 Q J                             | 0.0030 Q J                             |
| PCB 6 (BZ)                                | 0.033 B                                | 0.057 B                                | 0.11 B                                 |
| PCB 7 (BZ)                                | 0.0047 Q B J                           | 0.0066 Q B J                           | 0.014 B                                |
| PCB 8 (BZ)                                | 0.11 B                                 | 0.17 B                                 | 0.34 B                                 |
| PCB 9 (BZ)                                | 0.0048 Q J                             | 0.0065 Q J                             | 0.014 Q                                |
| PCB 10 (BZ)                               | 0.0034 Q B J                           | 0.0057 Q B J                           | 0.012 B                                |
| PCB 11 (BZ)                               | 0.17 B                                 | 0.32 B                                 | 0.92 B                                 |
| PCB 12 (BZ)                               | 0.044 B C                              | 0.075 B C                              | 0.14 B C                               |
| PCB 13 (BZ)                               | 0.044 B C12                            | 0.075 B C12                            | 0.14 B C12                             |
| PCB 14 (BZ)                               | 0.0013 Q J                             | 0.0028 Q J                             | 0.0039 J                               |
| PCB 15 (BZ)                               | 0.29 B                                 | 0.53 B                                 | 0.94 B                                 |
| PCB 16 (BZ)                               | 0.035                                  | 0.080                                  | 0.15                                   |
| PCB 17 (BZ)                               | 0.072                                  | 0.15                                   | 0.28                                   |
| PCB 18 (BZ)                               | 0.10 B C                               | 0.22 B C                               | 0.42 B C                               |
| PCB 19 (BZ)                               | 0.0088 J                               | 0.018                                  | 0.041                                  |
| PCB 20 (BZ)                               | 0.53 B C                               | 1.0 B C                                | 1.8 B C                                |
| PCB 21 (BZ)                               | 0.093 B C                              | 0.16 B C                               | 0.30 B C                               |
| PCB 22 (BZ)                               | 0.082 B                                | 0.18 B                                 | 0.33 B                                 |
| PCB 23 (BZ)                               | 0.0097 U                               | 0.00077 Q J                            | 0.00084 Q J                            |
| PCB 24 (BZ)                               | 0.0023 J                               | 0.0039 J                               | 0.0060 Q J                             |
| PCB 25 (BZ)                               | 0.053                                  | 0.11                                   | 0.21                                   |
| PCB 26 (BZ)                               | 0.085 C                                | 0.19 C                                 | 0.35 C                                 |
| PCB 27 (BZ)                               | 0.016                                  | 0.033                                  | 0.064                                  |
| PCB 28 (BZ)                               | 0.53 B C20                             | 1.0 B C20                              | 1.8 B C20                              |
| PCB 29 (BZ)                               | 0.085 C26                              | 0.19 C26                               | 0.35 C26                               |
| PCB 30 (BZ)                               | 0.10 B C18                             | 0.22 B C18                             | 0.42 B C18                             |
| PCB 31 (BZ)                               | 0.33 B                                 | 0.63 B                                 | 1.2 B                                  |
| PCB 32 (BZ)                               | 0.054                                  | 0.11                                   | 0.21                                   |
| PCB 33 (BZ)                               | 0.093 B C21                            | 0.16 B C21                             | 0.30 B C21                             |
| PCB 34 (BZ)                               | 0.0022 J                               | 0.0033 Q J                             | 0.0083 J                               |
| PCB 35 (BZ)                               | 0.016                                  | 0.035                                  | 0.078                                  |
| PCB 36 (BZ)                               | 0.0061 J                               | 0.011 Q                                | 0.029                                  |
| PCB 37 (BZ)                               | 0.22                                   | 0.45                                   | 0.84                                   |
| PCB 38 (BZ)                               | 0.00055 Q J                            | 0.00062 Q J                            | 0.0010 Q J                             |
| PCB 39 (BZ)                               | 0.0027 J                               | 0.0041 Q J                             | 0.0096 J                               |
| PCB 40 (BZ)                               | 0.0097 U                               | 0.20 C                                 | 0.38 C                                 |
| PCB 41 (BZ)                               | 0.0097 U                               | 0.20 C40                               | 0.38 C40                               |
| PCB 42 (BZ)                               | 0.049                                  | 0.12                                   | 0.21                                   |
| PCB 43 (BZ)                               | 0.0042 C J                             | 0.011 C                                | 0.018 Q C                              |
| PCB 44 (BZ)                               | 0.16 B C                               | 0.37 B C                               | 0.67 B C                               |
| PCB 45 (BZ)                               | 0.017 C                                | 0.038 C                                | 0.074 C                                |
| PCB 46 (BZ)                               | 0.0051 Q J                             | 0.015                                  | 0.028                                  |
| PCB 47 (BZ)                               | 0.16 B C44                             | 0.37 B C44                             | 0.67 B C44                             |
| PCB 48 (BZ)                               | 0.021                                  | 0.050                                  | 0.097                                  |
| PCB 49 (BZ)                               | 0.12 C                                 | 0.26 C                                 | 0.48 C                                 |
| PCB 50 (BZ)                               | 0.012 C                                | 0.030 C                                | 0.056 C                                |
| PCB 51 (BZ)                               | 0.017 C45                              | 0.038 C45                              | 0.074 C45                              |

**Table 5:  
PCB Congeners - Sediment Sample Results - Mordecai Area  
NJIWW Sediment 2014**

| <b>Location ID<br/>Sample ID<br/>Sampling Date</b> | <b>MOR-SED-01<br/>180-30550-3<br/>3/11/2014</b> | <b>MOR-SED-02<br/>180-30550-2<br/>3/11/2014</b> | <b>MOR-SED-03<br/>180-30550-1<br/>3/11/2014</b> |
|--|---|---|---|
| PCB 52 (BZ)  | 0.14  | 0.37  | 0.66  |
| PCB 53 (BZ)  | 0.012 C50                                       | 0.030 C50                                       | 0.056 C50                                       |
| PCB 54 (BZ)  | 0.0097 U  | 0.0099 U  | 0.0098 U  |
| PCB 55 (BZ)  | 0.0017 Q J                                      | 0.017 Q   | 0.029 Q   |
| PCB 56 (BZ)  | 0.10  | 0.24  | 0.44  |
| PCB 57 (BZ)  | 0.0020 Q J                                      | 0.0056 J  | 0.011   |
| PCB 58 (BZ)  | 0.0014 Q J                                      | 0.0041 Q J                                      | 0.0070 Q J                                      |
| PCB 59 (BZ)  | 0.016 C   | 0.039 C   | 0.070 C   |
| PCB 60 (BZ)  | 0.036   | 0.11  | 0.19  |
| PCB 61 (BZ)  | 0.37 C  | 0.85 C  | 1.5 C   |
| PCB 62 (BZ)  | 0.016 C59                                       | 0.039 C59                                       | 0.070 C59                                       |
| PCB 63 (BZ)  | 0.011   | 0.024   | 0.044   |
| PCB 64 (BZ)  | 0.0097 U  | 0.14  | 0.26  |
| PCB 65 (BZ)  | 0.16 B C44                                      | 0.37 B C44                                      | 0.67 B C44                                      |
| PCB 66 (BZ)  | 0.34  | 0.71  | 1.3   |
| PCB 67 (BZ)  | 0.0088 J  | 0.028   | 0.053   |
| PCB 68 (BZ)  | 0.0040 Q J                                      | 0.0080 Q J                                      | 0.018   |
| PCB 69 (BZ)  | 0.12 C49  | 0.26 C49  | 0.48 C49  |
| PCB 70 (BZ)  | 0.37 C61  | 0.85 C61  | 1.5 C61   |
| PCB 71 (BZ)  | 0.0097 U  | 0.20 C40  | 0.38 C40  |
| PCB 72 (BZ)  | 0.0045 J  | 0.012   | 0.026   |
| PCB 73 (BZ)  | 0.0042 C43 J                                    | 0.011 C43                                       | 0.018 Q C43                                     |
| PCB 74 (BZ)  | 0.37 C61  | 0.85 C61  | 1.5 C61   |
| PCB 75 (BZ)  | 0.016 C59                                       | 0.039 C59                                       | 0.070 C59                                       |
| PCB 76 (BZ)  | 0.37 C61  | 0.85 C61  | 1.5 C61   |
| PCB 77 (BZ)  | 0.057   | 0.15  | 0.31  |
| PCB 78 (BZ)  | 0.00031 Q J                                     | 0.00062 J                                       | 0.0017 Q J                                      |
| PCB 79 (BZ)  | 0.0035 J  | 0.0065 J  | 0.014   |
| PCB 80 (BZ)  | 0.0097 U  | 0.0099 U  | 0.0098 U  |
| PCB 81 (BZ)  | 0.0014 J  | 0.0022 J  | 0.0056 Q J                                      |
| PCB 82 (BZ)  | 0.017   | 0.054   | 0.10  |
| PCB 83 (BZ)  | 0.19 C  | 0.39 C  | 0.73 C  |
| PCB 84 (BZ)  | 0.031   | 0.093   | 0.17  |
| PCB 85 (BZ)  | 0.035 C   | 0.13 C  | 0.21 C  |
| PCB 86 (BZ)  | 0.099 C   | 0.33 Q C  | 0.59 C  |
| PCB 87 (BZ)  | 0.099 C86                                       | 0.33 Q C86                                      | 0.59 C86  |
| PCB 88 (BZ)  | 0.028 C   | 0.097 C   | 0.15 C  |
| PCB 89 (BZ)  | 0.0015 J  | 0.0089 J  | 0.015   |
| PCB 90 (BZ)  | 0.18 C  | 0.49 C  | 0.90 C  |
| PCB 91 (BZ)  | 0.028 C88                                       | 0.097 C88                                       | 0.15 C88  |
| PCB 92 (BZ)  | 0.033   | 0.097   | 0.19  |
| PCB 93 (BZ)  | 0.0011 Q C J                                    | 0.0042 Q C J                                    | 0.0027 Q C J                                    |
| PCB 94 (BZ)  | 0.0014 Q J                                      | 0.0067 J  | 0.0094 J  |
| PCB 95 (BZ)  | 0.097   | 0.29  | 0.52  |
| PCB 96 (BZ)  | 0.00098 Q J                                     | 0.0048 J  | 0.0073 J  |
| PCB 97 (BZ)  | 0.099 C86                                       | 0.33 Q C86                                      | 0.59 C86  |
| PCB 98 (BZ)  | 0.0055 Q C J                                    | 0.019 C   | 0.031 C   |
| PCB 99 (BZ)  | 0.19 C83  | 0.39 C83  | 0.73 C83  |
| PCB 100 (BZ)                                       | 0.0011 Q C93 J                                  | 0.0042 Q C93 J                                  | 0.0027 Q C93 J                                  |
| PCB 101 (BZ)                                       | 0.18 C90  | 0.49 C90  | 0.90 C90  |
| PCB 102 (BZ)                                       | 0.0055 Q C98 J                                  | 0.019 C98                                       | 0.031 C98                                       |
| PCB 103 (BZ)                                       | 0.0035 J  | 0.0063 Q J                                      | 0.014   |

**Table 5:  
PCB Congeners - Sediment Sample Results - Mordecai Area  
NJIWW Sediment 2014**

| <b>Location ID<br/>Sample ID<br/>Sampling Date</b> | <b>MOR-SED-01<br/>180-30550-3<br/>3/11/2014</b> | <b>MOR-SED-02<br/>180-30550-2<br/>3/11/2014</b> | <b>MOR-SED-03<br/>180-30550-1<br/>3/11/2014</b> |
|--|---|---|---|
| PCB 104 (BZ)                                       | 0.0097 U  | 0.0099 U  | 0.0098 U  |
| PCB 105 (BZ)                                       | 0.085   | 0.30  | 0.51  |
| PCB 106 (BZ)                                       | 0.0097 U  | 0.00082 Q J                                     | 0.0098 U  |
| PCB 107 (BZ)/109 (IUPAC)                           | 0.028   | 0.067   | 0.12  |
| PCB 108 (BZ)/107 (IUPAC)                           | 0.0071 C J                                      | 0.019 C   | 0.036 C   |
| PCB 109 (BZ)/108 (IUPAC)                           | 0.099 C86                                       | 0.33 Q C86                                      | 0.59 C86  |
| PCB 110 (BZ)                                       | 0.20 C  | 0.58 C  | 1.1 C   |
| PCB 111 (BZ)                                       | 0.0012 Q J                                      | 0.0024 J  | 0.0032 Q J                                      |
| PCB 112 (BZ)                                       | 0.0097 U  | 0.0099 U  | 0.0098 U  |
| PCB 113 (BZ)                                       | 0.18 C90  | 0.49 C90  | 0.90 C90  |
| PCB 114 (BZ)                                       | 0.0030 Q J                                      | 0.0098 J  | 0.019   |
| PCB 115 (BZ)                                       | 0.20 C110                                       | 0.58 C110                                       | 1.1 C110  |
| PCB 116 (BZ)                                       | 0.035 C85                                       | 0.13 C85  | 0.21 C85  |
| PCB 117 (BZ)                                       | 0.035 C85                                       | 0.13 C85  | 0.21 C85  |
| PCB 118 (BZ)                                       | 0.31  | 0.79  | 1.4   |
| PCB 119 (BZ)                                       | 0.099 C86                                       | 0.33 Q C86                                      | 0.59 C86  |
| PCB 120 (BZ)                                       | 0.0025 Q J                                      | 0.0061 Q J                                      | 0.021   |
| PCB 121 (BZ)                                       | 0.0097 U  | 0.0099 U  | 0.0098 U  |
| PCB 122 (BZ)                                       | 0.0097 U  | 0.0089 J  | 0.017   |
| PCB 123 (BZ)                                       | 0.0047 Q J                                      | 0.0092 J  | 0.017   |
| PCB 124 (BZ)                                       | 0.0071 C108 J                                   | 0.019 C108                                      | 0.036 C108                                      |
| PCB 125 (BZ)                                       | 0.099 C86                                       | 0.33 Q C86                                      | 0.59 C86  |
| PCB 126 (BZ)                                       | 0.0020 Q J                                      | 0.0039 Q J                                      | 0.011   |
| PCB 127 (BZ)                                       | 0.00054 Q J                                     | 0.00033 Q J                                     | 0.0019 Q J                                      |
| PCB 128 (BZ)                                       | 0.047 C   | 0.12 C  | 0.23 C  |
| PCB 129 (BZ)                                       | 0.29 C  | 0.85 C  | 1.6 C   |
| PCB 130 (BZ)                                       | 0.019   | 0.045   | 0.10  |
| PCB 131 (BZ)                                       | 0.0097 U  | 0.0057 J  | 0.012   |
| PCB 132 (BZ)                                       | 0.051   | 0.13  | 0.30  |
| PCB 133 (BZ)                                       | 0.0056 Q J                                      | 0.016   | 0.043   |
| PCB 134 (BZ)                                       | 0.0093 C J                                      | 0.026 Q C                                       | 0.064 C   |
| PCB 135 (BZ)                                       | 0.068 C   | 0.21 C  | 0.42 C  |
| PCB 136 (BZ)                                       | 0.018 Q   | 0.053   | 0.11  |
| PCB 137 (BZ)                                       | 0.0049 J  | 0.016   | 0.034   |
| PCB 138 (BZ)                                       | 0.29 C129                                       | 0.85 C129                                       | 1.6 C129  |
| PCB 139 (BZ)                                       | 0.0049 C J                                      | 0.015 C   | 0.025 C   |
| PCB 140 (BZ)                                       | 0.0049 C139 J                                   | 0.015 C139                                      | 0.025 C139                                      |
| PCB 141 (BZ)                                       | 0.016   | 0.043   | 0.11  |
| PCB 142 (BZ)                                       | 0.0097 U  | 0.0099 U  | 0.0098 U  |
| PCB 143 (BZ)                                       | 0.0093 C134 J                                   | 0.026 Q C134                                    | 0.064 C134                                      |
| PCB 144 (BZ)                                       | 0.0040 Q J                                      | 0.016   | 0.043   |
| PCB 145 (BZ)                                       | 0.0097 U  | 0.0099 U  | 0.0098 U  |
| PCB 146 (BZ)                                       | 0.066   | 0.15  | 0.34  |
| PCB 147 (BZ)                                       | 0.18 C  | 0.51 C  | 0.98 C  |
| PCB 148 (BZ)                                       | 0.0020 Q J                                      | 0.0043 J  | 0.0080 J  |
| PCB 149 (BZ)                                       | 0.18 C147                                       | 0.51 C147                                       | 0.98 C147                                       |
| PCB 150 (BZ)                                       | 0.0097 U  | 0.0061 J  | 0.0079 J  |
| PCB 151 (BZ)                                       | 0.068 C135                                      | 0.21 C135                                       | 0.42 C135                                       |
| PCB 152 (BZ)                                       | 0.0012 Q J                                      | 0.0081 J  | 0.0086 J  |

**Table 5:  
PCB Congeners - Sediment Sample Results - Mordecai Area  
NJIWW Sediment 2014**

| <b>Location ID<br/>Sample ID<br/>Sampling Date</b> | <b>MOR-SED-01<br/>180-30550-3<br/>3/11/2014</b> | <b>MOR-SED-02<br/>180-30550-2<br/>3/11/2014</b> | <b>MOR-SED-03<br/>180-30550-1<br/>3/11/2014</b> |
|--|---|---|---|
| PCB 153 (BZ)                                       | 0.29 C  | 0.66 C  | 1.3 C   |
| PCB 154 (BZ)                                       | 0.011   | 0.011   | 0.031   |
| PCB 155 (BZ)                                       | 0.0097 U  | 0.0010 J  | 0.0045 J  |
| PCB 156 (BZ)                                       | 0.023 C   | 0.068 C   | 0.12 C  |
| PCB 157 (BZ)                                       | 0.023 C156                                      | 0.068 C156                                      | 0.12 C156                                       |
| PCB 158 (BZ)                                       | 0.016   | 0.040   | 0.089   |
| PCB 159 (BZ)                                       | 0.0016 J  | 0.0031 J  | 0.011   |
| PCB 160 (BZ)                                       | 0.29 C129                                       | 0.85 C129                                       | 1.6 C129  |
| PCB 161 (BZ)                                       | 0.0097 U  | 0.0099 U  | 0.0098 U  |
| PCB 162 (BZ)                                       | 0.0016 J  | 0.0030 J  | 0.0077 J  |
| PCB 163 (BZ)                                       | 0.29 C129                                       | 0.85 C129                                       | 1.6 C129  |
| PCB 164 (BZ)                                       | 0.011   | 0.032   | 0.068   |
| PCB 165 (BZ)                                       | 0.00062 Q J                                     | 0.00093 Q J                                     | 0.0022 J  |
| PCB 166 (BZ)                                       | 0.047 C128                                      | 0.12 C128                                       | 0.23 C128                                       |
| PCB 167 (BZ)                                       | 0.012   | 0.028   | 0.050   |
| PCB 168 (BZ)                                       | 0.29 C153                                       | 0.66 C153                                       | 1.3 C153  |
| PCB 169 (BZ)                                       | 0.00069 Q J                                     | 0.0019 Q J                                      | 0.013 Q   |
| PCB 170 (BZ)                                       | 0.036   | 0.11  | 0.29  |
| PCB 171 (BZ)                                       | 0.013 Q C                                       | 0.039 C   | 0.089 C   |
| PCB 172 (BZ)                                       | 0.0079 J  | 0.016 Q   | 0.073   |
| PCB 173 (BZ)                                       | 0.013 Q C171                                    | 0.039 C171                                      | 0.089 C171                                      |
| PCB 174 (BZ)                                       | 0.028   | 0.071   | 0.26  |
| PCB 175 (BZ)                                       | 0.0017 Q J                                      | 0.0048 J  | 0.017   |
| PCB 176 (BZ)                                       | 0.0042 Q J                                      | 0.012   | 0.041   |
| PCB 177 (BZ)                                       | 0.043   | 0.079   | 0.26  |
| PCB 178 (BZ)                                       | 0.021 Q   | 0.048   | 0.17  |
| PCB 179 (BZ)                                       | 0.028   | 0.069   | 0.19  |
| PCB 180 (BZ)                                       | 0.095 B C                                       | 0.29 B C  | 0.84 B C  |
| PCB 181 (BZ)                                       | 0.0097 U  | 0.0010 J  | 0.0044 J  |
| PCB 182 (BZ)                                       | 0.0011 Q J                                      | 0.0043 Q J                                      | 0.025   |
| PCB 183 (BZ)                                       | 0.037 C   | 0.094 C   | 0.27 C  |
| PCB 184 (BZ)                                       | 0.0097 U  | 0.0023 Q J                                      | 0.0040 J  |
| PCB 185 (BZ)                                       | 0.037 C183                                      | 0.094 C183                                      | 0.27 C183                                       |
| PCB 186 (BZ)                                       | 0.0097 U  | 0.0099 U  | 0.0098 U  |
| PCB 187 (BZ)                                       | 0.14  | 0.34  | 0.93  |
| PCB 188 (BZ)                                       | 0.0019 J  | 0.011   | 0.012   |
| PCB 189 (BZ)                                       | 0.0025 Q J                                      | 0.0058 J  | 0.014   |
| PCB 190 (BZ)                                       | 0.0038 Q J                                      | 0.018   | 0.043   |
| PCB 191 (BZ)                                       | 0.00088 Q J                                     | 0.0040 J  | 0.012   |
| PCB 192 (BZ)                                       | 0.0097 U  | 0.0099 U  | 0.0098 U  |
| PCB 193 (BZ)                                       | 0.095 B C180                                    | 0.29 B C180                                     | 0.84 B C180                                     |
| PCB 194 (BZ)                                       | 0.035   | 0.099   | 0.69  |
| PCB 195 (BZ)                                       | 0.0094 J  | 0.018 Q   | 0.15  |
| PCB 196 (BZ)                                       | 0.020   | 0.042   | 0.29  |
| PCB 197 (BZ)                                       | 0.0023 Q J                                      | 0.0044 Q J                                      | 0.029   |
| PCB 198 (BZ)                                       | 0.053 C   | 0.10 C  | 0.97 C  |
| PCB 199 (BZ)/200 (IUPAC)                           | 0.0035 J  | 0.0056 J  | 0.078   |
| PCB 200 (BZ)/201 (IUPAC)                           | 0.0088 Q J                                      | 0.015   | 0.12  |
| PCB 201 (BZ)/199 (IUPAC)                           | 0.053 C198                                      | 0.10 C198                                       | 0.97 C198                                       |



**Table 5:  
PCB Congeners - Sediment Sample Results - Mordecai Area  
NJIWW Sediment 2014**

| <b>Location ID<br/>Sample ID<br/>Sampling Date</b> | <b>MOR-SED-01<br/>180-30550-3<br/>3/11/2014</b> | <b>MOR-SED-02<br/>180-30550-2<br/>3/11/2014</b> | <b>MOR-SED-03<br/>180-30550-1<br/>3/11/2014</b> |
|--|---|---|---|
| PCB 202 (BZ)                                       | 0.026   | 0.050   | 0.28  |
| PCB 203 (BZ)                                       | 0.020   | 0.054   | 0.53  |
| PCB 204 (BZ)                                       | 0.0097 U  | 0.0017 J  | 0.0014 Q J                                      |
| PCB 205 (BZ)                                       | 0.0018 J  | 0.0029 J  | 0.026   |
| PCB 206 (BZ)                                       | 0.036   | 0.059   | 0.73  |
| PCB 207 (BZ)                                       | 0.0054 J  | 0.0074 J  | 0.085   |
| PCB 208 (BZ)                                       | 0.021   | 0.028   | 0.22  |
| PCB 209 (BZ)                                       | 0.050   | 0.059   | 0.18  |

Notes:

- B : Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- B C : Co-eluting isomer.
- B C12 : Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- B C18 : Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- B C20 : Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- B C21 : Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- C : Co-eluting isomer.
- C J : Estimated result. Result is less than the reporting limit.
- C43 J : Estimated result. Result is less than the reporting limit.
- J : Estimated result. Result is less than the reporting limit.
- ng/g: nanograms per gram
- Q : Estimated maximum possible concentration (EMPC).
- Q B : Estimated maximum possible concentration (EMPC).
- Q B J : Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- Q C : Estimated maximum possible concentration (EMPC).
- Q C J : Estimated maximum possible concentration (EMPC).
- Q C171 : Estimated maximum possible concentration (EMPC).
- Q C43 : Estimated maximum possible concentration (EMPC).
- Q C93 J : Estimated maximum possible concentration (EMPC).
- Q C98 J : Estimated result. Result is less than the reporting limit.
- Q J : Estimated maximum possible concentration (EMPC).
- U : Indicates the analyte was analyzed for but not detected.

**Table 6:  
Summary of Surface Water Sample Results - Mordecai Area  
NJIWW Water 2014**

| Location ID<br>Lab Sample ID<br>Sampling Date | NJDEP Surface Water<br>Quality Criteria (Saline)<br>for Toxic Substances<br>(Human Health) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Acute) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Chronic) | MOR-WATER<br>180-30550-5<br>3/11/2014 |
|---|--|--|--|---------------------------------------|
| <b>Volatile Organic Compounds (ug/L)</b>      |  |  |  |                                       |
| 1,1,1-Trichloroethane                         | 2,600  | NC   | NC   | 1.0 U                                 |
| 1,1,2,2-Tetrachloroethane                     | 110  | NC   | NC   | 0.93 U                                |
| 1,1,2-Trichloroethane                         | 350  | NC   | NC   | 1.2 U                                 |
| 1,1-Dichloroethane                            | NC   | NC   | NC   | 1.0 U                                 |
| 1,1-Dichloroethene                            | NC   | NC   | NC   | 1.1 U                                 |
| 1,2-Dichloroethane                            | 28   | NC   | NC   | 0.96 U                                |
| 1,2-Dichloroethene, Total                     | NC   | NC   | NC   | 0.95 U                                |
| 1,2-Dichloropropane                           | 15   | NC   | NC   | 1.3 U                                 |
| 2-Butanone                                    | NC   | NC   | NC   | 1.1 U                                 |
| 2-Hexanone                                    | NC   | NC   | NC   | 0.57 U                                |
| 4-Methyl-2-pentanone                          | NC   | NC   | NC   | 0.59 U                                |
| Acetone                                       | NC   | NC   | NC   | 5.0 U                                 |
| Benzene                                       | 3.3  | NC   | NC   | 0.99 U                                |
| Bromodichloromethane                          | 17   | NC   | NC   | 0.93 U                                |
| Bromoform                                     | 140  | NC   | NC   | 1.1 U                                 |
| Bromomethane                                  | 1,500  | NC   | NC   | 1.6 U                                 |
| Carbon disulfide                              | NC   | NC   | NC   | 1.1 U                                 |
| Carbon tetrachloride                          | 2.3  | NC   | NC   | 1.1 U                                 |
| Chlorobenzene                                 | 2,500  | NC   | NC   | 0.53 U                                |
| Chloroethane                                  | NC   | NC   | NC   | 0.75 U                                |
| Chloroform                                    | 2,100  | NC   | NC   | 1.0 U                                 |
| Chloromethane                                 | NC   | NC   | NC   | 1.4 U                                 |
| cis-1,3-Dichloropropene                       | 21   | NC   | NC   | 0.73 U                                |
| Dibromochloromethane                          | 13   | NC   | NC   | 0.65 U                                |
| Ethylbenzene                                  | 2,100  | NC   | NC   | 0.62 U                                |
| Methylene chloride                            | 310  | NC   | NC   | 1.1 U                                 |
| Styrene                                       | NC   | NC   | NC   | 0.64 U                                |
| Tetrachloroethene                             | NC   | NC   | NC   | 0.82 U                                |
| Toluene                                       | 15,000   | NC   | NC   | 0.85 U                                |
| trans-1,3-Dichloropropene                     | 21   | NC   | NC   | 0.58 U                                |

**Table 6:  
Summary of Surface Water Sample Results - Mordecai Area  
NJIWW Water 2014**

| Location ID<br>Lab Sample ID<br>Sampling Date | NJDEP Surface Water<br>Quality Criteria (Saline)<br>for Toxic Substances<br>(Human Health) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Acute) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Chronic) | MOR-WATER<br>180-30550-5<br>3/11/2014 |
|---|--|--|--|---------------------------------------|
| Trichloroethene                               | 12   | NC   | NC   | 0.80 U                                |
| Vinyl chloride                                | 8.1  | NC   | NC   | 1.3 U                                 |
| Xylenes, Total                                | NC   | NC   | NC   | 2.0 U                                 |
| <b>Semi-Volatile Organic Compounds (ug/L)</b> |  |  |  |                                       |
| 1,1'-Biphenyl                                 | NC   | NC   | NC   | 0.040 U                               |
| 2,2'-oxybis(1-chloropropane)                  | NC   | NC   | NC   | 0.019 U                               |
| 2,4,5-Trichlorophenol                         | 3,600  | NC   | NC   | 0.15 U                                |
| 2,4,6-Trichlorophenol                         | 1  | NC   | NC   | 0.17 U                                |
| 2,4-Dichlorophenol                            | 290  | NC   | NC   | 0.032 U                               |
| 2,4-Dimethylphenol                            | NC   | NC   | NC   | 0.081 U                               |
| 2,4-Dinitrophenol                             | 5,300  | NC   | NC   | 0.58 U                                |
| 2,4-Dinitrotoluene                            | 3.4  | NC   | NC   | 0.051 U                               |
| 2,6-Dinitrotoluene                            | NC   | NC   | NC   | 0.076 U                               |
| 2-Chloronaphthalene                           | 1,600  | NC   | NC   | 0.014 U                               |
| 2-Chlorophenol                                | 150  | NC   | NC   | 0.16 U                                |
| 2-Methylnaphthalene                           | NC   | NC   | NC   | 0.012 U                               |
| 2-Methylphenol                                | NC   | NC   | NC   | 0.082 U                               |
| 2-Nitroaniline                                | NC   | NC   | NC   | 0.33 U                                |
| 2-Nitrophenol                                 | NC   | NC   | NC   | 0.16 U                                |
| 3,3'-Dichlorobenzidine                        | 0.028  | NC   | NC   | 0.11 U                                |
| 3-Nitroaniline                                | NC   | NC   | NC   | 0.31 U                                |
| 4,6,-Dinitro-2-methylphenol                   | NC   | NC   | NC   | 0.21 U                                |
| 4-Bromophenyl phenyl ether                    | NC   | NC   | NC   | 0.060 U                               |
| 4-Chloro-3-methylphenol                       | NC   | NC   | NC   | 0.072 U                               |
| 4-Chloroaniline                               | NC   | NC   | NC   | 0.084 U                               |
| 4-Chlorophenyl phenyl ether                   | NC   | NC   | NC   | 0.048 U                               |
| 4-Nitroaniline                                | NC   | NC   | NC   | 0.16 U                                |
| 4-Nitrophenol                                 | NC   | NC   | NC   | 0.62 U                                |
| Acenaphthene                                  | 990  | NC   | NC   | 0.014 U                               |
| Acenaphthylene                                | NC   | NC   | NC   | 0.014 U                               |
| Acetophenone                                  | NC   | NC   | NC   | 0.076 U                               |

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Summary of Surface Water Sample Results - Mordecai Area  
NJIWW Water 2014**

| Location ID<br>Lab Sample ID<br>Sampling Date | NJDEP Surface Water<br>Quality Criteria (Saline)<br>for Toxic Substances<br>(Human Health) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Acute) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Chronic) | MOR-WATER<br>180-30550-5<br>3/11/2014 |
|---|--|--|--|---------------------------------------|
| Anthracene                                    | 40,000   | NC   | NC   | 0.015 U                               |
| Atrazine                                      | NC   | NC   | NC   | 0.085 U                               |
| Benzaldehyde                                  | NC   | NC   | NC   | 0.14 U                                |
| Benzo(a)anthracene                            | 0.18   | NC   | NC   | 0.028 J                               |
| Benzo(a)pyrene                                | 0.018  | NC   | NC   | 0.013 U                               |
| Benzo(b)fluoranthene                          | 0.18   | NC   | NC   | 0.043 J                               |
| Benzo(ghi)perylene                            | NC   | NC   | NC   | 0.024 J                               |
| Benzo(k)fluoranthene                          | 1.8  | NC   | NC   | 0.052 U                               |
| Bis(2-chloroethoxy)methane                    | NC   | NC   | NC   | 0.055 U                               |
| Bis(2-chloroethyl)ether                       | 0.530  | NC   | NC   | 0.024 U                               |
| Bis(2-Ethylhexyl)phthalate                    | 2.2  | NC   | NC   | 1.2 U                                 |
| Butyl benzyl phthalate                        | 190  | NC   | NC   | 0.53 J                                |
| Caprolactam                                   | NC   | NC   | NC   | 1.1 U                                 |
| Carbazole                                     | NC   | NC   | NC   | 0.015 U                               |
| Chrysene                                      | 18   | NC   | NC   | 0.036 J                               |
| Dibenz(a,h)anthracene                         | 0.018  | NC   | NC   | 0.023 J                               |
| Dibenzofuran                                  | NC   | NC   | NC   | 0.059 U                               |
| Diethyl phthalate                             | 44,000   | NC   | NC   | 0.14 U                                |
| Dimethyl phthalate                            | NC   | NC   | NC   | 0.073 U                               |
| Di-n-butylphthalate                           | NC   | NC   | NC   | 0.12 U                                |
| Di-n-octylphthalate                           | NC   | NC   | NC   | 0.20 U                                |
| Fluoranthene                                  | 140  | NC   | NC   | 0.015 U                               |
| Fluorene                                      | 5,300  | NC   | NC   | 0.021 U                               |
| Hexachlorobenzene                             | 0.00029  | NC   | NC   | 0.017 U                               |
| Hexachlorobutadiene                           | 18   | NC   | NC   | 0.016 U                               |
| Hexachlorocyclopentadiene                     | 1100   | NC   | NC   | 0.049 U                               |
| Hexachloroethane                              | 3.3  | NC   | NC   | 0.060 U                               |
| Indeno(1,2,3-cd)Pyrene                        | 0.18   | NC   | NC   | 0.028 J                               |
| Isophorone                                    | 960  | NC   | NC   | 0.061 U                               |
| Methylphenol, 3 & 4                           | NC   | NC   | NC   | 0.086 U                               |
| Naphthalene                                   | NC   | NC   | NC   | 0.013 U                               |
| Nitrobenzene                                  | 690  | NC   | NC   | 0.080 U                               |
| n-Nitrosodi-n-propylamine                     | 0.5100   | NC   | NC   | 0.029 U                               |
| n-Nitrosodiphenylamine                        | 6  | NC   | NC   | 0.081 U                               |

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Summary of Surface Water Sample Results - Mordecai Area  
NJIWW Water 2014**

| Location ID<br>Lab Sample ID<br>Sampling Date  | NJDEP Surface Water<br>Quality Criteria (Saline)<br>for Toxic Substances<br>(Human Health) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Acute) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Chronic) | MOR-WATER<br>180-30550-5<br>3/11/2014 |
|--|--|--|--|---------------------------------------|
| Pentachlorophenol                              | 3  | 13   | 7.9  | 0.063 U                               |
| Phenanthrene                                   | NC   | NC   | NC   | 0.041 U                               |
| Phenol   | 860,000  | NC   | NC   | 0.055 U                               |
| Pyrene   | 4,000  | NC   | NC   | 0.015 U                               |
| <b>Organochlorine Pesticides (ug/L)</b>        |  |  |  |                                       |
| 4,4'-DDD                                       | 0.00031  | NC   | NC   | 0.00072 J                             |
| 4,4'-DDE                                       | 0.00022  | NC   | NC   | 0.00075 U                             |
| 4,4'-DDT                                       | 0.00022  | 0.13   | 0.0010   | 0.00070 U                             |
| Aldrin   | 0.00005  | 1.3  | NC   | 0.00079 U                             |
| alpha-BHC                                      | 0.0049   | NC   | NC   | 0.00063 U                             |
| alpha-Chlordane                                | 0.00011  | 0.09   | 0.004  | 0.00093 U                             |
| beta-BHC                                       | 0.017  | NC   | NC   | 0.00095 U                             |
| delta-BHC                                      | NC   | NC   | NC   | 0.00044 J p                           |
| Dieldrin                                       | 0.000054   | 0.71   | 0.0019   | 0.00078 U                             |
| Endosulfan I                                   | 89   | 0.034  | 0.0087   | 0.00090 U                             |
| Endosulfan II                                  | 89   | 0.034  | 0.0087   | 0.00093 U                             |
| Endosulfan sulfate                             | 89   | NC   | NC   | 0.00054 U                             |
| Endrin   | 0.06   | 0.037  | 0.0023   | 0.00091 U                             |
| Endrin aldehyde                                | 0.06   | NC   | NC   | 0.00086 U                             |
| Endrin ketone                                  | NC   | NC   | NC   | 0.00088 U                             |
| gamma-BHC (Lindane)                            | 1.8  | 0.16   | NC   | 0.00076 U                             |
| gamma-Chlordane                                | 0.00011  | 0.09   | 0.004  | 0.00091 U                             |
| Heptachlor                                     | 0.000079   | 0.053  | 0.0036   | 0.00094 U                             |
| Heptachlor epoxide                             | 0.000039   | 0.053  | 0.0036   | 0.00092 U                             |
| Methoxychlor                                   | NC   | NC   | 0.03   | 0.00087 U                             |
| Toxaphene                                      | 0.00028  | 0.21   | 0.0002   | 0.018 U                               |
| <b>Polychlorinated Biphenyls (PCBs) (ug/L)</b> |  |  |  |                                       |
| PCB-1016                                       | 0.000064   | NC   | 0.03   | 0.0024 U                              |
| PCB-1221                                       | 0.000064   | NC   | 0.03   | 0.0024 U                              |
| PCB-1232                                       | 0.000064   | NC   | 0.03   | 0.0028 U                              |
| PCB-1242                                       | 0.000064   | NC   | 0.03   | 0.0018 U                              |
| PCB-1248                                       | 0.000064   | NC   | 0.03   | 0.0022 U                              |
| PCB-1254                                       | 0.000064   | NC   | 0.03   | 0.0022 U                              |
| PCB-1260                                       | 0.000064   | NC   | 0.03   | 0.0013 U                              |

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|---|--|--|--|---------------------------------------|
| <b>Inorganics (ug/L)</b>                      |  |  |  |                                       |
| Aluminum                                      | NC   | NC   | NC   | 110 J                                 |
| Antimony                                      | 640  | NC   | NC   | 0.9 J B                               |
| Arsenic                                       | 0.061  | 69   | 36   | 10                                    |
| Barium  | NC   | NC   | NC   | 11 J                                  |
| Beryllium                                     | 42   | NC   | NC   | 0.45 J                                |
| Cadmium                                       | 16.0   | 40   | 8.8  | 1.1 U                                 |
| Calcium                                       | NC   | NC   | NC   | 330,000 B                             |
| Chromium                                      | 750  | NC   | NC   | 5.4 U                                 |
| Cobalt  | NC   | NC   | NC   | 0.68 J                                |
| Copper  | NC   | 4.8  | 3.1  | 5.5 J                                 |
| Iron  | NC   | NC   | NC   | 290 J B                               |
| Lead  | NC   | 210  | 24   | 0.19 U                                |
| Magnesium                                     | NC   | NC   | NC   | 1,000,000                             |
| Manganese                                     | 100  | NC   | NC   | 11 J B                                |
| Nickel  | 1,700  | 64   | 22   | 1.7 U                                 |
| Potassium                                     | NC   | NA   | NC   | 310,000                               |
| Selenium                                      | 4,200  | 290  | 71   | 52                                    |
| Silver  | 40,000   | 1.9  | NC   | 0.36 U                                |
| Sodium  | NC   | NC   | NC   | 8,100,000 ^                           |
| Thallium                                      | 0.47   | NC   | NC   | 0.53 J                                |
| Vanadium                                      | NC   | NC   | NC   | 0.85 J                                |
| Zinc  | 26,000   | 90   | 81   | 10 J                                  |
| Mercury                                       | 0.051  | 1.800  | 0.940  | 0.002                                 |
| <b>General Chemistry</b>                      |  |  |  |                                       |
| Cyanide, Total (ug/L)                         | 140  | 1.0  | 1.0  | 1.5 U                                 |
| Total Suspended Solids (mg/L)                 | NC   | NC   | NC   | 3.6                                   |
| <b>Dioxins (pg/L)</b>                         |  |  |  |                                       |
| 1,2,3,4,6,7,8-HpCDD                           | NC   | NC   | NC   | 0.30 Q B J                            |
| 1,2,3,4,6,7,8-HpCDF                           | NC   | NC   | NC   | 0.28 Q B J                            |
| 1,2,3,4,7,8,9-HpCDF                           | NC   | NC   | NC   | 0.088 Q B J                           |
| 1,2,3,4,7,8-HxCDD                             | NC   | NC   | NC   | 47 U                                  |
| 1,2,3,4,7,8-HxCDF                             | NC   | NC   | NC   | 47 U                                  |
| 1,2,3,6,7,8-HxCDD                             | NC   | NC   | NC   | 47 U                                  |

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|---|--|--|--|---------------------------------------|
| 1,2,3,6,7,8-HxCDF                             | NC   | NC   | NC   | 0.32 Q J                              |
| 1,2,3,7,8,9-HxCDD                             | NC   | NC   | NC   | 47 U                                  |
| 1,2,3,7,8,9-HxCDF                             | NC   | NC   | NC   | 47 U                                  |
| 1,2,3,7,8-PeCDD                               | NC   | NC   | NC   | 47 U                                  |
| 1,2,3,7,8-PeCDF                               | NC   | NC   | NC   | 47 U                                  |
| 2,3,4,6,7,8-HxCDF                             | NC   | NC   | NC   | 47 U                                  |
| 2,3,4,7,8-PeCDF                               | NC   | NC   | NC   | 47 U                                  |
| 2,3,7,8-TCDD                                  | 0.0051   | NC   | NC   | 9.5 U                                 |
| 2,3,7,8-TCDF                                  | NC   | NC   | NC   | 9.5 U                                 |
| OCDD  | NC   | NC   | NC   | 6.1 Q B J                             |
| OCDF  | NC   | NC   | NC   | 1.4 B J                               |

Notes:

^ : ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC exceeds the control limits.

B : Compound was found in the blank and sample.

B J : Estimated result. Result is less than the reporting limit.

J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

J B : Compound was found in the blank and sample.

J p : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

mg/L - milligrams per liter

NA - Criteria not available

NC - No Criteria

ng/L - nanograms per liter

NJDEP - New Jersey Department of Environmental Protection

pg/L - picograms per liter

Q B J : Method blank contamination. The associated method blank contains the target analyte at a reportable level.

Q J : Estimated result. Result is less than the reporting limit.

U : Indicates the analyte was analyzed for but not detected.

ug/L - micrograms per liter

Values shaded in blue exceed the NJDEP Surface Water (Saline) Quality Criteria for Toxic Substances (Human Health)

Values shaded in pink exceed the NJDEP Surface Water (Saline) Quality Standards for aquatic life (Acute)

Values shaded in green exceed the NJDEP Surface Water (Saline) Quality Standards for aquatic life (Chronic)

Values shaded in orange exceed more than one criteria value

**Table 7:**  
**PCB Congeners - Surface Water Sample Results - Mordecai Area**  
**NJIWW Water 2014**

| Location ID<br>Sample ID<br>Sampling Date | MOR-WATER<br>180-30550-5<br>3/11/2014 11:10 |
|---|---|
| <b>CONSTITUENT (ng/L)</b>                 |   |
| PCB 1 (BZ)                                | 0.0034 Q B J                                |
| PCB 2 (BZ)                                | 0.0027 Q B J                                |
| PCB 3 (BZ)                                | 0.0040 B J                                  |
| PCB 4 (BZ)                                | 0.0092 Q B J                                |
| PCB 5 (BZ)                                | 0.0014 Q B J                                |
| PCB 6 (BZ)                                | 0.0036 Q B J                                |
| PCB 7 (BZ)                                | 0.0020 Q B J                                |
| PCB 8 (BZ)                                | 0.0081 Q B J                                |
| PCB 9 (BZ)                                | 0.0028 Q B J                                |
| PCB 10 (BZ)                               | 0.0019 Q B J                                |
| PCB 11 (BZ)                               | 0.061 B                                     |
| PCB 12 (BZ)                               | 0.0032 Q B C J                              |
| PCB 13 (BZ)                               | 0.0032 Q B C12 J                            |
| PCB 14 (BZ)                               | 0.00062 Q B J                               |
| PCB 15 (BZ)                               | 0.0052 Q B J                                |
| PCB 16 (BZ)                               | 0.0030 J                                    |
| PCB 17 (BZ)                               | 0.0039 J                                    |
| PCB 18 (BZ)                               | 0.0049 Q B C J                              |
| PCB 19 (BZ)                               | 0.0038 Q B J                                |
| PCB 20 (BZ)                               | 0.012 Q B C J                               |
| PCB 21 (BZ)                               | 0.0054 B C J                                |
| PCB 22 (BZ)                               | 0.0030 Q B J                                |
| PCB 23 (BZ)                               | 0.038 U                                     |
| PCB 24 (BZ)                               | 0.038 U                                     |
| PCB 25 (BZ)                               | 0.0014 Q J                                  |
| PCB 26 (BZ)                               | 0.0033 Q C J                                |
| PCB 27 (BZ)                               | 0.0020 B J                                  |
| PCB 28 (BZ)                               | 0.012 Q B C20 J                             |
| PCB 29 (BZ)                               | 0.0033 Q C26 J                              |
| PCB 30 (BZ)                               | 0.0049 Q B C18 J                            |
| PCB 31 (BZ)                               | 0.0095 B J                                  |
| PCB 32 (BZ)                               | 0.0023 Q B J                                |
| PCB 33 (BZ)                               | 0.0054 B C21 J                              |
| PCB 34 (BZ)                               | 0.038 U                                     |
| PCB 35 (BZ)                               | 0.0010 J                                    |
| PCB 36 (BZ)                               | 0.038 U                                     |
| PCB 37 (BZ)                               | 0.0035 Q J                                  |
| PCB 38 (BZ)                               | 0.038 U                                     |
| PCB 39 (BZ)                               | 0.038 U                                     |
| PCB 40 (BZ)                               | 0.0035 Q B C J                              |
| PCB 41 (BZ)                               | 0.0035 Q B C40 J                            |
| PCB 42 (BZ)                               | 0.0028 J                                    |
| PCB 43 (BZ)                               | 0.038 U                                     |
| PCB 44 (BZ)                               | 0.0062 Q B C J                              |
| PCB 45 (BZ)                               | 0.038 U                                     |
| PCB 46 (BZ)                               | 0.038 U                                     |
| PCB 47 (BZ)                               | 0.0062 Q B C44 J                            |
| PCB 48 (BZ)                               | 0.0015 Q J                                  |
| PCB 49 (BZ)                               | 0.0057 C J                                  |
| PCB 50 (BZ)                               | 0.0018 Q C J                                |
| PCB 51 (BZ)                               | 0.038 U                                     |



**Table 7:  
PCB Congeners - Surface Water Sample Results - Mordecai Area  
NJIWW Water 2014**

| <b>Location ID<br/>Sample ID<br/>Sampling Date</b> | <b>MOR-WATER<br/>180-30550-5<br/>3/11/2014 11:10</b> |
|--|--|
| PCB 52 (BZ)  | 0.0077 J   |
| PCB 53 (BZ)  | 0.0018 Q C50 J                                       |
| PCB 54 (BZ)  | 0.038 U  |
| PCB 55 (BZ)  | 0.038 U  |
| PCB 56 (BZ)  | 0.0025 Q B J   |
| PCB 57 (BZ)  | 0.038 U  |
| PCB 58 (BZ)  | 0.038 U  |
| PCB 59 (BZ)  | 0.038 U  |
| PCB 60 (BZ)  | 0.00067 Q J  |
| PCB 61 (BZ)  | 0.012 B C J  |
| PCB 62 (BZ)  | 0.038 U  |
| PCB 63 (BZ)  | 0.038 U  |
| PCB 64 (BZ)  | 0.0023 Q J   |
| PCB 65 (BZ)  | 0.0062 Q B C44 J                                     |
| PCB 66 (BZ)  | 0.0082 B J   |
| PCB 67 (BZ)  | 0.038 U  |
| PCB 68 (BZ)  | 0.038 U  |
| PCB 69 (BZ)  | 0.0057 C49 J   |
| PCB 70 (BZ)  | 0.012 B C61 J  |
| PCB 71 (BZ)  | 0.0035 Q B C40 J                                     |
| PCB 72 (BZ)  | 0.038 U  |
| PCB 73 (BZ)  | 0.038 U  |
| PCB 74 (BZ)  | 0.012 B C61 J  |
| PCB 75 (BZ)  | 0.038 U  |
| PCB 76 (BZ)  | 0.012 B C61 J  |
| PCB 77 (BZ)  | 0.038 U  |
| PCB 78 (BZ)  | 0.038 U  |
| PCB 79 (BZ)  | 0.038 U  |
| PCB 80 (BZ)  | 0.038 U  |
| PCB 81 (BZ)  | 0.038 U  |
| PCB 82 (BZ)  | 0.038 U  |
| PCB 83 (BZ)  | 0.011 B C J  |
| PCB 84 (BZ)  | 0.038 U  |
| PCB 85 (BZ)  | 0.0016 Q C J   |
| PCB 86 (BZ)  | 0.0052 Q B C J                                       |
| PCB 87 (BZ)  | 0.0052 Q B C86 J                                     |
| PCB 88 (BZ)  | 0.038 U  |
| PCB 89 (BZ)  | 0.038 U  |
| PCB 90 (BZ)  | 0.010 Q B C J  |
| PCB 91 (BZ)  | 0.038 U  |
| PCB 92 (BZ)  | 0.038 U  |
| PCB 93 (BZ)  | 0.038 U  |
| PCB 94 (BZ)  | 0.038 U  |
| PCB 95 (BZ)  | 0.0061 Q J   |
| PCB 96 (BZ)  | 0.038 U  |
| PCB 97 (BZ)  | 0.0052 Q B C86 J                                     |
| PCB 98 (BZ)  | 0.038 U  |
| PCB 99 (BZ)  | 0.011 B C83 J  |
| PCB 100 (BZ)                                       | 0.038 U  |
| PCB 101 (BZ)                                       | 0.010 Q B C90 J                                      |
| PCB 102 (BZ)                                       | 0.038 U  |
| PCB 103 (BZ)                                       | 0.038 U  |

**Table 7:**  
**PCB Congeners - Surface Water Sample Results - Mordecai Area**  
**NJIWW Water 2014**

| <b>Location ID<br/>Sample ID<br/>Sampling Date</b> | <b>MOR-WATER<br/>180-30550-5<br/>3/11/2014 11:10</b> |
|--|--|
| PCB 104 (BZ)                                       | 0.038 U  |
| PCB 105 (BZ)                                       | 0.0040 B J   |
| PCB 106 (BZ)                                       | 0.038 U  |
| PCB 107 (BZ)/109<br>(IUPAC)                        | 0.0013 Q J   |
| PCB 108 (BZ)/107<br>(IUPAC)                        | 0.038 U  |
| PCB 109 (BZ)/108<br>(IUPAC)                        | 0.0052 Q B C86 J                                     |
| PCB 110 (BZ)                                       | 0.0083 Q B C J                                       |
| PCB 111 (BZ)                                       | 0.038 U  |
| PCB 112 (BZ)                                       | 0.038 U  |
| PCB 113 (BZ)                                       | 0.010 Q B C90 J                                      |
| PCB 114 (BZ)                                       | 0.038 U  |
| PCB 115 (BZ)                                       | 0.0083 Q B C110 J                                    |
| PCB 116 (BZ)                                       | 0.0016 Q C85 J                                       |
| PCB 117 (BZ)                                       | 0.0016 Q C85 J                                       |
| PCB 118 (BZ)                                       | 0.0079 Q B J   |
| PCB 119 (BZ)                                       | 0.0052 Q B C86 J                                     |
| PCB 120 (BZ)                                       | 0.038 U  |
| PCB 121 (BZ)                                       | 0.038 U  |
| PCB 122 (BZ)                                       | 0.038 U  |
| PCB 123 (BZ)                                       | 0.038 U  |
| PCB 124 (BZ)                                       | 0.038 U  |
| PCB 125 (BZ)                                       | 0.0052 Q B C86 J                                     |
| PCB 126 (BZ)                                       | 0.038 U  |
| PCB 127 (BZ)                                       | 0.038 U  |
| PCB 128 (BZ)                                       | 0.0020 Q C J   |
| PCB 129 (BZ)                                       | 0.0089 Q B C J                                       |
| PCB 130 (BZ)                                       | 0.038 U  |
| PCB 131 (BZ)                                       | 0.038 U  |
| PCB 132 (BZ)                                       | 0.0026 Q J   |
| PCB 133 (BZ)                                       | 0.038 U  |
| PCB 134 (BZ)                                       | 0.038 U  |
| PCB 135 (BZ)                                       | 0.0029 Q C J   |
| PCB 136 (BZ)                                       | 0.0016 Q J   |
| PCB 137 (BZ)                                       | 0.038 U  |
| PCB 138 (BZ)                                       | 0.0089 Q B C129 J                                    |
| PCB 139 (BZ)                                       | 0.038 U  |
| PCB 140 (BZ)                                       | 0.038 U  |
| PCB 141 (BZ)                                       | 0.0014 Q J   |
| PCB 142 (BZ)                                       | 0.038 U  |
| PCB 143 (BZ)                                       | 0.038 U  |
| PCB 144 (BZ)                                       | 0.038 U  |
| PCB 145 (BZ)                                       | 0.038 U  |
| PCB 146 (BZ)                                       | 0.0016 Q J   |
| PCB 147 (BZ)                                       | 0.0086 B C J   |
| PCB 148 (BZ)                                       | 0.038 U  |
| PCB 149 (BZ)                                       | 0.0086 B C147 J                                      |
| PCB 150 (BZ)                                       | 0.038 U  |
| PCB 151 (BZ)                                       | 0.0029 Q C135 J                                      |
| PCB 152 (BZ)                                       | 0.038 U  |

**Table 7:  
PCB Congeners - Surface Water Sample Results - Mordecai Area  
NJIWW Water 2014**

| <b>Location ID<br/>Sample ID<br/>Sampling Date</b> | <b>MOR-WATER<br/>180-30550-5<br/>3/11/2014 11:10</b> |
|--|--|
| PCB 153 (BZ)                                       | 0.011 B C J  |
| PCB 154 (BZ)                                       | 0.038 U  |
| PCB 155 (BZ)                                       | 0.038 U  |
| PCB 156 (BZ)                                       | 0.038 U  |
| PCB 157 (BZ)                                       | 0.038 U  |
| PCB 158 (BZ)                                       | 0.038 U  |
| PCB 159 (BZ)                                       | 0.038 U  |
| PCB 160 (BZ)                                       | 0.0089 Q B C129 J                                    |
| PCB 161 (BZ)                                       | 0.038 U  |
| PCB 162 (BZ)                                       | 0.038 U  |
| PCB 163 (BZ)                                       | 0.0089 Q B C129 J                                    |
| PCB 164 (BZ)                                       | 0.00074 Q J  |
| PCB 165 (BZ)                                       | 0.038 U  |
| PCB 166 (BZ)                                       | 0.0020 Q C128 J                                      |
| PCB 167 (BZ)                                       | 0.038 U  |
| PCB 168 (BZ)                                       | 0.011 B C153 J                                       |
| PCB 169 (BZ)                                       | 0.038 U  |
| PCB 170 (BZ)                                       | 0.0011 Q J   |
| PCB 171 (BZ)                                       | 0.038 U  |
| PCB 172 (BZ)                                       | 0.038 U  |
| PCB 173 (BZ)                                       | 0.038 U  |
| PCB 174 (BZ)                                       | 0.038 U  |
| PCB 175 (BZ)                                       | 0.038 U  |
| PCB 176 (BZ)                                       | 0.038 U  |
| PCB 177 (BZ)                                       | 0.0017 Q J   |
| PCB 178 (BZ)                                       | 0.038 U  |
| PCB 179 (BZ)                                       | 0.0016 Q J   |
| PCB 180 (BZ)                                       | 0.0042 Q B C J                                       |
| PCB 181 (BZ)                                       | 0.038 U  |
| PCB 182 (BZ)                                       | 0.038 U  |
| PCB 183 (BZ)                                       | 0.038 U  |
| PCB 184 (BZ)                                       | 0.038 U  |
| PCB 185 (BZ)                                       | 0.038 U  |
| PCB 186 (BZ)                                       | 0.038 U  |
| PCB 187 (BZ)                                       | 0.0056 Q B J   |
| PCB 188 (BZ)                                       | 0.038 U  |
| PCB 189 (BZ)                                       | 0.038 U  |
| PCB 190 (BZ)                                       | 0.038 U  |
| PCB 191 (BZ)                                       | 0.038 U  |
| PCB 192 (BZ)                                       | 0.038 U  |
| PCB 193 (BZ)                                       | 0.0042 Q B C180 J                                    |
| PCB 194 (BZ)                                       | 0.0011 Q B J   |
| PCB 195 (BZ)                                       | 0.038 U  |
| PCB 196 (BZ)                                       | 0.038 U  |
| PCB 197 (BZ)                                       | 0.038 U  |
| PCB 198 (BZ)                                       | 0.0031 Q C J   |
| PCB 199 (BZ)/200<br>(IUPAC)                        | 0.038 U  |
| PCB 200 (BZ)/201<br>(IUPAC)                        | 0.038 U  |
| PCB 201 (BZ)/199<br>(IUPAC)                        | 0.0031 Q C198 J                                      |

**Table 7:  
PCB Congeners - Surface Water Sample Results - Mordecai Area  
NJIWW Water 2014**

| <b>Location ID<br/>Sample ID<br/>Sampling Date</b> | <b>MOR-WATER<br/>180-30550-5<br/>3/11/2014 11:10</b> |
|--|--|
| PCB 202 (BZ)                                       | 0.038 U  |
| PCB 203 (BZ)                                       | 0.038 U  |
| PCB 204 (BZ)                                       | 0.038 U  |
| PCB 205 (BZ)                                       | 0.038 U  |
| PCB 206 (BZ)                                       | 0.0021 B J   |
| PCB 207 (BZ)                                       | 0.038 U  |
| PCB 208 (BZ)                                       | 0.038 U  |
| PCB 209 (BZ)                                       | 0.0017 Q J   |

Notes:

- B : Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- B C J : Estimated result. Result is less than the reporting limit.
- B C147 J : Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- B C21 J : Estimated result. Result is less than the reporting limit.
- B C61 J : Estimated result. Result is less than the reporting limit.
- B C83 J : Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- B J : Estimated result. Result is less than the reporting limit.
- C : Co-eluting isomer.
- C J : Estimated result. Result is less than the reporting limit.
- C49 J : Estimated result. Result is less than the reporting limit.
- J : Estimated result. Result is less than the reporting limit.
- ng/L - nanograms per liter
- Q B C J : Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- Q B C12 J : Estimated result. Result is less than the reporting limit.
- Q B C129 J : Estimated maximum possible concentration (EMPC).
- Q B C180 J : Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- Q B C40 J : Estimated maximum possible concentration (EMPC).
- Q B C86 J : Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- Q B C90 J : Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- Q B J : Estimated maximum possible concentration (EMPC).
- Q C J : Estimated maximum possible concentration (EMPC).
- Q C128 J : Estimated maximum possible concentration (EMPC).
- Q C135 J : Estimated result. Result is less than the reporting limit.
- Q C26 J : Estimated result. Result is less than the reporting limit.
- Q C85 J : Estimated maximum possible concentration (EMPC).
- Q J : Estimated result. Result is less than the reporting limit.
- U : Indicates the analyte was analyzed for but not detected.

**Table 8:**  
**Summary of Elutriate Water Sample Results - Mordecai Area**  
**NJIWW Sediment 2014**

| Location ID<br>Sample ID<br>Sampling Date<br>Matrix | NJDEP Surface Water<br>Quality Criteria (Saline)<br>for Toxic Substances<br>(Human Health) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic<br>Life (Acute) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic<br>Life (Chronic) | MOR-SED-01          | MOR-SED-02          | MOR-SED-03          | MOR-SED-01      | MOR-SED-02      | MOR-SED-03      |
|---|--|--|--|---------------------|---------------------|---------------------|-----------------|-----------------|-----------------|
|   |  |  |  | 180-30554-9         | 180-30554-8         | 180-30554-7         | 180-30554-6     | 180-30554-5     | 180-30554-4     |
|   |  |  |  | 3/11/2014           | 3/11/2014           | 3/11/2014           | 3/11/2014       | 3/11/2014       | 3/11/2014       |
|   |  |  |  | Elutriate-Dissolved | Elutriate-Dissolved | Elutriate-Dissolved | Elutriate-Total | Elutriate-Total | Elutriate-Total |
| <b>Semi-Volatile Organic Compounds (ug/L)</b>       |  |  |  |                     |                     |                     |                 |                 |                 |
| 1,1'-Biphenyl                                       | NC   | NC   | NC   | 0.042 U             | 0.042 U             | 0.042 U             | 0.040 U         | 0.041 U         | 0.040 U         |
| 2,2'-oxybis[1-chloropropane]                        | NC   | NC   | NC   | 0.020 U             | 0.020 U             | 0.020 U             | 0.019 U         | 0.020 U         | 0.019 U         |
| 2,4,5-Trichlorophenol                               | 3,600  | NC   | NC   | 0.15 U              | 0.15 U              | 0.15 U              | 0.15 U          | 0.15 U          | 0.15 U          |
| 2,4,6-Trichlorophenol                               | 1  | NC   | NC   | 0.17 U              | 0.18 U              | 0.18 U              | 0.17 U          | 0.17 U          | 0.17 U          |
| 2,4-Dichlorophenol                                  | 290  | NC   | NC   | 0.033 U             | 0.034 U             | 0.034 U             | 0.032 U         | 0.033 U         | 0.032 U         |
| 2,4-Dimethylphenol                                  | NC   | NC   | NC   | 0.085 U             | 0.086 U             | 0.086 U             | 0.082 U         | 0.084 U         | 0.083 U         |
| 2,4-Dinitrophenol                                   | 5,300  | NC   | NC   | 0.61 U              | 0.62 U              | 0.62 U              | 0.59 U          | 0.61 U          | 0.60 U          |
| 2,4-Dinitrotoluene                                  | 3.4  | NC   | NC   | 0.054 U             | 0.054 U             | 0.054 U             | 0.052 U         | 0.053 U         | 0.052 U         |
| 2,6-Dinitrotoluene                                  | NC   | NC   | NC   | 0.080 U             | 0.081 U             | 0.081 U             | 0.077 U         | 0.079 U         | 0.077 U         |
| 2-Chloronaphthalene                                 | 1,600  | NC   | NC   | 0.015 U             | 0.015 U             | 0.015 U             | 0.015 U         | 0.015 U         | 0.015 U         |
| 2-Chlorophenol                                      | 150  | NC   | NC   | 0.17 U              | 0.17 U              | 0.17 U              | 0.16 U          | 0.16 U          | 0.16 U          |
| 2-Methylnaphthalene                                 | NC   | NC   | NC   | 0.012 U             | 0.012 U             | 0.012 U             | 0.012 U         | 0.012 U         | 0.012 U         |
| 2-Methylphenol                                      | NC   | NC   | NC   | 0.086 U             | 0.087 U             | 0.087 U             | 0.083 U         | 0.085 U         | 0.084 U         |
| 2-Nitroaniline                                      | NC   | NC   | NC   | 0.35 U              | 0.36 U              | 0.36 U              | 0.34 U          | 0.35 U          | 0.34 U          |
| 2-Nitrophenol                                       | NC   | NC   | NC   | 0.17 U              | 0.17 U              | 0.17 U              | 0.16 U          | 0.17 U          | 0.17 U          |
| 3,3'-Dichlorobenzidine                              | 0.028  | NC   | NC   | 0.11 U              | 0.11 U              | 0.11 U              | 0.11 U          | 0.11 U          | 0.11 U          |
| 3-Nitroaniline                                      | NC   | NC   | NC   | 0.32 U              | 0.32 U              | 0.32 U              | 0.31 U          | 0.32 U          | 0.31 U          |
| 4,6-Dinitro-2-methylphenol                          | NC   | NC   | NC   | 0.22 U              | 0.22 U              | 0.22 U              | 0.21 U          | 0.22 U          | 0.21 U          |
| 4-Bromophenyl phenyl ether                          | NC   | NC   | NC   | 0.064 U             | 0.064 U             | 0.064 U             | 0.061 U         | 0.063 U         | 0.062 U         |
| 4-Chloro-3-methylphenol                             | NC   | NC   | NC   | 0.075 U             | 0.076 U             | 0.076 U             | 0.073 U         | 0.075 U         | 0.073 U         |
| 4-Chloroaniline                                     | NC   | NC   | NC   | 0.089 U             | 0.089 U             | 0.089 U             | 0.085 U         | 0.088 U         | 0.086 U         |
| 4-Chlorophenyl phenyl ether                         | NC   | NC   | NC   | 0.050 U             | 0.051 U             | 0.051 U             | 0.048 U         | 0.050 U         | 0.049 U         |
| 4-Nitroaniline                                      | NC   | NC   | NC   | 0.17 U              | 0.17 U              | 0.17 U              | 0.17 U          | 0.17 U          | 0.17 U          |
| 4-Nitrophenol                                       | NC   | NC   | NC   | 0.65 U              | 0.65 U              | 0.65 U              | 0.62 U          | 0.64 U          | 0.63 U          |
| Acenaphthene  | 990  | NC   | NC   | 0.014 U             | 0.015 U             | 0.015 U             | 0.014 U         | 0.014 U         | 0.014 U         |
| Acenaphthylene                                      | NC   | NC   | NC   | 0.015 U             | 0.015 U             | 0.015 U             | 0.015 U         | 0.015 U         | 0.015 U         |
| Acetophenone  | NC   | NC   | NC   | 0.080 U             | 0.081 U             | 0.081 U             | 0.077 U         | 0.079 U         | 0.078 U         |
| Anthracene  | 40,000   | NC   | NC   | 0.015 U             | 0.016 U             | 0.016 U             | 0.015 U         | 0.015 U         | 0.015 U         |
| Atrazine  | NC   | NC   | NC   | 0.089 U *           | 0.090 U *           | 0.090 U *           | 0.086 U *       | 0.088 U *       | 0.087 U *       |
| Benzaldehyde  | NC   | NC   | NC   | 0.15 U              | 0.15 U              | 0.15 U              | 0.14 U          | 0.15 U          | 0.15 U          |
| Benzo[a]anthracene                                  | 0.18   | NC   | NC   | 0.015 U             | 0.015 U             | 0.015 U             | 0.014 U         | 0.070 J         | 0.014 U         |
| Benzo[a]pyrene                                      | 0.018  | NC   | NC   | 0.013 U             | 0.014 U             | 0.014 U             | 0.013 U         | 0.036 J         | 0.013 U         |
| Benzo[b]fluoranthene                                | 0.18   | NC   | NC   | 0.016 U             | 0.016 U             | 0.016 U             | 0.015 U         | 0.089 J         | 0.015 U         |
| Benzo[g,h,i]perylene                                | NC   | NC   | NC   | 0.015 U             | 0.015 U             | 0.015 U             | 0.015 U         | 0.036 J         | 0.015 U         |
| Benzo[k]fluoranthene                                | 1.8  | NC   | NC   | 0.055 U             | 0.055 U             | 0.055 U             | 0.053 U         | 0.068 J         | 0.053 U         |
| Bis(2-chloroethoxy)methane                          | NC   | NC   | NC   | 0.058 U             | 0.059 U             | 0.059 U             | 0.056 U         | 0.058 U         | 0.056 U         |
| Bis(2-chloroethyl)ether                             | 0.53   | NC   | NC   | 0.025 U             | 0.025 U             | 0.025 U             | 0.024 U         | 0.025 U         | 0.024 U         |
| Bis(2-ethylhexyl) phthalate                         | 2.2  | NC   | NC   | 1.3 U               | 1.3 U               | 1.3 U               | 1.2 U           | 1.2 U           | 1.2 U           |
| Butyl benzyl phthalate                              | 190  | NC   | NC   | 0.14 U              | 0.14 U              | 0.14 U              | 0.14 U          | 0.14 U          | 0.14 U          |
| Caprolactam   | NC   | NC   | NC   | 1.2 U               | 1.2 U               | 1.2 U               | 1.1 U           | 1.2 U           | 1.2 U           |

**Table 8:**  
**Summary of Elutriate Water Sample Results - Mordecai Area**  
**NJIWW Sediment 2014**

| Location ID<br>Sample ID<br>Sampling Date<br>Matrix | NJDEP Surface Water<br>Quality Criteria (Saline)<br>for Toxic Substances<br>(Human Health) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic<br>Life (Acute) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic<br>Life (Chronic) | MOR-SED-01               | MOR-SED-02               | MOR-SED-03               | MOR-SED-01               | MOR-SED-02               | MOR-SED-03               |
|---|--|--|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
|   |  |  |  | 180-30554-9<br>3/11/2014 | 180-30554-8<br>3/11/2014 | 180-30554-7<br>3/11/2014 | 180-30554-6<br>3/11/2014 | 180-30554-5<br>3/11/2014 | 180-30554-4<br>3/11/2014 |
|   |  |  |  | Elutriate-Dissolved      | Elutriate-Dissolved      | Elutriate-Dissolved      | Elutriate-Total          | Elutriate-Total          | Elutriate-Total          |
| Carbazole   | NC   | NC   | NC   | 0.016 U                  | 0.016 U                  | 0.016 U                  | 0.015 U                  | 0.016 U                  | 0.015 U                  |
| Chrysene  | 18   | NC   | NC   | 0.014 U                  | 0.014 U                  | 0.014 U                  | 0.013 U                  | 0.077 J                  | 0.014 U                  |
| Dibenz(a,h)anthracene                               | 0.018  | NC   | NC   | 0.016 U                  | 0.016 U                  | 0.016 U                  | 0.015 U                  | 0.027 J                  | 0.015 U                  |
| Dibenzofuran  | NC   | NC   | NC   | 0.062 U                  | 0.062 U                  | 0.062 U                  | 0.059 U                  | 0.061 U                  | 0.060 U                  |
| Diethyl phthalate                                   | 44,000   | NC   | NC   | 0.15 U                   | 0.15 U                   | 0.15 U                   | 0.14 U                   | 0.14 U                   | 0.14 U                   |
| Dimethyl phthalate                                  | NC   | NC   | NC   | 0.077 U                  | 0.077 U                  | 0.077 U                  | 0.074 U                  | 0.076 U                  | 0.074 U                  |
| Di-n-butyl phthalate                                | 4,500  | NC   | NC   | 0.12 U                   | 0.13 U                   | 0.13 U                   | 0.12 U                   | 0.12 U                   | 0.12 U                   |
| Di-n-octyl phthalate                                | NC   | NC   | NC   | 0.21 U                   | 0.21 U                   | 0.21 U                   | 0.20 U                   | 0.20 U                   | 0.20 U                   |
| Fluoranthene  | 140  | NC   | NC   | 0.016 U                  | 0.016 U                  | 0.016 U                  | 0.016 U                  | 0.042 J                  | 0.016 U                  |
| Fluorene  | 5,300  | NC   | NC   | 0.022 U                  | 0.022 U                  | 0.022 U                  | 0.021 U                  | 0.021 U                  | 0.021 U                  |
| Hexachlorobenzene                                   | 0.00029  | NC   | NC   | 0.018 U                  | 0.018 U                  | 0.018 U                  | 0.018 U                  | 0.018 U                  | 0.018 U                  |
| Hexachlorobutadiene                                 | 18   | NC   | NC   | 0.017 U                  | 0.017 U                  | 0.017 U                  | 0.016 U                  | 0.016 U                  | 0.016 U                  |
| Hexachlorocyclopentadiene                           | NC   | NC   | NC   | 0.052 U                  | 0.052 U                  | 0.052 U                  | 0.050 U                  | 0.051 U                  | 0.050 U                  |
| Hexachloroethane                                    | 3.3  | NC   | NC   | 0.063 U                  | 0.063 U                  | 0.063 U                  | 0.060 U                  | 0.062 U                  | 0.061 U                  |
| Indeno[1,2,3-cd]pyrene                              | 0.18   | NC   | NC   | 0.020 U                  | 0.020 U                  | 0.020 U                  | 0.019 U                  | 0.046 J                  | 0.019 U                  |
| Isophorone  | 960  | NC   | NC   | 0.064 U                  | 0.065 U                  | 0.065 U                  | 0.062 U                  | 0.064 U                  | 0.063 U                  |
| Methylphenol, 3 & 4                                 | NC   | NC   | NC   | 0.090 U                  | 0.091 U                  | 0.091 U                  | 0.087 U                  | 0.089 U                  | 0.088 U                  |
| Naphthalene   | NC   | NC   | NC   | 0.014 U                  | 0.014 U                  | 0.014 U                  | 0.013 U                  | 0.014 U                  | 0.014 U                  |
| Nitrobenzene  | 690  | NC   | NC   | 0.084 U                  | 0.085 U                  | 0.085 U                  | 0.081 U                  | 0.083 U                  | 0.082 U                  |
| N-Nitrosodi-n-propylamine                           | 0.51   | NC   | NC   | 0.031 U                  | 0.031 U                  | 0.031 U                  | 0.030 U                  | 0.030 U                  | 0.030 U                  |
| N-Nitrosodiphenylamine                              | 6  | NC   | NC   | 0.085 U                  | 0.086 U                  | 0.086 U                  | 0.082 U                  | 0.084 U                  | 0.083 U                  |
| Pentachlorophenol                                   | 3  | 13   | 7.9  | 0.066 U                  | 0.067 U                  | 0.067 U                  | 0.064 U                  | 0.066 U                  | 0.064 U                  |
| Phenanthrene  | NC   | NC   | NC   | 0.043 U                  | 0.043 U                  | 0.043 U                  | 0.041 U                  | 0.042 U                  | 0.041 U                  |
| Phenol  | 860,000  | NC   | NC   | 0.058 U                  | 0.059 U                  | 0.059 U                  | 0.056 U                  | 0.058 U                  | 0.056 U                  |
| Pyrene  | 4,000  | NC   | NC   | 0.016 U                  | 0.016 U                  | 0.016 U                  | 0.015 U                  | 0.035 J                  | 0.015 U                  |
| <b>Pesticides (ug/L)</b>                            |  |  |  |                          |                          |                          |                          |                          |                          |
| 4,4'-DDD  | 0.00031  | NC   | NC   | 0.0012 J                 | 0.00085 J                | 0.00066 U                | 0.00064 U                | 0.0032 U                 | 0.0032 U                 |
| 4,4'-DDE  | 0.00022  | NC   | NC   | 0.00077 U                | 0.00077 U                | 0.00077 U                | 0.00075 U                | 0.0038 U                 | 0.0038 U                 |
| 4,4'-DDT  | 0.00022  | 0.13   | 0.0010   | 0.00073 U                | 0.00073 U                | 0.00073 U                | 0.00070 U                | 0.0035 U                 | 0.0035 U                 |
| Aldrin  | 0.00005  | 1.3  | NC   | 0.00081 U                | 0.00081 U                | 0.00081 U                | 0.00079 U                | 0.0040 U                 | 0.0040 U                 |
| alpha-BHC   | 0.0049   | NC   | NC   | 0.00087 J p              | 0.00065 U                | 0.00065 U                | 0.00063 U                | 0.0031 U                 | 0.0031 U                 |
| alpha-Chlordane                                     | 0.00011  | 0.09   | 0.004  | 0.00096 U                | 0.00096 U                | 0.00096 U                | 0.00093 U                | 0.0047 U                 | 0.0047 U                 |
| beta-BHC  | 0.017  | NC   | NC   | 0.00098 U                | 0.00098 U                | 0.00098 U                | 0.00095 U                | 0.0048 U                 | 0.0048 U                 |
| delta-BHC   | NC   | NC   | NC   | 0.0029 p                 | 0.0016 p                 | 0.00095 J p              | 0.0025 p                 | 0.0029 J p               | 0.0027 J p               |
| Dieldrin  | 0.000054   | 0.71   | 0.0019   | 0.00080 U                | 0.00080 U                | 0.00080 U                | 0.00078 U                | 0.0039 U                 | 0.0039 U                 |
| Endosulfan I  | 89   | 0.034  | 0.0087   | 0.00092 U                | 0.00092 U                | 0.00092 U                | 0.00090 U                | 0.0045 U                 | 0.0045 U                 |
| Endosulfan II                                       | 89   | 0.034  | 0.0087   | 0.00096 U                | 0.00096 U                | 0.00096 U                | 0.00093 U                | 0.0047 U                 | 0.0047 U                 |
| Endosulfan sulfate                                  | 89   | NC   | NC   | 0.00056 U                | 0.00056 U                | 0.00056 U                | 0.00054 U                | 0.0027 U                 | 0.0027 U                 |
| Endrin aldehyde                                     | 0.06   | NC   | NC   | 0.00088 U                | 0.00088 U                | 0.00088 U                | 0.00086 U                | 0.0043 U                 | 0.0043 U                 |
| Endrin ketone                                       | NC   | NC   | NC   | 0.00090 U                | 0.00090 U                | 0.00090 U                | 0.00088 U                | 0.0044 U                 | 0.0044 U                 |
| Endrin  | 0.06   | 0.037  | 0.0023   | 0.00094 U                | 0.00094 U                | 0.00094 U                | 0.00091 U                | 0.0046 U                 | 0.0046 U                 |
| gamma-BHC (Lindane)                                 | 1.8  | 0.16   | NC   | 0.00078 U                | 0.00078 U                | 0.00078 U                | 0.00076 U                | 0.0038 U                 | 0.0038 U                 |
| gamma-Chlordane                                     | 0.00011  | 0.09   | 0.004  | 0.00094 U                | 0.00094 U                | 0.00094 U                | 0.00091 U                | 0.0046 U                 | 0.0046 U                 |
| Heptachlor epoxide                                  | 0.000039   | 0.053  | 0.0036   | 0.00095 U                | 0.00095 U                | 0.00095 U                | 0.00092 U                | 0.0046 U                 | 0.0046 U                 |
| Heptachlor  | 0.000079   | 0.053  | 0.0036   | 0.0045                   | 0.00097 U                | 0.0010 J p               | 0.0023 p                 | 0.0047 U                 | 0.0047 U                 |
| Methoxychlor  | NC   | NC   | 0.03   | 0.00089 U                | 0.00089 U                | 0.00089 U                | 0.00087 U                | 0.0043 U                 | 0.0043 U                 |
| Toxaphene   | 0.00028  | 0.21   | 0.0002   | 0.018 U                  | 0.018 U                  | 0.018 U                  | 0.018 U                  | 0.089 U                  | 0.089 U                  |

**Table 8:  
Summary of Elutriate Water Sample Results - Mordecai Area  
NJIWW Sediment 2014**

| Location ID<br>Sample ID<br>Sampling Date<br>Matrix | NJDEP Surface Water<br>Quality Criteria (Saline)<br>for Toxic Substances<br>(Human Health) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic<br>Life (Acute) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic<br>Life (Chronic) | MOR-SED-01          | MOR-SED-02          | MOR-SED-03          | MOR-SED-01      | MOR-SED-02      | MOR-SED-03      |
|---|--|--|--|---------------------|---------------------|---------------------|-----------------|-----------------|-----------------|
|   |  |  |  | 180-30554-9         | 180-30554-8         | 180-30554-7         | 180-30554-6     | 180-30554-5     | 180-30554-4     |
|   |  |  |  | 3/11/2014           | 3/11/2014           | 3/11/2014           | 3/11/2014       | 3/11/2014       | 3/11/2014       |
|   |  |  |  | Elutriate-Dissolved | Elutriate-Dissolved | Elutriate-Dissolved | Elutriate-Total | Elutriate-Total | Elutriate-Total |
| <b>PCBs (ug/L)</b>                                  |  |  |  |                     |                     |                     |                 |                 |                 |
| PCB-1016  | 0.000064   | NC   | 0.03   | 0.0025 U            | 0.0025 U            | 0.0025 U            | 0.0024 U        | 0.012 U         | 0.012 U         |
| PCB-1221  | 0.000064   | NC   | 0.03   | 0.0024 U            | 0.0024 U            | 0.0024 U            | 0.0024 U        | 0.012 U         | 0.012 U         |
| PCB-1232  | 0.000064   | NC   | 0.03   | 0.0029 U            | 0.0029 U            | 0.0029 U            | 0.0028 U        | 0.014 U         | 0.014 U         |
| PCB-1242  | 0.000064   | NC   | 0.03   | 0.0018 U            | 0.0018 U            | 0.0018 U            | 0.0018 U        | 0.0088 U        | 0.0088 U        |
| PCB-1248  | 0.000064   | NC   | 0.03   | 0.0022 U            | 0.0022 U            | 0.0022 U            | 0.0022 U        | 0.011 U         | 0.011 U         |
| PCB-1254  | 0.000064   | NC   | 0.03   | 0.0022 U            | 0.0022 U            | 0.0022 U            | 0.0022 U        | 0.011 U         | 0.011 U         |
| PCB-1260  | 0.000064   | NC   | 0.03   | 0.0013 U            | 0.0013 U            | 0.0013 U            | 0.0013 U        | 0.0065 U        | 0.0065 U        |
| <b>Inorganics (ug/L)</b>                            |  |  |  |                     |                     |                     |                 |                 |                 |
| Aluminum  | NC   | NC   | NC   | 26 U                | 26 U                | 27 J                | 400             | 1,300           | 670             |
| Antimony  | 640  | NC   | NC   | 1.1 J B             | 0.72 J B            | 1.6 J B             | 1.2 J B         | 12 J B          | 2.1 J B         |
| Arsenic   | 0.061  | 69   | 36   | 13                  | 14                  | 16                  | 11              | 16              | 11              |
| Barium  | NC   | NC   | NC   | 15 J                | 22 J                | 13 J                | 16 J            | 68 J            | 18 J            |
| Beryllium   | 42   | NC   | NC   | 0.37 U              | 0.37 U              | 0.37 U              | 0.37 U          | 0.96 J          | 0.37 U          |
| Cadmium   | 16   | 40   | 8.8  | 12                  | 57                  | 1.1 U               | 1.1 U           | 1.1 U           | 1.1 U           |
| Calcium   | NC   | NC   | NC   | 340,000 B           | 330,000 B           | 340,000 B           | 340,000 B       | 290,000 B       | 320,000 B       |
| Chromium  | 750  | NC   | NC   | 5.4 U               | 5.4 U               | 5.4 U               | 5.4 U           | 11 J            | 5.4 U           |
| Cobalt  | NC   | NC   | NC   | 0.51 J              | 0.4 J               | 0.55 J              | 0.63 J          | 12              | 0.63 J          |
| Copper  | NC   | 4.8  | 3.1  | 5.7 J               | 5.6 J               | 5 J                 | 6.2 J           | 12 J            | 6.3 J           |
| Iron  | NC   | NC   | NC   | 160 J B             | 160 J B             | 180 J B             | 510 B           | 2,100 B         | 810 B           |
| Lead  | NC   | 210  | 24   | 0.19 U              | 0.19 U              | 0.19 U              | 0.6 J           | 1.8 J           | 1.1 J           |
| Magnesium   | NC   | NC   | NC   | 1,100,000           | 1,000,000           | 1,000,000           | 1,000,000       | 910,000         | 970,000         |
| Manganese   | 100  | NC   | NC   | 13 J B              | 14 J B              | 69 B                | 19 J B          | 49 J B          | 75 B            |
| Nickel  | 1,700  | 64   | 22   | 1.7 U               | 1.7 U               | 2.8 J               | 1.7 U           | 21              | 1.7 U           |
| Potassium   | NC   | NC   | NC   | 320,000             | 320,000             | 320,000             | 320,000         | 280,000         | 300,000         |
| Selenium  | 4,200  | 290  | 71   | 60                  | 67                  | 68                  | 56              | 54              | 55              |
| Silver  | 40,000   | 1.9  | NC   | 0.36 U              | 0.36 U              | 0.36 U              | 0.36 U          | 1.1 J           | 0.36 U          |
| Sodium  | NC   | NC   | NC   | 8,200,000           | 8,100,000 ^         | 7,800,000 ^         | 8,000,000 ^     | 7,000,000 ^     | 7,500,000 ^     |
| Thallium  | 0.47   | NC   | NC   | 0.15 U              | 0.15 U              | 0.15 U              | 0.15 U          | 1.5 J           | 0.15 U          |
| Vanadium  | NC   | NC   | NC   | 4.8 J               | 21                  | 11                  | 6.5 J           | 38              | 13              |
| Zinc  | 26,000   | 90   | 81   | 58                  | 9.6 U               | 18 J                | 24 J            | 38 J            | 22 J            |
| Mercury   | 0.051  | 1.80   | 0.94   | NR                  | NR                  | NR                  | 3.3             | 5.4             | 6.9             |
| Cyanide, Total                                      | 140  | 1.0  | 1.0  | NR                  | NR                  | NR                  | 1.5 U           | 1.5 U           | 1.5 U           |
| <b>Total Suspended Solids (mg/l)</b>                |  |  |  |                     |                     |                     |                 |                 |                 |
| Total Suspended Solids                              | NC   | NC   | NC   | NR                  | NR                  | NR                  | 9.2             | 10              | 24              |
| <b>Dioxins (pg/l)</b>                               |  |  |  |                     |                     |                     |                 |                 |                 |
| 1,2,3,4,6,7,8-HpCDD                                 | NC   | NC   | NC   | NR                  | NR                  | NR                  | 3.7 Q B J       | 6.5 Q B J       | 8.7 Q B J       |
| 1,2,3,4,6,7,8-HpCDF                                 | NC   | NC   | NC   | NR                  | NR                  | NR                  | 1.2 Q B J       | 0.84 Q B J      | 1.8 Q B J       |
| 1,2,3,4,7,8,9-HpCDF                                 | NC   | NC   | NC   | NR                  | NR                  | NR                  | 47 U            | 48 U            | 0.25 B J        |
| 1,2,3,4,7,8-HxCDD                                   | NC   | NC   | NC   | NR                  | NR                  | NR                  | 47 U            | 0.37 J          | 48 U            |
| 1,2,3,4,7,8-HxCDF                                   | NC   | NC   | NC   | NR                  | NR                  | NR                  | 0.23 Q B J      | 0.41 Q B J      | 0.68 B J        |
| 1,2,3,6,7,8-HxCDD                                   | NC   | NC   | NC   | NR                  | NR                  | NR                  | 47 U            | 48 U            | 0.65 Q B J      |
| 1,2,3,6,7,8-HxCDF                                   | NC   | NC   | NC   | NR                  | NR                  | NR                  | 47 U            | 48 U            | 48 U            |
| 1,2,3,7,8,9-HxCDD                                   | NC   | NC   | NC   | NR                  | NR                  | NR                  | 47 U            | 0.36 Q J        | 48 U            |
| 1,2,3,7,8,9-HxCDF                                   | NC   | NC   | NC   | NR                  | NR                  | NR                  | 47 U            | 48 U            | 48 U            |
| 1,2,3,7,8-PeCDD                                     | NC   | NC   | NC   | NR                  | NR                  | NR                  | 47 U            | 48 U            | 0.36 Q J        |
| 1,2,3,7,8-PeCDF                                     | NC   | NC   | NC   | NR                  | NR                  | NR                  | 47 U            | 0.12 Q B J      | 0.47 Q B J      |
| 2,3,4,6,7,8-HxCDF                                   | NC   | NC   | NC   | NR                  | NR                  | NR                  | 0.11 Q B J      | 48 U            | 0.37 Q B J      |

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NJIWW Sediment 2014**

| Location ID<br>Sample ID<br>Sampling Date<br>Matrix | NJDEP Surface Water<br>Quality Criteria (Saline)<br>for Toxic Substances<br>(Human Health) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic<br>Life (Acute) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic<br>Life (Chronic) | MOR-SED-01               | MOR-SED-02               | MOR-SED-03               | MOR-SED-01               | MOR-SED-02               | MOR-SED-03               |
|---|--|--|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
|   |  |  |  | 180-30554-9<br>3/11/2014 | 180-30554-8<br>3/11/2014 | 180-30554-7<br>3/11/2014 | 180-30554-6<br>3/11/2014 | 180-30554-5<br>3/11/2014 | 180-30554-4<br>3/11/2014 |
|   |  |  |  | Elutriate-Dissolved      | Elutriate-Dissolved      | Elutriate-Dissolved      | Elutriate-Total          | Elutriate-Total          | Elutriate-Total          |
| 2,3,4,7,8-PeCDF                                     | NC   | NC   | NC   | NR                       | NR                       | NR                       | 47 U                     | 0.24 Q J                 | 48 U                     |
| 2,3,7,8-TCDD  | 0.0051   | NC   | NC   | NR                       | NR                       | NR                       | 9.3 U                    | 9.5 U                    | 9.6 U                    |
| 2,3,7,8-TCDF  | NC   | NC   | NC   | NR                       | NR                       | NR                       | 9.3 U                    | 9.5 U                    | 9.6 U                    |
| OCDD  | NC   | NC   | NC   | NR                       | NR                       | NR                       | 63 B J                   | 100 B                    | 180 B                    |
| OCDF  | NC   | NC   | NC   | NR                       | NR                       | NR                       | 0.89 Q B J               | 1.7 B J                  | 3.4 Q B J                |

Notes:

NC: No criteria

NR: Not analyzed

^ : ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC exceeds the control limits.

B : Method blank contamination. The associated method blank contains the target analyte at a reportable level.

B J : Method blank contamination. The associated method blank contains the target analyte at a reportable level.

J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

J B : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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

mg/L: milligrams per liter

ng/L: nanograms per liter

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

pg/L: picograms per liter

Q B J : Estimated result. Result is less than the reporting limit.

Q J : Estimated maximum possible concentration (EMPC).

U : Indicates the analyte was analyzed for but not detected.

U \* : LCS or LCSD exceeds the control limits

ug/L: micrograms per liter

X : Surrogate is outside control limits

Values shaded in tan exceed the NJDEP Surface Water Quality Criteria (Saline) for Toxic Substances (Human Health)

Values shaded in pink exceed the NJDEP Surface Water (Saline) Quality Standards for aquatic life (Acute)

Values shaded in blue exceed the NJDEP Surface Water (Saline) Quality Standards for aquatic life (Chronic)

Values shaded in orange exceed more than one criteria value



**Table 9:**  
**PCB Congeners - Elutriate Water Sample Results - Mordecai Area**  
**NJIWW Sediment 2014**

| Location ID<br>Sample ID<br>Sampling Date | MOR-SED-01<br>180-30554-3<br>3/11/2014 | MOR-SED-02<br>180-30554-2<br>3/11/2014 | MOR-SED-03<br>180-30554-1<br>3/11/2014 |
|---|--|--|--|
| <b>PCB Congeners (ng/L)</b>               |  |  |  |
| PCB 1 (BZ)                                | 0.011 B J                              | 0.012 B J                              | 0.0097 B J                             |
| PCB 2 (BZ)                                | 0.0091 Q B J                           | 0.0092 Q B J                           | 0.014 Q B J                            |
| PCB 3 (BZ)                                | 0.0041 Q B J                           | 0.0047 Q B J                           | 0.0068 Q B J                           |
| PCB 4 (BZ)                                | 0.023 Q B J                            | 0.038 Q B J                            | 0.019 Q B J                            |
| PCB 5 (BZ)                                | 0.0025 Q B J                           | 0.0013 Q B J                           | 0.0017 Q B J                           |
| PCB 6 (BZ)                                | 0.0088 Q B J                           | 0.017 Q B J                            | 0.0093 Q B J                           |
| PCB 7 (BZ)                                | 0.0035 Q B J                           | 0.0021 Q B J                           | 0.0028 Q B J                           |
| PCB 8 (BZ)                                | 0.024 Q B J                            | 0.032 Q B J                            | 0.031 Q B J                            |
| PCB 9 (BZ)                                | 0.0041 Q B J                           | 0.0035 Q B J                           | 0.0031 Q B J                           |
| PCB 10 (BZ)                               | 0.0037 Q B J                           | 0.0041 Q B J                           | 0.0024 Q B J                           |
| PCB 11 (BZ)                               | 0.060 B                                | 0.075 B                                | 0.087 B                                |
| PCB 12 (BZ)                               | 0.0060 Q B C J                         | 0.011 B C J                            | 0.014 Q B C J                          |
| PCB 13 (BZ)                               | 0.0060 Q B C12 J                       | 0.011 B C12 J                          | 0.014 Q B C12 J                        |
| PCB 14 (BZ)                               | 0.0018 Q B J                           | 0.0020 Q B J                           | 0.0016 Q B J                           |
| PCB 15 (BZ)                               | 0.027 Q B J                            | 0.040 B                                | 0.046 Q B                              |
| PCB 16 (BZ)                               | 0.012 J                                | 0.022 J                                | 0.0093 Q J                             |
| PCB 17 (BZ)                               | 0.025 J                                | 0.031 J                                | 0.019 J                                |
| PCB 18 (BZ)                               | 0.028 B C J                            | 0.045 B C J                            | 0.028 B C J                            |
| PCB 19 (BZ)                               | 0.037 U                                | 0.0059 Q B J                           | 0.0050 Q B J                           |
| PCB 20 (BZ)                               | 0.073 B C                              | 0.12 B C                               | 0.10 B C                               |
| PCB 21 (BZ)                               | 0.020 B C J                            | 0.025 B C J                            | 0.024 B C J                            |
| PCB 22 (BZ)                               | 0.014 B J                              | 0.025 B J                              | 0.017 Q B J                            |
| PCB 23 (BZ)                               | 0.037 U                                | 0.037 U                                | 0.038 U                                |
| PCB 24 (BZ)                               | 0.037 U                                | 0.037 U                                | 0.00062 Q J                            |
| PCB 25 (BZ)                               | 0.0087 Q J                             | 0.016 Q J                              | 0.013 J                                |
| PCB 26 (BZ)                               | 0.012 Q C J                            | 0.040 C                                | 0.018 Q C J                            |
| PCB 27 (BZ)                               | 0.0048 Q B J                           | 0.0081 B J                             | 0.0036 Q B J                           |
| PCB 28 (BZ)                               | 0.073 B C20                            | 0.12 B C20                             | 0.10 B C20                             |
| PCB 29 (BZ)                               | 0.012 Q C26 J                          | 0.040 C26                              | 0.018 Q C26 J                          |
| PCB 30 (BZ)                               | 0.028 B C18 J                          | 0.045 B C18 J                          | 0.028 B C18 J                          |
| PCB 31 (BZ)                               | 0.041 Q B                              | 0.080 B                                | 0.064 B                                |
| PCB 32 (BZ)                               | 0.012 Q B J                            | 0.022 B J                              | 0.016 B J                              |
| PCB 33 (BZ)                               | 0.020 B C21 J                          | 0.025 B C21 J                          | 0.024 B C21 J                          |
| PCB 34 (BZ)                               | 0.00088 Q J                            | 0.00082 Q J                            | 0.0014 J                               |
| PCB 35 (BZ)                               | 0.0023 Q J                             | 0.0039 J                               | 0.0026 Q J                             |
| PCB 36 (BZ)                               | 0.037 U                                | 0.037 U                                | 0.0019 J                               |
| PCB 37 (BZ)                               | 0.022 J                                | 0.034 J                                | 0.032 J                                |
| PCB 38 (BZ)                               | 0.037 U                                | 0.037 U                                | 0.00065 Q J                            |
| PCB 39 (BZ)                               | 0.037 U                                | 0.037 U                                | 0.038 U                                |
| PCB 40 (BZ)                               | 0.018 Q B C J                          | 0.039 B C                              | 0.025 B C J                            |
| PCB 41 (BZ)                               | 0.018 Q B C40 J                        | 0.039 B C40                            | 0.025 B C40 J                          |
| PCB 42 (BZ)                               | 0.014 J                                | 0.026 J                                | 0.011 Q J                              |
| PCB 43 (BZ)                               | 0.0017 Q C J                           | 0.0042 C J                             | 0.0017 Q C J                           |
| PCB 44 (BZ)                               | 0.047 B C                              | 0.079 B C                              | 0.045 B C                              |
| PCB 45 (BZ)                               | 0.0084 C J                             | 0.0089 Q C J                           | 0.0067 C J                             |
| PCB 46 (BZ)                               | 0.037 U                                | 0.0048 Q J                             | 0.0015 Q J                             |
| PCB 47 (BZ)                               | 0.047 B C44                            | 0.079 B C44                            | 0.045 B C44                            |
| PCB 48 (BZ)                               | 0.0061 J                               | 0.0091 Q J                             | 0.0070 J                               |
| PCB 49 (BZ)                               | 0.033 C J                              | 0.055 C                                | 0.033 C J                              |
| PCB 50 (BZ)                               | 0.0074 C J                             | 0.0091 C J                             | 0.0064 C J                             |
| PCB 51 (BZ)                               | 0.0084 C45 J                           | 0.0089 Q C45 J                         | 0.0067 C45 J                           |

**Table 9:**  
**PCB Congeners - Elutriate Water Sample Results - Mordecai Area**  
**NJIWW Sediment 2014**

| <b>Location ID<br/>Sample ID<br/>Sampling Date</b> | <b>MOR-SED-01<br/>180-30554-3<br/>3/11/2014</b> | <b>MOR-SED-02<br/>180-30554-2<br/>3/11/2014</b> | <b>MOR-SED-03<br/>180-30554-1<br/>3/11/2014</b> |
|--|---|---|---|
| PCB 52 (BZ)  | 0.040   | 0.092   | 0.037 J   |
| PCB 53 (BZ)  | 0.0074 C50 J                                    | 0.0091 C50 J                                    | 0.0064 C50 J                                    |
| PCB 54 (BZ)  | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 55 (BZ)  | 0.037 U   | 0.0046 Q J                                      | 0.0028 Q J                                      |
| PCB 56 (BZ)  | 0.017 B J                                       | 0.028 B J                                       | 0.024 B J                                       |
| PCB 57 (BZ)  | 0.037 U   | 0.00094 Q J                                     | 0.038 U   |
| PCB 58 (BZ)  | 0.037 U   | 0.0015 Q J                                      | 0.038 U   |
| PCB 59 (BZ)  | 0.0050 C J                                      | 0.0082 C J                                      | 0.0044 C J                                      |
| PCB 60 (BZ)  | 0.0062 Q J                                      | 0.011 Q J                                       | 0.0096 J  |
| PCB 61 (BZ)  | 0.061 B C                                       | 0.10 B C  | 0.085 B C                                       |
| PCB 62 (BZ)  | 0.0050 C59 J                                    | 0.0082 C59 J                                    | 0.0044 C59 J                                    |
| PCB 63 (BZ)  | 0.0018 Q J                                      | 0.0029 Q J                                      | 0.0033 J  |
| PCB 64 (BZ)  | 0.012 Q J                                       | 0.027 J   | 0.018 J   |
| PCB 65 (BZ)  | 0.047 B C44                                     | 0.079 B C44                                     | 0.045 B C44                                     |
| PCB 66 (BZ)  | 0.060 B   | 0.082 B   | 0.073 B   |
| PCB 67 (BZ)  | 0.0022 Q J                                      | 0.0056 J  | 0.0015 Q J                                      |
| PCB 68 (BZ)  | 0.0015 B J                                      | 0.0019 B J                                      | 0.038 U   |
| PCB 69 (BZ)  | 0.033 C49 J                                     | 0.055 C49                                       | 0.033 C49 J                                     |
| PCB 70 (BZ)  | 0.061 B C61                                     | 0.10 B C61                                      | 0.085 B C61                                     |
| PCB 71 (BZ)  | 0.018 Q B C40 J                                 | 0.039 B C40                                     | 0.025 B C40 J                                   |
| PCB 72 (BZ)  | 0.037 U   | 0.0035 Q J                                      | 0.038 U   |
| PCB 73 (BZ)  | 0.0017 Q C43 J                                  | 0.0042 C43 J                                    | 0.0017 Q C43 J                                  |
| PCB 74 (BZ)  | 0.061 B C61                                     | 0.10 B C61                                      | 0.085 B C61                                     |
| PCB 75 (BZ)  | 0.0050 C59 J                                    | 0.0082 C59 J                                    | 0.0044 C59 J                                    |
| PCB 76 (BZ)  | 0.061 B C61                                     | 0.10 B C61                                      | 0.085 B C61                                     |
| PCB 77 (BZ)  | 0.0065 J  | 0.012 J   | 0.0093 Q J                                      |
| PCB 78 (BZ)  | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 79 (BZ)  | 0.037 U   | 0.0010 J  | 0.038 U   |
| PCB 80 (BZ)  | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 81 (BZ)  | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 82 (BZ)  | 0.0039 Q J                                      | 0.0098 J  | 0.0035 Q J                                      |
| PCB 83 (BZ)  | 0.048 Q B C                                     | 0.078 B C                                       | 0.051 B C                                       |
| PCB 84 (BZ)  | 0.012 J   | 0.022 J   | 0.0087 Q J                                      |
| PCB 85 (BZ)  | 0.010 Q C J                                     | 0.021 C J                                       | 0.014 C J                                       |
| PCB 86 (BZ)  | 0.035 B C J                                     | 0.056 Q B C                                     | 0.037 Q B C J                                   |
| PCB 87 (BZ)  | 0.035 B C86 J                                   | 0.056 Q B C86                                   | 0.037 Q B C86 J                                 |
| PCB 88 (BZ)  | 0.0092 Q C J                                    | 0.025 C J                                       | 0.0074 Q C J                                    |
| PCB 89 (BZ)  | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 90 (BZ)  | 0.055 B C                                       | 0.094 B C                                       | 0.051 B C                                       |
| PCB 91 (BZ)  | 0.0092 Q C88 J                                  | 0.025 C88 J                                     | 0.0074 Q C88 J                                  |
| PCB 92 (BZ)  | 0.013 Q J                                       | 0.018 Q J                                       | 0.011 Q J                                       |
| PCB 93 (BZ)  | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 94 (BZ)  | 0.037 U   | 0.0012 Q J                                      | 0.038 U   |
| PCB 95 (BZ)  | 0.041   | 0.076   | 0.037 J   |
| PCB 96 (BZ)  | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 97 (BZ)  | 0.035 B C86 J                                   | 0.056 Q B C86                                   | 0.037 Q B C86 J                                 |
| PCB 98 (BZ)  | 0.0023 Q C J                                    | 0.0035 C J                                      | 0.038 U   |
| PCB 99 (BZ)  | 0.048 Q B C83                                   | 0.078 B C83                                     | 0.051 B C83                                     |
| PCB 100 (BZ)                                       | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 101 (BZ)                                       | 0.055 B C90                                     | 0.094 B C90                                     | 0.051 B C90                                     |
| PCB 102 (BZ)                                       | 0.0023 Q C98 J                                  | 0.0035 C98 J                                    | 0.038 U   |
| PCB 103 (BZ)                                       | 0.0027 Q J                                      | 0.037 U   | 0.038 U   |

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PCB Congeners - Elutriate Water Sample Results - Mordecai Area  
NJIWW Sediment 2014**

| <b>Location ID<br/>Sample ID<br/>Sampling Date</b> | <b>MOR-SED-01<br/>180-30554-3<br/>3/11/2014</b> | <b>MOR-SED-02<br/>180-30554-2<br/>3/11/2014</b> | <b>MOR-SED-03<br/>180-30554-1<br/>3/11/2014</b> |
|--|---|---|---|
| PCB 104 (BZ)                                       | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 105 (BZ)                                       | 0.021 B J                                       | 0.048 B   | 0.020 Q B J                                     |
| PCB 106 (BZ)                                       | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 107 (BZ)/109<br>(IUPAC)                        | 0.0084 J  | 0.012 J   | 0.0069 Q J                                      |
| PCB 108 (BZ)/107<br>(IUPAC)                        | 0.037 U   | 0.0025 Q C J                                    | 0.038 U   |
| PCB 109 (BZ)/108<br>(IUPAC)                        | 0.035 B C86 J                                   | 0.056 Q B C86                                   | 0.037 Q B C86 J                                 |
| PCB 110 (BZ)                                       | 0.061 B C                                       | 0.11 B C  | 0.056 B C                                       |
| PCB 111 (BZ)                                       | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 112 (BZ)                                       | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 113 (BZ)                                       | 0.055 B C90                                     | 0.094 B C90                                     | 0.051 B C90                                     |
| PCB 114 (BZ)                                       | 0.00090 Q J                                     | 0.0023 Q J                                      | 0.038 U   |
| PCB 115 (BZ)                                       | 0.061 B C110                                    | 0.11 B C110                                     | 0.056 B C110                                    |
| PCB 116 (BZ)                                       | 0.010 Q C85 J                                   | 0.021 C85 J                                     | 0.014 C85 J                                     |
| PCB 117 (BZ)                                       | 0.010 Q C85 J                                   | 0.021 C85 J                                     | 0.014 C85 J                                     |
| PCB 118 (BZ)                                       | 0.062 B   | 0.11 B  | 0.075 B   |
| PCB 119 (BZ)                                       | 0.035 B C86 J                                   | 0.056 Q B C86                                   | 0.037 Q B C86 J                                 |
| PCB 120 (BZ)                                       | 0.037 U   | 0.0021 Q J                                      | 0.038 U   |
| PCB 121 (BZ)                                       | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 122 (BZ)                                       | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 123 (BZ)                                       | 0.00091 Q J                                     | 0.037 U   | 0.0017 Q J                                      |
| PCB 124 (BZ)                                       | 0.037 U   | 0.0025 Q C108 J                                 | 0.038 U   |
| PCB 125 (BZ)                                       | 0.035 B C86 J                                   | 0.056 Q B C86                                   | 0.037 Q B C86 J                                 |
| PCB 126 (BZ)                                       | 0.0012 Q J                                      | 0.037 U   | 0.038 U   |
| PCB 127 (BZ)                                       | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 128 (BZ)                                       | 0.017 C J                                       | 0.023 C J                                       | 0.014 Q C J                                     |
| PCB 129 (BZ)                                       | 0.093 B C                                       | 0.17 B C  | 0.092 B C                                       |
| PCB 130 (BZ)                                       | 0.0074 Q J                                      | 0.0098 J  | 0.0059 Q J                                      |
| PCB 131 (BZ)                                       | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 132 (BZ)                                       | 0.015 Q J                                       | 0.031 Q J                                       | 0.018 Q J                                       |
| PCB 133 (BZ)                                       | 0.0023 Q J                                      | 0.0052 J  | 0.0026 Q J                                      |
| PCB 134 (BZ)                                       | 0.0046 C J                                      | 0.0052 Q C J                                    | 0.038 U   |
| PCB 135 (BZ)                                       | 0.033 C J                                       | 0.054 C   | 0.025 Q C J                                     |
| PCB 136 (BZ)                                       | 0.010 Q J                                       | 0.011 Q J                                       | 0.0032 Q J                                      |
| PCB 137 (BZ)                                       | 0.0011 Q J                                      | 0.037 U   | 0.0017 J  |
| PCB 138 (BZ)                                       | 0.093 B C129                                    | 0.17 B C129                                     | 0.092 B C129                                    |
| PCB 139 (BZ)                                       | 0.037 U   | 0.0033 Q B C J                                  | 0.0025 Q B C J                                  |
| PCB 140 (BZ)                                       | 0.037 U   | 0.0033 Q B C139 J                               | 0.0025 Q B C139 J                               |
| PCB 141 (BZ)                                       | 0.0054 Q J                                      | 0.0086 Q J                                      | 0.0050 Q J                                      |
| PCB 142 (BZ)                                       | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 143 (BZ)                                       | 0.0046 C134 J                                   | 0.0052 Q C134 J                                 | 0.038 U   |
| PCB 144 (BZ)                                       | 0.0022 Q J                                      | 0.0037 Q J                                      | 0.038 U   |
| PCB 145 (BZ)                                       | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 146 (BZ)                                       | 0.016 Q J                                       | 0.029 J   | 0.024 J   |
| PCB 147 (BZ)                                       | 0.068 B C                                       | 0.12 B C  | 0.056 B C                                       |
| PCB 148 (BZ)                                       | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 149 (BZ)                                       | 0.068 B C147                                    | 0.12 B C147                                     | 0.056 B C147                                    |
| PCB 150 (BZ)                                       | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 151 (BZ)                                       | 0.033 C135 J                                    | 0.054 C135                                      | 0.025 Q C135 J                                  |
| PCB 152 (BZ)                                       | 0.037 U   | 0.0016 Q J                                      | 0.038 U   |

**Table 9:**  
**PCB Congeners - Elutriate Water Sample Results - Mordecai Area**  
**NJIWW Sediment 2014**

| <b>Location ID<br/>Sample ID<br/>Sampling Date</b> | <b>MOR-SED-01<br/>180-30554-3<br/>3/11/2014</b> | <b>MOR-SED-02<br/>180-30554-2<br/>3/11/2014</b> | <b>MOR-SED-03<br/>180-30554-1<br/>3/11/2014</b> |
|--|---|---|---|
| PCB 153 (BZ)                                       | 0.090 B C                                       | 0.13 B C  | 0.092 B C                                       |
| PCB 154 (BZ)                                       | 0.0031 J  | 0.037 U   | 0.0041 J  |
| PCB 155 (BZ)                                       | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 156 (BZ)                                       | 0.0046 Q B C J                                  | 0.012 B C J                                     | 0.0056 Q B C J                                  |
| PCB 157 (BZ)                                       | 0.0046 Q B C156 J                               | 0.012 B C156 J                                  | 0.0056 Q B C156 J                               |
| PCB 158 (BZ)                                       | 0.0059 Q J                                      | 0.0097 J  | 0.0053 Q J                                      |
| PCB 159 (BZ)                                       | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 160 (BZ)                                       | 0.093 B C129                                    | 0.17 B C129                                     | 0.092 B C129                                    |
| PCB 161 (BZ)                                       | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 162 (BZ)                                       | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 163 (BZ)                                       | 0.093 B C129                                    | 0.17 B C129                                     | 0.092 B C129                                    |
| PCB 164 (BZ)                                       | 0.0040 Q J                                      | 0.0066 Q J                                      | 0.0034 Q J                                      |
| PCB 165 (BZ)                                       | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 166 (BZ)                                       | 0.017 C128 J                                    | 0.023 C128 J                                    | 0.014 Q C128 J                                  |
| PCB 167 (BZ)                                       | 0.0030 J  | 0.0029 Q J                                      | 0.0033 J  |
| PCB 168 (BZ)                                       | 0.090 B C153                                    | 0.13 B C153                                     | 0.092 B C153                                    |
| PCB 169 (BZ)                                       | 0.037 U   | 0.00057 B J                                     | 0.038 U   |
| PCB 170 (BZ)                                       | 0.013 Q J                                       | 0.021 J   | 0.015 J   |
| PCB 171 (BZ)                                       | 0.0077 C J                                      | 0.010 C J                                       | 0.0075 C J                                      |
| PCB 172 (BZ)                                       | 0.0041 J  | 0.0041 Q J                                      | 0.0035 Q J                                      |
| PCB 173 (BZ)                                       | 0.0077 C171 J                                   | 0.010 C171 J                                    | 0.0075 C171 J                                   |
| PCB 174 (BZ)                                       | 0.012 Q J                                       | 0.016 J   | 0.011 Q J                                       |
| PCB 175 (BZ)                                       | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 176 (BZ)                                       | 0.0023 Q J                                      | 0.0033 Q J                                      | 0.0020 Q J                                      |
| PCB 177 (BZ)                                       | 0.014 J   | 0.015 Q J                                       | 0.012 Q J                                       |
| PCB 178 (BZ)                                       | 0.0075 J  | 0.012 Q J                                       | 0.0094 Q J                                      |
| PCB 179 (BZ)                                       | 0.011 Q J                                       | 0.018 J   | 0.012 J   |
| PCB 180 (BZ)                                       | 0.039 B C                                       | 0.060 B C                                       | 0.031 Q B C J                                   |
| PCB 181 (BZ)                                       | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 182 (BZ)                                       | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 183 (BZ)                                       | 0.010 Q C J                                     | 0.025 C J                                       | 0.015 C J                                       |
| PCB 184 (BZ)                                       | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 185 (BZ)                                       | 0.010 Q C183 J                                  | 0.025 C183 J                                    | 0.015 C183 J                                    |
| PCB 186 (BZ)                                       | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 187 (BZ)                                       | 0.048 B   | 0.081 B   | 0.048 B   |
| PCB 188 (BZ)                                       | 0.0011 Q J                                      | 0.0019 Q J                                      | 0.038 U   |
| PCB 189 (BZ)                                       | 0.037 U   | 0.0015 Q B J                                    | 0.038 U   |
| PCB 190 (BZ)                                       | 0.0020 Q J                                      | 0.0034 J  | 0.0024 Q J                                      |
| PCB 191 (BZ)                                       | 0.037 U   | 0.00080 Q J                                     | 0.038 U   |
| PCB 192 (BZ)                                       | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 193 (BZ)                                       | 0.039 B C180                                    | 0.060 B C180                                    | 0.031 Q B C180 J                                |
| PCB 194 (BZ)                                       | 0.010 Q B J                                     | 0.018 B J                                       | 0.013 B J                                       |
| PCB 195 (BZ)                                       | 0.0038 Q J                                      | 0.0055 Q J                                      | 0.0030 Q J                                      |
| PCB 196 (BZ)                                       | 0.0071 Q J                                      | 0.0077 Q J                                      | 0.0081 Q J                                      |
| PCB 197 (BZ)                                       | 0.037 U   | 0.037 U   | 0.00079 Q J                                     |
| PCB 198 (BZ)                                       | 0.014 Q C J                                     | 0.022 Q C J                                     | 0.013 Q C J                                     |
| PCB 199 (BZ)/200<br>(IUPAC)                        | 0.0013 Q J                                      | 0.0010 Q J                                      | 0.038 U   |
| PCB 200 (BZ)/201<br>(IUPAC)                        | 0.0028 J  | 0.0035 Q J                                      | 0.0034 Q J                                      |
| PCB 201 (BZ)/199<br>(IUPAC)                        | 0.014 Q C198 J                                  | 0.022 Q C198 J                                  | 0.013 Q C198 J                                  |

**Table 9:  
PCB Congeners - Elutriate Water Sample Results - Mordecai Area  
NJIWW Sediment 2014**

| <b>Location ID<br/>Sample ID<br/>Sampling Date</b> | <b>MOR-SED-01<br/>180-30554-3<br/>3/11/2014</b> | <b>MOR-SED-02<br/>180-30554-2<br/>3/11/2014</b> | <b>MOR-SED-03<br/>180-30554-1<br/>3/11/2014</b> |
|--|---|---|---|
| PCB 202 (BZ)                                       | 0.0098 J  | 0.014 J   | 0.0061 Q J                                      |
| PCB 203 (BZ)                                       | 0.0064 Q J                                      | 0.011 J   | 0.0075 Q J                                      |
| PCB 204 (BZ)                                       | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 205 (BZ)                                       | 0.037 U   | 0.037 U   | 0.038 U   |
| PCB 206 (BZ)                                       | 0.011 B J                                       | 0.014 B J                                       | 0.015 B J                                       |
| PCB 207 (BZ)                                       | 0.037 U   | 0.0020 Q J                                      | 0.0022 Q J                                      |
| PCB 208 (BZ)                                       | 0.0059 B J                                      | 0.0085 B J                                      | 0.0076 B J                                      |
| PCB 209 (BZ)                                       | 0.018 J   | 0.044 Q   | 0.024 J   |

Notes:

B : Method blank contamination. The associated method blank contains the target analyte at a reportable level.  
 B C : Method blank contamination. The associated method blank contains the target analyte at a reportable level.  
 B C J : Co-eluting isomer.  
 B C110 : Method blank contamination. The associated method blank contains the target analyte at a reportable level.  
 B C12 J : Estimated result. Result is less than the reporting limit.  
 B C156 J : Method blank contamination. The associated method blank contains the target analyte at a reportable level.  
 B C18 J : Method blank contamination. The associated method blank contains the target analyte at a reportable level.  
 B C21 J : Estimated result. Result is less than the reporting limit.  
 B C40 : Method blank contamination. The associated method blank contains the target analyte at a reportable level.  
 B C40 J : Method blank contamination. The associated method blank contains the target analyte at a reportable level.  
 B C61 : Method blank contamination. The associated method blank contains the target analyte at a reportable level.  
 B C83 : Method blank contamination. The associated method blank contains the target analyte at a reportable level.  
 B C86 J : Estimated result. Result is less than the reporting limit.  
 B J : Method blank contamination. The associated method blank contains the target analyte at a reportable level.  
 C : Co-eluting isomer.  
 C J : Estimated result. Result is less than the reporting limit.  
 C134 J : Estimated result. Result is less than the reporting limit.  
 C171 J : Estimated result. Result is less than the reporting limit.  
 C43 J : Estimated result. Result is less than the reporting limit.  
 C45 J : Estimated result. Result is less than the reporting limit.  
 C49 J : Estimated result. Result is less than the reporting limit.  
 C50 J : Estimated result. Result is less than the reporting limit.  
 C98 J : Estimated result. Result is less than the reporting limit.  
 J : Estimated result. Result is less than the reporting limit.  
 ng/L: nanograms per liter  
 Q : Estimated maximum possible concentration (EMPC).  
 Q B : Estimated maximum possible concentration (EMPC).  
 Q B C : Co-eluting isomer.  
 Q B C J : Method blank contamination. The associated method blank contains the target analyte at a reportable level.  
 Q B C12 J : Estimated result. Result is less than the reporting limit.  
 Q B C139 J : Estimated result. Result is less than the reporting limit.  
 Q B C40 J : Estimated result. Result is less than the reporting limit.  
 Q B J : Method blank contamination. The associated method blank contains the target analyte at a reportable level.  
 Q C J : Co-eluting isomer.  
 Q C108 J : Estimated maximum possible concentration (EMPC).  
 Q C135 J : Estimated result. Result is less than the reporting limit.  
 Q C183 J : Estimated result. Result is less than the reporting limit.  
 Q C43 J : Estimated result. Result is less than the reporting limit.  
 Q C45 J : Estimated maximum possible concentration (EMPC).  
 Q C85 J : Estimated result. Result is less than the reporting limit.  
 Q C98 J : Estimated maximum possible concentration (EMPC).  
 Q J : Estimated result. Result is less than the reporting limit.  
 U : Indicates the analyte was analyzed for but not detected.

**Table 10:  
Summary of Sediment Sample Results - Avalon Area  
NJIWW Sediment 2014**

| Location ID<br>Sample ID<br>Sampling Date      | NJDEP<br>Residential Direct<br>Contact SRS | NJDEP Non-<br>Residential Direct<br>Contact SRS | NJDEP Ecological<br>Screening Saline<br>Water Criteria ER-L | NJDEP Ecological<br>Screening Saline<br>Water Criteria ER-M | AV-SED-01<br>180-29825-1<br>2/11/2014 13:30 | AV-SED-02/03<br>180-29825-2<br>2/11/2014 13:40 | AV-SED-04<br>180-29825-3<br>2/11/2014 14:00 | AV-SED-05A<br>180-29825-4<br>2/11/2014 14:10 | AV-SED-05B<br>180-29825-5<br>2/11/2014 14:15 | AV-SED-DUP<br>180-29825-6<br>2/11/2014 12:00 |
|--|--|---|---|---|---|--|---|--|--|--|
| <b>Volatile Organic Compounds (ug/Kg)</b>      |  |   |   |   |   |  |   |  |  |  |
| 1,1,1-Trichloroethane                          | 290,000                                    | 4,200,000                                       | NC  | NC  | 0.89 U                                      | 1.1 U  | 1.1 U                                       | 0.98 U                                       | 0.7 U  | 0.98 U                                       |
| 1,1,2,2-Tetrachloroethane                      | 1,000                                      | 3,000   | NC  | NC  | 1.3 U                                       | 1.7 U  | 1.6 U                                       | 1.4 U  | 1 U  | 1.4 U  |
| 1,1,2-Trichloroethane                          | 2,000                                      | 6,000   | NC  | NC  | 1.5 U                                       | 1.9 U  | 1.8 U                                       | 1.7 U  | 1.2 U  | 1.7 U  |
| 1,1-Dichloroethane                             | 8,000                                      | 24,000  | NC  | NC  | 1.1 U                                       | 1.3 U  | 1.3 U                                       | 1.2 U  | 0.82 U                                       | 1.2 U  |
| 1,1-Dichloroethene                             | 11,000                                     | 150,000   | NC  | NC  | 1.6 U                                       | 2 U  | 1.8 U                                       | 1.7 U  | 1.2 U  | 1.7 U  |
| 1,2-Dichloroethane                             | 900  | 3,000   | NC  | NC  | 1.1 U                                       | 1.4 U  | 1.3 U                                       | 1.2 U  | 0.88 U                                       | 1.2 U  |
| 1,2-Dichloroethene, Total                      | 230,000                                    | NC  | NC  | NC  | 2.4 U                                       | 3 U  | 2.8 U                                       | 2.6 U  | 1.8 U  | 2.6 U  |
| 1,2-Dichloropropane                            | 2,000                                      | 5,000   | NC  | NC  | 1 U   | 1.3 U  | 1.2 U                                       | 1.1 U  | 0.78 U                                       | 1.1 U  |
| 2-Butanone (MEK)                               | 3,100,000                                  | 44,000,000                                      | NC  | NC  | 1.6 U                                       | 2.1 U  | 1.9 U                                       | 1.8 U  | 1.3 U  | 1.8 U  |
| 2-Hexanone                                     | NC   | NC  | NC  | NC  | 1.3 U                                       | 1.6 U  | 1.5 U                                       | 1.4 U  | 0.99 U                                       | 1.4 U  |
| 4-Methyl-2-pentanone (MIBK)                    | NC   | NC  | NC  | NC  | 1.2 U                                       | 1.5 U  | 1.4 U                                       | 1.3 U  | 0.93 U                                       | 1.3 U  |
| Acetone  | 70,000,000                                 | NC  | NC  | NC  | 9.2 U                                       | 12 U   | 11 U  | 10 U   | 7.2 U  | 10 U   |
| Benzene  | 2,000                                      | 5,000   | 340   | NC  | 1.2 U                                       | 1.6 U  | 1.5 U                                       | 1.4 U  | 0.97 U                                       | 1.4 U  |
| Bromodichloromethane                           | 1,000                                      | 3,000   | NC  | NC  | 1 U   | 1.3 U  | 1.2 U                                       | 1.1 U  | 0.8 U  | 1.1 U  |
| Bromoform                                      | 81,000                                     | 280,000   | NC  | NC  | 0.81 U                                      | 1 U  | 0.96 U                                      | 0.89 U                                       | 0.63 U                                       | 0.89 U                                       |
| Bromomethane                                   | 25,000                                     | 59,000  | NC  | NC  | 1.4 U                                       | 1.7 U  | 1.6 U                                       | 1.5 U  | 1.1 U  | 1.5 U  |
| Carbon disulfide                               | 7,800,000                                  | 110,000,000                                     | NC  | NC  | 3.9 J                                       | 1.2 U  | 1.1 U                                       | 1 U  | 0.73 U                                       | 1 U  |
| Carbon tetrachloride                           | 600  | 2,000   | NC  | NC  | 0.82 U                                      | 1 U  | 0.97 U                                      | 0.9 U  | 0.64 U                                       | 0.9 U  |
| Chlorobenzene                                  | 510,000                                    | 7,400,000                                       | NC  | NC  | 1.4 U                                       | 1.8 U  | 1.6 U                                       | 1.5 U  | 1.1 U  | 1.5 U  |
| Chloroethane                                   | 220,000                                    | 1,100,000                                       | NC  | NC  | 2.8 U                                       | 3.6 U  | 3.4 U                                       | 3.1 U  | 2.2 U  | 3.1 U  |
| Chloroform                                     | 600  | 2,000   | NC  | NC  | 1.1 U                                       | 1.4 U  | 1.3 U                                       | 1.2 U  | 0.84 U                                       | 1.2 U  |
| Chloromethane                                  | 4,000                                      | 12,000  | NC  | NC  | 1.6 U                                       | 2 U  | 1.9 U                                       | 1.7 U  | 1.2 U  | 1.7 U  |
| cis-1,3-Dichloropropene                        | 2,000                                      | 7,000   | NC  | NC  | 1.2 U                                       | 1.6 U  | 1.5 U                                       | 1.4 U  | 0.97 U                                       | 1.4 U  |
| Dibromochloromethane                           | 3,000                                      | 8,000   | NC  | NC  | 1.3 U                                       | 1.7 U  | 1.5 U                                       | 1.4 U  | 1 U  | 1.4 U  |
| Ethylbenzene                                   | NC   | NC  | 1,400   | NC  | 1.2 U                                       | 1.5 U  | 1.4 U                                       | 1.3 U  | 0.92 U                                       | 1.3 U  |
| Methylene Chloride                             | 34,000                                     | 97,000  | NC  | NC  | 1.2 U                                       | 1.6 U  | 1.5 U                                       | 1.4 U  | 0.96 U                                       | 1.4 U  |
| Styrene  | 90,000                                     | 260,000   | NC  | NC  | 1.3 U                                       | 1.6 U  | 1.5 U                                       | 1.4 U  | 1 U  | 1.4 U  |
| Tetrachloroethene                              | 2,000                                      | 5,000   | NC  | NC  | 1.2 U                                       | 1.6 U  | 1.5 U                                       | 1.4 U  | 0.97 U                                       | 1.4 U  |
| Toluene  | 6,300,000                                  | 91,000,000                                      | 2,500   | NC  | 1.3 U                                       | 1.7 U  | 1.6 U                                       | 1.5 U  | 1 U  | 1.5 U  |
| trans-1,3-Dichloropropene                      | 2,000                                      | 7,000   | NC  | NC  | 1.1 U                                       | 1.4 U  | 1.3 U                                       | 1.2 U  | 0.86 U                                       | 1.2 U  |
| Trichloroethene                                | 7,000                                      | 20,000  | NC  | NC  | 1.2 U                                       | 1.5 U  | 1.4 U                                       | 1.3 U  | 0.94 U                                       | 1.3 U  |
| Vinyl chloride                                 | 700  | 2,000   | NC  | NC  | 0.86 U                                      | 1.1 U  | 1 U   | 0.94 U                                       | 0.67 U                                       | 0.94 U                                       |
| Xylenes, Total                                 | 12,000,000                                 | 170,000,000                                     | >120  | NC  | 4.1 U                                       | 5.2 U  | 4.9 U                                       | 4.5 U  | 3.2 U  | 4.5 U  |
| <b>Semi-Volatile Organic Compounds (ug/Kg)</b> |  |   |   |   |   |  |   |  |  |  |
| 1,2,4-Trichlorobenzene                         | 73,000                                     | NC  | NC  | >4.8  | 8.9 U                                       | 11 U   | 10 U  | 9.2 U  | 7 U  | 9.7 U  |
| 1,2-Dichlorobenzene                            | 5,300,000                                  | 59,000,000                                      | NC  | 13  | 17 U  | 20 U   | 20 U  | 17 U   | 13 U   | 18 U   |
| 1,3-Dichlorobenzene                            | 5,300,000                                  | 59,000,000                                      | NC  | NC  | 13 U  | 15 U   | 15 U  | 13 U   | 9.8 U  | 14 U   |
| 1,4-Dichlorobenzene                            | 5,000                                      | 13,000  | NC  | 110   | 12 U  | 14 U   | 14 U  | 12 U   | 9 U  | 13 U   |
| 2,2'-oxybis[1-chloropropane]                   | NC   | NC  | NC  | NC  | 3.5 U                                       | 4.2 U  | 4.1 U                                       | 3.6 U  | 2.7 U  | 3.8 U  |
| 2,4,5-Trichlorophenol                          | 6,100,000                                  | 68,000,000                                      | NC  | 3   | 17 U  | 21 U   | 20 U  | 18 U   | 13 U   | 19 U   |

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|---|--|---|---|---|---|--|---|--|--|--|
| 2,4,6-Trichlorophenol                     | 19,000                                     | 74,000  | NC  | 6   | 24 U  | 29 U   | 28 U  | 25 U   | 19 U   | 26 U   |
| 2,4-Dichlorophenol                        | 180,000                                    | 2,100,000                                       | NC  | 5   | 3.2 U                                       | 3.9 U  | 3.8 U                                       | 3.3 U  | 2.5 U  | 3.5 U  |
| 2,4-Dimethylphenol                        | NC   | NC  | NC  | NC  | 25 U  | 30 U   | 30 U  | 26 U   | 20 U   | 27 U   |
| 2,4-Dinitrophenol                         | 120,000                                    | 1,400,000                                       | NC  | NC  | 190 U                                       | 230 U  | 230 U                                       | 200 U  | 150 U  | 210 U  |
| 2,4-Dinitrotoluene                        | 700  | 3,000   | NC  | NC  | 13 U  | 16 U   | 15 U  | 13 U   | 10 U   | 14 U   |
| 2,6-Dinitrotoluene                        | 700  | 3,000   | NC  | NC  | 17 U  | 20 U   | 20 U  | 17 U   | 13 U   | 18 U   |
| 2-Chloronaphthalene                       | NC   | NC  | NC  | NC  | 3.4 U                                       | 4.1 U  | 4 U   | 3.5 U  | 2.6 U  | 3.6 U  |
| 2-Chlorophenol                            | 310,000                                    | 2,200,000                                       | NC  | 8   | 13 U  | 16 U   | 15 U  | 14 U   | 10 U   | 14 U   |
| 2-Methylnaphthalene                       | 230,000                                    | 2,400,000                                       | 70  | 670   | 2.9 U                                       | 8.9 J  | 3.6 J                                       | 3.3 J  | 3.7 J  | 4.4 J  |
| 2-Methylphenol                            | 310,000                                    | 3,400,000                                       | NC  | NC  | 11 U  | 14 U   | 13 U  | 12 U   | 8.8 U  | 12 U   |
| 2-Nitroaniline                            | 39,000                                     | 23,000,000                                      | NC  | NC  | 72 U  | 87 U   | 85 U  | 75 U   | 56 U   | 78 U   |
| 2-Nitrophenol                             | NC   | NC  | NC  | NC  | 18 U  | 21 U   | 21 U  | 18 U   | 14 U   | 19 U   |
| 3,3'-Dichlorobenzidine                    | 1,000                                      | 4,000   | NC  | NC  | 17 U  | 21 U   | 20 U  | 18 U   | 13 U   | 18 U   |
| 3-Nitroaniline                            | NC   | NC  | NC  | NC  | 66 U  | 80 U   | 78 U  | 69 U   | 52 U   | 72 U   |
| 4,6-Dinitro-2-methylphenol                | 6,000                                      | 68,000  | NC  | NC  | 65 U  | 78 U   | 76 U  | 67 U   | 51 U   | 70 U   |
| 4-Bromophenyl phenyl ether                | NC   | NC  | NC  | NC  | 14 U  | 17 U   | 16 U  | 15 U   | 11 U   | 15 U   |
| 4-Chloro-3-methylphenol                   | NC   | NC  | NC  | NC  | 15 U  | 18 U   | 17 U  | 15 U   | 12 U   | 16 U   |
| 4-Chloroaniline                           | NC   | NC  | NC  | NC  | 13 U  | 16 U   | 15 U  | 13 U   | 10 U   | 14 U   |
| 4-Chlorophenyl phenyl ether               | NC   | NC  | NC  | NC  | 18 U  | 22 U   | 21 U  | 19 U   | 14 U   | 19 U   |
| 4-Nitroaniline                            | NC   | NC  | NC  | NC  | 65 U  | 79 U   | 77 U  | 67 U   | 51 U   | 71 U   |
| 4-Nitrophenol                             | NC   | NC  | NC  | NC  | 59 U  | 71 U   | 69 U  | 61 U   | 46 U   | 64 U   |
| Acenaphthene                              | 3,400,000                                  | 37,000,000                                      | 16  | 500   | 3.1 U                                       | 3.7 U  | 3.6 U                                       | 3.9 J  | 3 J  | 3.4 U  |
| Acenaphthylene                            | NC   | 300,000,000                                     | 44  | 640   | 3.7 U                                       | 4.4 U  | 4.3 U                                       | 7.7 J  | 2.9 U  | 4 U  |
| Anthracene                                | 17,000,000                                 | 30,000,000                                      | 85  | 1,100   | 9.2 J                                       | 25 J   | 8.2 J                                       | 15 J   | 16 J   | 14 J   |
| Benzo[a]anthracene                        | 600  | 2,000   | 261   | 1,600   | 32  | 54   | 24 J  | 42   | 33   | 35   |
| Benzo[a]pyrene                            | 200  | 200   | 430   | 1,600   | 34  | 57   | 24 J  | 45   | 33   | 39   |
| Benzo[b]fluoranthene                      | 600  | 2,000   | NC  | 1,800   | 43  | 75   | 32 J  | 54   | 42   | 45   |
| Benzo[g,h,i]perylene                      | 380,000,000                                | 30,000,000                                      | 170   | NC  | 23 J  | 44   | 16 J  | 31 J   | 24 J   | 27 J   |
| Benzo[k]fluoranthene                      | 6,000                                      | 23,000  | 240   | NC  | 17 J  | 32 J   | 13 J  | 22 J   | 18 J   | 22 J   |
| Bis(2-chloroethoxy)methane                | NC   | NC  | NC  | NC  | 11 U  | 13 U   | 12 U  | 11 U   | 8.3 U  | 12 U   |
| Bis(2-chloroethyl)ether                   | 400  | 2,000   | NC  | NC  | 4.3 U                                       | 5.2 U  | 5.1 U                                       | 4.5 U  | 3.4 U  | 4.7 U  |
| Bis(2-ethylhexyl) phthalate               | 35,000                                     | 140,000   | 182   | 2,647   | 69 J  | 92 J   | 41 J  | 55 J   | 41 J   | 85 J   |
| Butyl benzyl phthalate                    | 1,200,000                                  | 14,000,000                                      | NC  | 63  | 33 J  | 32 J   | 26 U  | 23 U   | 24 J   | 59 J   |
| Carbazole                                 | 24,000                                     | 96,000  | NC  | NC  | 3 U   | 3.6 U  | 3.5 U                                       | 3.1 U  | 2.3 U  | 3.2 U  |
| Chrysene                                  | 62,000                                     | 230,000   | 384   | 2,800   | 36  | 63   | 27 J  | 44   | 40   | 38   |
| Dibenz(a,h)anthracene                     | 200  | 200   | 63  | 260   | 3.6 U                                       | 12 J   | 4.2 U                                       | 3.7 U  | 2.8 U  | 3.9 U  |
| Dibenzofuran                              | NC   | NC  | NC  | NC  | 16 U  | 19 U   | 19 U  | 16 U   | 12 U   | 17 U   |
| Diethyl phthalate                         | 49,000,000                                 | 550,000,000                                     | NC  | 6   | 52 J B                                      | 21 U   | 48 J B                                      | 29 J B                                       | 28 J B                                       | 42 J B                                       |
| Dimethyl phthalate                        | NC   | NC  | NC  | NC  | 18 U  | 21 U   | 21 U  | 18 U   | 14 U   | 19 U   |
| Di-n-butyl phthalate                      | 6,100,000                                  | 68,000,000                                      | NC  | 58  | 20 U  | 24 U   | 24 U  | 21 U   | 16 U   | 22 U   |
| Di-n-octyl phthalate                      | 2,400,000                                  | 27,000,000                                      | NC  | NC  | 17 U  | 20 U   | 20 U  | 18 U   | 13 U   | 18 U   |
| Fluoranthene                              | 2,300,000                                  | 24,000,000                                      | 600   | 5,100   | 41  | 100  | 37 J  | 64   | 56   | 61   |
| Fluorene                                  | 2,300,000                                  | 24,000,000                                      | 19  | 540   | 4.3 U                                       | 5.1 U  | 5 U   | 4.4 U  | 3.3 U  | 4.6 U  |

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|---|--|---|---|---|---|--|---|--|--|--|
| Hexachlorobenzene                         | 300  | 1,000   | NC  | NC  | 3.4 U                                       | 4.1 U  | 4 U   | 3.6 U  | 2.7 U  | 3.7 U  |
| Hexachlorobutadiene                       | NC   | NC  | NC  | 1.3   | 3.6 U                                       | 4.3 U  | 4.2 U                                       | 3.7 U  | 2.8 U  | 3.9 U  |
| Hexachlorocyclopentadiene                 | 45,000                                     | 110,000   | NC  | NC  | 17 U  | 21 U   | 20 U  | 18 U   | 14 U   | 19 U   |
| Hexachloroethane                          | 35,000                                     | 140,000   | NC  | 73  | 12 U  | 14 U   | 14 U  | 12 U   | 9.1 U  | 13 U   |
| Indeno[1,2,3-cd]pyrene                    | 600  | 2,000   | NC  | NC  | 20 J  | 36 J   | 13 J  | 27 J   | 20 J   | 22 J   |
| Isophorone                                | 510,000                                    | 2,000,000                                       | NC  | NC  | 12 U  | 15 U   | 14 U  | 13 U   | 9.5 U  | 13 U   |
| Methylphenol, 3 & 4                       | 31,000                                     | 340,000   | NC  | NC  | 16 U  | 19 U   | 37 J  | 16 U   | 12 U   | 17 U   |
| Naphthalene                               | 6,000                                      | 17,000  | 160   | 2,100   | 2.8 U                                       | 13 J   | 3.3 U                                       | 2.9 U  | 2.2 U  | 3 U  |
| Nitrobenzene                              | 31,000                                     | 340,000   | NC  | NC  | 13 U  | 16 U   | 16 U  | 14 U   | 10 U   | 15 U   |
| N-Nitrosodi-n-propylamine                 | 200  | NC  | NC  | NC  | 3.8 U                                       | 4.6 U  | 4.4 U                                       | 3.9 U  | 3 U  | 4.1 U  |
| N-Nitrosodiphenylamine                    | 99,000                                     | 390,000   | NC  | NC  | 15 U  | 18 U   | 18 U  | 15 U   | 12 U   | 16 U   |
| Pentachlorophenol                         | 3,000                                      | 10,000  | 23,000  | 17  | 14 U  | 17 U   | 17 U  | 15 U   | 11 U   | 16 U   |
| Phenanthrene                              | NC   | 300,000,000                                     | 240   | 1,500   | 22 J  | 41   | 16 J  | 32 J   | 33   | 25 J   |
| Phenol                                    | 18,000,000                                 | 210,000,000                                     | NC  | 130   | 3.8 U                                       | 4.6 U  | 4.5 U                                       | 3.9 U  | 3 U  | 4.1 U  |
| Pyrene                                    | 1,700,000                                  | 18,000,000                                      | 665   | 2,600   | 62  | 110  | 42  | 78   | 64   | 71   |
| <b>Pesticides (ug/Kg)</b>                 |  |   |   |   |   |  |   |  |  |  |
| 4,4'-DDD                                  | 3,000                                      | 13,000  | 2   | 20  | 0.23 J p B                                  | 0.47 J p B                                     | 0.34 J B                                    | 0.3 J p B                                    | 0.23 J p B                                   | 2.1 B  |
| 4,4'-DDE                                  | 2,000                                      | 9,000   | 2   | 27  | 0.53  | 0.85   | 0.5   | 0.59   | 0.42   | 2.1  |
| 4,4'-DDT                                  | 2,000                                      | 8,000   | 1   | 7   | 0.3 J B                                     | 0.41 J B                                       | 0.092 J p B                                 | 0.31 J B                                     | 0.25 J B                                     | 0.97 p B                                     |
| Aldrin                                    | 40   | 200   | NC  | NC  | 0.072 U                                     | 0.087 U  | 0.084 U                                     | 0.074 U                                      | 0.056 U                                      | 0.078 U                                      |
| alpha-BHC                                 | 100  | 500   | NC  | NC  | 0.066 U                                     | 0.079 U  | 0.077 U                                     | 0.068 U                                      | 0.051 U                                      | 0.071 U                                      |
| alpha-Chlordane                           | 200  | 1,000   | NC  | NC  | 0.08 U                                      | 0.096 U  | 0.093 U                                     | 0.082 U                                      | 0.062 U                                      | 0.11 J                                       |
| beta-BHC                                  | 400  | 2,000   | NC  | NC  | 0.1 U                                       | 0.13 U   | 0.12 U                                      | 0.11 U                                       | 0.082 U                                      | 0.11 U                                       |
| delta-BHC                                 | NC   | NC  | NC  | NC  | 0.062 U                                     | 0.075 U  | 0.072 U                                     | 0.064 U                                      | 0.048 U                                      | 0.069 J p                                    |
| Dieldrin                                  | 40   | 200   | NC  | NC  | 0.067 U                                     | 0.081 U  | 0.079 U                                     | 0.13 J                                       | 0.052 U                                      | 0.14 J p                                     |
| Endosulfan I                              | 470,000                                    | 6,800,000                                       | NC  | NC  | 0.076 U                                     | 0.091 U  | 0.089 U                                     | 0.078 U                                      | 0.059 U                                      | 0.083 U                                      |
| Endosulfan II                             | 470,000                                    | 6,800,000                                       | NC  | NC  | 0.071 U                                     | 0.086 U  | 0.083 U                                     | 0.073 U                                      | 0.055 U                                      | 0.11 J p                                     |
| Endosulfan sulfate                        | 470,000                                    | 6,800,000                                       | NC  | NC  | 0.047 J p                                   | 0.08 J   | 0.049 U                                     | 0.071 J                                      | 0.058 J                                      | 0.15 J                                       |
| Endrin                                    | 23,000                                     | 340,000   | NC  | NC  | 0.21 J                                      | 0.24 J   | 0.12 J                                      | 0.21 J                                       | 0.18 J                                       | 0.56   |
| Endrin aldehyde                           | NC   | NC  | NC  | NC  | 0.078 U                                     | 0.094 U  | 0.092 U                                     | 0.081 U                                      | 0.061 U                                      | 0.24 J                                       |
| Endrin ketone                             | NC   | NC  | NC  | NC  | 0.063 U                                     | 0.076 U  | 0.11 J                                      | 0.065 U                                      | 0.049 U                                      | 0.068 U                                      |
| gamma-BHC (Lindane)                       | 400  | 2,000   | NC  | NC  | 0.071 U                                     | 0.085 U  | 0.083 U                                     | 0.073 U                                      | 0.055 U                                      | 0.077 U                                      |
| gamma-Chlordane                           | 200  | 1,000   | NC  | NC  | 0.091 J p                                   | 0.21 J   | 0.093 U                                     | 0.082 U                                      | 0.067 J p                                    | 0.086 U                                      |
| Heptachlor                                | 100  | 700   | NC  | 0.3   | 0.089 U                                     | 0.13 J p                                       | 0.1 U                                       | 0.092 U                                      | 0.07 U                                       | 0.13 J p                                     |
| Heptachlor epoxide                        | 70   | 300   | NC  | NC  | 0.078 U                                     | 0.094 U  | 0.092 U                                     | 0.081 U                                      | 0.061 U                                      | 0.093 J p                                    |
| Methoxychlor                              | 390,000                                    | 5,700,000                                       | NC  | NC  | 0.18 J p                                    | 0.17 J p                                       | 0.098 U                                     | 0.14 J p                                     | 0.15 J p                                     | 0.43 J p                                     |
| Toxaphene                                 | 600  | 3,000   | NC  | NC  | 2.7 U                                       | 3.2 U  | 3.1 U                                       | 2.8 U  | 2.1 U  | 2.9 U  |
| <b>PCBs (ug/Kg)</b>                       |  |   |   |   |   |  |   |  |  |  |
| PCB-1016                                  | 200  | 1,000   | NC  | NC  | 1.2 U                                       | 1.4 U  | 1.4 U                                       | 1.2 U  | 0.94 U                                       | 1.3 U  |
| PCB-1221                                  | 200  | 1,000   | 23  | 180   | 1.5 U                                       | 1.9 U  | 1.8 U                                       | 1.6 U  | 1.2 U  | 1.7 U  |
| PCB-1232                                  | 200  | 1,000   | 23  | 180   | 1.4 U                                       | 1.7 U  | 1.6 U                                       | 1.4 U  | 1.1 U  | 1.5 U  |
| PCB-1242                                  | 200  | 1,000   | 23  | 180   | 1.3 U                                       | 1.6 U  | 1.5 U                                       | 1.4 U  | 1 U  | 1.4 U  |



**Table 10:  
Summary of Sediment Sample Results - Avalon Area  
NJIWW Sediment 2014**

| Location ID<br>Sample ID<br>Sampling Date | NJDEP<br>Residential Direct<br>Contact SRS | NJDEP Non-<br>Residential Direct<br>Contact SRS | NJDEP Ecological<br>Screening Saline<br>Water Criteria ER-L | NJDEP Ecological<br>Screening Saline<br>Water Criteria ER-M | AV-SED-01<br>180-29825-1<br>2/11/2014 13:30 | AV-SED-02/03<br>180-29825-2<br>2/11/2014 13:40 | AV-SED-04<br>180-29825-3<br>2/11/2014 14:00 | AV-SED-05A<br>180-29825-4<br>2/11/2014 14:10 | AV-SED-05B<br>180-29825-5<br>2/11/2014 14:15 | AV-SED-DUP<br>180-29825-6<br>2/11/2014 12:00 |
|---|--|---|---|---|---|--|---|--|--|--|
| PCB-1248                                  | 200  | 1,000   | NC  | NC  | 2.8 J                                       | 4.2 J  | 5.4 J                                       | 5.1 J  | 3.9 J  | 12   |
| PCB-1254                                  | 200  | 1,000   | NC  | NC  | 1.1 U                                       | 1.4 U  | 1.3 U                                       | 1.2 U  | 0.89 U                                       | 1.2 U  |
| PCB-1260                                  | 200  | 1,000   | NC  | NC  | 3.7 J                                       | 4.6 J  | 4.4 J                                       | 3.3 J  | 2.5 J  | 11   |
| <b>Inorganics (mg/Kg)</b>                 |  |   |   |   |   |  |   |  |  |  |
| Aluminum                                  | 78,000                                     | NC  | NC  | 18,000  | 12,000                                      | 14,000   | 14,000                                      | 9,900  | 4,500  | 12,000                                       |
| Antimony                                  | 31   | 450   | NC  | 9.3   | 0.12 J B                                    | 0.11 J B                                       | 0.088 J B                                   | 0.057 J B                                    | 0.034 J B                                    | 0.079 J B                                    |
| Arsenic                                   | 19*  | 19*   | 8   | 70  | 9.4   | 11   | 9.9   | 8.1  | 3.9  | 10   |
| Barium                                    | 16,000                                     | 59,000  | NC  | 48  | 32 B  | 42 B   | 39 B  | 30 B   | 12 B   | 38 B   |
| Beryllium                                 | 16   | 140   | NC  | NC  | 0.62  | 0.74   | 0.74  | 0.52   | 0.24   | 0.67   |
| Cadmium                                   | 78   | 78  | 1   | 9.6   | 0.73  | 0.73   | 0.88  | 0.52   | 0.25   | 0.72   |
| Calcium                                   | NC   | NC  | NC  | NC  | 3,500 B                                     | 6,200 B  | 4,400 B                                     | 5,200 B                                      | 2,000 B                                      | 4,900 B                                      |
| Chromium                                  | NC   | NC  | 81  | 370   | 50 B  | 57 B   | 58 B  | 37 B   | 18 B   | 52 B   |
| Cobalt                                    | 1,600                                      | 590   | NC  | 10  | 7.8   | 8.6  | 9.1   | 6.6  | 3.2  | 7.7  |
| Copper                                    | 3,100                                      | 45,000  | 34  | 270   | 26  | 29   | 32  | 18   | 8  | 27   |
| Iron                                      | NC   | NC  | NC  | NC  | 23,000                                      | 28,000   | 29,000                                      | 21,000                                       | 9,800  | 26,000                                       |
| Lead                                      | 400  | 800   | 47  | 218   | 29  | 38   | 37  | 21   | 11   | 37   |
| Magnesium                                 | NC   | NC  | NC  | NC  | 6,800 B                                     | 8,500 B  | 8,200 B                                     | 6,200 B                                      | 2,700 B                                      | 7,800 B                                      |
| Manganese                                 | 11,000                                     | 5,900   | NC  | 260   | 210   | 280  | 240   | 220  | 98   | 250  |
| Mercury                                   | 23   | 65  | 0.15  | 0.71  | 0.2   | 0.18   | 0.19  | 0.1  | 0.11   | 0.21   |
| Nickel                                    | 1,600                                      | 23,000  | 21  | 52  | 23  | 25   | 26  | 18   | 8.5  | 23   |
| Potassium                                 | NC   | NC  | NC  | NC  | 3,400                                       | 3,900  | 4,200                                       | 2,800  | 1,300  | 3,500  |
| Selenium                                  | 390  | 5,700   | NC  | 1.0   | 1   | 1.2  | 1.5   | 0.78   | 0.37 J                                       | 1.1  |
| Silver                                    | 390  | 5,700   | 1   | 3.7   | 0.41  | 0.53   | 0.57  | 0.23   | 0.13   | 0.52   |
| Sodium                                    | NC   | NC  | NC  | NC  | 9,300                                       | 14,000   | 12,000                                      | 9,000  | 4,200  | 12,000                                       |
| Thallium                                  | 5  | 79  | NC  | NC  | 0.24  | 0.26   | 0.3   | 0.17   | 0.085  | 0.21   |
| Vanadium                                  | 78   | 1,100   | NC  | 57  | 42  | 50   | 47  | 34   | 15   | 46   |
| Zinc                                      | 23,000                                     | 110,000   | 150   | 410   | 94  | 100  | 110   | 67   | 35   | 95   |
| Cyanide, Total                            | 1,600                                      | 23,000  | NC  | NC  | 0.16 J                                      | 0.11 U   | 0.11 U                                      | 0.12 J                                       | 0.073 U                                      | 0.1 U  |
| <b>Dioxins (pg/g)</b>                     |  |   |   |   |   |  |   |  |  |  |
| 1,2,3,4,6,7,8-HpCDD                       | NC   | NC  | NC  | NC  | 83 B  | 110 B  | 97 B  | 39 B   | 83 B   | 130 B  |
| 1,2,3,4,6,7,8-HpCDF                       | NC   | NC  | NC  | NC  | 17 B  | 22 B   | 19 B  | 8.1 B  | 17 B   | 31 B   |
| 1,2,3,4,7,8,9-HpCDF                       | NC   | NC  | NC  | NC  | 0.86 Q B J                                  | 1.5 Q B J                                      | 1.2 Q B J                                   | 0.56 Q B J                                   | 1.3 B J                                      | 1.6 Q B J                                    |
| 1,2,3,4,7,8-HxCDD                         | NC   | NC  | NC  | NC  | 2.3 B J                                     | 2.7 B J  | 2.7 B J                                     | 1.2 B J                                      | 1.6 B J                                      | 3 B J  |
| 1,2,3,4,7,8-HxCDF                         | NC   | NC  | NC  | NC  | 4.2 Q J                                     | 5.7 Q J  | 4.6 J C                                     | 1.8 C J                                      | 4.3 Q J                                      | 7.4 Q  |
| 1,2,3,6,7,8-HxCDD                         | NC   | NC  | NC  | NC  | 5.5 B                                       | 6.8 B  | 5.8 B                                       | 2.5 B J                                      | 5.3 B  | 9 B  |
| 1,2,3,6,7,8-HxCDF                         | NC   | NC  | NC  | NC  | 2.1 Q B J                                   | 2.6 Q B J                                      | 2.5 Q B J                                   | 1 Q B J                                      | 2.9 Q B J                                    | 4 Q B J                                      |
| 1,2,3,7,8,9-HxCDD                         | NC   | NC  | NC  | NC  | 7.5 C                                       | 8.1 C  | 7.9 C                                       | 3.3 C J                                      | 6 C  | 10 C   |
| 1,2,3,7,8,9-HxCDF                         | NC   | NC  | NC  | NC  | 0.16 Q B J                                  | 0.17 B J                                       | 0.3 Q B J                                   | 0.052 B J                                    | 0.17 Q B J                                   | 0.19 Q B J                                   |
| 1,2,3,7,8-PeCDD                           | NC   | NC  | NC  | NC  | 1.5 Q J                                     | 1.8 Q J  | 1.9 Q J                                     | 0.65 Q J                                     | 1.3 Q J                                      | 2.3 Q J                                      |
| 1,2,3,7,8-PeCDF                           | NC   | NC  | NC  | NC  | 2 B J                                       | 2.7 B J  | 2.5 Q B J                                   | 0.84 B J                                     | 1.9 B J                                      | 3.6 Q B J                                    |
| 2,3,4,6,7,8-HxCDF                         | NC   | NC  | NC  | NC  | 1.8 B J                                     | 2.1 B J  | 2 B J                                       | 0.82 B J                                     | 1.7 B J                                      | 3.2 B J                                      |
| 2,3,4,7,8-PeCDF                           | NC   | NC  | NC  | NC  | 2.6 J                                       | 3.6 J  | 2.8 J                                       | 1.3 J  | 2.5 Q J                                      | 4.9 J  |
| 2,3,7,8-TCDD                              | NC   | NC  | NC  | 3.6   | 2.2 Q B                                     | 2.7 B  | 2 B   | 0.66 Q B J                                   | 1.9 Q B                                      | 3.5 Q B                                      |
| 2,3,7,8-TCDF                              | NC   | NC  | NC  | NC  | 6.7 Q                                       | 7  | 6.2   | 2.6  | 5.1  | 9.1  |

**Table 10:  
Summary of Sediment Sample Results - Avalon Area  
NJIWW Sediment 2014**

| Location ID<br>Sample ID<br>Sampling Date | NJDEP<br>Residential Direct<br>Contact SRS | NJDEP Non-<br>Residential Direct<br>Contact SRS | NJDEP Ecological<br>Screening Saline<br>Water Criteria ER-L | NJDEP Ecological<br>Screening Saline<br>Water Criteria ER-M | AV-SED-01<br>180-29825-1<br>2/11/2014 13:30 | AV-SED-02/03<br>180-29825-2<br>2/11/2014 13:40 | AV-SED-04<br>180-29825-3<br>2/11/2014 14:00 | AV-SED-05A<br>180-29825-4<br>2/11/2014 14:10 | AV-SED-05B<br>180-29825-5<br>2/11/2014 14:15 | AV-SED-DUP<br>180-29825-6<br>2/11/2014 12:00 |
|---|--|---|---|---|---|--|---|--|--|--|
| OCDD                                      | NC   | NC  | NC  | NC  | 770 B                                       | 860 B  | 810 B                                       | 400 B  | 800 B  | 1200 B                                       |
| OCDF                                      | NC   | NC  | NC  | NC  | 17 Q B                                      | 23 Q B   | 20 Q B                                      | 9 Q B J                                      | 23 Q B                                       | 29 Q B                                       |

Notes:

- B : Compound was found in the blank and sample.
- B J : Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- C : Co-eluting isomer.
- C J : Estimated result. Result is less than the reporting limit.
- ER-L: Effects Range Low
- ER-M: Effects Range Medium
- J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
- J B : Compound was found in the blank and sample.
- J C : Estimated result. Result is less than the reporting limit.
- J p : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
- J p B : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
- mg/Kg: milligrams per kilogram
- NC: No criteria
- NJDEP: New Jersey Department of Environmental Protection
- NR: Not Analyzed
- p B : Compound was found in the blank and sample.
- pg/g: picograms per gram
- Q : Estimated maximum possible concentration (EMPC).
- Q B : Estimated maximum possible concentration (EMPC).
- Q B J : Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- Q J : Estimated maximum possible concentration (EMPC).
- SRS: Soil Remediation Standard
- U : Indicates the analyte was analyzed for but not detected.
- ug/Kg: micrograms per kilogram
- \*The direct contact standard for arsenic is based on natural background

Values shaded in purple exceed the

Values shaded in light orange

Values shaded in red exceed the

Values shaded in blue exceed the

Values shaded in orange exceed

**Table 11:**  
**PCB Congeners - Sediment Sample Results - Avalon Area**  
**NJIWW Sediment 2014**

| Location ID<br>Sample ID<br>Sampling Date | AV-SED-01<br>180-29825-1<br>2/11/2014 | AV-SED-02/03<br>180-29825-2<br>2/11/2014 | AV-SED-04<br>180-29825-3<br>2/11/2014 | AV-SED-05A<br>180-29825-4<br>2/11/2014 | AV-SED-05B<br>180-29825-5<br>2/11/2014 | AV-SED-DUP<br>180-29825-6<br>2/11/2014 |
|---|---------------------------------------|--|---------------------------------------|--|--|--|
| <b>CONSTITUENT (ng/g)</b>                 |                                       |  |                                       |  |  |  |
| PCB 1 (BZ)                                | 0.042                                 | 0.055                                    | 0.037                                 | 0.024                                  | 0.046                                  | 0.071                                  |
| PCB 2 (BZ)                                | 0.097 B                               | 0.12 B                                   | 0.088 B                               | 0.045 B                                | 0.11 B                                 | 0.17 B                                 |
| PCB 3 (BZ)                                | 0.046                                 | 0.064                                    | 0.049                                 | 0.026                                  | 0.051                                  | 0.076                                  |
| PCB 4 (BZ)                                | 0.14                                  | 0.21                                     | 0.13                                  | 0.077                                  | 0.16                                   | 0.24                                   |
| PCB 5 (BZ)                                | 0.0018 J                              | 0.0044 J                                 | 0.0029 Q J                            | 0.0019 Q J                             | 0.0022 Q J                             | 0.0042 Q J                             |
| PCB 6 (BZ)                                | 0.11                                  | 0.16                                     | 0.12                                  | 0.059                                  | 0.12                                   | 0.20                                   |
| PCB 7 (BZ)                                | 0.012 Q                               | 0.017                                    | 0.013 Q                               | 0.0068 Q J                             | 0.011 Q                                | 0.019 Q                                |
| PCB 8 (BZ)                                | 0.34 B                                | 0.48 B                                   | 0.33 B                                | 0.18 B                                 | 0.38 B                                 | 0.56 B                                 |
| PCB 9 (BZ)                                | 0.013                                 | 0.018 Q                                  | 0.013 Q                               | 0.0073 Q J                             | 0.013 Q                                | 0.020 Q                                |
| PCB 10 (BZ)                               | 0.011 Q                               | 0.015 Q                                  | 0.011 Q                               | 0.0090 Q J                             | 0.013 Q                                | 0.017 Q                                |
| PCB 11 (BZ)                               | 0.97 B                                | 1.6 B                                    | 1.2 B                                 | 0.45 B                                 | 1.1 B                                  | 2.1 B                                  |
| PCB 12 (BZ)                               | 0.14 C                                | 0.21 C                                   | 0.16 C                                | 0.089 C                                | 0.16 C                                 | 0.25 C                                 |
| PCB 13 (BZ)                               | 0.14 C12                              | 0.21 C12                                 | 0.16 C12                              | 0.089 C12                              | 0.16 C12                               | 0.25 C12                               |
| PCB 14 (BZ)                               | 0.0071 Q B J                          | 0.0057 Q B J                             | 0.0051 Q B J                          | 0.0023 Q B J                           | 0.0034 Q B J                           | 0.0063 Q B J                           |
| PCB 15 (BZ)                               | 0.96                                  | 1.3                                      | 0.95                                  | 0.44                                   | 1.0                                    | 1.5                                    |
| PCB 16 (BZ)                               | 0.11                                  | 0.16                                     | 0.12                                  | 0.059                                  | 0.13                                   | 0.21                                   |
| PCB 17 (BZ)                               | 0.23                                  | 0.33                                     | 0.22                                  | 0.12                                   | 0.25                                   | 0.39                                   |
| PCB 18 (BZ)                               | 0.33 C                                | 0.46 C                                   | 0.33 C                                | 0.17 C                                 | 0.37 C                                 | 0.57 C                                 |
| PCB 19 (BZ)                               | 0.032                                 | 0.043 Q                                  | 0.027 Q                               | 0.017                                  | 0.035                                  | 0.057                                  |
| PCB 20 (BZ)                               | 1.7 B C                               | 2.3 B C                                  | 1.6 B C                               | 0.73 B C                               | 1.7 B C                                | 2.6 B C                                |
| PCB 21 (BZ)                               | 0.28 C                                | 0.36 C                                   | 0.26 C                                | 0.12 C                                 | 0.26 C                                 | 0.41 C                                 |
| PCB 22 (BZ)                               | 0.27                                  | 0.38                                     | 0.27                                  | 0.12                                   | 0.28                                   | 0.45                                   |
| PCB 23 (BZ)                               | 0.00058 Q J                           | 0.0010 Q J                               | 0.011 U                               | 0.0096 U                               | 0.00079 Q J                            | 0.0015 J                               |
| PCB 24 (BZ)                               | 0.0057 J                              | 0.0086 J                                 | 0.0060 Q J                            | 0.0037 Q J                             | 0.0069 J                               | 0.010 J                                |
| PCB 25 (BZ)                               | 0.17                                  | 0.27                                     | 0.20                                  | 0.081                                  | 0.20                                   | 0.33                                   |
| PCB 26 (BZ)                               | 0.27 C                                | 0.44 C                                   | 0.32 C                                | 0.13 C                                 | 0.31 C                                 | 0.55 C                                 |
| PCB 27 (BZ)                               | 0.047                                 | 0.075                                    | 0.049                                 | 0.028                                  | 0.055                                  | 0.085                                  |
| PCB 28 (BZ)                               | 1.7 B C20                             | 2.3 B C20                                | 1.6 B C20                             | 0.73 B C20                             | 1.7 B C20                              | 2.6 B C20                              |
| PCB 29 (BZ)                               | 0.27 C26                              | 0.44 C26                                 | 0.32 C26                              | 0.13 C26                               | 0.31 C26                               | 0.55 C26                               |
| PCB 30 (BZ)                               | 0.33 C18                              | 0.46 C18                                 | 0.33 C18                              | 0.17 C18                               | 0.37 C18                               | 0.57 C18                               |
| PCB 31 (BZ)                               | 1.1                                   | 1.5                                      | 1.0                                   | 0.47                                   | 1.1                                    | 1.7                                    |
| PCB 32 (BZ)                               | 0.17                                  | 0.23                                     | 0.16                                  | 0.088                                  | 0.19                                   | 0.28                                   |
| PCB 33 (BZ)                               | 0.28 C21                              | 0.36 C21                                 | 0.26 C21                              | 0.12 C21                               | 0.26 C21                               | 0.41 C21                               |
| PCB 34 (BZ)                               | 0.0068 J                              | 0.010 J                                  | 0.0074 J                              | 0.0042 J                               | 0.0073 J                               | 0.011                                  |
| PCB 35 (BZ)                               | 0.070                                 | 0.095                                    | 0.071                                 | 0.044                                  | 0.077                                  | 0.13                                   |
| PCB 36 (BZ)                               | 0.028                                 | 0.050                                    | 0.011 U                               | 0.0096 U                               | 0.0095 U                               | 0.011 U                                |
| PCB 37 (BZ)                               | 0.78                                  | 1.0                                      | 0.76                                  | 0.34                                   | 0.82                                   | 1.3                                    |
| PCB 38 (BZ)                               | 0.0099 U                              | 0.0013 Q J                               | 0.011 U                               | 0.0096 U                               | 0.0095 U                               | 0.00098 Q J                            |
| PCB 39 (BZ)                               | 0.0081 J                              | 0.011 J                                  | 0.0076 Q J                            | 0.0039 J                               | 0.0082 J                               | 0.015                                  |
| PCB 40 (BZ)                               | 0.25 C                                | 0.38 C                                   | 0.25 C                                | 0.13 C                                 | 0.28 C                                 | 0.49 C                                 |
| PCB 41 (BZ)                               | 0.25 C40                              | 0.38 C40                                 | 0.25 C40                              | 0.13 C40                               | 0.28 C40                               | 0.49 C40                               |
| PCB 42 (BZ)                               | 0.15                                  | 0.21                                     | 0.14                                  | 0.073                                  | 0.15                                   | 0.27                                   |
| PCB 43 (BZ)                               | 0.012 C                               | 0.016 C                                  | 0.015 C                               | 0.0055 Q C J                           | 0.013 C                                | 0.026 C                                |
| PCB 44 (BZ)                               | 0.50 C                                | 0.69 C                                   | 0.49 C                                | 0.25 C                                 | 0.51 C                                 | 0.87 C                                 |
| PCB 45 (BZ)                               | 0.049 C                               | 0.069 C                                  | 0.046 C                               | 0.026 C                                | 0.052 C                                | 0.086 C                                |
| PCB 46 (BZ)                               | 0.016                                 | 0.021 Q                                  | 0.015                                 | 0.0081 J                               | 0.018                                  | 0.029                                  |

**Table 11:**  
**PCB Congeners - Sediment Sample Results - Avalon Area**  
**NJIWW Sediment 2014**

| Location ID<br>Sample ID<br>Sampling Date | AV-SED-01<br>180-29825-1<br>2/11/2014 | AV-SED-02/03<br>180-29825-2<br>2/11/2014 | AV-SED-04<br>180-29825-3<br>2/11/2014 | AV-SED-05A<br>180-29825-4<br>2/11/2014 | AV-SED-05B<br>180-29825-5<br>2/11/2014 | AV-SED-DUP<br>180-29825-6<br>2/11/2014 |
|---|---------------------------------------|--|---------------------------------------|--|--|--|
| PCB 47 (BZ)                               | 0.50 C44                              | 0.69 C44                                 | 0.49 C44                              | 0.25 C44                               | 0.51 C44                               | 0.87 C44                               |
| PCB 48 (BZ)                               | 0.073                                 | 0.10                                     | 0.068                                 | 0.037                                  | 0.072                                  | 0.12                                   |
| PCB 49 (BZ)                               | 0.37 C                                | 0.52 C                                   | 0.38 C                                | 0.19 C                                 | 0.38 C                                 | 0.66 C                                 |
| PCB 50 (BZ)                               | 0.041 C                               | 0.056 C                                  | 0.036 C                               | 0.020 C                                | 0.042 C                                | 0.067 C                                |
| PCB 51 (BZ)                               | 0.049 C45                             | 0.069 C45                                | 0.046 C45                             | 0.026 C45                              | 0.052 C45                              | 0.086 C45                              |
| PCB 52 (BZ)                               | 0.46                                  | 0.69                                     | 0.52                                  | 0.25                                   | 0.51                                   | 1.0                                    |
| PCB 53 (BZ)                               | 0.041 C50                             | 0.056 C50                                | 0.036 C50                             | 0.020 C50                              | 0.042 C50                              | 0.067 C50                              |
| PCB 54 (BZ)                               | 0.0099 U                              | 0.012 U                                  | 0.011 U                               | 0.0096 U                               | 0.0095 U                               | 0.011 U                                |
| PCB 55 (BZ)                               | 0.014 Q                               | 0.027                                    | 0.021                                 | 0.0055 Q J                             | 0.021                                  | 0.046                                  |
| PCB 56 (BZ)                               | 0.35                                  | 0.49                                     | 0.33                                  | 0.16                                   | 0.37                                   | 0.61                                   |
| PCB 57 (BZ)                               | 0.0066 Q J                            | 0.012 J                                  | 0.0081 J                              | 0.0044 J                               | 0.0085 J                               | 0.015                                  |
| PCB 58 (BZ)                               | 0.0036 Q J                            | 0.0089 J                                 | 0.0069 Q J                            | 0.0027 Q J                             | 0.0087 J                               | 0.013 Q                                |
| PCB 59 (BZ)                               | 0.052 C                               | 0.072 C                                  | 0.050 C                               | 0.024 C                                | 0.052 C                                | 0.095 C                                |
| PCB 60 (BZ)                               | 0.14                                  | 0.20                                     | 0.15                                  | 0.067                                  | 0.16                                   | 0.27                                   |
| PCB 61 (BZ)                               | 1.3 B C                               | 1.8 B C                                  | 1.3 B C                               | 0.63 B C                               | 1.4 B C                                | 2.3 B C                                |
| PCB 62 (BZ)                               | 0.052 C59                             | 0.072 C59                                | 0.050 C59                             | 0.024 C59                              | 0.052 C59                              | 0.095 C59                              |
| PCB 63 (BZ)                               | 0.036                                 | 0.051                                    | 0.034                                 | 0.018                                  | 0.038                                  | 0.060                                  |
| PCB 64 (BZ)                               | 0.18                                  | 0.27                                     | 0.18                                  | 0.095                                  | 0.20                                   | 0.34                                   |
| PCB 65 (BZ)                               | 0.50 C44                              | 0.69 C44                                 | 0.49 C44                              | 0.25 C44                               | 0.51 C44                               | 0.87 C44                               |
| PCB 66 (BZ)                               | 1.1                                   | 1.5                                      | 1.1                                   | 0.52                                   | 1.2                                    | 1.9                                    |
| PCB 67 (BZ)                               | 0.031                                 | 0.059                                    | 0.048                                 | 0.016                                  | 0.045                                  | 0.10                                   |
| PCB 68 (BZ)                               | 0.013                                 | 0.020 Q                                  | 0.018                                 | 0.0073 J                               | 0.017                                  | 0.030                                  |
| PCB 69 (BZ)                               | 0.37 C49                              | 0.52 C49                                 | 0.38 C49                              | 0.19 C49                               | 0.38 C49                               | 0.66 C49                               |
| PCB 70 (BZ)                               | 1.3 B C61                             | 1.8 B C61                                | 1.3 B C61                             | 0.63 B C61                             | 1.4 B C61                              | 2.3 B C61                              |
| PCB 71 (BZ)                               | 0.25 C40                              | 0.38 C40                                 | 0.25 C40                              | 0.13 C40                               | 0.28 C40                               | 0.49 C40                               |
| PCB 72 (BZ)                               | 0.017                                 | 0.029                                    | 0.023                                 | 0.0096 J                               | 0.022                                  | 0.046                                  |
| PCB 73 (BZ)                               | 0.012 C43                             | 0.016 C43                                | 0.015 C43                             | 0.0055 Q C43 J                         | 0.013 C43                              | 0.026 C43                              |
| PCB 74 (BZ)                               | 1.3 B C61                             | 1.8 B C61                                | 1.3 B C61                             | 0.63 B C61                             | 1.4 B C61                              | 2.3 B C61                              |
| PCB 75 (BZ)                               | 0.052 C59                             | 0.072 C59                                | 0.050 C59                             | 0.024 C59                              | 0.052 C59                              | 0.095 C59                              |
| PCB 76 (BZ)                               | 1.3 B C61                             | 1.8 B C61                                | 1.3 B C61                             | 0.63 B C61                             | 1.4 B C61                              | 2.3 B C61                              |
| PCB 77 (BZ)                               | 0.25                                  | 0.34                                     | 0.28                                  | 0.17                                   | 0.29                                   | 0.49                                   |
| PCB 78 (BZ)                               | 0.0019 Q J                            | 0.0019 Q J                               | 0.0015 Q J                            | 0.0096 U                               | 0.0013 Q J                             | 0.0016 Q J                             |
| PCB 79 (BZ)                               | 0.010                                 | 0.013                                    | 0.011                                 | 0.0044 J                               | 0.011                                  | 0.022                                  |
| PCB 80 (BZ)                               | 0.0099 U                              | 0.012 U                                  | 0.011 U                               | 0.0096 U                               | 0.0095 U                               | 0.011 U                                |
| PCB 81 (BZ)                               | 0.0065 J                              | 0.0063 Q J                               | 0.0053 J                              | 0.0028 Q J                             | 0.0048 J                               | 0.0059 Q J                             |
| PCB 82 (BZ)                               | 0.068                                 | 0.11                                     | 0.082                                 | 0.036                                  | 0.076                                  | 0.16                                   |
| PCB 83 (BZ)                               | 0.66 C                                | 0.82 C                                   | 0.67 C                                | 0.30 C                                 | 0.66 C                                 | 1.1 C                                  |
| PCB 84 (BZ)                               | 0.10                                  | 0.16                                     | 0.12                                  | 0.059                                  | 0.12                                   | 0.24                                   |
| PCB 85 (BZ)                               | 0.13 C                                | 0.19 C                                   | 0.15 C                                | 0.061 C                                | 0.16 C                                 | 0.29 C                                 |
| PCB 86 (BZ)                               | 0.38 C                                | 0.56 C                                   | 0.44 C                                | 0.19 C                                 | 0.44 C                                 | 0.89 C                                 |
| PCB 87 (BZ)                               | 0.38 C86                              | 0.56 C86                                 | 0.44 C86                              | 0.19 C86                               | 0.44 C86                               | 0.89 C86                               |
| PCB 88 (BZ)                               | 0.086 C                               | 0.12 C                                   | 0.091 C                               | 0.048 C                                | 0.098 C                                | 0.18 C                                 |
| PCB 89 (BZ)                               | 0.0062 J                              | 0.0084 J                                 | 0.0071 J                              | 0.0049 J                               | 0.0076 J                               | 0.015                                  |
| PCB 90 (BZ)                               | 0.67 B C                              | 0.92 B C                                 | 0.74 B C                              | 0.32 B C                               | 0.73 B C                               | 1.5 B C                                |
| PCB 91 (BZ)                               | 0.086 C88                             | 0.12 C88                                 | 0.091 C88                             | 0.048 C88                              | 0.098 C88                              | 0.18 C88                               |
| PCB 92 (BZ)                               | 0.12                                  | 0.18                                     | 0.14                                  | 0.061                                  | 0.15                                   | 0.34                                   |

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**NJIWW Sediment 2014**

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|---|---------------------------------------|--|---------------------------------------|--|--|--|
| PCB 93 (BZ)                               | 0.0074 Q C J                          | 0.012 C J                                | 0.0021 Q C J                          | 0.0015 Q C J                           | 0.0018 Q C J                           | 0.0052 Q C J                           |
| PCB 94 (BZ)                               | 0.0035 Q J                            | 0.0063 Q J                               | 0.0035 Q J                            | 0.0096 U                               | 0.0035 Q J                             | 0.011                                  |
| PCB 95 (BZ)                               | 0.31                                  | 0.47                                     | 0.40                                  | 0.17                                   | 0.37                                   | 0.89                                   |
| PCB 96 (BZ)                               | 0.0023 Q J                            | 0.0035 Q J                               | 0.0028 Q J                            | 0.0020 Q J                             | 0.0034 Q J                             | 0.0066 J                               |
| PCB 97 (BZ)                               | 0.38 C86                              | 0.56 C86                                 | 0.44 C86                              | 0.19 C86                               | 0.44 C86                               | 0.89 C86                               |
| PCB 98 (BZ)                               | 0.024 C                               | 0.029 C                                  | 0.024 C                               | 0.011 C                                | 0.024 C                                | 0.040 C                                |
| PCB 99 (BZ)                               | 0.66 C83                              | 0.82 C83                                 | 0.67 C83                              | 0.30 C83                               | 0.66 C83                               | 1.1 C83                                |
| PCB 100 (BZ)                              | 0.0074 Q C93 J                        | 0.012 C93 J                              | 0.0021 Q C93 J                        | 0.0015 Q C93 J                         | 0.0018 Q C93 J                         | 0.0052 Q C93 J                         |
| PCB 101 (BZ)                              | 0.67 B C90                            | 0.92 B C90                               | 0.74 B C90                            | 0.32 B C90                             | 0.73 B C90                             | 1.5 B C90                              |
| PCB 102 (BZ)                              | 0.024 C98                             | 0.029 C98                                | 0.024 C98                             | 0.011 C98                              | 0.024 C98                              | 0.040 C98                              |
| PCB 103 (BZ)                              | 0.011 Q                               | 0.013 Q                                  | 0.011                                 | 0.0046 Q J                             | 0.011                                  | 0.019                                  |
| PCB 104 (BZ)                              | 0.0099 U                              | 0.012 U                                  | 0.011 U                               | 0.0096 U                               | 0.0095 U                               | 0.011 U                                |
| PCB 105 (BZ)                              | 0.37                                  | 0.54                                     | 0.43                                  | 0.17                                   | 0.43                                   | 0.78                                   |
| PCB 106 (BZ)                              | 0.0099 U                              | 0.0010 Q J                               | 0.011 U                               | 0.0096 U                               | 0.0095 U                               | 0.011 U                                |
| PCB 107 (BZ)/109 (IUPAC)                  | 0.11                                  | 0.15                                     | 0.12                                  | 0.051                                  | 0.11                                   | 0.20                                   |
| PCB 108 (BZ)/107 (IUPAC)                  | 0.024 C                               | 0.036 C                                  | 0.026 C                               | 0.013 C                                | 0.027 C                                | 0.049 C                                |
| PCB 109 (BZ)/108 (IUPAC)                  | 0.38 C86                              | 0.56 C86                                 | 0.44 C86                              | 0.19 C86                               | 0.44 C86                               | 0.89 C86                               |
| PCB 110 (BZ)                              | 0.70 C                                | 1.0 C                                    | 0.80 C                                | 0.34 C                                 | 0.80 C                                 | 1.6 C                                  |
| PCB 111 (BZ)                              | 0.0031 J                              | 0.0056 J                                 | 0.0042 Q J                            | 0.0096 U                               | 0.0047 J                               | 0.0065 Q J                             |
| PCB 112 (BZ)                              | 0.0099 U                              | 0.012 U                                  | 0.011 U                               | 0.0096 U                               | 0.0095 U                               | 0.011 U                                |
| PCB 113 (BZ)                              | 0.67 B C90                            | 0.92 B C90                               | 0.74 B C90                            | 0.32 B C90                             | 0.73 B C90                             | 1.5 B C90                              |
| PCB 114 (BZ)                              | 0.013                                 | 0.015 Q                                  | 0.013 Q                               | 0.0052 Q J                             | 0.013                                  | 0.024                                  |
| PCB 115 (BZ)                              | 0.70 C110                             | 1.0 C110                                 | 0.80 C110                             | 0.34 C110                              | 0.80 C110                              | 1.6 C110                               |
| PCB 116 (BZ)                              | 0.13 C85                              | 0.19 C85                                 | 0.15 C85                              | 0.061 C85                              | 0.16 C85                               | 0.29 C85                               |
| PCB 117 (BZ)                              | 0.13 C85                              | 0.19 C85                                 | 0.15 C85                              | 0.061 C85                              | 0.16 C85                               | 0.29 C85                               |
| PCB 118 (BZ)                              | 1.1                                   | 1.5                                      | 1.3                                   | 0.53                                   | 1.2                                    | 2.1                                    |
| PCB 119 (BZ)                              | 0.38 C86                              | 0.56 C86                                 | 0.44 C86                              | 0.19 C86                               | 0.44 C86                               | 0.89 C86                               |
| PCB 120 (BZ)                              | 0.016                                 | 0.022                                    | 0.025                                 | 0.0063 J                               | 0.020                                  | 0.043                                  |
| PCB 121 (BZ)                              | 0.0099 U                              | 0.012 U                                  | 0.011 U                               | 0.0096 U                               | 0.0095 U                               | 0.011 U                                |
| PCB 122 (BZ)                              | 0.010 Q                               | 0.015                                    | 0.013                                 | 0.0045 Q J                             | 0.013                                  | 0.015 Q                                |
| PCB 123 (BZ)                              | 0.014                                 | 0.010 Q J                                | 0.017                                 | 0.0091 J                               | 0.013 Q                                | 0.023                                  |
| PCB 124 (BZ)                              | 0.024 C108                            | 0.036 C108                               | 0.026 C108                            | 0.013 C108                             | 0.027 C108                             | 0.049 C108                             |
| PCB 125 (BZ)                              | 0.38 C86                              | 0.56 C86                                 | 0.44 C86                              | 0.19 C86                               | 0.44 C86                               | 0.89 C86                               |
| PCB 126 (BZ)                              | 0.010                                 | 0.012 J                                  | 0.0092 Q J                            | 0.0060 Q J                             | 0.0086 Q J                             | 0.020                                  |
| PCB 127 (BZ)                              | 0.0099 U                              | 0.012 U                                  | 0.011 U                               | 0.0096 U                               | 0.0010 Q J                             | 0.0024 Q J                             |
| PCB 128 (BZ)                              | 0.16 C                                | 0.24 C                                   | 0.20 C                                | 0.078 C                                | 0.20 C                                 | 0.42 C                                 |
| PCB 129 (BZ)                              | 1.1 C                                 | 1.7 C                                    | 1.3 C                                 | 0.50 C                                 | 1.4 C                                  | 3.3 C                                  |
| PCB 130 (BZ)                              | 0.072                                 | 0.12                                     | 0.099                                 | 0.035                                  | 0.095                                  | 0.26                                   |
| PCB 131 (BZ)                              | 0.0044 Q J                            | 0.0083 Q J                               | 0.0086 J                              | 0.0015 Q J                             | 0.0085 J                               | 0.018                                  |
| PCB 132 (BZ)                              | 0.19                                  | 0.30                                     | 0.23                                  | 0.097                                  | 0.22                                   | 0.70                                   |
| PCB 133 (BZ)                              | 0.027                                 | 0.040                                    | 0.032                                 | 0.013                                  | 0.031                                  | 0.085                                  |
| PCB 134 (BZ)                              | 0.041 C                               | 0.060 C                                  | 0.047 C                               | 0.020 C                                | 0.048 C                                | 0.11 C                                 |
| PCB 135 (BZ)                              | 0.24 Q C                              | 0.42 C                                   | 0.31 C                                | 0.12 C                                 | 0.32 C                                 | 0.94 C                                 |
| PCB 136 (BZ)                              | 0.072                                 | 0.10                                     | 0.082                                 | 0.036                                  | 0.079                                  | 0.26                                   |
| PCB 137 (BZ)                              | 0.018                                 | 0.031                                    | 0.022                                 | 0.0098                                 | 0.028                                  | 0.047                                  |
| PCB 138 (BZ)                              | 1.1 C129                              | 1.7 C129                                 | 1.3 C129                              | 0.50 C129                              | 1.4 C129                               | 3.3 C129                               |

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|---|---------------------------------------|--|---------------------------------------|--|--|--|
| PCB 139 (BZ)                              | 0.018 C                               | 0.024 C                                  | 0.019 C                               | 0.0081 C J                             | 0.019 C                                | 0.036 C                                |
| PCB 140 (BZ)                              | 0.018 C139                            | 0.024 C139                               | 0.019 C139                            | 0.0081 C139 J                          | 0.019 C139                             | 0.036 C139                             |
| PCB 141 (BZ)                              | 0.060                                 | 0.10                                     | 0.075                                 | 0.031                                  | 0.086                                  | 0.26                                   |
| PCB 142 (BZ)                              | 0.0099 U                              | 0.012 U                                  | 0.011 U                               | 0.0096 U                               | 0.0095 U                               | 0.011 U                                |
| PCB 143 (BZ)                              | 0.041 C134                            | 0.060 C134                               | 0.047 C134                            | 0.020 C134                             | 0.048 C134                             | 0.11 C134                              |
| PCB 144 (BZ)                              | 0.024                                 | 0.039                                    | 0.030                                 | 0.0099                                 | 0.029                                  | 0.12                                   |
| PCB 145 (BZ)                              | 0.0099 U                              | 0.012 U                                  | 0.011 U                               | 0.0096 U                               | 0.0095 U                               | 0.011 U                                |
| PCB 146 (BZ)                              | 0.25                                  | 0.35                                     | 0.28                                  | 0.11                                   | 0.29                                   | 0.73                                   |
| PCB 147 (BZ)                              | 0.63 C                                | 0.90 C                                   | 0.70 C                                | 0.29 C                                 | 0.73 C                                 | 2.1 C                                  |
| PCB 148 (BZ)                              | 0.0058 Q J                            | 0.0067 Q J                               | 0.0077 J                              | 0.0023 Q J                             | 0.0072 J                               | 0.0092 J                               |
| PCB 149 (BZ)                              | 0.63 C147                             | 0.90 C147                                | 0.70 C147                             | 0.29 C147                              | 0.73 C147                              | 2.1 C147                               |
| PCB 150 (BZ)                              | 0.0049 Q J                            | 0.0049 J                                 | 0.0044 J                              | 0.0022 Q J                             | 0.0040 J                               | 0.0088 J                               |
| PCB 151 (BZ)                              | 0.24 Q C135                           | 0.42 C135                                | 0.31 C135                             | 0.12 C135                              | 0.32 C135                              | 0.94 C135                              |
| PCB 152 (BZ)                              | 0.0020 Q J                            | 0.012 U                                  | 0.0023 J                              | 0.0096 U                               | 0.0046 J                               | 0.0042 J                               |
| PCB 153 (BZ)                              | 1.0 C                                 | 1.5 C                                    | 1.2 C                                 | 0.46 C                                 | 1.2 C                                  | 3.0 C                                  |
| PCB 154 (BZ)                              | 0.037                                 | 0.042                                    | 0.029 Q                               | 0.013                                  | 0.033                                  | 0.047                                  |
| PCB 155 (BZ)                              | 0.0099 U                              | 0.012 U                                  | 0.011 U                               | 0.0096 U                               | 0.0095 U                               | 0.0050 J                               |
| PCB 156 (BZ)                              | 0.091 C                               | 0.13 C                                   | 0.10 C                                | 0.047 C                                | 0.11 C                                 | 0.20 C                                 |
| PCB 157 (BZ)                              | 0.091 C156                            | 0.13 C156                                | 0.10 C156                             | 0.047 C156                             | 0.11 C156                              | 0.20 C156                              |
| PCB 158 (BZ)                              | 0.057                                 | 0.085                                    | 0.072                                 | 0.026                                  | 0.068                                  | 0.19                                   |
| PCB 159 (BZ)                              | 0.0045 J                              | 0.0076 Q J                               | 0.0035 Q J                            | 0.0018 Q J                             | 0.0069 J                               | 0.022                                  |
| PCB 160 (BZ)                              | 1.1 C129                              | 1.7 C129                                 | 1.3 C129                              | 0.50 C129                              | 1.4 C129                               | 3.3 C129                               |
| PCB 161 (BZ)                              | 0.0099 U                              | 0.012 U                                  | 0.011 U                               | 0.0096 U                               | 0.0095 U                               | 0.011 U                                |
| PCB 162 (BZ)                              | 0.0041 Q J                            | 0.0077 J                                 | 0.0057 J                              | 0.0024 Q J                             | 0.0054 Q J                             | 0.011 J                                |
| PCB 163 (BZ)                              | 1.1 C129                              | 1.7 C129                                 | 1.3 C129                              | 0.50 C129                              | 1.4 C129                               | 3.3 C129                               |
| PCB 164 (BZ)                              | 0.043                                 | 0.067                                    | 0.052                                 | 0.022                                  | 0.056                                  | 0.16                                   |
| PCB 165 (BZ)                              | 0.0019 Q J                            | 0.0065 J                                 | 0.0032 Q J                            | 0.0096 U                               | 0.0025 Q J                             | 0.0032 Q J                             |
| PCB 166 (BZ)                              | 0.16 C128                             | 0.24 C128                                | 0.20 C128                             | 0.078 C128                             | 0.20 C128                              | 0.42 C128                              |
| PCB 167 (BZ)                              | 0.045                                 | 0.059                                    | 0.043                                 | 0.021                                  | 0.046                                  | 0.088                                  |
| PCB 168 (BZ)                              | 1.0 C153                              | 1.5 C153                                 | 1.2 C153                              | 0.46 C153                              | 1.2 C153                               | 3.0 C153                               |
| PCB 169 (BZ)                              | 0.0044 Q J                            | 0.0072 Q J                               | 0.0050 Q J                            | 0.0022 Q J                             | 0.0078 Q J                             | 0.016 Q                                |
| PCB 170 (BZ)                              | 0.18                                  | 0.31                                     | 0.20                                  | 0.086                                  | 0.26                                   | 0.84                                   |
| PCB 171 (BZ)                              | 0.075 C                               | 0.12 C                                   | 0.082 C                               | 0.033 C                                | 0.084 C                                | 0.27 C                                 |
| PCB 172 (BZ)                              | 0.035                                 | 0.062                                    | 0.044                                 | 0.017                                  | 0.053                                  | 0.16                                   |
| PCB 173 (BZ)                              | 0.075 C171                            | 0.12 C171                                | 0.082 C171                            | 0.033 C171                             | 0.084 C171                             | 0.27 C171                              |
| PCB 174 (BZ)                              | 0.12                                  | 0.22                                     | 0.14                                  | 0.061                                  | 0.23                                   | 0.76                                   |
| PCB 175 (BZ)                              | 0.010 Q                               | 0.019                                    | 0.012                                 | 0.0053 Q J                             | 0.014                                  | 0.042                                  |
| PCB 176 (BZ)                              | 0.023                                 | 0.040                                    | 0.026                                 | 0.010                                  | 0.030                                  | 0.11                                   |
| PCB 177 (BZ)                              | 0.20                                  | 0.30                                     | 0.22                                  | 0.089                                  | 0.25                                   | 0.70                                   |
| PCB 178 (BZ)                              | 0.096                                 | 0.14                                     | 0.11                                  | 0.046                                  | 0.12                                   | 0.29                                   |
| PCB 179 (BZ)                              | 0.12                                  | 0.18                                     | 0.12                                  | 0.057                                  | 0.16                                   | 0.43                                   |
| PCB 180 (BZ)                              | 0.39 C                                | 0.64 C                                   | 0.41 C                                | 0.18 C                                 | 0.68 C                                 | 1.8 C                                  |
| PCB 181 (BZ)                              | 0.0015 Q J                            | 0.012 U                                  | 0.011 U                               | 0.0096 U                               | 0.0030 J                               | 0.0035 Q J                             |
| PCB 182 (BZ)                              | 0.0019 Q J                            | 0.0079 J                                 | 0.0061 Q J                            | 0.0025 Q J                             | 0.0057 Q J                             | 0.0033 Q J                             |
| PCB 183 (BZ)                              | 0.15 C                                | 0.24 C                                   | 0.17 C                                | 0.071 C                                | 0.22 C                                 | 0.64 C                                 |
| PCB 184 (BZ)                              | 0.0027 J                              | 0.0025 Q J                               | 0.0031 J                              | 0.0096 U                               | 0.0030 Q J                             | 0.0049 J                               |

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|---|---------------------------------------|--|---------------------------------------|--|--|--|
| PCB 185 (BZ)                              | 0.15 C183                             | 0.24 C183                                | 0.17 C183                             | 0.071 C183                             | 0.22 C183                              | 0.64 C183                              |
| PCB 186 (BZ)                              | 0.0099 U                              | 0.012 U                                  | 0.011 U                               | 0.0096 U                               | 0.0095 U                               | 0.011 U                                |
| PCB 187 (BZ)                              | 0.54                                  | 0.76                                     | 0.58                                  | 0.24                                   | 0.75                                   | 1.6                                    |
| PCB 188 (BZ)                              | 0.0098 Q J                            | 0.010 J                                  | 0.012                                 | 0.0043 Q J                             | 0.011                                  | 0.015                                  |
| PCB 189 (BZ)                              | 0.010                                 | 0.016                                    | 0.011 Q                               | 0.0052 J                               | 0.012                                  | 0.034                                  |
| PCB 190 (BZ)                              | 0.023                                 | 0.045                                    | 0.028                                 | 0.014                                  | 0.043                                  | 0.13                                   |
| PCB 191 (BZ)                              | 0.0076 J                              | 0.011 Q J                                | 0.0094 Q J                            | 0.0029 Q J                             | 0.011                                  | 0.034                                  |
| PCB 192 (BZ)                              | 0.0099 U                              | 0.012 U                                  | 0.011 U                               | 0.0096 U                               | 0.0095 U                               | 0.011 U                                |
| PCB 193 (BZ)                              | 0.39 C180                             | 0.64 C180                                | 0.41 C180                             | 0.18 C180                              | 0.68 C180                              | 1.8 C180                               |
| PCB 194 (BZ)                              | 0.17                                  | 0.27                                     | 0.18                                  | 0.073                                  | 0.37                                   | 0.60                                   |
| PCB 195 (BZ)                              | 0.042                                 | 0.071                                    | 0.051                                 | 0.022                                  | 0.095                                  | 0.20                                   |
| PCB 196 (BZ)                              | 0.086                                 | 0.12                                     | 0.085                                 | 0.036                                  | 0.16                                   | 0.25                                   |
| PCB 197 (BZ)                              | 0.015                                 | 0.021                                    | 0.016 Q                               | 0.0055 Q J                             | 0.018                                  | 0.031                                  |
| PCB 198 (BZ)                              | 0.20 C                                | 0.33 C                                   | 0.21 C                                | 0.096 C                                | 0.46 C                                 | 0.64 C                                 |
| PCB 199 (BZ)/200 (IUPAC)                  | 0.012                                 | 0.019                                    | 0.014                                 | 0.0048 Q J                             | 0.035                                  | 0.047                                  |
| PCB 200 (BZ)/201 (IUPAC)                  | 0.050                                 | 0.066                                    | 0.054                                 | 0.021                                  | 0.065                                  | 0.094                                  |
| PCB 201 (BZ)/199 (IUPAC)                  | 0.20 C198                             | 0.33 C198                                | 0.21 C198                             | 0.096 C198                             | 0.46 C198                              | 0.64 C198                              |
| PCB 202 (BZ)                              | 0.13                                  | 0.17                                     | 0.14                                  | 0.056                                  | 0.17                                   | 0.24                                   |
| PCB 203 (BZ)                              | 0.082                                 | 0.13                                     | 0.10                                  | 0.040                                  | 0.24                                   | 0.27                                   |
| PCB 204 (BZ)                              | 0.0099 U                              | 0.012 U                                  | 0.011 U                               | 0.0096 U                               | 0.0014 Q J                             | 0.0018 Q J                             |
| PCB 205 (BZ)                              | 0.0057 Q J                            | 0.012 J                                  | 0.0064 Q J                            | 0.0036 J                               | 0.015                                  | 0.027                                  |
| PCB 206 (BZ)                              | 0.17                                  | 0.29                                     | 0.20                                  | 0.085                                  | 0.30                                   | 0.35                                   |
| PCB 207 (BZ)                              | 0.031                                 | 0.041                                    | 0.035                                 | 0.015                                  | 0.041                                  | 0.056                                  |
| PCB 208 (BZ)                              | 0.11                                  | 0.15                                     | 0.12                                  | 0.047 Q                                | 0.13                                   | 0.18                                   |
| PCB 209 (BZ)                              | 0.21                                  | 0.63                                     | 0.29                                  | 0.12                                   | 0.21                                   | 0.40                                   |

Notes:

B : Method blank contamination. The associated method blank contains the target analyte at a reportable level.

B C : Co-eluting isomer.

C : Co-eluting isomer.

C J : Co-eluting isomer.

C139 J : Estimated result. Result is less than the reporting limit.

J : Estimated result. Result is less than the reporting limit.

ng/g: nanograms per gram

Q : Estimated maximum possible concentration (EMPC).

Q B J : Estimated maximum possible concentration (EMPC).

Q C : Co-eluting isomer.

Q C J : Estimated result. Result is less than the reporting limit.

Q C135 : Estimated maximum possible concentration (EMPC).

Q C43 J : Estimated maximum possible concentration (EMPC).

Q J : Estimated maximum possible concentration (EMPC).

U : Indicates the analyte was analyzed for but not detected.

**Table 12:**  
**Summary of Surface Water Sample Results - Avalon Area**  
**NJIWW Water 2014**

| Location ID<br>Lab Sample ID<br>Sampling Date | NJDEP Surface Water<br>Quality Criteria (Saline) for<br>Toxic Substances (Human<br>Health) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Acute) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Chronic) | AV-WATER<br>180-29825-11<br>2/11/2014 | AV-WATER DUP<br>180-29825-12<br>2/11/2014 | AV-RINSE<br>180-29825-13<br>2/12/2014 |
|---|--|--|--|---------------------------------------|---|---------------------------------------|
| <b>Volatile Organic Compounds (ug/L)</b>      |  |  |  |                                       |   |                                       |
| 1,1,1-Trichloroethane                         | 2,600  | NC   | NC   | 1.0 U                                 | 1.0 U                                     | 1.0 U                                 |
| 1,1,2,2-Tetrachloroethane                     | 110  | NC   | NC   | 0.93 U                                | 0.93 U                                    | 0.93 U                                |
| 1,1,2-Trichloroethane                         | 350  | NC   | NC   | 1.2 U                                 | 1.2 U                                     | 1.2 U                                 |
| 1,1-Dichloroethane                            | NC   | NC   | NC   | 1.0 U                                 | 1.0 U                                     | 1.0 U                                 |
| 1,1-Dichloroethene                            | NC   | NC   | NC   | 1.1 U                                 | 1.1 U                                     | 1.1 U                                 |
| 1,2-Dichloroethane                            | 28   | NC   | NC   | 0.96 U                                | 0.96 U                                    | 0.96 U                                |
| 1,2-Dichloroethene, Total                     | NC   | NC   | NC   | 0.95 U                                | 0.95 U                                    | 0.95 U                                |
| 1,2-Dichloropropane                           | 15   | NC   | NC   | 1.3 U                                 | 1.3 U                                     | 1.3 U                                 |
| 2-Butanone                                    | NC   | NC   | NC   | 1.1 U                                 | 1.1 U                                     | 1.1 U                                 |
| 2-Hexanone                                    | NC   | NC   | NC   | 0.57 U                                | 0.57 U                                    | 0.57 U                                |
| 4-Methyl-2-pentanone                          | NC   | NC   | NC   | 0.59 U                                | 0.59 U                                    | 0.59 U                                |
| Acetone                                       | NC   | NC   | NC   | 5.0 U                                 | 5.0 U                                     | 5.0 U                                 |
| Benzene                                       | 3.3  | NC   | NC   | 0.99 U                                | 0.99 U                                    | 0.99 U                                |
| Bromodichloromethane                          | 17   | NC   | NC   | 0.93 U                                | 0.93 U                                    | 0.93 U                                |
| Bromoform                                     | 140  | NC   | NC   | 1.1 U                                 | 1.1 U                                     | 1.1 U                                 |
| Bromomethane                                  | 1,500  | NC   | NC   | 1.6 U                                 | 1.6 U                                     | 1.6 U                                 |
| Carbon disulfide                              | NC   | NC   | NC   | 1.1 U                                 | 1.1 U                                     | 1.1 U                                 |
| Carbon tetrachloride                          | 2.3  | NC   | NC   | 1.1 U                                 | 1.1 U                                     | 1.1 U                                 |
| Chlorobenzene                                 | 2,500  | NC   | NC   | 0.53 U                                | 0.53 U                                    | 0.53 U                                |
| Chloroethane                                  | NC   | NC   | NC   | 0.75 U                                | 0.75 U                                    | 0.75 U                                |
| Chloroform                                    | 2,100  | NC   | NC   | 1.0 U                                 | 1.0 U                                     | 1.0 U                                 |
| Chloromethane                                 | NC   | NC   | NC   | 1.4 U                                 | 1.4 U                                     | 1.4 U                                 |
| cis-1,3-Dichloropropene                       | 21   | NC   | NC   | 0.73 U                                | 0.73 U                                    | 0.73 U                                |
| Dibromochloromethane                          | 13   | NC   | NC   | 0.65 U                                | 0.65 U                                    | 0.65 U                                |
| Ethylbenzene                                  | 2,100  | NC   | NC   | 0.62 U                                | 0.62 U                                    | 0.62 U                                |
| Methylene chloride                            | 310  | NC   | NC   | 1.1 U                                 | 1.1 U                                     | 1.1 U                                 |
| Styrene                                       | NC   | NC   | NC   | 0.64 U                                | 0.64 U                                    | 0.64 U                                |
| Tetrachloroethene                             | NC   | NC   | NC   | 0.82 U                                | 0.82 U                                    | 0.82 U                                |
| Toluene                                       | 15,000   | NC   | NC   | 0.85 U                                | 0.85 U                                    | 0.85 U                                |
| trans-1,3-Dichloropropene                     | 21   | NC   | NC   | 0.58 U                                | 0.58 U                                    | 0.58 U                                |
| Trichloroethene                               | 12   | NC   | NC   | 0.80 U                                | 0.80 U                                    | 0.80 U                                |
| Vinyl chloride                                | 8.1  | NC   | NC   | 1.3 U                                 | 1.3 U                                     | 1.3 U                                 |
| Xylenes, Total                                | NC   | NC   | NC   | 2.0 U                                 | 2.0 U                                     | 2.0 U                                 |
| <b>Semi-Volatile Organic Compounds (ug/L)</b> |  |  |  |                                       |   |                                       |
| 1,1'-Biphenyl                                 | NC   | NC   | NC   | 0.039 U                               | 0.040 U                                   | 0.040 U                               |
| 2,2'-oxybis(1-chloropropane)                  | NC   | NC   | NC   | 0.019 U                               | 0.019 U                                   | 0.019 U                               |
| 2,4,5-Trichlorophenol                         | 3,600  | NC   | NC   | 0.14 U                                | 0.15 U                                    | 0.15 U                                |
| 2,4,6-Trichlorophenol                         | 1  | NC   | NC   | 0.17 U                                | 0.17 U                                    | 0.17 U                                |
| 2,4-Dichlorophenol                            | 290  | NC   | NC   | 0.032 U                               | 0.032 U                                   | 0.032 U                               |
| 2,4-Dimethylphenol                            | NC   | NC   | NC   | 0.080 U                               | 0.081 U                                   | 0.082 U                               |



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NJIWW Water 2014**

| Location ID<br>Lab Sample ID<br>Sampling Date | NJDEP Surface Water<br>Quality Criteria (Saline) for<br>Toxic Substances (Human<br>Health) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Acute) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Chronic) | AV-WATER<br>180-29825-11<br>2/11/2014 | AV-WATER DUP<br>180-29825-12<br>2/11/2014 | AV-RINSE<br>180-29825-13<br>2/12/2014 |
|---|--|--|--|---------------------------------------|---|---------------------------------------|
| 2,4-Dinitrophenol                             | 5,300  | NC   | NC   | 0.58 U                                | 0.58 U                                    | 0.59 U                                |
| 2,4-Dinitrotoluene                            | 3.4  | NC   | NC   | 0.051 U                               | 0.051 U                                   | 0.052 U                               |
| 2,6-Dinitrotoluene                            | NC   | NC   | NC   | 0.075 U                               | 0.076 U                                   | 0.077 U                               |
| 2-Chloronaphthalene                           | 1,600  | NC   | NC   | 0.014 U                               | 0.014 U                                   | 0.015 U                               |
| 2-Chlorophenol                                | 150  | NC   | NC   | 0.16 U                                | 0.16 U                                    | 0.16 U                                |
| 2-Methylnaphthalene                           | NC   | NC   | NC   | 0.012 U                               | 0.012 U                                   | 0.012 U                               |
| 2-Methylphenol                                | NC   | NC   | NC   | 0.081 U                               | 0.082 U                                   | 0.083 U                               |
| 2-Nitroaniline                                | NC   | NC   | NC   | 0.33 U                                | 0.33 U                                    | 0.34 U                                |
| 2-Nitrophenol                                 | NC   | NC   | NC   | 0.16 U                                | 0.16 U                                    | 0.16 U                                |
| 3,3'-Dichlorobenzidine                        | 0.028  | NC   | NC   | 0.11 U                                | 0.11 U                                    | 0.11 U                                |
| 3-Nitroaniline                                | NC   | NC   | NC   | 0.30 U                                | 0.31 U                                    | 0.31 U                                |
| 4,6,-Dinitro-2-methylphenol                   | NC   | NC   | NC   | 0.21 U                                | 0.21 U                                    | 0.21 U                                |
| 4-Bromophenyl phenyl ether                    | NC   | NC   | NC   | 0.060 U                               | 0.060 U                                   | 0.061 U                               |
| 4-Chloro-3-methylphenol                       | NC   | NC   | NC   | 0.071 U                               | 0.072 U                                   | 0.073 U                               |
| 4-Chloroaniline                               | NC   | NC   | NC   | 0.083 U                               | 0.084 U                                   | 0.085 U                               |
| 4-Chlorophenyl phenyl ether                   | NC   | NC   | NC   | 0.047 U                               | 0.048 U                                   | 0.048 U                               |
| 4-Nitroaniline                                | NC   | NC   | NC   | 0.16 U                                | 0.16 U                                    | 0.17 U                                |
| 4-Nitrophenol                                 | NC   | NC   | NC   | 0.61 U                                | 0.62 U                                    | 0.62 U                                |
| Acenaphthene                                  | 990  | NC   | NC   | 0.014 U                               | 0.014 U                                   | 0.014 U                               |
| Acenaphthylene                                | NC   | NC   | NC   | 0.014 U                               | 0.014 U                                   | 0.015 U                               |
| Acetophenone                                  | NC   | NC   | NC   | 0.075 U                               | 0.076 U                                   | 0.077 U                               |
| Anthracene                                    | 40,000   | NC   | NC   | 0.015 U                               | 0.015 U                                   | 0.015 U                               |
| Atrazine                                      | NC   | NC   | NC   | 0.084 U                               | 0.085 U                                   | 0.086 U                               |
| Benzaldehyde                                  | NC   | NC   | NC   | 0.14 U                                | 0.14 U                                    | 0.14 U                                |
| Benzo(a)anthracene                            | 0.18   | NC   | NC   | 0.014 U                               | 0.014 U                                   | 0.014 U                               |
| Benzo(a)pyrene                                | 0.018  | NC   | NC   | 0.013 U                               | 0.013 U                                   | 0.013 U                               |
| Benzo(b)fluoranthene                          | 0.18   | NC   | NC   | 0.015 U                               | 0.015 U                                   | 0.015 U                               |
| Benzo(ghi)perylene                            | NC   | NC   | NC   | 0.014 U                               | 0.014 U                                   | 0.015 U                               |
| Benzo(k)fluoranthene                          | 1.8  | NC   | NC   | 0.052 U                               | 0.052 U                                   | 0.053 U                               |
| Bis(2-chloroethoxy)methane                    | NC   | NC   | NC   | 0.055 U                               | 0.055 U                                   | 0.056 U                               |
| Bis(2-chloroethyl)ether                       | 0.530  | NC   | NC   | 0.024 U                               | 0.024 U                                   | 0.024 U                               |
| Bis(2-Ethylhexyl)phthalate                    | 2.2  | NC   | NC   | 1.2 U                                 | 1.2 U                                     | 1.2 U                                 |
| Butyl benzyl phthalate                        | 190  | NC   | NC   | 0.13 J                                | 0.14 U                                    | 0.14 U                                |
| Caprolactam                                   | NC   | NC   | NC   | 1.1 U                                 | 1.1 U                                     | 1.1 U                                 |
| Carbazole                                     | NC   | NC   | NC   | 0.015 U                               | 0.015 U                                   | 0.015 U                               |
| Chrysene                                      | 18   | NC   | NC   | 0.013 U                               | 0.013 U                                   | 0.013 U                               |
| Dibenz(a,h)anthracene                         | 0.018  | NC   | NC   | 0.015 U                               | 0.015 U                                   | 0.015 U                               |
| Dibenzofuran                                  | NC   | NC   | NC   | 0.058 U                               | 0.059 U                                   | 0.059 U                               |
| Diethyl phthalate                             | 44,000   | NC   | NC   | 0.39 JB                               | 0.40 JB                                   | 0.23 JB                               |
| Dimethyl phthalate                            | NC   | NC   | NC   | 0.072 U                               | 0.073 U                                   | 0.074 U                               |
| Di-n-butylphthalate                           | NC   | NC   | NC   | 0.12 U                                | 0.12 U                                    | 0.12 U                                |
| Di-n-octylphthalate                           | NC   | NC   | NC   | 0.19 U                                | 0.20 U                                    | 0.20 U                                |

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NJIWW Water 2014**

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|--|--|--|--|---------------------------------------|---|---------------------------------------|
| Fluoranthene                                   | 140  | NC   | NC   | 0.015 U                               | 0.015 U                                   | 0.016 U                               |
| Fluorene                                       | 5,300  | NC   | NC   | 0.020 U                               | 0.021 U                                   | 0.021 U                               |
| Hexachlorobenzene                              | 0.00029  | NC   | NC   | 0.017 U                               | 0.017 U                                   | 0.018 U                               |
| Hexachlorobutadiene                            | 18   | NC   | NC   | 0.016 U                               | 0.016 U                                   | 0.016 U                               |
| Hexachlorocyclopentadiene                      | 1,100  | NC   | NC   | 0.049 U                               | 0.049 U                                   | 0.050 U                               |
| Hexachloroethane                               | 3.3  | NC   | NC   | 0.059 U                               | 0.060 U                                   | 0.060 U                               |
| Indeno(1,2,3-cd)Pyrene                         | 0.18   | NC   | NC   | 0.019 U                               | 0.019 U                                   | 0.019 U                               |
| Isophorone                                     | 960  | NC   | NC   | 0.061 U                               | 0.061 U                                   | 0.062 U                               |
| Methylphenol, 3 & 4                            | NC   | NC   | NC   | 0.085 U                               | 0.086 U                                   | 0.087 U                               |
| Naphthalene                                    | NC   | NC   | NC   | 0.013 U                               | 0.013 U                                   | 0.013 U                               |
| Nitrobenzene                                   | 690  | NC   | NC   | 0.080 U                               | 0.080 U                                   | 0.081 U                               |
| n-Nitrosodi-n-propylamine                      | 0.5100   | NC   | NC   | 0.029 U                               | 0.029 U                                   | 0.030 U                               |
| n-Nitrosodiphenylamine                         | 6  | NC   | NC   | 0.080 U                               | 0.081 U                                   | 0.082 U                               |
| Pentachlorophenol                              | 3  | 13   | 7.9  | 0.063 U                               | 0.063 U                                   | 0.064 U                               |
| Phenanthrene                                   | NC   | NC   | NC   | 0.040 U                               | 0.041 U                                   | 0.041 U                               |
| Phenol   | 860,000  | NC   | NC   | 0.055 U                               | 0.055 U                                   | 0.056 U                               |
| Pyrene   | 4,000  | NC   | NC   | 0.015 U                               | 0.015 U                                   | 0.015 U                               |
| <b>Organochlorine Pesticides (ug/L)</b>        |  |  |  |                                       |   |                                       |
| 4,4'-DDD                                       | 0.00031  | NC   | NC   | 0.00064 U                             | 0.00064 U                                 | 0.00064 U                             |
| 4,4'-DDE                                       | 0.00022  | NC   | NC   | 0.00075 U                             | 0.00075 U                                 | 0.00075 U                             |
| 4,4'-DDT                                       | 0.00022  | 0.13   | 0.0010   | 0.00070 U                             | 0.00070 U                                 | 0.00070 U                             |
| Aldrin   | 0.00005  | 1.3  | NC   | 0.00079 U                             | 0.00079 U                                 | 0.00079 U                             |
| alpha-BHC                                      | 0.0049   | NC   | NC   | 0.00063 U                             | 0.00063 U                                 | 0.00063 U                             |
| alpha-Chlordane                                | 0.00011  | 0.09   | 0.004  | 0.00093 U                             | 0.00093 U                                 | 0.00093 U                             |
| beta-BHC                                       | 0.017  | NC   | NC   | 0.00095 U                             | 0.00095 U                                 | 0.00095 U                             |
| delta-BHC                                      | NC   | NC   | NC   | 0.00036 U                             | 0.00036 U                                 | 0.00036 U                             |
| Dieldrin                                       | 0.000054   | 0.71   | 0.0019   | 0.00078 U                             | 0.00078 U                                 | 0.00078 U                             |
| Endosulfan I                                   | 89   | 0.034  | 0.0087   | 0.00090 U                             | 0.00090 U                                 | 0.00090 U                             |
| Endosulfan II                                  | 89   | 0.034  | 0.0087   | 0.00093 U                             | 0.00093 U                                 | 0.00093 U                             |
| Endosulfan sulfate                             | 89   | NC   | NC   | 0.00054 U                             | 0.00054 U                                 | 0.00054 U                             |
| Endrin   | 0.06   | 0.037  | 0.0023   | 0.00091 U                             | 0.00091 U                                 | 0.00091 U                             |
| Endrin aldehyde                                | 0.06   | NC   | NC   | 0.00086 U                             | 0.00086 U                                 | 0.00086 U                             |
| Endrin ketone                                  | NC   | NC   | NC   | 0.00088 U                             | 0.00088 U                                 | 0.00088 U                             |
| gamma-BHC (Lindane)                            | 1.8  | 0.16   | NC   | 0.00076 U                             | 0.00076 U                                 | 0.00076 U                             |
| gamma-Chlordane                                | 0.00011  | 0.09   | 0.004  | 0.00091 U                             | 0.00091 U                                 | 0.00091 U                             |
| Heptachlor                                     | 0.000079   | 0.053  | 0.0036   | 0.00094 U                             | 0.00094 U                                 | 0.0016                                |
| Heptachlor epoxide                             | 0.000039   | 0.053  | 0.0036   | 0.00092 U                             | 0.00092 U                                 | 0.00092 U                             |
| Methoxychlor                                   | NC   | NC   | 0.03   | 0.00087 U                             | 0.00087 U                                 | 0.00087 U                             |
| Toxaphene                                      | 0.00028  | 0.21   | 0.0002   | 0.018 U                               | 0.018 U                                   | 0.018 U                               |
| <b>Polychlorinated Biphenyls (PCBs) (ug/L)</b> |  |  |  |                                       |   |                                       |
| PCB-1016                                       | 0.000064   | NC   | 0.03   | 0.0024 U                              | 0.0024 U                                  | 0.0024 U                              |
| PCB-1221                                       | 0.000064   | NC   | 0.03   | 0.0024 U                              | 0.0024 U                                  | 0.0024 U                              |
| PCB-1232                                       | 0.000064   | NC   | 0.03   | 0.0028 U                              | 0.0028 U                                  | 0.0028 U                              |
| PCB-1242                                       | 0.000064   | NC   | 0.03   | 0.0018 U                              | 0.0018 U                                  | 0.0018 U                              |

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NJIWW Water 2014**

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|---|--|--|--|---------------------------------------|---|---------------------------------------|
| PCB-1248                                      | 0.000064   | NC   | 0.03   | 0.0022 U                              | 0.0022 U                                  | 0.0022 U                              |
| PCB-1254                                      | 0.000064   | NC   | 0.03   | 0.0022 U                              | 0.0022 U                                  | 0.0022 U                              |
| PCB-1260                                      | 0.000064   | NC   | 0.03   | 0.0013 U                              | 0.0013 U                                  | 0.0013 U                              |
| <b>Inorganics (ug/L)</b>                      |  |  |  |                                       |   |                                       |
| Aluminum                                      | NC   | NC   | NC   | 310                                   | 330                                       | 2.6 U                                 |
| Antimony                                      | 640  | NC   | NC   | 0.41 JB                               | 0.38 JB                                   | 0.083 JB                              |
| Arsenic                                       | 0.061  | 69   | 36   | 13                                    | 12  | 0.29 U                                |
| Barium  | NC   | NC   | NC   | 12 J                                  | 13 J                                      | 0.098 U                               |
| Beryllium                                     | 42   | NC   | NC   | 0.18 U                                | 0.19 J                                    | 0.037 U                               |
| Cadmium                                       | 16   | 40   | 8.8  | 0.57 U                                | 0.57 U                                    | 0.11 U                                |
| Calcium                                       | NC   | NC   | NC   | 330,000                               | 320,000                                   | 59 J                                  |
| Chromium                                      | 750  | NC   | NC   | 5.7 J                                 | 5.8 J                                     | 2.9                                   |
| Cobalt  | NC   | NC   | NC   | 0.77 J                                | 0.78 J                                    | 0.026 U                               |
| Copper  | NC   | 4.8  | 3.1  | 3.4 J                                 | 2.7 J                                     | 20                                    |
| Iron  | NC   | NC   | NC   | 390                                   | 430                                       | 6.1 U                                 |
| Lead  | NC   | 210  | 24   | 0.31 JB                               | 0.31 JB                                   | 0.019 U                               |
| Magnesium                                     | NC   | NC   | NC   | 1,100,000                             | 1,100,000                                 | 13 J                                  |
| Manganese                                     | 100  | NC   | NC   | 16 J                                  | 17 J                                      | 0.32 J                                |
| Mercury                                       | 0.051  | 1.800  | 0.940  | 0.0024 B                              | 0.003 B                                   | 0.0058 B                              |
| Nickel  | 1,700  | 64   | 22   | 0.87 U                                | 0.87 U                                    | 1.2                                   |
| Potassium                                     | NC   | NC   | NC   | 310,000 B                             | 300,000 B                                 | 40 JB                                 |
| Selenium                                      | 4,200  | 290  | 71   | 57                                    | 58  | 0.49 J                                |
| Silver  | 40,000   | 1.9  | NC   | 0.18 U                                | 0.18 U                                    | 0.049 J                               |
| Sodium  | NC   | NC   | NC   | 8,800,000 B                           | 8,800,000 B                               | 110 B                                 |
| Thallium                                      | 0.47   | NC   | NC   | 0.21 J                                | 0.076 U                                   | 0.015 U                               |
| Vanadium                                      | NC   | NC   | NC   | 4.9 J                                 | 3.8 J                                     | 1.1                                   |
| Zinc  | 26,000   | 90   | 81   | 6.2 J                                 | 7.3 J                                     | 4.7 J                                 |
| Mercury, Solid or Semisolid Waste             | 0.051  | 1.8  | 0.94   | 0.038 U                               | 0.038 U                                   | 0.038 U                               |
| <b>General Chemistry</b>                      |  |  |  |                                       |   |                                       |
| Cyanide, Total (ug/L)                         | 140  | 1.0  | 1.0  | 1.5 U                                 | 1.5 U                                     | 1.5 U                                 |
| Total Suspended Solids (mg/L)                 | NC   | NC   | NC   | 29                                    | 23  | 2.0 U                                 |
| Total Organic Carbon (mg/L)                   | NC   | NC   | NC   | 0.89 J                                | 0.80 J                                    | 0.40 J                                |
| <b>Dioxins (pg/L)</b>                         |  |  |  |                                       |   |                                       |
| 1,2,3,4,6,7,8-HpCDD                           | NC   | NC   | NC   | 47 U                                  | 47 U                                      | 48 U                                  |
| 1,2,3,4,6,7,8-HpCDF                           | NC   | NC   | NC   | 47 U                                  | 47 U                                      | 48 U                                  |
| 1,2,3,4,7,8,9-HpCDF                           | NC   | NC   | NC   | 47 U                                  | 47 U                                      | 48 U                                  |
| 1,2,3,4,7,8-HxCDD                             | NC   | NC   | NC   | 47 U                                  | 47 U                                      | 48 U                                  |
| 1,2,3,4,7,8-HxCDF                             | NC   | NC   | NC   | 47 U                                  | 47 U                                      | 48 U                                  |
| 1,2,3,6,7,8-HxCDD                             | NC   | NC   | NC   | 47 U                                  | 47 U                                      | 48 U                                  |
| 1,2,3,6,7,8-HxCDF                             | NC   | NC   | NC   | 47 U                                  | 47 U                                      | 48 U                                  |
| 1,2,3,7,8,9-HxCDD                             | NC   | NC   | NC   | 47 U                                  | 47 U                                      | 48 U                                  |
| 1,2,3,7,8,9-HxCDF                             | NC   | NC   | NC   | 47 U                                  | 47 U                                      | 48 U                                  |
| 1,2,3,7,8-PeCDD                               | NC   | NC   | NC   | 47 U                                  | 47 U                                      | 48 U                                  |
| 1,2,3,7,8-PeCDF                               | NC   | NC   | NC   | 47 U                                  | 47 U                                      | 48 U                                  |

**Table 12:  
Summary of Surface Water Sample Results - Avalon Area  
NJIWW Water 2014**

| Location ID<br>Lab Sample ID<br>Sampling Date | NJDEP Surface Water<br>Quality Criteria (Saline) for<br>Toxic Substances (Human<br>Health) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Acute) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Chronic) | AV-WATER<br>180-29825-11<br>2/11/2014 | AV-WATER DUP<br>180-29825-12<br>2/11/2014 | AV-RINSE<br>180-29825-13<br>2/12/2014 |
|---|--|--|--|---------------------------------------|---|---------------------------------------|
| 2,3,4,6,7,8-HxCDF                             | NC   | NC   | NC   | 47 U                                  | 47 U                                      | 48 U                                  |
| 2,3,4,7,8-PeCDF                               | NC   | NC   | NC   | 47 U                                  | 47 U                                      | 48 U                                  |
| 2,3,7,8-TCDD                                  | 0.0051   | NC   | NC   | 9.5 U                                 | 9.4 U                                     | 9.5 U                                 |
| 2,3,7,8-TCDF                                  | NC   | NC   | NC   | 9.5 U                                 | 9.4 U                                     | 9.5 U                                 |
| OCDD  | NC   | NC   | NC   | 20 JB                                 | 25 JB                                     | 4.9 JB                                |
| OCDF  | NC   | NC   | NC   | 95 U                                  | 94 U                                      | 95 U                                  |

Notes:

^ B : ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC exceeds the control limits.

B : Compound was found in the blank and sample.

B J : Estimated result. Result is less than the reporting limit.

J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

J B : Compound was found in the blank and sample.

mg/L - milligrams per liter

NC - No Criteria

ng/L - nanograms per liter

NJDEP - New Jersey Department of Environmental Protection

pg/L - picograms per liter

Q B J : Estimated result. Result is less than the reporting limit.

U : Indicates the analyte was analyzed for but not detected.

ug/L - micrograms per liter

Values shaded in blue exceed the NJDEP Surface Water (Saline) Quality Criteria for Toxic Substances (Human Health)

Values shaded in pink exceed the NJDEP Surface Water (Saline) Quality Standards for aquatic life (Acute)

Values shaded in green exceed the NJDEP Surface Water (Saline) Quality Standards for aquatic life (Chronic)

Values shaded in orange exceed more than one criteria value

**Table 13:**  
**Summary of PCB Congeners - Surface Water Sample Results - Avalon Area**  
**NJIIWW Water 2014**

| Location ID<br>Sample ID<br>Sampling Date | AV-WATER<br>180-29825-11<br>2/11/2014 | AV-WATER DUP<br>180-29825-12<br>2/11/2014 | AV-RINSE<br>180-29825-13<br>2/12/2014 |
|---|---------------------------------------|---|---------------------------------------|
| <b>CONSTITUENT (ng/L)</b>                 |                                       |   |                                       |
| PCB 1                                     | 0.038 U                               | 0.038 U                                   | 0.038 U                               |
| PCB 2                                     | 0.0023 Q J                            | 0.0033 J                                  | 0.038 U                               |
| PCB 3                                     | 0.0024 Q J                            | 0.0022 Q J                                | 0.038 U                               |
| PCB 4                                     | 0.057 U                               | 0.057 U                                   | 0.057 U                               |
| PCB 5                                     | 0.038 U                               | 0.038 U                                   | 0.038 U                               |
| PCB 6                                     | 0.038 U                               | 0.038 U                                   | 0.038 U                               |
| PCB 7                                     | 0.0032 Q J                            | 0.038 U                                   | 0.0035 Q J                            |
| PCB 8                                     | 0.0064 Q B J                          | 0.0072 Q B J                              | 0.0051 Q B J                          |
| PCB 9                                     | 0.038 U                               | 0.038 U                                   | 0.038 U                               |
| PCB 10                                    | 0.038 U                               | 0.038 U                                   | 0.038 U                               |
| PCB 11                                    | 0.061 Q B                             | 0.072 Q B                                 | 0.0096 Q B J                          |
| PCB 12                                    | 0.0040 Q C J                          | 0.0032 Q C J                              | 0.057 U                               |
| PCB 13                                    | 0.0040 Q C12 J                        | 0.0032 Q C12 J                            | 0.057 U                               |
| PCB 14                                    | 0.038 U                               | 0.038 U                                   | 0.038 U                               |
| PCB 15                                    | 0.0073 Q B J                          | 0.0074 Q B J                              | 0.038 U                               |
| PCB 16                                    | 0.038 U                               | 0.038 U                                   | 0.038 U                               |
| PCB 17                                    | 0.038 U                               | 0.038 U                                   | 0.038 U                               |
| PCB 18                                    | 0.057 U                               | 0.057 U                                   | 0.057 U                               |
| PCB 19                                    | 0.038 U                               | 0.038 U                                   | 0.038 U                               |
| PCB 20                                    | 0.012 C J                             | 0.012 Q C J                               | 0.0030 Q C J                          |
| PCB 21                                    | 0.0034 Q C J                          | 0.0037 C J                                | 0.0024 C J                            |
| PCB 22                                    | 0.0031 Q J                            | 0.0022 Q J                                | 0.038 U                               |
| PCB 23                                    | 0.038 U                               | 0.038 U                                   | 0.038 U                               |
| PCB 24                                    | 0.038 U                               | 0.038 U                                   | 0.038 U                               |
| PCB 25                                    | 0.038 U                               | 0.0022 J                                  | 0.038 U                               |
| PCB 26                                    | 0.038 U                               | 0.038 U                                   | 0.038 U                               |
| PCB 27                                    | 0.038 U                               | 0.038 U                                   | 0.038 U                               |
| PCB 28                                    | 0.012 C20 J                           | 0.012 Q C20 J                             | 0.0030 Q C20 J                        |
| PCB 29                                    | 0.038 U                               | 0.038 U                                   | 0.038 U                               |
| PCB 30                                    | 0.057 U                               | 0.057 U                                   | 0.057 U                               |
| PCB 31                                    | 0.010 J                               | 0.0082 Q J                                | 0.0029 Q J                            |
| PCB 32                                    | 0.0035 Q J                            | 0.0030 Q J                                | 0.038 U                               |
| PCB 33                                    | 0.0034 Q C21 J                        | 0.0037 C21 J                              | 0.0024 C21 J                          |
| PCB 34                                    | 0.038 U                               | 0.038 U                                   | 0.038 U                               |
| PCB 35                                    | 0.038 U                               | 0.038 U                                   | 0.038 U                               |
| PCB 36                                    | 0.038 U                               | 0.038 U                                   | 0.038 U                               |
| PCB 37                                    | 0.0041 Q J                            | 0.0036 Q J                                | 0.038 U                               |
| PCB 38                                    | 0.038 U                               | 0.038 U                                   | 0.038 U                               |
| PCB 39                                    | 0.038 U                               | 0.038 U                                   | 0.038 U                               |
| PCB 40                                    | 0.0031 Q C J                          | 0.038 U                                   | 0.038 U                               |
| PCB 41                                    | 0.0031 Q C40 J                        | 0.038 U                                   | 0.038 U                               |
| PCB 42                                    | 0.038 U                               | 0.038 U                                   | 0.038 U                               |
| PCB 43                                    | 0.038 U                               | 0.038 U                                   | 0.038 U                               |
| PCB 44                                    | 0.0067 B C J                          | 0.0082 B C J                              | 0.0046 Q B C J                        |
| PCB 45                                    | 0.038 U                               | 0.038 U                                   | 0.038 U                               |
| PCB 46                                    | 0.038 U                               | 0.038 U                                   | 0.038 U                               |
| PCB 47                                    | 0.0067 B C44 J                        | 0.0082 B C44 J                            | 0.0046 Q B C44 J                      |
| PCB 48                                    | 0.038 U                               | 0.038 U                                   | 0.038 U                               |

**Table 13:**  
**Summary of PCB Congeners - Surface Water Sample Results - Avalon Area**  
**NJIIWW Water 2014**

| <b>Location ID<br/>Sample ID<br/>Sampling Date</b> | <b>AV-WATER<br/>180-29825-11<br/>2/11/2014</b> | <b>AV-WATER DUP<br/>180-29825-12<br/>2/11/2014</b> | <b>AV-RINSE<br/>180-29825-13<br/>2/12/2014</b> |
|--|--|--|--|
| PCB 49   | 0.0032 Q C J                                   | 0.0055 C J   | 0.038 U  |
| PCB 50   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 51   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 52   | 0.0079 Q J                                     | 0.0058 Q J   | 0.0026 Q J                                     |
| PCB 53   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 54   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 55   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 56   | 0.0024 Q J                                     | 0.0031 Q J   | 0.038 U  |
| PCB 57   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 58   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 59   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 60   | 0.038 U  | 0.0019 Q J   | 0.038 U  |
| PCB 61   | 0.0095 Q B C J                                 | 0.010 Q B C J                                      | 0.0029 Q B C J                                 |
| PCB 62   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 63   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 64   | 0.0024 Q J                                     | 0.038 U  | 0.038 U  |
| PCB 65   | 0.0067 B C44 J                                 | 0.0082 B C44 J                                     | 0.0046 Q B C44 J                               |
| PCB 66   | 0.0068 Q J                                     | 0.0074 J   | 0.038 U  |
| PCB 67   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 68   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 69   | 0.0032 Q C49 J                                 | 0.0055 C49 J                                       | 0.038 U  |
| PCB 70   | 0.0095 Q B C61 J                               | 0.010 Q B C61 J                                    | 0.0029 Q B C61 J                               |
| PCB 71   | 0.0031 Q C40 J                                 | 0.038 U  | 0.038 U  |
| PCB 72   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 73   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 74   | 0.0095 Q B C61 J                               | 0.010 Q B C61 J                                    | 0.0029 Q B C61 J                               |
| PCB 75   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 76   | 0.0095 Q B C61 J                               | 0.010 Q B C61 J                                    | 0.0029 Q B C61 J                               |
| PCB 77   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 78   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 79   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 80   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 81   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 82   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 83   | 0.0083 C J                                     | 0.0075 Q C J                                       | 0.038 U  |
| PCB 84   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 85   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 86   | 0.0083 C J                                     | 0.0084 C J   | 0.038 U  |
| PCB 87   | 0.0083 C86 J                                   | 0.0084 C86 J                                       | 0.038 U  |
| PCB 88   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 89   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 90   | 0.0082 Q C J                                   | 0.0068 Q C J                                       | 0.038 U  |
| PCB 91   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 92   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 93   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 94   | 0.038 U  | 0.038 U  | 0.038 U  |

**Table 13:**  
**Summary of PCB Congeners - Surface Water Sample Results - Avalon Area**  
**NJIWW Water 2014**

| <b>Location ID<br/>Sample ID<br/>Sampling Date</b> | <b>AV-WATER<br/>180-29825-11<br/>2/11/2014</b> | <b>AV-WATER DUP<br/>180-29825-12<br/>2/11/2014</b> | <b>AV-RINSE<br/>180-29825-13<br/>2/12/2014</b> |
|--|--|--|--|
| PCB 95   | 0.0074 J                                       | 0.0045 Q J   | 0.038 U  |
| PCB 96   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 97   | 0.0083 C86 J                                   | 0.0084 C86 J                                       | 0.038 U  |
| PCB 98   | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 99   | 0.0083 C83 J                                   | 0.0075 Q C83 J                                     | 0.038 U  |
| PCB 100  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 101  | 0.0082 J                                       | 0.0068 J   | 0.038 U  |
| PCB 102  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 103  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 104  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 105  | 0.0034 Q J                                     | 0.038 U  | 0.038 U  |
| PCB 106  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 107/109 (IUPAC)                                | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 108/107 (IUPAC)                                | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 109/108 (IUPAC)                                | 0.0083 J                                       | 0.0084 J   | 0.038 U  |
| PCB 110  | 0.0091 Q C J                                   | 0.0059 Q C J                                       | 0.038 U  |
| PCB 111  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 112  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 113  | 0.0082 Q C90 J                                 | 0.0068 Q C90 J                                     | 0.038 U  |
| PCB 114  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 115  | 0.0091 Q C110 J                                | 0.0059 Q C110 J                                    | 0.038 U  |
| PCB 116  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 117  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 118  | 0.0088 Q J                                     | 0.0080 Q J   | 0.038 U  |
| PCB 119  | 0.0083 C86 J                                   | 0.0084 C86 J                                       | 0.038 U  |
| PCB 120  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 121  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 122  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 123  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 124  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 125  | 0.0083 C86 J                                   | 0.0084 C86 J                                       | 0.038 U  |
| PCB 126  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 127  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 128  | 0.038 U  | 0.0020 Q C J                                       | 0.038 U  |
| PCB 129  | 0.012 C J                                      | 0.0078 Q C J                                       | 0.038 U  |
| PCB 130  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 131  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 132  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 133  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 134  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 135  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 136  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 137  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 138  | 0.012 C129 J                                   | 0.0078 Q C129 J                                    | 0.038 U  |
| PCB 139  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 140  | 0.038 U  | 0.038 U  | 0.038 U  |

**Table 13:**  
**Summary of PCB Congeners - Surface Water Sample Results - Avalon Area**  
**NJIIWW Water 2014**

| <b>Location ID<br/>Sample ID<br/>Sampling Date</b> | <b>AV-WATER<br/>180-29825-11<br/>2/11/2014</b> | <b>AV-WATER DUP<br/>180-29825-12<br/>2/11/2014</b> | <b>AV-RINSE<br/>180-29825-13<br/>2/12/2014</b> |
|--|--|--|--|
| PCB 141  | 0.0021 Q J                                     | 0.038 U  | 0.038 U  |
| PCB 142  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 143  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 144  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 145  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 146  | 0.0033 J                                       | 0.0026 Q J   | 0.038 U  |
| PCB 147  | 0.0056 C J                                     | 0.0035 Q C J                                       | 0.038 U  |
| PCB 148  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 149  | 0.0056 C147 J                                  | 0.0035 Q C147 J                                    | 0.038 U  |
| PCB 150  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 151  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 152  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 153  | 0.0087 C J                                     | 0.0093 C J   | 0.038 U  |
| PCB 154  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 155  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 156  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 157  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 158  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 159  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 160  | 0.012 C129 J                                   | 0.0078 Q C129 J                                    | 0.038 U  |
| PCB 161  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 162  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 163  | 0.012 C129 J                                   | 0.0078 Q C129 J                                    | 0.038 U  |
| PCB 164  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 165  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 166  | 0.038 U  | 0.0020 Q C128 J                                    | 0.038 U  |
| PCB 167  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 168  | 0.0087 C153 J                                  | 0.0093 C153 J                                      | 0.038 U  |
| PCB 169  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 170  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 171  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 172  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 173  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 174  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 175  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 176  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 177  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 178  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 179  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 180  | 0.0043 Q C J                                   | 0.0046 Q C J                                       | 0.038 U  |
| PCB 181  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 182  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 183  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 184  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 185  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 186  | 0.038 U  | 0.038 U  | 0.038 U  |



**Table 13:**  
**Summary of PCB Congeners - Surface Water Sample Results - Avalon Area**  
**NJIWW Water 2014**

| <b>Location ID<br/>Sample ID<br/>Sampling Date</b> | <b>AV-WATER<br/>180-29825-11<br/>2/11/2014</b> | <b>AV-WATER DUP<br/>180-29825-12<br/>2/11/2014</b> | <b>AV-RINSE<br/>180-29825-13<br/>2/12/2014</b> |
|--|--|--|--|
| PCB 187  | 0.0046 J                                       | 0.0050 J   | 0.038 U  |
| PCB 188  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 189  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 190  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 191  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 192  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 193  | 0.0043 Q C180 J                                | 0.0046 Q C180 J                                    | 0.038 U  |
| PCB 194  | 0.038 U  | 0.0015 Q J   | 0.038 U  |
| PCB 195  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 196  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 197  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 198  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 199/200 (IUPAC)                                | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 200/201 (IUPAC)                                | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 201/199 (IUPAC)                                | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 202  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 203  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 204  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 205  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 206  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 207  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 208  | 0.038 U  | 0.038 U  | 0.038 U  |
| PCB 209  | 0.0051 Q B J                                   | 0.0038 Q B J                                       | 0.038 U  |

Notes:

- B C J : Co-eluting isomer.
- B C44 J : Estimated result. Result is less than the reporting limit.
- C : Co-eluting isomer.
- C J : Co-eluting isomer.
- C147 J : Estimated result. Result is less than the reporting limit.
- C153 J : Estimated result. Result is less than the reporting limit.
- C20 J : Estimated result. Result is less than the reporting limit.
- C21 J : Estimated result. Result is less than the reporting limit.
- J : Estimated result. Result is less than the reporting limit.
- ng/L - nanograms per liter
- NJDEP - New Jersey Department of Environmental Protection
- Q B : Estimated maximum possible concentration (EMPC).
- Q B C J : Co-eluting isomer.
- Q B C44 J : Estimated result. Result is less than the reporting limit.
- Q B J : Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- Q C J : Estimated maximum possible concentration (EMPC).
- Q C110 J : Estimated maximum possible concentration (EMPC).
- Q C12 J : Estimated result. Result is less than the reporting limit.
- Q C128 J : Estimated maximum possible concentration (EMPC).
- Q C147 J : Estimated result. Result is less than the reporting limit.
- Q C180 J : Estimated result. Result is less than the reporting limit.
- Q C20 J : Estimated maximum possible concentration (EMPC).
- Q C21 J : Estimated result. Result is less than the reporting limit.
- Q C40 J : Estimated result. Result is less than the reporting limit.
- Q C49 J : Estimated maximum possible concentration (EMPC).
- Q J : Estimated maximum possible concentration (EMPC).
- U : Indicates the analyte was analyzed for but not detected.

**Table 14:**  
**Summary of Elutriate Water Sample Results - Avalon Area**  
**NJIWW Sediment 2014**

| Location ID<br>Sample ID<br>Sampling Date     | NJDEP Surface Water<br>Quality Criteria (Saline)<br>for Toxic Substances<br>(Human Health) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Acute) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Chronic) | Unfiltered                    |                               |                               |                                |                                |                                |
|---|--|--|--|-------------------------------|-------------------------------|-------------------------------|--------------------------------|--------------------------------|--------------------------------|
|   |  |  |  | AV-SED-01                     | AV-SED-02/03                  | AV-SED-04                     | AV-SED-05A                     | AV-SED-05B                     | AV-SED-DUP                     |
|   |  |  |  | 180-29828-7<br>2/20/2014 6:40 | 180-29828-8<br>2/20/2014 6:55 | 180-29828-9<br>2/20/2014 7:25 | 180-29828-10<br>2/20/2014 7:35 | 180-29828-11<br>2/20/2014 8:30 | 180-29828-12<br>2/20/2014 8:40 |
| <b>Semi-Volatile Organic Compounds (ug/L)</b> |  |  |  |                               |                               |                               |                                |                                |                                |
| 1,1'-Biphenyl                                 | NC   | NC   | NC   | 0.041 U                       | 0.042 U                       | 0.042 U                       | 0.041 U                        | 0.041 U                        | 0.041 U                        |
| 2,2'-oxybis[1-chloropropane]                  | NC   | NC   | NC   | 0.019 U                       | 0.02 U                        | 0.02 U                        | 0.02 U                         | 0.02 U                         | 0.019 U                        |
| 2,4,5-Trichlorophenol                         | 3,600  | NC   | NC   | 0.15 U                        | 0.15 U                        | 0.15 U                        | 0.15 U                         | 0.15 U                         | 0.15 U                         |
| 2,4,6-Trichlorophenol                         | 1  | NC   | NC   | 0.17 U                        | 0.17 U                        | 0.17 U                        | 0.17 U                         | 0.17 U                         | 0.17 U                         |
| 2,4-Dichlorophenol                            | 290  | NC   | NC   | 0.033 U                       | 0.033 U                       | 0.033 U                       | 0.033 U                        | 0.033 U                        | 0.033 U                        |
| 2,4-Dimethylphenol                            | NC   | NC   | NC   | 0.084 U                       | 0.085 U                       | 0.085 U                       | 0.084 U                        | 0.084 U                        | 0.084 U                        |
| 2,4-Dinitrophenol                             | 5,300  | NC   | NC   | 0.6 U                         | 0.61 U                        | 0.61 U                        | 0.61 U                         | 0.61 U                         | 0.6 U                          |
| 2,4-Dinitrotoluene                            | 3.4  | NC   | NC   | 0.053 U                       | 0.054 U                       | 0.054 U                       | 0.053 U                        | 0.053 U                        | 0.053 U                        |
| 2,6-Dinitrotoluene                            | NC   | NC   | NC   | 0.078 U                       | 0.08 U                        | 0.08 U                        | 0.079 U                        | 0.079 U                        | 0.078 U                        |
| 2-Chloronaphthalene                           | 1,600  | NC   | NC   | 0.015 U                       | 0.015 U                       | 0.015 U                       | 0.015 U                        | 0.015 U                        | 0.015 U                        |
| 2-Chlorophenol                                | 150  | NC   | NC   | 0.16 U                        | 0.17 U                        | 0.17 U                        | 0.16 U                         | 0.16 U                         | 0.16 U                         |
| 2-Methylnaphthalene                           | NC   | NC   | NC   | 0.012 U                       | 0.012 U                       | 0.012 U                       | 0.012 U                        | 0.012 U                        | 0.012 U                        |
| 2-Methylphenol                                | NC   | NC   | NC   | 0.085 U                       | 0.086 U                       | 0.086 U                       | 0.085 U                        | 0.085 U                        | 0.085 U                        |
| 2-Nitroaniline                                | NC   | NC   | NC   | 0.34 U                        | 0.35 U                        | 0.35 U                        | 0.35 U                         | 0.35 U                         | 0.34 U                         |
| 2-Nitrophenol                                 | NC   | NC   | NC   | 0.17 U                        | 0.17 U                        | 0.17 U                        | 0.17 U                         | 0.17 U                         | 0.17 U                         |
| 3,3'-Dichlorobenzidine                        | 0.028  | NC   | NC   | 0.11 U                        | 0.11 U                        | 0.11 U                        | 0.11 U                         | 0.11 U                         | 0.11 U                         |
| 3-Nitroaniline                                | NC   | NC   | NC   | 0.32 U                        | 0.32 U                        | 0.32 U                        | 0.32 U                         | 0.32 U                         | 0.32 U                         |
| 4,6-Dinitro-2-methylphenol                    | NC   | NC   | NC   | 0.22 U                        | 0.22 U                        | 0.22 U                        | 0.22 U                         | 0.22 U                         | 0.22 U                         |
| 4-Bromophenyl phenyl ether                    | NC   | NC   | NC   | 0.062 U                       | 0.064 U                       | 0.064 U                       | 0.063 U                        | 0.063 U                        | 0.062 U                        |
| 4-Chloro-3-methylphenol                       | NC   | NC   | NC   | 0.074 U                       | 0.075 U                       | 0.075 U                       | 0.075 U                        | 0.075 U                        | 0.074 U                        |
| 4-Chloroaniline                               | NC   | NC   | NC   | 0.087 U                       | 0.089 U                       | 0.089 U                       | 0.088 U                        | 0.088 U                        | 0.087 U                        |
| 4-Chlorophenyl phenyl ether                   | NC   | NC   | NC   | 0.049 U                       | 0.05 U                        | 0.05 U                        | 0.05 U                         | 0.05 U                         | 0.049 U                        |
| 4-Nitroaniline                                | NC   | NC   | NC   | 0.17 U                        | 0.17 U                        | 0.17 U                        | 0.17 U                         | 0.17 U                         | 0.17 U                         |
| 4-Nitrophenol                                 | NC   | NC   | NC   | 0.63 U                        | 0.65 U                        | 0.65 U                        | 0.64 U                         | 0.64 U                         | 0.63 U                         |
| Acenaphthene                                  | 990  | NC   | NC   | 0.014 U                       | 0.014 U                       | 0.014 U                       | 0.014 U                        | 0.014 U                        | 0.014 U                        |
| Acenaphthylene                                | NC   | NC   | NC   | 0.015 U                       | 0.015 U                       | 0.015 U                       | 0.015 U                        | 0.015 U                        | 0.015 U                        |
| Acetophenone                                  | NC   | NC   | NC   | 0.078 U                       | 0.08 U                        | 0.08 U                        | 0.079 U                        | 0.079 U                        | 0.078 U                        |
| Anthracene                                    | 40,000   | NC   | NC   | 0.015 U                       | 0.015 U                       | 0.015 U                       | 0.015 U                        | 0.015 U                        | 0.015 U                        |
| Atrazine                                      | NC   | NC   | NC   | 0.087 U                       | 0.089 U                       | 0.089 U                       | 0.088 U                        | 0.088 U                        | 0.087 U                        |
| Benzaldehyde                                  | NC   | NC   | NC   | 0.15 U                        | 0.15 U                        | 0.15 U                        | 0.15 U                         | 0.15 U                         | 0.15 U                         |
| Benzo[a]anthracene                            | 0.18   | NC   | NC   | 0.014 U                       | 0.015 U                       | 0.015 U                       | 0.015 U                        | 0.7                            | 0.35                           |
| Benzo[a]pyrene                                | 0.018  | NC   | NC   | 0.013 U                       | 0.013 U                       | 0.013 U                       | 0.013 U                        | 0.47                           | 0.32                           |
| Benzo[b]fluoranthene                          | 0.18   | NC   | NC   | 0.015 U                       | 0.016 U                       | 0.016 U                       | 0.016 U                        | 0.94                           | 0.47                           |
| Benzo[g,h,i]perylene                          | NC   | NC   | NC   | 0.015 U                       | 0.015 U                       | 0.015 U                       | 0.015 U                        | 0.82                           | 0.46                           |
| Benzo[k]fluoranthene                          | 1.8  | NC   | NC   | 0.054 U                       | 0.055 U                       | 0.055 U                       | 0.054 U                        | 0.98                           | 0.54                           |
| Bis(2-chloroethoxy)methane                    | NC   | NC   | NC   | 0.057 U                       | 0.058 U                       | 0.058 U                       | 0.058 U                        | 0.058 U                        | 0.057 U                        |
| Bis(2-chloroethyl)ether                       | 0.53   | NC   | NC   | 0.025 U                       | 0.025 U                       | 0.025 U                       | 0.025 U                        | 0.025 U                        | 0.025 U                        |
| Bis(2-ethylhexyl) phthalate                   | 2.2  | NC   | NC   | 1.2 U                         | 1.3 U                         | 1.3 U                         | 1.2 U                          | 1.2 U                          | 1.2 U                          |
| Butyl benzyl phthalate                        | 190  | NC   | NC   | 0.14 U                        | 0.14 U                        | 0.14 U                        | 0.14 U                         | 0.17 J                         | 0.14 U                         |
| Caprolactam                                   | NC   | NC   | NC   | 1.2 J                         | 1.2 U                         | 1.2 U                         | 1.2 U                          | 1.2 U                          | 1.2 U                          |
| Carbazole                                     | NC   | NC   | NC   | 0.015 U                       | 0.016 U                       | 0.016 U                       | 0.016 U                        | 0.016 U                        | 0.015 U                        |
| Chrysene                                      | 18   | NC   | NC   | 0.014 U                       | 0.014 U                       | 0.014 U                       | 0.014 U                        | 1                              | 0.49                           |
| Dibenz(a,h)anthracene                         | 0.018  | NC   | NC   | 0.015 U                       | 0.016 U                       | 0.016 U                       | 0.015 U                        | 1                              | 0.53                           |
| Dibenzofuran                                  | NC   | NC   | NC   | 0.06 U                        | 0.062 U                       | 0.062 U                       | 0.061 U                        | 0.061 U                        | 0.06 U                         |
| Diethyl phthalate                             | 44,000   | NC   | NC   | 0.42 J B                      | 0.15 U                        | 0.15 U                        | 0.37 J B                       | 0.2 J B                        | 0.14 J B                       |
| Dimethyl phthalate                            | NC   | NC   | NC   | 0.075 U                       | 0.077 U                       | 0.077 U                       | 0.076 U                        | 0.076 U                        | 0.075 U                        |
| Di-n-butyl phthalate                          | 4,500  | NC   | NC   | 0.12 U                        | 0.12 U                        | 0.12 U                        | 0.12 U                         | 0.12 U                         | 0.12 U                         |
| Di-n-octyl phthalate                          | NC   | NC   | NC   | 0.2 U                         | 0.21 U                        | 0.21 U                        | 0.2 U                          | 1                              | 0.48 J                         |

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NJIWW Sediment 2014

| Location ID<br>Sample ID<br>Sampling Date | NJDEP Surface Water<br>Quality Criteria (Saline)<br>for Toxic Substances<br>(Human Health) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Acute) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Chronic) | Unfiltered                    |                               |                               |                                |                                |                                |
|---|--|--|--|-------------------------------|-------------------------------|-------------------------------|--------------------------------|--------------------------------|--------------------------------|
|   |  |  |  | AV-SED-01                     | AV-SED-02/03                  | AV-SED-04                     | AV-SED-05A                     | AV-SED-05B                     | AV-SED-DUP                     |
|   |  |  |  | 180-29828-7<br>2/20/2014 6:40 | 180-29828-8<br>2/20/2014 6:55 | 180-29828-9<br>2/20/2014 7:25 | 180-29828-10<br>2/20/2014 7:35 | 180-29828-11<br>2/20/2014 8:30 | 180-29828-12<br>2/20/2014 8:40 |
| Fluoranthene                              | 140  | NC   | NC   | 0.016 U                       | 0.016 U                       | 0.016 U                       | 0.016 U                        | 0.093 J                        | 0.016 U                        |
| Fluorene                                  | 5,300  | NC   | NC   | 0.021 U                       | 0.022 U                       | 0.022 U                       | 0.021 U                        | 0.021 U                        | 0.021 U                        |
| Hexachlorobenzene                         | 0.00029  | NC   | NC   | 0.018 U                       | 0.018 U                       | 0.018 U                       | 0.018 U                        | 0.018 U                        | 0.018 U                        |
| Hexachlorobutadiene                       | 18   | NC   | NC   | 0.016 U                       | 0.017 U                       | 0.017 U                       | 0.016 U                        | 0.016 U                        | 0.016 U                        |
| Hexachlorocyclopentadiene                 | NC   | NC   | NC   | 0.051 U *                     | 0.052 U *                     | 0.052 U *                     | 0.051 U *                      | 0.051 U *                      | 0.051 U *                      |
| Hexachloroethane                          | 3.3  | NC   | NC   | 0.062 U                       | 0.063 U                       | 0.063 U                       | 0.062 U                        | 0.062 U                        | 0.062 U                        |
| Indeno[1,2,3-cd]pyrene                    | 0.18   | NC   | NC   | 0.02 U                        | 0.02 U                        | 0.02 U                        | 0.02 U                         | 0.88                           | 0.47                           |
| Isophorone                                | 960  | NC   | NC   | 0.063 U                       | 0.064 U                       | 0.064 U                       | 0.064 U                        | 0.064 U                        | 0.063 U                        |
| Methylphenol, 3 & 4                       | NC   | NC   | NC   | 0.088 U                       | 0.09 U                        | 0.09 U                        | 0.089 U                        | 0.089 U                        | 0.088 U                        |
| Naphthalene                               | NC   | NC   | NC   | 0.014 U                       | 0.014 U                       | 0.014 U                       | 0.014 U                        | 0.014 U                        | 0.014 U                        |
| Nitrobenzene                              | 690  | NC   | NC   | 0.083 U                       | 0.084 U                       | 0.084 U                       | 0.083 U                        | 0.083 U                        | 0.083 U                        |
| N-Nitrosodi-n-propylamine                 | 0.51   | NC   | NC   | 0.03 U                        | 0.031 U                       | 0.031 U                       | 0.03 U                         | 0.03 U                         | 0.03 U                         |
| N-Nitrosodiphenylamine                    | 6  | NC   | NC   | 0.084 U                       | 0.085 U                       | 0.085 U                       | 0.084 U                        | 0.084 U                        | 0.084 U                        |
| Pentachlorophenol                         | 3  | 13   | 7.9  | 0.065 U                       | 0.066 U                       | 0.066 U                       | 0.066 U                        | 0.066 U                        | 0.065 U                        |
| Phenanthrene                              | NC   | NC   | NC   | 0.042 U                       | 0.043 U                       | 0.043 U                       | 0.042 U                        | 0.042 U                        | 0.042 U                        |
| Phenol                                    | 860,000  | NC   | NC   | 0.057 U                       | 0.058 U                       | 0.058 U                       | 0.058 U                        | 0.058 U                        | 0.057 U                        |
| Pyrene                                    | 4,000  | NC   | NC   | 0.015 U                       | 0.016 U                       | 0.016 U                       | 0.016 U                        | 0.096 J                        | 0.015 U                        |
| <b>Pesticides (ug/L)</b>                  |  |  |  |                               |                               |                               |                                |                                |                                |
| 4,4'-DDD                                  | 0.00031  | NC   | NC   | 0.00066 U                     | 0.00066 U                     | 0.00066 U                     | 0.00064 U                      | 0.00066 U                      | 0.00064 U                      |
| 4,4'-DDE                                  | 0.00022  | NC   | NC   | 0.00077 U                     | 0.00077 U                     | 0.00089 J                     | 0.00076 U                      | 0.00077 U                      | 0.00076 U                      |
| 4,4'-DDT                                  | 0.00022  | 0.13   | 0.0010   | 0.00073 U                     | 0.00073 U                     | 0.00073 U                     | 0.00071 U                      | 0.00073 U                      | 0.00071 U                      |
| Aldrin                                    | 0.00005  | 1.3  | NC   | 0.00081 U                     | 0.00081 U                     | 0.00081 U                     | 0.0008 U                       | 0.00081 U                      | 0.0008 U                       |
| alpha-BHC                                 | 0.0049   | NC   | NC   | 0.00065 U                     | 0.00065 U                     | 0.00065 U                     | 0.00063 U                      | 0.00065 U                      | 0.00098 J p                    |
| alpha-Chlordane                           | 0.00011  | 0.09   | 0.004  | 0.00096 U                     | 0.00096 U                     | 0.00096 U                     | 0.00094 U                      | 0.00096 U                      | 0.00094 U                      |
| beta-BHC                                  | 0.017  | NC   | NC   | 0.00098 U                     | 0.0015 p                      | 0.00098 U                     | 0.00096 U                      | 0.00098 U                      | 0.0015 p                       |
| delta-BHC                                 | NC   | NC   | NC   | 0.00037 U                     | 0.00037 U                     | 0.00046 J p                   | 0.0004 J p                     | 0.00037 U                      | 0.00048 J p                    |
| Dieldrin                                  | 0.000054   | 0.71   | 0.0019   | 0.0008 U                      | 0.0008 U                      | 0.0008 U                      | 0.00079 U                      | 0.0008 U                       | 0.00079 U                      |
| Endosulfan I                              | 89   | 0.034  | 0.0087   | 0.00092 U                     | 0.00092 U                     | 0.00092 U                     | 0.0009 U                       | 0.00092 U                      | 0.0009 U                       |
| Endosulfan II                             | 89   | 0.034  | 0.0087   | 0.00096 U                     | 0.00096 U                     | 0.00096 U                     | 0.00094 U                      | 0.00096 U                      | 0.00094 U                      |
| Endosulfan sulfate                        | 89   | NC   | NC   | 0.00056 U                     | 0.00056 U                     | 0.00056 U                     | 0.00055 U                      | 0.00056 U                      | 0.00055 U                      |
| Endrin aldehyde                           | 0.06   | NC   | NC   | 0.0011 J p                    | 0.00094 U                     | 0.0014 p                      | 0.00092 U                      | 0.00094 U                      | 0.00092 U                      |
| Endrin ketone                             | NC   | NC   | NC   | 0.00088 U                     | 0.0011 J p                    | 0.00097 J p                   | 0.00087 U                      | 0.00088 U                      | 0.00087 U                      |
| Endrin                                    | 0.06   | 0.037  | 0.0023   | 0.0009 U                      | 0.0009 U                      | 0.0009 U                      | 0.00088 U                      | 0.0009 U                       | 0.00088 U                      |
| gamma-BHC (Lindane)                       | 1.8  | 0.16   | NC   | 0.0072 p                      | 0.0047 p                      | 0.0024 p                      | 0.0018 p                       | 0.00078 U                      | 0.0032 p                       |
| gamma-Chlordane                           | 0.00011  | 0.09   | 0.004  | 0.00094 U                     | 0.00094 U                     | 0.00094 U                     | 0.00092 U                      | 0.00094 U                      | 0.00092 U                      |
| Heptachlor epoxide                        | 0.000039   | 0.053  | 0.0036   | 0.00097 U                     | 0.00097 U                     | 0.00097 U                     | 0.00095 U                      | 0.00097 U                      | 0.00095 U                      |
| Heptachlor                                | 0.000079   | 0.053  | 0.0036   | 0.00095 U                     | 0.00095 U                     | 0.00095 U                     | 0.00093 U                      | 0.00095 U                      | 0.00093 U                      |
| Methoxychlor                              | NC   | NC   | 0.03   | 0.00089 U                     | 0.00089 U                     | 0.00089 U                     | 0.00088 U                      | 0.00089 U                      | 0.00088 U                      |
| Toxaphene                                 | 0.00028  | 0.21   | 0.0002   | 0.018 U                       | 0.018 U                       | 0.018 U                       | 0.018 U                        | 0.018 U                        | 0.018 U                        |
| <b>PCBs (ug/L)</b>                        |  |  |  |                               |                               |                               |                                |                                |                                |
| PCB-1016                                  | 0.000064   | NC   | 0.03   | 0.0025 U                      | 0.0025 U                      | 0.0025 U                      | 0.0024 U                       | 0.0025 U                       | 0.0024 U                       |
| PCB-1221                                  | 0.000064   | NC   | 0.03   | 0.0024 U                      | 0.0024 U                      | 0.0024 U                      | 0.0024 U                       | 0.0024 U                       | 0.0024 U                       |
| PCB-1232                                  | 0.000064   | NC   | 0.03   | 0.0029 U                      | 0.0029 U                      | 0.0029 U                      | 0.0028 U                       | 0.0029 U                       | 0.0028 U                       |
| PCB-1242                                  | 0.000064   | NC   | 0.03   | 0.0018 U                      | 0.0018 U                      | 0.0018 U                      | 0.0018 U                       | 0.0018 U                       | 0.0018 U                       |
| PCB-1248                                  | 0.000064   | NC   | 0.03   | 0.0022 U                      | 0.0022 U                      | 0.0022 U                      | 0.0022 U                       | 0.0022 U                       | 0.0022 U                       |
| PCB-1254                                  | 0.000064   | NC   | 0.03   | 0.0022 U                      | 0.0022 U                      | 0.0022 U                      | 0.0022 U                       | 0.0022 U                       | 0.0022 U                       |
| PCB-1260                                  | 0.000064   | NC   | 0.03   | 0.0013 U                      | 0.0013 U                      | 0.0013 U                      | 0.0013 U                       | 0.0013 U                       | 0.0013 U                       |

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| Location ID<br>Sample ID<br>Sampling Date | NJDEP Surface Water<br>Quality Criteria (Saline)<br>for Toxic Substances<br>(Human Health) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Acute) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Chronic) | Unfiltered                    |                               |                               |                                |                                |                                |
|---|--|--|--|-------------------------------|-------------------------------|-------------------------------|--------------------------------|--------------------------------|--------------------------------|
|   |  |  |  | AV-SED-01                     | AV-SED-02/03                  | AV-SED-04                     | AV-SED-05A                     | AV-SED-05B                     | AV-SED-DUP                     |
|   |  |  |  | 180-29828-7<br>2/20/2014 6:40 | 180-29828-8<br>2/20/2014 6:55 | 180-29828-9<br>2/20/2014 7:25 | 180-29828-10<br>2/20/2014 7:35 | 180-29828-11<br>2/20/2014 8:30 | 180-29828-12<br>2/20/2014 8:40 |
| <b>Inorganics (ug/L)</b>                  |  |  |  |                               |                               |                               |                                |                                |                                |
| Aluminum                                  | NC   | NC   | NC   | 600                           | 220                           | 1000                          | 750                            | 180                            | 780                            |
| Antimony                                  | 640  | NC   | NC   | 2.2 J B                       | 4.9 J B                       | 3 J B                         | 2 J B                          | 1.2 J B                        | 2.1 J B                        |
| Arsenic                                   | 0.061  | 69   | 36   | 26                            | 29                            | 27                            | 17                             | 15                             | 37                             |
| Barium                                    | NC   | NC   | NC   | 25 J                          | 21 J                          | 18 J                          | 20 J                           | 16 J                           | 24 J                           |
| Beryllium                                 | 42   | NC   | NC   | 0.18 U                        | 0.18 U                        | 0.18 U                        | 0.18 U                         | 0.18 U                         | 0.18 U                         |
| Cadmium                                   | 16   | 40   | 8.8  | 0.57 U                        | 0.57 U                        | 0.57 U                        | 0.57 U                         | 0.57 U                         | 0.57 U                         |
| Calcium                                   | NC   | NC   | NC   | 320,000                       | 330,000                       | 300,000                       | 320,000                        | 330,000                        | 320,000                        |
| Chromium                                  | 750  | NC   | NC   | 6.8 J                         | 5.8 J                         | 8.1 J                         | 6.6 J                          | 4.9 J                          | 6.5 J                          |
| Cobalt                                    | NC   | NC   | NC   | 0.86 J                        | 0.74 J                        | 1 J                           | 0.92 J                         | 0.61 J                         | 0.74 J                         |
| Copper                                    | NC   | 4.8  | 3.1  | 3.1 J                         | 2.5 J                         | 3.4 J                         | 3 J                            | 2.2 J                          | 3.7 J                          |
| Iron                                      | NC   | NC   | NC   | 2100                          | 1100                          | 2600                          | 1800                           | 160 J                          | 2200                           |
| Lead                                      | NC   | 210  | 24   | 1.1 J B                       | 0.28 J B                      | 1.9 J B                       | 1.2 J B                        | 0.32 J B                       | 1.1 J B                        |
| Magnesium                                 | NC   | NC   | NC   | 1,100,000                     | 1,200,000                     | 1,100,000                     | 1,100,000                      | 1,200,000                      | 1,200,000                      |
| Manganese                                 | 100  | NC   | NC   | 490                           | 250                           | 250                           | 210                            | 60                             | 180                            |
| Mercury                                   | 0.051  | 1.8  | 0.94   | 0.0073                        | 0.002                         | 0.01                          | 0.0078                         | 0.00089                        | 0.0052                         |
| Nickel                                    | 1,700  | 64   | 22   | 1.3 J                         | 0.87 U                        | 1.6 J                         | 1.2 J                          | 0.87 U                         | 0.87 U                         |
| Potassium                                 | NC   | NC   | NC   | 320,000 B                     | 330,000 B                     | 320,000 B                     | 310,000 B                      | 320,000 B                      | 330,000 B                      |
| Selenium                                  | 4,200  | 290  | 71   | 67                            | 67                            | 65                            | 64                             | 70                             | 72                             |
| Silver                                    | 40,000   | 1.9  | NC   | 1 J                           | 0.26 J                        | 0.18 U                        | 0.18 U                         | 0.18 U                         | 0.18 U                         |
| Sodium                                    | NC   | NC   | NC   | 9,200,000 B ^                 | 9,100,000 B ^                 | 8,600,000 B ^                 | 8,600,000 B ^                  | 9,100,000 B ^                  | 8,900,000 B ^                  |
| Thallium                                  | 0.47   | NC   | NC   | 0.076 U                       | 0.19 J                        | 0.09 J                        | 0.076 U                        | 0.076 U                        | 0.076 U                        |
| Vanadium                                  | NC   | NC   | NC   | 21 B                          | 27 B                          | 31 B                          | 14 B                           | 26 B                           | 21 B                           |
| Zinc                                      | 26,000   | 90   | 81   | 7.2 J                         | ND U                          | 12 J                          | 6.3 J                          | 4.8 U                          | 4.8 U                          |
| Cyanide, Total                            | 140  | 1.0  | 1.0  | 240                           | 2 J                           | 1.5 U                         | 1.5 U                          | 1.5 U                          | 1.5 U                          |
| <b>Total Suspended Solids (mg/l)</b>      |  |  |  |                               |                               |                               |                                |                                |                                |
| Total Suspended Solids                    | NC   | NC   | NC   | 46                            | 20                            | 61                            | 35                             | 16                             | 32                             |
| <b>Dioxins (pg/l)</b>                     |  |  |  |                               |                               |                               |                                |                                |                                |
| 1,2,3,4,6,7,8-HpCDD                       | NC   | NC   | NC   | 47 U                          | NR                            | NR                            | 2.7 J                          | 4.7 J                          | 2.4 Q J                        |
| 1,2,3,4,6,7,8-HpCDF                       | NC   | NC   | NC   | 47 U                          | NR                            | NR                            | 50 U                           | 0.79 Q J                       | 0.77 Q J                       |
| 1,2,3,4,7,8,9-HpCDF                       | NC   | NC   | NC   | 47 U                          | NR                            | NR                            | 50 U                           | 48 U                           | 49 U                           |
| 1,2,3,4,7,8-HxCDD                         | NC   | NC   | NC   | 47 U                          | NR                            | NR                            | 50 U                           | 48 U                           | 49 U                           |
| 1,2,3,4,7,8-HxCDF                         | NC   | NC   | NC   | 47 U                          | NR                            | NR                            | 50 U                           | 48 U                           | 49 U                           |
| 1,2,3,6,7,8-HxCDD                         | NC   | NC   | NC   | 47 U                          | NR                            | NR                            | 50 U                           | 48 U                           | 49 U                           |
| 1,2,3,6,7,8-HxCDF                         | NC   | NC   | NC   | 47 U                          | NR                            | NR                            | 50 U                           | 48 U                           | 49 U                           |
| 1,2,3,7,8,9-HxCDD                         | NC   | NC   | NC   | 47 U                          | NR                            | NR                            | 50 U                           | 48 U                           | 49 U                           |
| 1,2,3,7,8,9-HxCDF                         | NC   | NC   | NC   | 47 U                          | NR                            | NR                            | 50 U                           | 48 U                           | 49 U                           |
| 1,2,3,7,8-PeCDD                           | NC   | NC   | NC   | 47 U                          | NR                            | NR                            | 50 U                           | 48 U                           | 49 U                           |
| 1,2,3,7,8-PeCDF                           | NC   | NC   | NC   | 47 U                          | NR                            | NR                            | 50 U                           | 48 U                           | 49 U                           |
| 2,3,4,6,7,8-HxCDF                         | NC   | NC   | NC   | 47 U                          | NR                            | NR                            | 50 U                           | 48 U                           | 49 U                           |
| 2,3,4,7,8-PeCDF                           | NC   | NC   | NC   | 47 U                          | NR                            | NR                            | 50 U                           | 48 U                           | 49 U                           |
| 2,3,7,8-TCDD                              | 0.0051   | NC   | NC   | 9.4 U                         | NR                            | NR                            | 10 U                           | 9.7 U                          | 9.9 U                          |

**Table 14:  
Summary of Elutriate Water Sample Results - Avalon Area  
NJIWW Sediment 2014**

| Location ID<br>Sample ID<br>Sampling Date | NJDEP Surface Water<br>Quality Criteria (Saline)<br>for Toxic Substances<br>(Human Health) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Acute) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Chronic) | Unfiltered                                 |   |  |  |  |  |
|---|--|--|--|--|---|--|--|--|--|
|   |  |  |  | AV-SED-01<br>180-29828-7<br>2/20/2014 6:40 | AV-SED-02/03<br>180-29828-8<br>2/20/2014 6:55 | AV-SED-04<br>180-29828-9<br>2/20/2014 7:25 | AV-SED-05A<br>180-29828-10<br>2/20/2014 7:35 | AV-SED-05B<br>180-29828-11<br>2/20/2014 8:30 | AV-SED-DUP<br>180-29828-12<br>2/20/2014 8:40 |
| 2,3,7,8-TCDF                              | NC   | NC   | NC   | 9.4 U                                      | NR  | NR   | 10 U   | 9.7 U  | 9.9 U  |
| OCDD                                      | NC   | NC   | NC   | 23 Q B J                                   | NR  | NR   | 70 B J                                       | 100 B  | 56 B J                                       |
| OCDF                                      | NC   | NC   | NC   | 94 U                                       | NR  | NR   | 100 U  | 97 U   | 99 U   |

Notes:

NA: Criteria not available

NC: No criteria

NR: Not analyzed

B : Compound was found in the blank and sample.

B ^ : ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC exceeds the control limits.

B J : Method blank contamination. The associated method blank contains the target analyte at a reportable level.

J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

J B : Compound was found in the blank and sample.

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

mg/L: milligrams per liter

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

pg/L: picograms per liter

Q B J : Method blank contamination. The associated method blank contains the target analyte at a reportable level.

Q J : Estimated result. Result is less than the reporting limit.

U : Indicates the analyte was analyzed for but not detected.

U \* : LCS or LCSD exceeds the control limits

ug/L: micrograms per liter

X : Surrogate is outside control limits

Values shaded in tan exceed the NJDEP Surface Water Quality Criteria (Saline) for Toxic Substances (Human Health)

Values shaded in pink exceed the NJDEP Surface Water (Saline) Quality Standards for aquatic life (Acute)

Values shaded in blue exceed the NJDEP Surface Water (Saline) Quality Standards for aquatic life (Chronic)

Values shaded in orange exceed more than one criteria value

**Table 14:**  
**Summary of Elutriate Water Sample Results - Avalon Area**  
**NJIWW Sediment 2014**

| Location ID<br>Sample ID<br>Sampling Date | NJDEP Surface Water<br>Quality Criteria (Saline)<br>for Toxic Substances<br>(Human Health) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Acute) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Chronic) | Filtered                                    |   |  |   |   |   |
|---|--|--|--|---|---|--|---|---|---|
|   |  |  |  | AV-SED-01<br>180-29828-13<br>2/20/2014 9:00 | AV-SED-02/03<br>180-29828-14<br>2/20/2014 10:00 | AV-SED-04<br>180-29828-15<br>2/20/2014 10:30 | AV-SED-05A<br>180-29828-16<br>2/20/2014 11:00 | AV-SED-05B<br>180-29828-17<br>2/20/2014 12:00 | AV-SED-DUP<br>180-29828-18<br>2/20/2014 12:30 |
|   |  |  |  | Semi-Volatile Organic Compounds (ug/L)      |   |  |   |   |   |
| 1,1'-Biphenyl                             | NC   | NC   | NC   | 0.041 U                                     | 0.04 U  | 0.04 U                                       | 0.041 U                                       | 0.039 U                                       | 0.039 U                                       |
| 2,2'-oxybis[1-chloropropane]              | NC   | NC   | NC   | 0.019 U                                     | 0.019 U   | 0.019 U                                      | 0.019 U                                       | 0.019 U                                       | 0.019 U                                       |
| 2,4,5-Trichlorophenol                     | 3,600  | NC   | NC   | 0.15 U                                      | 0.15 U  | 0.15 U                                       | 0.15 U  | 0.14 U  | 0.14 U  |
| 2,4,6-Trichlorophenol                     | 1  | NC   | NC   | 0.17 U                                      | 0.17 U  | 0.17 U                                       | 0.17 U  | 0.17 U  | 0.17 U  |
| 2,4-Dichlorophenol                        | 290  | NC   | NC   | 0.033 U                                     | 0.032 U   | 0.032 U                                      | 0.033 U                                       | 0.032 U                                       | 0.032 U                                       |
| 2,4-Dimethylphenol                        | NC   | NC   | NC   | 0.084 U                                     | 0.083 U   | 0.082 U                                      | 0.084 U                                       | 0.08 U  | 0.08 U  |
| 2,4-Dinitrophenol                         | 5,300  | NC   | NC   | 0.6 U                                       | 0.6 U   | 0.59 U                                       | 0.6 U   | 0.58 U  | 0.58 U  |
| 2,4-Dinitrotoluene                        | 3.4  | NC   | NC   | 0.053 U                                     | 0.052 U   | 0.052 U                                      | 0.053 U                                       | 0.051 U                                       | 0.051 U                                       |
| 2,6-Dinitrotoluene                        | NC   | NC   | NC   | 0.078 U                                     | 0.077 U   | 0.077 U                                      | 0.078 U                                       | 0.075 U                                       | 0.075 U                                       |
| 2-Chloronaphthalene                       | 1,600  | NC   | NC   | 0.015 U                                     | 0.015 U   | 0.015 U                                      | 0.015 U                                       | 0.014 U                                       | 0.014 U                                       |
| 2-Chlorophenol                            | 150  | NC   | NC   | 0.16 U                                      | 0.16 U  | 0.16 U                                       | 0.16 U  | 0.16 U  | 0.16 U  |
| 2-Methylnaphthalene                       | NC   | NC   | NC   | 0.012 U                                     | 0.012 U   | 0.012 U                                      | 0.012 U                                       | 0.012 U                                       | 0.012 U                                       |
| 2-Methylphenol                            | NC   | NC   | NC   | 0.085 U                                     | 0.084 U   | 0.083 U                                      | 0.085 U                                       | 0.081 U                                       | 0.081 U                                       |
| 2-Nitroaniline                            | NC   | NC   | NC   | 0.34 U                                      | 0.34 U  | 0.34 U                                       | 0.34 U  | 0.33 U  | 0.33 U  |
| 2-Nitrophenol                             | NC   | NC   | NC   | 0.17 U                                      | 0.17 U  | 0.16 U                                       | 0.17 U  | 0.16 U  | 0.16 U  |
| 3,3'-Dichlorobenzidine                    | 0.028  | NC   | NC   | 0.11 U                                      | 0.11 U  | 0.11 U                                       | 0.11 U  | 0.11 U  | 0.11 U  |
| 3-Nitroaniline                            | NC   | NC   | NC   | 0.32 U                                      | 0.31 U  | 0.31 U                                       | 0.32 U  | 0.3 U   | 0.3 U   |
| 4,6-Dinitro-2-methylphenol                | NC   | NC   | NC   | 0.22 U                                      | 0.21 U  | 0.21 U                                       | 0.22 U  | 0.21 U  | 0.21 U  |
| 4-Bromophenyl phenyl ether                | NC   | NC   | NC   | 0.062 U                                     | 0.062 U   | 0.061 U                                      | 0.062 U                                       | 0.06 U  | 0.06 U  |
| 4-Chloro-3-methylphenol                   | NC   | NC   | NC   | 0.074 U                                     | 0.073 U   | 0.073 U                                      | 0.074 U                                       | 0.071 U                                       | 0.071 U                                       |
| 4-Chloroaniline                           | NC   | NC   | NC   | 0.087 U                                     | 0.086 U   | 0.085 U                                      | 0.087 U                                       | 0.083 U                                       | 0.083 U                                       |
| 4-Chlorophenyl phenyl ether               | NC   | NC   | NC   | 0.049 U                                     | 0.049 U   | 0.048 U                                      | 0.049 U                                       | 0.047 U                                       | 0.047 U                                       |
| 4-Nitroaniline                            | NC   | NC   | NC   | 0.17 U                                      | 0.17 U  | 0.17 U                                       | 0.17 U  | 0.16 U  | 0.16 U  |
| 4-Nitrophenol                             | NC   | NC   | NC   | 0.63 U                                      | 0.63 U  | 0.62 U                                       | 0.63 U  | 0.61 U  | 0.61 U  |
| Acenaphthene                              | 990  | NC   | NC   | 0.014 U                                     | 0.014 U   | 0.014 U                                      | 0.014 U                                       | 0.014 U                                       | 0.014 U                                       |
| Acenaphthylene                            | NC   | NC   | NC   | 0.015 U                                     | 0.015 U   | 0.015 U                                      | 0.015 U                                       | 0.014 U                                       | 0.014 U                                       |
| Acetophenone                              | NC   | NC   | NC   | 0.078 U                                     | 0.078 U   | 0.077 U                                      | 0.078 U                                       | 0.075 U                                       | 0.075 U                                       |
| Anthracene                                | 40,000   | NC   | NC   | 0.015 U                                     | 0.015 U   | 0.015 U                                      | 0.015 U                                       | 0.015 U                                       | 0.015 U                                       |
| Atrazine                                  | NC   | NC   | NC   | 0.087 U                                     | 0.087 U   | 0.086 U                                      | 0.087 U                                       | 0.084 U                                       | 0.084 U                                       |
| Benzaldehyde                              | NC   | NC   | NC   | 0.15 U                                      | 0.15 U  | 0.14 U                                       | 0.15 U  | 0.14 U  | 0.14 U  |
| Benzo[a]anthracene                        | 0.18   | NC   | NC   | 0.014 U                                     | 0.014 U   | 0.014 U                                      | 0.014 U                                       | 0.014 U                                       | 0.014 U                                       |
| Benzo[a]pyrene                            | 0.018  | NC   | NC   | 0.013 U                                     | 0.013 U   | 0.013 U                                      | 0.013 U                                       | 0.013 U                                       | 0.013 U                                       |
| Benzo[b]fluoranthene                      | 0.18   | NC   | NC   | 0.015 U                                     | 0.015 U   | 0.015 U                                      | 0.015 U                                       | 0.015 U                                       | 0.015 U                                       |
| Benzo[g,h,i]perylene                      | NC   | NC   | NC   | 0.015 U                                     | 0.015 U   | 0.015 U                                      | 0.015 U                                       | 0.014 U                                       | 0.014 U                                       |
| Benzo[k]fluoranthene                      | 1.8  | NC   | NC   | 0.054 U                                     | 0.053 U   | 0.053 U                                      | 0.054 U                                       | 0.052 U                                       | 0.052 U                                       |
| Bis(2-chloroethoxy)methane                | NC   | NC   | NC   | 0.057 U                                     | 0.056 U   | 0.056 U                                      | 0.057 U                                       | 0.055 U                                       | 0.055 U                                       |
| Bis(2-chloroethyl)ether                   | 0.53   | NC   | NC   | 0.025 U                                     | 0.024 U   | 0.024 U                                      | 0.025 U                                       | 0.024 U                                       | 0.024 U                                       |
| Bis(2-ethylhexyl) phthalate               | 2.2  | NC   | NC   | 1.2 U                                       | 1.2 U   | 1.2 U  | 1.2 U   | 1.2 U   | 1.2 U   |
| Butyl benzyl phthalate                    | 190  | NC   | NC   | 0.14 U                                      | 0.14 U  | 0.14 U                                       | 0.14 U  | 0.13 U  | 0.13 U  |
| Caprolactam                               | NC   | NC   | NC   | 1.2 U                                       | 1.2 U   | 1.1 U  | 1.2 U   | 1.1 U   | 1.1 U   |
| Carbazole                                 | NC   | NC   | NC   | 0.015 U                                     | 0.015 U   | 0.015 U                                      | 0.015 U                                       | 0.015 U                                       | 0.015 U                                       |
| Chrysene                                  | 18   | NC   | NC   | 0.014 U                                     | 0.014 U   | 0.013 U                                      | 0.014 U                                       | 0.013 U                                       | 0.013 U                                       |
| Dibenz(a,h)anthracene                     | 0.018  | NC   | NC   | 0.015 U                                     | 0.015 U   | 0.015 U                                      | 0.015 U                                       | 0.015 U                                       | 0.015 U                                       |
| Dibenzofuran                              | NC   | NC   | NC   | 0.06 U                                      | 0.06 U  | 0.059 U                                      | 0.06 U  | 0.058 U                                       | 0.058 U                                       |
| Diethyl phthalate                         | 44,000   | NC   | NC   | 0.22 J B                                    | 0.25 J B  | 0.14 U                                       | 0.14 J B                                      | 0.15 J B                                      | 0.14 U  |
| Dimethyl phthalate                        | NC   | NC   | NC   | 0.075 U                                     | 0.074 U   | 0.074 U                                      | 0.075 U                                       | 0.072 U                                       | 0.072 U                                       |
| Di-n-butyl phthalate                      | 4,500  | NC   | NC   | 0.12 U                                      | 0.12 U  | 0.12 U                                       | 0.12 U  | 0.12 U  | 0.12 U  |
| Di-n-octyl phthalate                      | NC   | NC   | NC   | 0.2 U                                       | 0.2 U   | 0.2 U  | 0.2 U   | 0.19 U  | 0.19 U  |

Table 14:  
Summary of Elutriate Water Sample Results - Avalon Area  
NJIWW Sediment 2014

| Location ID<br>Sample ID<br>Sampling Date | NJDEP Surface Water<br>Quality Criteria (Saline)<br>for Toxic Substances<br>(Human Health) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Acute) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Chronic) | Filtered                                    |   |  |   |   |   |
|---|--|--|--|---|---|--|---|---|---|
|   |  |  |  | AV-SED-01<br>180-29828-13<br>2/20/2014 9:00 | AV-SED-02/03<br>180-29828-14<br>2/20/2014 10:00 | AV-SED-04<br>180-29828-15<br>2/20/2014 10:30 | AV-SED-05A<br>180-29828-16<br>2/20/2014 11:00 | AV-SED-05B<br>180-29828-17<br>2/20/2014 12:00 | AV-SED-DUP<br>180-29828-18<br>2/20/2014 12:30 |
|   |  |  |  | Fluoranthene                                | 140   | NC   | NC  | 0.016 U                                       | 0.016 U                                       |
| Fluorene                                  | 5,300  | NC   | NC   | 0.021 U                                     | 0.021 U   | 0.021 U                                      | 0.021 U                                       | 0.02 U  | 0.02 U  |
| Hexachlorobenzene                         | 0.00029  | NC   | NC   | 0.018 U                                     | 0.018 U   | 0.018 U                                      | 0.018 U                                       | 0.017 U                                       | 0.017 U                                       |
| Hexachlorobutadiene                       | 18   | NC   | NC   | 0.016 U                                     | 0.016 U   | 0.016 U                                      | 0.016 U                                       | 0.016 U                                       | 0.016 U                                       |
| Hexachlorocyclopentadiene                 | NC   | NC   | NC   | 0.051 U *                                   | 0.05 U *  | 0.05 U *                                     | 0.051 U *                                     | 0.049 U *                                     | 0.049 U *                                     |
| Hexachloroethane                          | 3.3  | NC   | NC   | 0.062 U                                     | 0.061 U   | 0.06 U                                       | 0.062 U                                       | 0.059 U                                       | 0.059 U                                       |
| Indeno[1,2,3-cd]pyrene                    | 0.18   | NC   | NC   | 0.02 U                                      | 0.019 U   | 0.019 U                                      | 0.02 U  | 0.019 U                                       | 0.019 U                                       |
| Isophorone                                | 960  | NC   | NC   | 0.063 U                                     | 0.063 U   | 0.062 U                                      | 0.063 U                                       | 0.061 U                                       | 0.061 U                                       |
| Methylphenol, 3 & 4                       | NC   | NC   | NC   | 0.088 U                                     | 0.088 U   | 0.087 U                                      | 0.088 U                                       | 0.085 U                                       | 0.085 U                                       |
| Naphthalene                               | NC   | NC   | NC   | 0.014 U                                     | 0.014 U   | 0.013 U                                      | 0.014 U                                       | 0.013 U                                       | 0.013 U                                       |
| Nitrobenzene                              | 690  | NC   | NC   | 0.083 U                                     | 0.082 U   | 0.081 U                                      | 0.083 U                                       | 0.08 U  | 0.08 U  |
| N-Nitrosodi-n-propylamine                 | 0.51   | NC   | NC   | 0.03 U                                      | 0.03 U  | 0.03 U                                       | 0.03 U  | 0.029 U                                       | 0.029 U                                       |
| N-Nitrosodiphenylamine                    | 6  | NC   | NC   | 0.084 U                                     | 0.083 U   | 0.082 U                                      | 0.084 U                                       | 0.08 U  | 0.08 U  |
| Pentachlorophenol                         | 3  | 13   | 7.9  | 0.065 U                                     | 0.064 U   | 0.064 U                                      | 0.065 U                                       | 0.063 U                                       | 0.063 U                                       |
| Phenanthrene                              | NC   | NC   | NC   | 0.042 U                                     | 0.041 U   | 0.041 U                                      | 0.042 U                                       | 0.04 U  | 0.04 U  |
| Phenol                                    | 860,000  | NC   | NC   | 0.057 U                                     | 0.056 U   | 0.056 U                                      | 0.057 U                                       | 0.055 U                                       | 0.055 U                                       |
| Pyrene                                    | 4,000  | NC   | NC   | 0.015 U                                     | 0.015 U   | 0.015 U                                      | 0.015 U                                       | 0.015 U                                       | 0.015 U                                       |
| <b>Pesticides (ug/L)</b>                  |  |  |  |   |   |  |   |   |   |
| 4,4'-DDD                                  | 0.00031  | NC   | NC   | 0.00064 U                                   | 0.00064 U                                       | 0.00066 U                                    | 0.00064 U                                     | 0.00063 U                                     | 0.00064 U                                     |
| 4,4'-DDE                                  | 0.00022  | NC   | NC   | 0.00076 U                                   | 0.00075 U                                       | 0.00077 U                                    | 0.00076 U                                     | 0.00075 U                                     | 0.00075 U                                     |
| 4,4'-DDT                                  | 0.00022  | 0.13   | 0.0010   | 0.00071 U                                   | 0.0007 U  | 0.00073 U                                    | 0.00071 U                                     | 0.0007 U                                      | 0.0007 U                                      |
| Aldrin                                    | 0.00005  | 1.3  | NC   | 0.0008 U                                    | 0.00079 U                                       | 0.00081 U                                    | 0.0008 U                                      | 0.00078 U                                     | 0.00079 U                                     |
| alpha-BHC                                 | 0.0049   | NC   | NC   | 0.00063 U                                   | 0.00095 J p                                     | 0.00065 U                                    | 0.00063 U                                     | 0.00062 U                                     | 0.00063 U                                     |
| alpha-Chlordane                           | 0.00011  | 0.09   | 0.004  | 0.00094 U                                   | 0.00093 U                                       | 0.00096 U                                    | 0.00094 U                                     | 0.00092 U                                     | 0.00093 U                                     |
| beta-BHC                                  | 0.017  | NC   | NC   | 0.0023 p                                    | 0.0023 p  | 0.0029 p                                     | 0.00096 U                                     | 0.00094 U                                     | 0.00095 U                                     |
| delta-BHC                                 | NC   | NC   | NC   | 0.00037 U                                   | 0.00039 J p                                     | 0.00037 U                                    | 0.00037 U                                     | 0.00048 J p                                   | 0.00038 J p                                   |
| Dieldrin                                  | 0.000054   | 0.71   | 0.0019   | 0.00079 U                                   | 0.00078 U                                       | 0.0008 U                                     | 0.00079 U                                     | 0.00077 U                                     | 0.00078 U                                     |
| Endosulfan I                              | 89   | 0.034  | 0.0087   | 0.0009 U                                    | 0.0009 U  | 0.00092 U                                    | 0.0009 U                                      | 0.00089 U                                     | 0.0009 U                                      |
| Endosulfan II                             | 89   | 0.034  | 0.0087   | 0.00094 U                                   | 0.00093 U                                       | 0.00096 U                                    | 0.00094 U                                     | 0.00092 U                                     | 0.00093 U                                     |
| Endosulfan sulfate                        | 89   | NC   | NC   | 0.00055 U                                   | 0.00054 U                                       | 0.00056 U                                    | 0.00055 U                                     | 0.00054 U                                     | 0.00054 U                                     |
| Endrin aldehyde                           | 0.06   | NC   | NC   | 0.00087 U                                   | 0.00086 U                                       | 0.00088 U                                    | 0.00087 U                                     | 0.00085 U                                     | 0.00086 U                                     |
| Endrin ketone                             | NC   | NC   | NC   | 0.00088 U                                   | 0.00088 U                                       | 0.0009 U                                     | 0.00088 U                                     | 0.00087 U                                     | 0.00088 U                                     |
| Endrin                                    | 0.06   | 0.037  | 0.0023   | 0.00092 U                                   | 0.00091 U                                       | 0.00096 J p                                  | 0.00092 U                                     | 0.00091 U                                     | 0.00091 U                                     |
| gamma-BHC (Lindane)                       | 1.8  | 0.16   | NC   | 0.0043 p                                    | 0.0049 p  | 0.0017 p                                     | 0.00077 U                                     | 0.00075 U                                     | 0.0053 p                                      |
| gamma-Chlordane                           | 0.00011  | 0.09   | 0.004  | 0.00092 U                                   | 0.00091 U                                       | 0.00094 U                                    | 0.00092 U                                     | 0.00091 U                                     | 0.00091 U                                     |
| Heptachlor epoxide                        | 0.000039   | 0.053  | 0.0036   | 0.00093 U                                   | 0.00092 U                                       | 0.00095 U                                    | 0.00093 U                                     | 0.00092 U                                     | 0.00092 U                                     |
| Heptachlor                                | 0.000079   | 0.053  | 0.0036   | 0.00095 U                                   | 0.00094 U                                       | 0.00097 U                                    | 0.00095 U                                     | 0.00093 U                                     | 0.00094 U                                     |
| Methoxychlor                              | NC   | NC   | 0.03   | 0.00088 U                                   | 0.00087 U                                       | 0.00089 U                                    | 0.00088 U                                     | 0.00086 U                                     | 0.00087 U                                     |
| Toxaphene                                 | 0.00028  | 0.21   | 0.0002   | 0.018 U                                     | 0.018 U   | 0.018 U                                      | 0.018 U                                       | 0.018 U                                       | 0.018 U                                       |
| <b>PCBs (ug/L)</b>                        |  |  |  |   |   |  |   |   |   |
| PCB-1016                                  | 0.000064   | NC   | 0.03   | 0.0024 U                                    | 0.0024 U  | 0.0025 U                                     | 0.0024 U                                      | 0.0024 U                                      | 0.0024 U                                      |
| PCB-1221                                  | 0.000064   | NC   | 0.03   | 0.0024 U                                    | 0.0024 U  | 0.0024 U                                     | 0.0024 U                                      | 0.0023 U                                      | 0.0024 U                                      |
| PCB-1232                                  | 0.000064   | NC   | 0.03   | 0.0028 U                                    | 0.0028 U  | 0.0029 U                                     | 0.0028 U                                      | 0.0028 U                                      | 0.0028 U                                      |
| PCB-1242                                  | 0.000064   | NC   | 0.03   | 0.0018 U                                    | 0.0018 U  | 0.0018 U                                     | 0.0018 U                                      | 0.0018 U                                      | 0.0018 U                                      |
| PCB-1248                                  | 0.000064   | NC   | 0.03   | 0.0022 U                                    | 0.0022 U  | 0.0022 U                                     | 0.0022 U                                      | 0.0021 U                                      | 0.0022 U                                      |
| PCB-1254                                  | 0.000064   | NC   | 0.03   | 0.0022 U                                    | 0.0022 U  | 0.0022 U                                     | 0.0022 U                                      | 0.0022 U                                      | 0.0022 U                                      |
| PCB-1260                                  | 0.000064   | NC   | 0.03   | 0.0013 U                                    | 0.0013 U  | 0.0013 U                                     | 0.0013 U                                      | 0.0013 U                                      | 0.0013 U                                      |

**Table 14:**  
**Summary of Elutriate Water Sample Results - Avalon Area**  
**NJIWW Sediment 2014**

| Location ID<br>Sample ID<br>Sampling Date | NJDEP Surface Water<br>Quality Criteria (Saline)<br>for Toxic Substances<br>(Human Health) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Acute) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Chronic) | Filtered                       |                                 |                                 |                                 |                                 |                                 |
|---|--|--|--|--------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
|   |  |  |  | AV-SED-01                      | AV-SED-02/03                    | AV-SED-04                       | AV-SED-05A                      | AV-SED-05B                      | AV-SED-DUP                      |
|   |  |  |  | 180-29828-13<br>2/20/2014 9:00 | 180-29828-14<br>2/20/2014 10:00 | 180-29828-15<br>2/20/2014 10:30 | 180-29828-16<br>2/20/2014 11:00 | 180-29828-17<br>2/20/2014 12:00 | 180-29828-18<br>2/20/2014 12:30 |
| <b>Inorganics (ug/L)</b>                  |  |  |  |                                |                                 |                                 |                                 |                                 |                                 |
| Aluminum                                  | NC   | NC   | NC   | 41 J                           | 260                             | 26 J                            | 20 J                            | 45 J                            | 89 J                            |
| Antimony                                  | 640  | NC   | NC   | 2.5 J B                        | 1.6 J B                         | 1.6 J B                         | 1.1 J B                         | 0.57 J B                        | 1.7 J B                         |
| Arsenic                                   | 0.061  | 69   | 36   | 23                             | 29                              | 28                              | 17                              | 14                              | 37                              |
| Barium                                    | NC   | NC   | NC   | 24 J                           | 21 J                            | 16 J                            | 18 J                            | 16 J                            | 25 J                            |
| Beryllium                                 | 42   | NC   | NC   | 0.18 U                         | 0.18 U                          | 0.29 J                          | 0.18 U                          | 0.18 U                          | 0.18 U                          |
| Cadmium                                   | 16   | 40   | 8.8  | 0.57 U                         | 0.57 U                          | 0.57 U                          | 0.57 U                          | 0.57 U                          | 0.57 U                          |
| Calcium                                   | NC   | NC   | NC   | 320,000                        | 320,000                         | 320,000                         | 320,000                         | 320,000                         | 330,000                         |
| Chromium                                  | 750  | NC   | NC   | 4.7 J                          | 5.4 J                           | 4.4 J                           | 4.2 J                           | 4.2 J                           | 4.8 J                           |
| Cobalt                                    | NC   | NC   | NC   | 0.59 J                         | 0.64 J                          | 0.61 J                          | 0.56 J                          | 0.53 J                          | 0.57 J                          |
| Copper                                    | NC   | 4.8  | 3.1  | 2.1 J                          | 2.5 J                           | 2.1 J                           | 2 J                             | 2.3 J                           | 2.4 J                           |
| Iron                                      | NC   | NC   | NC   | 450                            | 1200                            | 440                             | 250                             | 110 J                           | 300                             |
| Lead                                      | NC   | 210  | 24   | 0.3 J B                        | 0.53 J B                        | 0.42 J B                        | 0.22 J B                        | 0.21 J B                        | 0.45 J B                        |
| Magnesium                                 | NC   | NC   | NC   | 1,200,000                      | 1,200,000                       | 1,300,000                       | 1,200,000                       | 1,300,000                       | 1,300,000                       |
| Manganese                                 | 100  | NC   | NC   | 480                            | 240                             | 250                             | 210                             | 60                              | 160                             |
| Mercury                                   | 0.051  | 1.8  | 0.94   | NR                             | NR                              | NR                              | NR                              | NR                              | NR                              |
| Nickel                                    | 1,700  | 64   | 22   | 0.87 U                         | 0.87 U                          | 0.87 U                          | 0.87 U                          | 0.87 U                          | 0.87 U                          |
| Potassium                                 | NC   | NC   | NC   | 340,000 B                      | 320,000 B                       | 340,000 B                       | 320,000 B                       | 320,000 B                       | 340,000 B                       |
| Selenium                                  | 4,200  | 290  | 71   | 67                             | 68                              | 70                              | 66                              | 67                              | 68                              |
| Silver                                    | 40,000   | 1.9  | NC   | 0.18 U                         | 0.18 U                          | 0.18 U                          | 0.18 U                          | 0.18 U                          | 0.18 U                          |
| Sodium                                    | NC   | NC   | NC   | 9,100,000 B ^                  | 8,900,000 B ^                   | 9,100,000 B ^                   | 8,500,000 B ^                   | 9,100,000 B ^                   | 8,800,000 B ^                   |
| Thallium                                  | 0.47   | NC   | NC   | 0.17 J                         | 0.076 U                         | 0.076 U                         | 0.076 U                         | 0.076 U                         | 0.076 U                         |
| Vanadium                                  | NC   | NC   | NC   | 16 B                           | 26 B                            | 26 B                            | 11 B                            | 26 B                            | 46 B                            |
| Zinc                                      | 26,000   | 90   | 81   | 4.8 U                          | 4.8 U                           | 4.8 U                           | 4.8 U                           | 4.8 U                           | 4.8 U                           |
| Cyanide, Total                            | 140  | 1.0  | 1.0  | NR                             | NR                              | NR                              | NR                              | NR                              | NR                              |
| <b>Total Suspended Solids (mg/l)</b>      |  |  |  |                                |                                 |                                 |                                 |                                 |                                 |
| Total Suspended Solids                    | NC   | NC   | NC   | NR                             | NR                              | NR                              | NR                              | NR                              | NR                              |
| <b>Dioxins (pg/l)</b>                     |  |  |  |                                |                                 |                                 |                                 |                                 |                                 |
| 1,2,3,4,6,7,8-HpCDD                       | NC   | NC   | NC   | NR                             | 49 U                            | 8 J                             | NR                              | NR                              | NR                              |
| 1,2,3,4,6,7,8-HpCDF                       | NC   | NC   | NC   | NR                             | 49 U                            | 49 U                            | NR                              | NR                              | NR                              |
| 1,2,3,4,7,8,9-HpCDF                       | NC   | NC   | NC   | NR                             | 49 U                            | 49 U                            | NR                              | NR                              | NR                              |
| 1,2,3,4,7,8-HxCDD                         | NC   | NC   | NC   | NR                             | 49 U                            | 49 U                            | NR                              | NR                              | NR                              |
| 1,2,3,4,7,8-HxCDF                         | NC   | NC   | NC   | NR                             | 49 U                            | 49 U                            | NR                              | NR                              | NR                              |
| 1,2,3,6,7,8-HxCDD                         | NC   | NC   | NC   | NR                             | 49 U                            | 49 U                            | NR                              | NR                              | NR                              |
| 1,2,3,6,7,8-HxCDF                         | NC   | NC   | NC   | NR                             | 49 U                            | 49 U                            | NR                              | NR                              | NR                              |
| 1,2,3,7,8,9-HxCDD                         | NC   | NC   | NC   | NR                             | 49 U                            | 49 U                            | NR                              | NR                              | NR                              |
| 1,2,3,7,8,9-HxCDF                         | NC   | NC   | NC   | NR                             | 49 U                            | 49 U                            | NR                              | NR                              | NR                              |
| 1,2,3,7,8-PeCDD                           | NC   | NC   | NC   | NR                             | 49 U                            | 49 U                            | NR                              | NR                              | NR                              |
| 1,2,3,7,8-PeCDF                           | NC   | NC   | NC   | NR                             | 49 U                            | 49 U                            | NR                              | NR                              | NR                              |
| 2,3,4,6,7,8-HxCDF                         | NC   | NC   | NC   | NR                             | 49 U                            | 49 U                            | NR                              | NR                              | NR                              |
| 2,3,4,7,8-PeCDF                           | NC   | NC   | NC   | NR                             | 49 U                            | 49 U                            | NR                              | NR                              | NR                              |
| 2,3,7,8-TCDD                              | 0.0051   | NC   | NC   | NR                             | 9.8 U                           | 9.8 U                           | NR                              | NR                              | NR                              |



**Table 14:  
Summary of Elutriate Water Sample Results - Avalon Area  
NJIWW Sediment 2014**

| Location ID<br>Sample ID<br>Sampling Date | NJDEP Surface Water<br>Quality Criteria (Saline)<br>for Toxic Substances<br>(Human Health) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Acute) | NJDEP Surface Water<br>Quality Standards<br>(Saline) for Aquatic Life<br>(Chronic) | Filtered                                    |   |  |   |   |   |
|---|--|--|--|---|---|--|---|---|---|
|   |  |  |  | AV-SED-01<br>180-29828-13<br>2/20/2014 9:00 | AV-SED-02/03<br>180-29828-14<br>2/20/2014 10:00 | AV-SED-04<br>180-29828-15<br>2/20/2014 10:30 | AV-SED-05A<br>180-29828-16<br>2/20/2014 11:00 | AV-SED-05B<br>180-29828-17<br>2/20/2014 12:00 | AV-SED-DUP<br>180-29828-18<br>2/20/2014 12:30 |
| 2,3,7,8-TCDF                              | NC   | NC   | NC   | NR  | 9.8 U   | 9.8 U  | NR  | NR  | NR  |
| OCDD                                      | NC   | NC   | NC   | NR  | 48 B J  | 130 B  | NR  | NR  | NR  |
| OCDF                                      | NC   | NC   | NC   | NR  | 2.1 B J   | 2.4 B J                                      | NR  | NR  | NR  |

Notes:

NA: Criteria not available

NC: No criteria

NR: Not analyzed

B : Compound was found in the blank and sample.

B ^ : ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC exceeds the control limits.

B J : Method blank contamination. The associated method blank contains the target analyte at a reportable level.

J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

J B : Compound was found in the blank and sample.

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

mg/L: milligrams per liter

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

pg/L: picograms per liter

Q B J : Method blank contamination. The associated method blank contains the target analyte at a reportable level.

Q J : Estimated result. Result is less than the reporting limit.

U : Indicates the analyte was analyzed for but not detected.

U \* : LCS or LCSD exceeds the control limits

ug/L: micrograms per liter

X : Surrogate is outside control limits

Values shaded in tan exceed the NJDEP Surface Water Quality Criteria (Saline) for Toxic Substances (Human Health)

Values shaded in pink exceed the NJDEP Surface Water (Saline) Quality Standards for aquatic life (Acute)

Values shaded in blue exceed the NJDEP Surface Water (Saline) Quality Standards for aquatic life (Chronic)

Values shaded in orange exceed more than one criteria value

**Table 15:**  
**PCB Congeners - Elutriate Water Sample Results - Avalon Area**  
**NJIWW Sediment 2014**

| Location ID<br>Sample ID<br>Sampling Date | AV-SED-01<br>180-29828-1<br>2/11/2014 | AV-SED-02/03<br>180-29828-14<br>2/20/2014 | AV-SED-04<br>180-29828-15<br>2/20/2014 | AV-SED-05A<br>180-29828-10<br>2/20/2014 | AV-SED-05B<br>180-29828-11<br>2/20/2014 | AV-SED-DUP<br>180-29828-12<br>2/20/2014 |
|---|---------------------------------------|---|--|---|---|---|
| <b>PCB Congeners (ng/L)</b>               |                                       |   |  |   |   |   |
| PCB 1 (BZ)                                | 0.0076 Q J                            | 0.0065 J                                  | 0.0087 J                               | 0.0047 J                                | 0.0070 Q J                              | 0.0077 Q J                              |
| PCB 2 (BZ)                                | 0.0070 Q J                            | 0.0079 J                                  | 0.011 J                                | 0.0041 J                                | 0.0080 J                                | 0.011 J                                 |
| PCB 3 (BZ)                                | 0.039 U                               | 0.0029 Q J                                | 0.0042 J                               | 0.0017 J                                | 0.0032 J                                | 0.0032 Q J                              |
| PCB 4 (BZ)                                | 0.014 Q J                             | 0.016 Q J                                 | 0.017 Q J                              | 0.0092 Q J                              | 0.015 Q J                               | 0.016 Q J                               |
| PCB 5 (BZ)                                | 0.039 U                               | 0.038 U                                   | 0.0012 Q J                             | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 6 (BZ)                                | 0.0070 Q J                            | 0.0048 Q J                                | 0.012 Q J                              | 0.0038 Q J                              | 0.0078 Q J                              | 0.0093 Q J                              |
| PCB 7 (BZ)                                | 0.039 U                               | 0.038 U                                   | 0.0056 Q J                             | 0.0024 Q J                              | 0.0036 Q J                              | 0.0033 Q J                              |
| PCB 8 (BZ)                                | 0.018 Q B J                           | 0.014 Q B J                               | 0.022 Q B J                            | 0.011 Q B J                             | 0.016 B J                               | 0.018 Q B J                             |
| PCB 9 (BZ)                                | 0.0027 Q J                            | 0.038 U                                   | 0.0027 Q J                             | 0.04 U                                  | 0.0020 Q J                              | 0.0019 Q J                              |
| PCB 10 (BZ)                               | 0.039 U                               | 0.0030 Q J                                | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 11 (BZ)                               | 0.067 Q B                             | 0.058 B                                   | 0.086 B                                | 0.038 Q B J                             | 0.053 B J                               | 0.054 B J                               |
| PCB 12 (BZ)                               | 0.0054 Q C J                          | 0.0047 Q C J                              | 0.0098 Q C J                           | 0.0045 Q C J                            | 0.0049 Q C J                            | 0.0076 Q C J                            |
| PCB 13 (BZ)                               | 0.0054 Q C12 J                        | 0.0047 Q C12 J                            | 0.0098 Q C12 J                         | 0.0045 Q C12 J                          | 0.0049 Q C12 J                          | 0.0076 Q C12 J                          |
| PCB 14 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 15 (BZ)                               | 0.016 Q B J                           | 0.013 Q B J                               | 0.021 B J                              | 0.0095 Q B J                            | 0.012 Q B J                             | 0.013 Q B J                             |
| PCB 16 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.0073 Q J                             | 0.0038 Q J                              | 0.0056 Q J                              | 0.038 U                                 |
| PCB 17 (BZ)                               | 0.0074 Q J                            | 0.0081 Q J                                | 0.015 J                                | 0.0038 Q J                              | 0.0075 Q J                              | 0.0076 Q J                              |
| PCB 18 (BZ)                               | 0.017 Q C J                           | 0.014 C J                                 | 0.022 C J                              | 0.0078 C J                              | 0.012 Q C J                             | 0.017 C J                               |
| PCB 19 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 20 (BZ)                               | 0.042 C                               | 0.029 Q C J                               | 0.057 C                                | 0.022 C J                               | 0.037 C J                               | 0.037 C J                               |
| PCB 21 (BZ)                               | 0.0095 C J                            | 0.0063 Q C J                              | 0.011 C J                              | 0.0048 Q C J                            | 0.0072 Q C J                            | 0.0071 C J                              |
| PCB 22 (BZ)                               | 0.0086 J                              | 0.0049 Q J                                | 0.011 Q J                              | 0.0052 J                                | 0.0073 J                                | 0.0059 Q J                              |
| PCB 23 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 24 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 25 (BZ)                               | 0.0055 J                              | 0.0041 Q J                                | 0.011 J                                | 0.0024 Q J                              | 0.0046 Q J                              | 0.0074 J                                |
| PCB 26 (BZ)                               | 0.0074 Q C J                          | 0.0098 Q C J                              | 0.019 C J                              | 0.0047 C J                              | 0.0081 Q C J                            | 0.0098 Q C J                            |
| PCB 27 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.0033 Q J                             | 0.04 U                                  | 0.039 U                                 | 0.0038 Q J                              |
| PCB 28 (BZ)                               | 0.042 C20                             | 0.029 Q C20 J                             | 0.057 C20                              | 0.022 C20 J                             | 0.037 C20 J                             | 0.037 C20 J                             |
| PCB 29 (BZ)                               | 0.0074 Q C26 J                        | 0.0098 Q C26 J                            | 0.019 C26 J                            | 0.0047 C26 J                            | 0.0081 Q C26 J                          | 0.0098 Q C26 J                          |
| PCB 30 (BZ)                               | 0.017 Q C18 J                         | 0.014 C18 J                               | 0.022 C18 J                            | 0.0078 C18 J                            | 0.012 Q C18 J                           | 0.017 C18 J                             |
| PCB 31 (BZ)                               | 0.024 Q J                             | 0.022 J                                   | 0.038 J                                | 0.015 J                                 | 0.023 J                                 | 0.026 J                                 |
| PCB 32 (BZ)                               | 0.0076 Q J                            | 0.0067 Q J                                | 0.012 J                                | 0.0040 J                                | 0.0063 Q J                              | 0.0069 J                                |
| PCB 33 (BZ)                               | 0.0095 C21 J                          | 0.0063 Q C21 J                            | 0.011 C21 J                            | 0.0048 Q C21 J                          | 0.0072 Q C21 J                          | 0.0071 C21 J                            |
| PCB 34 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 35 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.0017 Q J                             | 0.04 U                                  | 0.039 U                                 | 0.0019 J                                |
| PCB 36 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.0013 Q J                             | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 37 (BZ)                               | 0.013 J                               | 0.0097 J                                  | 0.013 Q J                              | 0.0061 J                                | 0.0075 Q J                              | 0.0089 J                                |
| PCB 38 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 39 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 40 (BZ)                               | 0.011 Q C J                           | 0.010 C J                                 | 0.015 C J                              | 0.0045 Q C J                            | 0.012 C J                               | 0.010 Q C J                             |
| PCB 41 (BZ)                               | 0.011 Q C40 J                         | 0.010 C40 J                               | 0.015 C40 J                            | 0.0045 Q C40 J                          | 0.012 C40 J                             | 0.010 Q C40 J                           |
| PCB 42 (BZ)                               | 0.0055 J                              | 0.0049 Q J                                | 0.0085 J                               | 0.04 U                                  | 0.0056 Q J                              | 0.0070 Q J                              |
| PCB 43 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 44 (BZ)                               | 0.024 B C J                           | 0.027 B C J                               | 0.030 B C J                            | 0.012 Q B C J                           | 0.026 B C J                             | 0.019 Q B C J                           |
| PCB 45 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.0053 C J                             | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |

**Table 15:**  
**PCB Congeners - Elutriate Water Sample Results - Avalon Area**  
**NJIWW Sediment 2014**

| Location ID<br>Sample ID<br>Sampling Date | AV-SED-01<br>180-29828-1<br>2/11/2014 | AV-SED-02/03<br>180-29828-14<br>2/20/2014 | AV-SED-04<br>180-29828-15<br>2/20/2014 | AV-SED-05A<br>180-29828-10<br>2/20/2014 | AV-SED-05B<br>180-29828-11<br>2/20/2014 | AV-SED-DUP<br>180-29828-12<br>2/20/2014 |
|---|---------------------------------------|---|--|---|---|---|
| PCB 46 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 47 (BZ)                               | 0.024 B C44 J                         | 0.027 B C44 J                             | 0.030 B C44 J                          | 0.012 Q B C44 J                         | 0.026 B C44 J                           | 0.019 Q B C44 J                         |
| PCB 48 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.0046 Q J                             | 0.04 U                                  | 0.0026 J                                | 0.038 U                                 |
| PCB 49 (BZ)                               | 0.014 C J                             | 0.015 Q C J                               | 0.022 C J                              | 0.0087 C J                              | 0.018 C J                               | 0.019 C J                               |
| PCB 50 (BZ)                               | 0.039 U                               | 0.0033 C J                                | 0.0036 Q C J                           | 0.04 U                                  | 0.039 U                                 | 0.0030 C J                              |
| PCB 51 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.0053 C45 J                           | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 52 (BZ)                               | 0.022 J                               | 0.029 J                                   | 0.041                                  | 0.013 J                                 | 0.021 J                                 | 0.027 J                                 |
| PCB 53 (BZ)                               | 0.039 U                               | 0.0033 C50 J                              | 0.0036 Q C50 J                         | 0.04 U                                  | 0.039 U                                 | 0.0030 C50 J                            |
| PCB 54 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 55 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 56 (BZ)                               | 0.011 J                               | 0.0086 Q J                                | 0.011 Q J                              | 0.0055 J                                | 0.0096 J                                | 0.0092 J                                |
| PCB 57 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 58 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 59 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 60 (BZ)                               | 0.039 U                               | 0.0034 Q J                                | 0.0054 Q J                             | 0.04 U                                  | 0.0043 J                                | 0.0039 J                                |
| PCB 61 (BZ)                               | 0.037 Q B C J                         | 0.034 B C J                               | 0.045 B C                              | 0.020 B C J                             | 0.036 B C J                             | 0.034 B C J                             |
| PCB 62 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 63 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 64 (BZ)                               | 0.0072 J                              | 0.0066 J                                  | 0.0094 J                               | 0.0045 J                                | 0.0071 J                                | 0.0062 Q J                              |
| PCB 65 (BZ)                               | 0.024 B C44 J                         | 0.027 B C44 J                             | 0.030 B C44 J                          | 0.012 Q B C44 J                         | 0.026 B C44 J                           | 0.019 Q B C44 J                         |
| PCB 66 (BZ)                               | 0.030 J                               | 0.024 J                                   | 0.041                                  | 0.014 J                                 | 0.026 J                                 | 0.028 J                                 |
| PCB 67 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.0033 Q J                             | 0.0010 Q J                              | 0.039 U                                 | 0.038 U                                 |
| PCB 68 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 69 (BZ)                               | 0.014 C49 J                           | 0.015 Q C49 J                             | 0.022 C49 J                            | 0.0087 C49 J                            | 0.018 C49 J                             | 0.019 C49 J                             |
| PCB 70 (BZ)                               | 0.037 Q B C61 J                       | 0.034 B C61 J                             | 0.045 B C61                            | 0.020 B C61 J                           | 0.036 B C61 J                           | 0.034 B C61 J                           |
| PCB 71 (BZ)                               | 0.011 Q C40 J                         | 0.010 C40 J                               | 0.015 C40 J                            | 0.0045 Q C40 J                          | 0.012 C40 J                             | 0.010 Q C40 J                           |
| PCB 72 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.0014 Q J                             | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 73 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 74 (BZ)                               | 0.037 Q B C61 J                       | 0.034 B C61 J                             | 0.045 B C61                            | 0.020 B C61 J                           | 0.036 B C61 J                           | 0.034 B C61 J                           |
| PCB 75 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 76 (BZ)                               | 0.037 Q B C61 J                       | 0.034 B C61 J                             | 0.045 B C61                            | 0.020 B C61 J                           | 0.036 B C61 J                           | 0.034 B C61 J                           |
| PCB 77 (BZ)                               | 0.0032 Q J                            | 0.0033 Q J                                | 0.0048 Q J                             | 0.0023 Q J                              | 0.0039 Q J                              | 0.0044 J                                |
| PCB 78 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 79 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 80 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 81 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 82 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 83 (BZ)                               | 0.021 Q C J                           | 0.029 C J                                 | 0.036 C J                              | 0.013 C J                               | 0.029 C J                               | 0.021 Q C J                             |
| PCB 84 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.0059 Q J                             | 0.04 U                                  | 0.0060 Q J                              | 0.038 U                                 |
| PCB 85 (BZ)                               | 0.0053 C J                            | 0.038 U                                   | 0.0039 Q C J                           | 0.04 U                                  | 0.0064 Q C J                            | 0.0032 Q C J                            |
| PCB 86 (BZ)                               | 0.021 Q C J                           | 0.019 Q C J                               | 0.026 Q C J                            | 0.0099 Q C J                            | 0.023 C J                               | 0.019 Q C J                             |
| PCB 87 (BZ)                               | 0.021 Q C86 J                         | 0.019 Q C86 J                             | 0.026 Q C86 J                          | 0.0099 Q C86 J                          | 0.023 C86 J                             | 0.019 Q C86 J                           |
| PCB 88 (BZ)                               | 0.039 U                               | 0.0042 Q C J                              | 0.0042 Q C J                           | 0.04 U                                  | 0.0050 Q C J                            | 0.038 U                                 |
| PCB 89 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 90 (BZ)                               | 0.026 C J                             | 0.024 Q C J                               | 0.037 C J                              | 0.013 Q C J                             | 0.029 C J                               | 0.027 C J                               |
| PCB 91 (BZ)                               | 0.039 U                               | 0.0042 Q C88 J                            | 0.0042 Q C88 J                         | 0.04 U                                  | 0.0050 Q C88 J                          | 0.038 U                                 |

**Table 15:**  
**PCB Congeners - Elutriate Water Sample Results - Avalon Area**  
**NJIWW Sediment 2014**

| Location ID<br>Sample ID<br>Sampling Date | AV-SED-01<br>180-29828-1<br>2/11/2014 | AV-SED-02/03<br>180-29828-14<br>2/20/2014 | AV-SED-04<br>180-29828-15<br>2/20/2014 | AV-SED-05A<br>180-29828-10<br>2/20/2014 | AV-SED-05B<br>180-29828-11<br>2/20/2014 | AV-SED-DUP<br>180-29828-12<br>2/20/2014 |
|---|---------------------------------------|---|--|---|---|---|
| PCB 92 (BZ)                               | 0.0040 J                              | 0.038 U                                   | 0.0058 Q J                             | 0.04 U                                  | 0.0062 Q J                              | 0.0049 Q J                              |
| PCB 93 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 94 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 95 (BZ)                               | 0.016 J                               | 0.016 Q J                                 | 0.021 J                                | 0.013 J                                 | 0.019 Q J                               | 0.014 J                                 |
| PCB 96 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 97 (BZ)                               | 0.021 Q C86 J                         | 0.019 Q C86 J                             | 0.026 Q C86 J                          | 0.0099 Q C86 J                          | 0.023 C86 J                             | 0.019 Q C86 J                           |
| PCB 98 (BZ)                               | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 99 (BZ)                               | 0.021 Q C83 J                         | 0.029 C83 J                               | 0.036 C83 J                            | 0.013 C83 J                             | 0.029 C83 J                             | 0.021 Q C83 J                           |
| PCB 100 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 101 (BZ)                              | 0.026 C90 J                           | 0.024 Q C90 J                             | 0.037 C90 J                            | 0.013 Q C90 J                           | 0.029 C90 J                             | 0.027 C90 J                             |
| PCB 102 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 103 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 104 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 105 (BZ)                              | 0.012 J                               | 0.010 J                                   | 0.020 J                                | 0.0067 J                                | 0.012 Q J                               | 0.011 Q J                               |
| PCB 106 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 107 (BZ)/109 (IUPAC)                  | 0.039 U                               | 0.0030 Q J                                | 0.0060 J                               | 0.04 U                                  | 0.0019 Q J                              | 0.0020 Q J                              |
| PCB 108 (BZ)/107 (IUPAC)                  | 0.039 U                               | 0.0013 Q C J                              | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 109 (BZ)/108 (IUPAC)                  | 0.021 Q C86 J                         | 0.019 Q C86 J                             | 0.026 Q C86 J                          | 0.0099 Q C86 J                          | 0.023 C86 J                             | 0.019 Q C86 J                           |
| PCB 110 (BZ)                              | 0.022 C J                             | 0.026 C J                                 | 0.032 Q C J                            | 0.016 C J                               | 0.030 Q C J                             | 0.027 C J                               |
| PCB 111 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 112 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 113 (BZ)                              | 0.026 C90 J                           | 0.024 Q C90 J                             | 0.037 C90 J                            | 0.013 Q C90 J                           | 0.029 C90 J                             | 0.027 C90 J                             |
| PCB 114 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 115 (BZ)                              | 0.022 C110 J                          | 0.026 C110 J                              | 0.032 Q C110 J                         | 0.016 C110 J                            | 0.030 Q C110 J                          | 0.027 C110 J                            |
| PCB 116 (BZ)                              | 0.0053 C85 J                          | 0.038 U                                   | 0.0039 Q C85 J                         | 0.04 U                                  | 0.0064 Q C85 J                          | 0.0032 Q C85 J                          |
| PCB 117 (BZ)                              | 0.0053 C85 J                          | 0.038 U                                   | 0.0039 Q C85 J                         | 0.04 U                                  | 0.0064 Q C85 J                          | 0.0032 Q C85 J                          |
| PCB 118 (BZ)                              | 0.027 Q J                             | 0.035 J                                   | 0.057                                  | 0.016 Q J                               | 0.033 Q J                               | 0.025 Q J                               |
| PCB 119 (BZ)                              | 0.021 Q C86 J                         | 0.019 Q C86 J                             | 0.026 Q C86 J                          | 0.0099 Q C86 J                          | 0.023 C86 J                             | 0.019 Q C86 J                           |
| PCB 120 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 121 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 122 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 123 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.0011 J                                | 0.038 U                                 |
| PCB 124 (BZ)                              | 0.039 U                               | 0.0013 Q C108 J                           | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 125 (BZ)                              | 0.021 Q C86 J                         | 0.019 Q C86 J                             | 0.026 Q C86 J                          | 0.0099 Q C86 J                          | 0.023 C86 J                             | 0.019 Q C86 J                           |
| PCB 126 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 127 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 128 (BZ)                              | 0.0050 Q C J                          | 0.0072 Q C J                              | 0.011 C J                              | 0.0030 C J                              | 0.0071 Q C J                            | 0.0049 C J                              |
| PCB 129 (BZ)                              | 0.041 C                               | 0.055 C                                   | 0.069 C                                | 0.025 C J                               | 0.052 C                                 | 0.040 C                                 |
| PCB 130 (BZ)                              | 0.039 U                               | 0.0031 Q J                                | 0.0047 Q J                             | 0.04 U                                  | 0.0030 J                                | 0.038 U                                 |
| PCB 131 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 132 (BZ)                              | 0.0090 J                              | 0.011 J                                   | 0.014 J                                | 0.0045 J                                | 0.0084 Q J                              | 0.0085 J                                |
| PCB 133 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 134 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 135 (BZ)                              | 0.039 U                               | 0.015 Q C J                               | 0.015 Q C J                            | 0.0073 Q C J                            | 0.013 Q C J                             | 0.010 Q C J                             |
| PCB 136 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.0046 Q J                             | 0.04 U                                  | 0.0059 J                                | 0.038 U                                 |
| PCB 137 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |

**Table 15:**  
**PCB Congeners - Elutriate Water Sample Results - Avalon Area**  
**NJIWW Sediment 2014**

| Location ID<br>Sample ID<br>Sampling Date | AV-SED-01<br>180-29828-1<br>2/11/2014 | AV-SED-02/03<br>180-29828-14<br>2/20/2014 | AV-SED-04<br>180-29828-15<br>2/20/2014 | AV-SED-05A<br>180-29828-10<br>2/20/2014 | AV-SED-05B<br>180-29828-11<br>2/20/2014 | AV-SED-DUP<br>180-29828-12<br>2/20/2014 |
|---|---------------------------------------|---|--|---|---|---|
| PCB 138 (BZ)                              | 0.041 C129                            | 0.055 C129                                | 0.069 C129                             | 0.025 C129 J                            | 0.052 C129                              | 0.040 C129                              |
| PCB 139 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 140 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 141 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.0049 Q J                             | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 142 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 143 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 144 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 145 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 146 (BZ)                              | 0.0095 J                              | 0.013 Q J                                 | 0.017 J                                | 0.0061 J                                | 0.0085 Q J                              | 0.010 Q J                               |
| PCB 147 (BZ)                              | 0.026 C J                             | 0.036 C J                                 | 0.044 C                                | 0.015 C J                               | 0.038 C J                               | 0.028 C J                               |
| PCB 148 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 149 (BZ)                              | 0.026 C147 J                          | 0.036 C147 J                              | 0.044 C147                             | 0.015 C147 J                            | 0.038 C147 J                            | 0.028 C147 J                            |
| PCB 150 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 151 (BZ)                              | 0.039 U                               | 0.015 Q C135 J                            | 0.015 Q C135 J                         | 0.0073 Q C135 J                         | 0.013 Q C135 J                          | 0.010 Q C135 J                          |
| PCB 152 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 153 (BZ)                              | 0.035 Q C J                           | 0.046 C                                   | 0.060 C                                | 0.025 C J                               | 0.044 Q C                               | 0.036 C J                               |
| PCB 154 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.0021 J                               | 0.04 U                                  | 0.0040 J                                | 0.038 U                                 |
| PCB 155 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 156 (BZ)                              | 0.0037 Q C J                          | 0.0035 Q C J                              | 0.0040 Q C J                           | 0.0016 C J                              | 0.039 U                                 | 0.0033 C J                              |
| PCB 157 (BZ)                              | 0.0037 Q C156 J                       | 0.0035 Q C156 J                           | 0.0040 Q C156 J                        | 0.0016 C156 J                           | 0.039 U                                 | 0.0033 C156 J                           |
| PCB 158 (BZ)                              | 0.0022 Q J                            | 0.0034 J                                  | 0.0041 Q J                             | 0.04 U                                  | 0.0037 J                                | 0.038 U                                 |
| PCB 159 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 160 (BZ)                              | 0.041 C129                            | 0.055 C129                                | 0.069 C129                             | 0.025 C129 J                            | 0.052 C129                              | 0.040 C129                              |
| PCB 161 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 162 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 163 (BZ)                              | 0.041 C129                            | 0.055 C129                                | 0.069 C129                             | 0.025 C129 J                            | 0.052 C129                              | 0.040 C129                              |
| PCB 164 (BZ)                              | 0.039 U                               | 0.0023 J                                  | 0.0042 Q J                             | 0.04 U                                  | 0.0019 Q J                              | 0.038 U                                 |
| PCB 165 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 166 (BZ)                              | 0.0050 Q C128 J                       | 0.0072 Q C128 J                           | 0.011 C128 J                           | 0.0030 C128 J                           | 0.0071 Q C128 J                         | 0.0049 C128 J                           |
| PCB 167 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 168 (BZ)                              | 0.035 Q C153 J                        | 0.046 C153                                | 0.060 C153                             | 0.025 C153 J                            | 0.044 Q C153                            | 0.036 C153 J                            |
| PCB 169 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 170 (BZ)                              | 0.0071 Q J                            | 0.0088 Q J                                | 0.012 Q J                              | 0.0036 Q J                              | 0.0091 Q J                              | 0.0069 J                                |
| PCB 171 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.0043 Q C J                            | 0.038 U                                 |
| PCB 172 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 173 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.0043 Q C171 J                         | 0.038 U                                 |
| PCB 174 (BZ)                              | 0.0054 J                              | 0.0072 Q J                                | 0.0075 Q J                             | 0.04 U                                  | 0.0072 J                                | 0.0071 Q J                              |
| PCB 175 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 176 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 177 (BZ)                              | 0.0066 J                              | 0.0091 J                                  | 0.012 Q J                              | 0.0042 Q J                              | 0.0087 Q J                              | 0.0076 J                                |
| PCB 178 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.0042 Q J                             | 0.04 U                                  | 0.0042 Q J                              | 0.038 U                                 |
| PCB 179 (BZ)                              | 0.0066 Q J                            | 0.0069 Q J                                | 0.0097 J                               | 0.0034 Q J                              | 0.0086 J                                | 0.0044 Q J                              |
| PCB 180 (BZ)                              | 0.019 C J                             | 0.023 C J                                 | 0.026 C J                              | 0.0069 Q C J                            | 0.023 C J                               | 0.014 C J                               |
| PCB 181 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 182 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 183 (BZ)                              | 0.0075 C J                            | 0.0083 C J                                | 0.0081 Q C J                           | 0.0040 Q C J                            | 0.0098 C J                              | 0.0051 C J                              |

**Table 15:  
PCB Congeners - Elutriate Water Sample Results - Avalon Area  
NJIWW Sediment 2014**

| Location ID<br>Sample ID<br>Sampling Date | AV-SED-01<br>180-29828-1<br>2/11/2014 | AV-SED-02/03<br>180-29828-14<br>2/20/2014 | AV-SED-04<br>180-29828-15<br>2/20/2014 | AV-SED-05A<br>180-29828-10<br>2/20/2014 | AV-SED-05B<br>180-29828-11<br>2/20/2014 | AV-SED-DUP<br>180-29828-12<br>2/20/2014 |
|---|---------------------------------------|---|--|---|---|---|
| PCB 184 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 185 (BZ)                              | 0.0075 C183 J                         | 0.0083 C183 J                             | 0.0081 Q C183 J                        | 0.0040 Q C183 J                         | 0.0098 C183 J                           | 0.0051 C183 J                           |
| PCB 186 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 187 (BZ)                              | 0.022 Q J                             | 0.028 J                                   | 0.036 J                                | 0.014 J                                 | 0.025 Q J                               | 0.015 Q J                               |
| PCB 188 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 189 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 190 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 191 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 192 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 193 (BZ)                              | 0.019 C180 J                          | 0.023 C180 J                              | 0.026 C180 J                           | 0.0069 Q C180 J                         | 0.023 C180 J                            | 0.014 C180 J                            |
| PCB 194 (BZ)                              | 0.0041 Q J                            | 0.0072 Q J                                | 0.0087 J                               | 0.0032 Q J                              | 0.0071 J                                | 0.0052 Q J                              |
| PCB 195 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.0026 J                                | 0.038 U                                 |
| PCB 196 (BZ)                              | 0.0038 Q J                            | 0.0045 Q J                                | 0.039 U                                | 0.04 U                                  | 0.0029 Q J                              | 0.0019 Q J                              |
| PCB 197 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 198 (BZ)                              | 0.0082 C J                            | 0.0085 Q C J                              | 0.012 C J                              | 0.0061 C J                              | 0.011 C J                               | 0.0076 Q C J                            |
| PCB 199 (BZ)/200 (IUPAC)                  | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 200 (BZ)/201 (IUPAC)                  | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 201 (BZ)/199 (IUPAC)                  | 0.0082 C198 J                         | 0.0085 Q C198 J                           | 0.012 C198 J                           | 0.0061 C198 J                           | 0.011 C198 J                            | 0.0076 Q C198 J                         |
| PCB 202 (BZ)                              | 0.0075 Q J                            | 0.0054 Q J                                | 0.0089 J                               | 0.0030 Q J                              | 0.0088 Q J                              | 0.0051 J                                |
| PCB 203 (BZ)                              | 0.0018 Q J                            | 0.038 U                                   | 0.0054 Q J                             | 0.04 U                                  | 0.0053 J                                | 0.0034 J                                |
| PCB 204 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 205 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.039 U                                | 0.04 U                                  | 0.039 U                                 | 0.038 U                                 |
| PCB 206 (BZ)                              | 0.016 J                               | 0.0084 Q J                                | 0.011 J                                | 0.0034 Q J                              | 0.0095 Q J                              | 0.0049 J                                |
| PCB 207 (BZ)                              | 0.039 U                               | 0.038 U                                   | 0.0023 Q J                             | 0.04 U                                  | 0.0019 Q J                              | 0.0017 Q J                              |
| PCB 208 (BZ)                              | 0.0063 Q J                            | 0.0074 Q J                                | 0.0074 Q J                             | 0.04 U                                  | 0.0053 Q J                              | 0.0049 J                                |
| PCB 209 (BZ)                              | 0.023 B J                             | 0.015 B J                                 | 0.023 B J                              | 0.011 B J                               | 0.029 Q B J                             | 0.0077 Q B J                            |

Notes:

- B : Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- B C : Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- B C J : Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- B C44 J : Estimated result. Result is less than the reporting limit.
- B C61 J : Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- B J : Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- C : Co-eluting isomer.
- C J : Co-eluting isomer.
- C110 J : Estimated result. Result is less than the reporting limit.
- C153 J : Estimated result. Result is less than the reporting limit.
- C183 J : Estimated result. Result is less than the reporting limit.
- C20 J : Estimated result. Result is less than the reporting limit.
- C26 J : Estimated result. Result is less than the reporting limit.
- C40 J : Estimated result. Result is less than the reporting limit.
- C49 J : Estimated result. Result is less than the reporting limit.
- C83 J : Estimated result. Result is less than the reporting limit.
- C85 J : Estimated result. Result is less than the reporting limit.
- C90 J : Estimated result. Result is less than the reporting limit.

**Table 15:  
PCB Congeners - Elutriate Water Sample Results - Avalon Area  
NJIWW Sediment 2014**

| <b>Location ID</b>   | <b>AV-SED-01</b>   | <b>AV-SED-02/03</b> | <b>AV-SED-04</b>    | <b>AV-SED-05A</b>   | <b>AV-SED-05B</b>   | <b>AV-SED-DUP</b>   |
|----------------------|--------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| <b>Sample ID</b>     | <b>180-29828-1</b> | <b>180-29828-14</b> | <b>180-29828-15</b> | <b>180-29828-10</b> | <b>180-29828-11</b> | <b>180-29828-12</b> |
| <b>Sampling Date</b> | <b>2/11/2014</b>   | <b>2/20/2014</b>    | <b>2/20/2014</b>    | <b>2/20/2014</b>    | <b>2/20/2014</b>    | <b>2/20/2014</b>    |

J : Estimated result. Result is less than the reporting limit.

ng/L: nanograms per liter

Q B : Estimated maximum possible concentration (EMPC).

Q B C J : Estimated result. Result is less than the reporting limit.

Q B C44 J : Method blank contamination. The associated method blank contains the target analyte at a reportable level.

Q B C61 J : Estimated result. Result is less than the reporting limit.

Q B J : Method blank contamination. The associated method blank contains the target analyte at a reportable level.

Q C : Co-eluting isomer.

Q C J : Co-eluting isomer.

Q C12 J : Estimated result. Result is less than the reporting limit.

Q C18 J : Estimated maximum possible concentration (EMPC).

Q C20 J : Estimated result. Result is less than the reporting limit.

Q C21 J : Estimated result. Result is less than the reporting limit.

Q C26 J : Estimated result. Result is less than the reporting limit.

Q C40 J : Estimated maximum possible concentration (EMPC).

Q C49 J : Estimated maximum possible concentration (EMPC).

Q C50 J : Estimated result. Result is less than the reporting limit.

Q C83 J : Estimated maximum possible concentration (EMPC).

Q C85 J : Estimated result. Result is less than the reporting limit.

Q C88 J : Estimated maximum possible concentration (EMPC).

Q C90 J : Estimated maximum possible concentration (EMPC).

Q C108 J : Estimated maximum possible concentration (EMPC).

Q C110 J : Estimated maximum possible concentration (EMPC).

Q C128 J : Estimated maximum possible concentration (EMPC).

Q C135 J : Estimated result. Result is less than the reporting limit.

Q C153 : Estimated maximum possible concentration (EMPC).

Q C153 J : Estimated maximum possible concentration (EMPC).

Q C156 J : Estimated result. Result is less than the reporting limit.

Q C171 J : Estimated result. Result is less than the reporting limit.

Q C180 J : Estimated result. Result is less than the reporting limit.

Q C183 J : Estimated maximum possible concentration (EMPC).

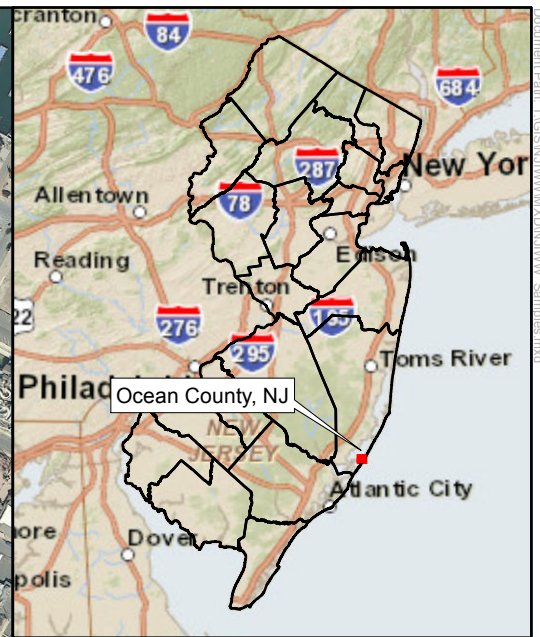
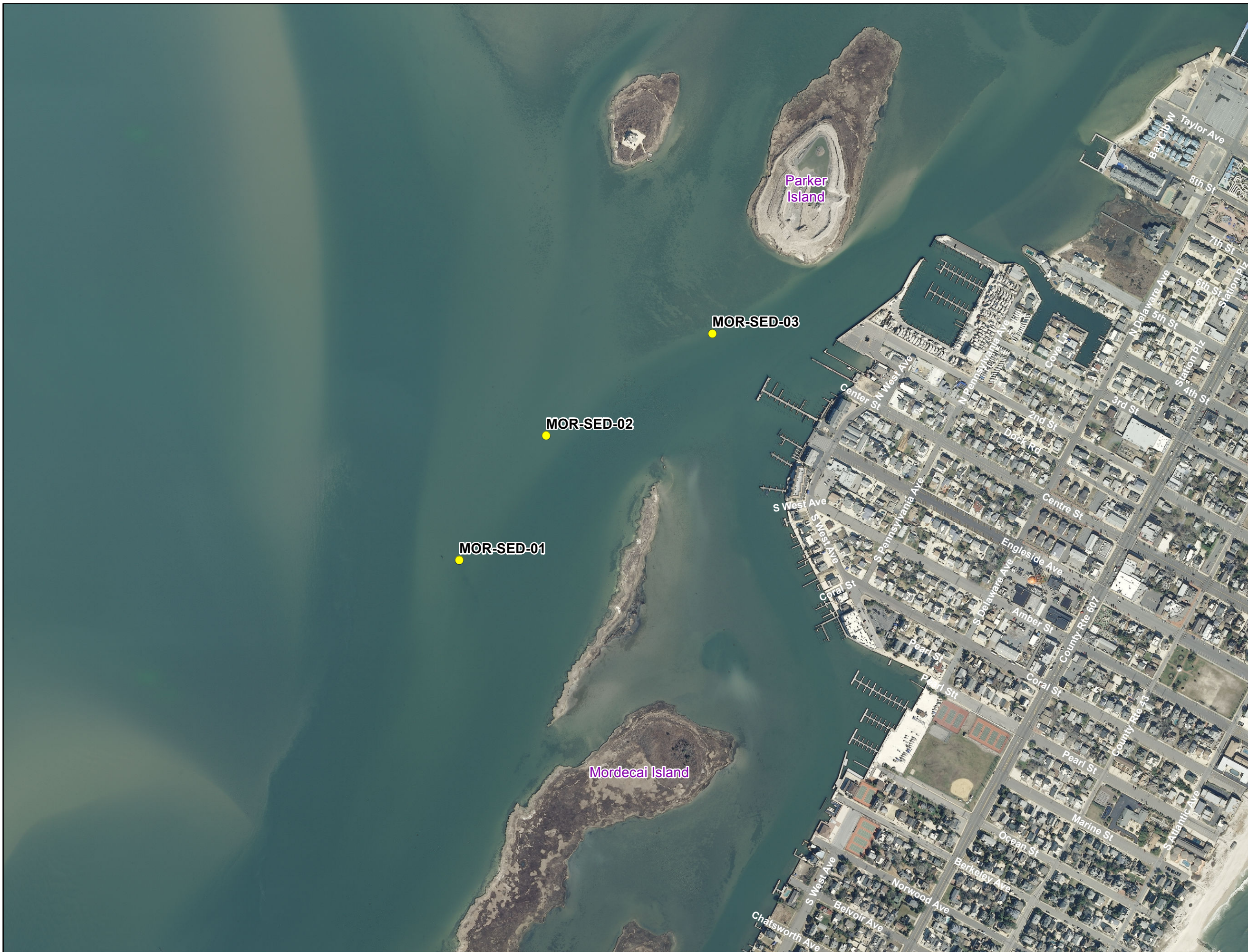
Q J : Estimated maximum possible concentration (EMPC).

U : Indicates the analyte was analyzed for but not detected.



## FIGURES

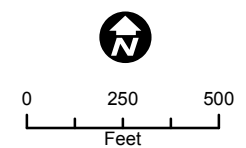




Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS

**Legend**  
 ● Sample Locations

Sources:  
 - NJ Ortho Imagery, 2012  
 WMS Server: <http://njwebmap.state.nj.us/njimagery?>



**New Jersey Intercoastal Waterway Examination**  
**Figure 1**  
**Mordecai Sediment Sample Locations**



Document Path: T:\GIS\IMM\X2014\JUN14\_Sediment\_Samples.mxd

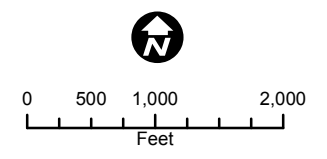


Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS

**Legend**

- Sample Locations

Sources:  
 - NJ Ortho Imagery, 2012  
 WMS Server: <http://njwebmap.state.nj.us/njimagery/>



**New Jersey Intercoastal Waterway Examination**

**Figure 2**  
**Avalon Sediment Sample Locations**



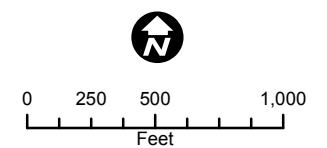
Document Path: T:\GIS\IMM\AV\X2014\AV\_Sediment\_Sample\_Locations.mxd



Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS

**Legend**  
 ● Sample Locations

Sources:  
 - NJ Ortho Imagery, 2012  
 WMS Server: <http://njwebmap.state.nj.us/njimager/>  
 Notes:  
 - SH-SED-01 is denoted as AV-GS-01 in the field notes.



**New Jersey Intercoastal Waterway Examination**  
**Figure 3**  
**Stone Harbor**  
**Grain Size Sample Location**




Document Path: T:\GIS\IMM\AV\X\AV\01\_SampleLocations.mxd



## ATTACHMENT A – SEDIMENT CORE LOGS

# FIELD BORING LOG SHEET

**BORING LOG SHEET**

|   |   |  |
|---|---|--|
| <b>BORING NUMBER: AV-SED-01</b>   | PROJECT: NJ Intercoastal Waterway       | DATE STARTED: 2/11/2014  |
|   | PROJECT NO.: 194-8346.01                | DATE COMPLETED: 2/11/2014  |
|   | LOCATION (well or boring ID): AV-SED-01 | WATER DEPTH (FT): 6.3'   |
|   | TOTAL DEPTH (FT): 4'                    | GROUND ELEVATION (FT):   |
|  | GEOLOGIST: Alex Valli                   | X COORDINATE: 415281.3   |
|   | DRILLER: AquaSurvey Inc.                | Y COORDINATE: 88476.8  |
| DRILLING/SAMPLING METHOD: VibraCore   |   | DATUM: <span style="background-color: #FFC0CB; display: inline-block; width: 100px; height: 15px;"></span> |

| Sample ID           | Start Depth (feet) | End Depth (feet) | BLOWS per 6" | Recovery (ft) | Consolidated ? Y or N | USCS Soil Classification or Material | Geologic Unit Code | Color | Description  | TIME  | DATE     | Depth of PID/FID (ft) | FID (ppm) | PID (ppm) | Comments | Contact (A, H, U) |
|---------------------|--------------------|------------------|--------------|---------------|-----------------------|--------------------------------------|--------------------|-------|--|-------|----------|-----------------------|-----------|-----------|----------|-------------------|
| AV-SED-01<br>Run #1 | 0                  | 4                |              | 48"           | N                     | ML                                   |                    | N2.5  | 26" Silt, Trace Fine Sand and Organic Material, Very Soft. | 10:05 | 02/11/14 |                       | 0         |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |  |       |          | 0                     |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |  |       |          | 0                     |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |  |       |          | 0                     |           |           |          |                   |
|                     |                    |                  |              |               |                       | ML                                   |                    | N2.5  | 22" Sandy Silt, Very Soft/                                 | 10:05 | 02/11/14 |                       | 0         |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |  |       |          | 0                     |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |  |       |          | 0                     |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |  |       |          | 0                     |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       | End of Boring  |       |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |  |       |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |  |       |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |  |       |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |  |       |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |  |       |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |  |       |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |  |       |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |  |       |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |  |       |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |  |       |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |  |       |          |                       |           |           |          |                   |

# FIELD BORING LOG SHEET

## BORING LOG SHEET


|                                 |   |  |
|---------------------------------|---|--|
| <b>BORING NUMBER: AV-SED-02</b> | PROJECT: NJ Intercoastal Waterway       | DATE STARTED: 2/11/2014  |
|                                 | PROJECT NO.: 194-8346.01                | DATE COMPLETED: 2/11/2014  |
|                                 | LOCATION (well or boring ID): AV-SED-02 | WATER DEPTH (FT): 4.3'   |
|                                 | TOTAL DEPTH (FT): 4'                    | GROUND ELEVATION (FT):   |
|                                 | GEOLOGIST: Alex Valli                   | X COORDINATE: 414670.3   |
|                                 | DRILLER: AquaSurvey Inc.                | Y COORDINATE: 89323.4  |
|                                 | DRILLING/SAMPLING METHOD: VibraCore     | DATUM: <span style="background-color: #FFC0CB; display: inline-block; width: 100px; height: 15px;"></span> |



| Sample ID           | Start Depth (feet) | End Depth (feet) | BLOWS per 6" | Recovery (ft) | Consolidated ? Y or N | USCS Soil Classification or Material | Geologic Unit Code | Color | Description   | TIME | DATE     | Depth of PID/FID (ft) | FID (ppm) | PID (ppm) | Comments | Contact (A, H, U) |
|---------------------|--------------------|------------------|--------------|---------------|-----------------------|--------------------------------------|--------------------|-------|---|------|----------|-----------------------|-----------|-----------|----------|-------------------|
| AV-SED-02<br>Run #1 | 0                  | 4                |              | 48"           | N                     | ML                                   |                    | N2.5  | 48" Silt, Little Fine Sand and organic Material, Very Soft. | 9:40 | 02/11/14 |                       | 0         |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       | End of Boring   |      |          |                       | 0         |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          |                       | 0         |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          |                       |           |           |          |                   |

# FIELD BORING LOG SHEET


**BORING LOG SHEET**

|   |   |  |
|---|---|--|
| <b>BORING NUMBER: AV-SED-03</b>   | PROJECT: NJ Intercoastal Waterway       | DATE STARTED: 2/11/2014  |
|   | PROJECT NO.: 194-8346.01                | DATE COMPLETED: 2/11/2014  |
|   | LOCATION (well or boring ID): AV-SED-03 | WATER DEPTH (FT): 5.3'   |
|   | TOTAL DEPTH (FT): 4'                    | GROUND ELEVATION (FT):   |
|  | GEOLOGIST: Alex Valli                   | X COORDINATE: 414616.9   |
|   | DRILLER: AquaSurvey Inc.                | Y COORDINATE: 89903.3  |
| DRILLING/SAMPLING METHOD: VibraCore   |   | DATUM: <span style="background-color: #FFC0CB; display: inline-block; width: 100px; height: 15px;"></span> |

| Sample ID           | Start Depth (feet) | End Depth (feet) | BLOWS per 6" | Recovery (ft) | Consolidated ? Y or N | USCS Soil Classification or Material | Geologic Unit Code | Color | Description   | TIME | DATE     | Depth of PID/FID (ft) | FID (ppm) | PID (ppm) | Comments | Contact (A, H, U) |
|---------------------|--------------------|------------------|--------------|---------------|-----------------------|--------------------------------------|--------------------|-------|---|------|----------|-----------------------|-----------|-----------|----------|-------------------|
| AV-SED-03<br>Run #1 | 0                  | 4                |              | 48"           | N                     | ML                                   |                    | N2.5  | 48" Silt, Little Fine Sand and organic Material, Very Soft. | 9:33 | 02/11/14 |                       | 0         |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       | End of Boring   |      |          |                       | 0         |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          |                       | 0         |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          |                       |           |           |          |                   |

# FIELD BORING LOG SHEET

**BORING LOG SHEET**

|   |   |  |
|---|---|--|
| <b>BORING NUMBER: AV-SED-04</b>   | PROJECT: NJ Intercoastal Waterway       | DATE STARTED: 2/11/2014  |
|   | PROJECT NO.: 194-8346.01                | DATE COMPLETED: 2/11/2014  |
|   | LOCATION (well or boring ID): AV-SED-04 | WATER DEPTH (FT): 5.4'   |
|   | TOTAL DEPTH (FT): 4'                    | GROUND ELEVATION (FT):   |
|  | GEOLOGIST: Alex Valli                   | X COORDINATE: 415254.3   |
|   | DRILLER: AquaSurvey Inc.                | Y COORDINATE: 91434.2  |
| DRILLING/SAMPLING METHOD: VibraCore   |   | DATUM: <span style="background-color: #FFC0CB; display: inline-block; width: 100px; height: 15px;"></span> |

| Sample ID           | Start Depth (feet) | End Depth (feet) | BLOWS per 6" | Recovery (ft) | Consolidated ? Y or N | USCS Soil Classification or Material | Geologic Unit Code | Color | Description   | TIME | DATE     | Depth of PID/FID (ft) | FID (ppm) | PID (ppm) | Comments | Contact (A, H, U) |
|---------------------|--------------------|------------------|--------------|---------------|-----------------------|--------------------------------------|--------------------|-------|---|------|----------|-----------------------|-----------|-----------|----------|-------------------|
| AV-SED-04<br>Run #1 | 0                  | 4                |              | 48"           | N                     | ML                                   |                    | N2.5  | 48" Silt, Little Fine Sand and organic Material, Very Soft. | 9:24 | 02/11/14 |                       | 0         |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       | End of Boring   |      |          |                       | 0         |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          |                       | 0         |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          |                       |           |           |          |                   |



# FIELD BORING LOG SHEET

## BORING LOG SHEET

**BORING NUMBER: AV-SED-05**

PROJECT: NJ Intercoastal Waterway

DATE STARTED: 2/11/2014

PROJECT NO.: 194-8346.01

DATE COMPLETED: 2/11/2014

LOCATION (well or boring ID): AV-SED-05

WATER DEPTH (FT): 6.2'

TOTAL DEPTH (FT): 4'

GROUND ELEVATION (FT):



GEOLOGIST: Alex Valli

X COORDINATE: 415953

DRILLER: AquaSurvey Inc.

Y COORDINATE: 93186.7


DRILLING/SAMPLING METHOD: VibraCore

DATUM:

| Sample ID           | Start Depth (feet) | End Depth (feet) | BLOWS per 6" | Recovery (ft) | Consolidated ? Y or N | USCS Soil Classification or Material | Geologic Unit Code | Color | Description   | TIME | DATE     | Depth of PID/FID (ft) | FID (ppm) | PID (ppm) | Comments | Contact (A, H, U) |
|---------------------|--------------------|------------------|--------------|---------------|-----------------------|--------------------------------------|--------------------|-------|---|------|----------|-----------------------|-----------|-----------|----------|-------------------|
| AV-SED-05<br>Run #1 | 0                  | 4                |              | 48"           | N                     | ML                                   |                    | N2.5  | 24" Silt, Little Fine Sand and organic Material, Very Soft. | 9:10 | 02/11/14 |                       | 0         |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          | 0                     |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          | 0                     |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       | SM                                   |                    |       | 24" Sandy Silt. Soft.                                       | 9:10 | 02/11/14 |                       | 0         |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          | 0                     |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          | 0                     |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       | End of Boring   |      |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          |                       |           |           |          |                   |
|                     |                    |                  |              |               |                       |                                      |                    |       |   |      |          |                       |           |           |          |                   |

# FIELD BORING LOG SHEET


**BORING LOG SHEET**

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|---|--|--|
| <b>BORING NUMBER: MOR-SED-01</b>  | PROJECT: NJ Intercoastal Waterway        | DATE STARTED: 2/12/204   |
|   | PROJECT NO.: 194-8346.01                 | DATE COMPLETED: 2/12/204   |
|   | LOCATION (well or boring ID): MOR-SED-01 | WATER DEPTH (FT): 6.2'   |
|   | TOTAL DEPTH (FT): 7'                     | GROUND ELEVATION (FT):   |
|  | GEOLOGIST: Alex Valli                    | X COORDINATE: 265995   |
|   | DRILLER: AquaSurvey Inc.                 | Y COORDINATE: 561761.7   |
| DRILLING/SAMPLING METHOD: VibraCore   |  | DATUM: <span style="background-color: #FFC0CB; display: inline-block; width: 100px; height: 15px;"></span> |

| Sample ID            | Start Depth (feet) | End Depth (feet) | BLOWS per 6" | Recovery (ft) | Consolidated ? Y or N | USCS Soil Classification or Material | Geologic Unit Code | Color   | Description  | TIME | DATE     | Depth of PID/FID (ft) | FID (ppm) | PID (ppm) | Comments | Contact (A, H, U) |
|----------------------|--------------------|------------------|--------------|---------------|-----------------------|--------------------------------------|--------------------|---------|--|------|----------|-----------------------|-----------|-----------|----------|-------------------|
| MOR-SED-01<br>Run #1 | 0                  | 7                |              | 110"          | N                     | SP                                   |                    | 10GY4/1 | 16" Fine Sand, Trace Silt, Soft.                     | 9:13 | 02/12/14 |                       | 0         |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          | 0                     |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          | 0                     |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          | 0                     |           |           |          |                   |
|                      |                    |                  |              |               |                       | SP                                   |                    | 5GY3/1  | 94" Fine Sand, Little Medium Sand, Trace Silt, Soft. | 9:13 | 02/12/14 |                       | 0         |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          | 0                     |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          | 0                     |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          | 0                     |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         | End of Boring  |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          |                       |           |           |          |                   |
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# FIELD BORING LOG SHEET


## BORING LOG SHEET

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| <b>BORING NUMBER: MOR-SED-02</b>  | PROJECT: NJ Intercoastal Waterway        | DATE STARTED: 2/12/204   |
|   | PROJECT NO.: 194-8346.01                 | DATE COMPLETED: 2/12/204   |
|   | LOCATION (well or boring ID): MOR-SED-02 | WATER DEPTH (FT): 5.3'   |
|   | TOTAL DEPTH (FT): 7'                     | GROUND ELEVATION (FT):   |
|  | GEOLOGIST: Alex Valli                    | X COORDINATE: 266677.6   |
|   | DRILLER: AquaSurvey Inc.                 | Y COORDINATE: 562237.7   |
| DRILLING/SAMPLING METHOD: VibraCore   |  | DATUM: <span style="background-color: #FFC0CB; display: inline-block; width: 100px; height: 15px;"></span> |

| Sample ID            | Start Depth (feet) | End Depth (feet) | BLOWS per 6" | Recovery (ft) | Consolidated ? Y or N | USCS Soil Classification or Material | Geologic Unit Code | Color   | Description   | TIME | DATE     | Depth of PID/FID (ft) | FID (ppm) | PID (ppm) | Comments | Contact (A, H, U) |
|----------------------|--------------------|------------------|--------------|---------------|-----------------------|--------------------------------------|--------------------|---------|---|------|----------|-----------------------|-----------|-----------|----------|-------------------|
| MOR-SED-02<br>Run #1 | 0                  | 7                |              | 114"          | N                     | SP                                   |                    | 10GY4/1 | 13" Fine Sand, Trace Silt, Soft.                      | 9:27 | 02/12/14 |                       | 0         |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |   |      |          | 0                     |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |   |      |          | 0                     |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |   |      |          | 0                     |           |           |          |                   |
|                      |                    |                  |              |               |                       | SP                                   |                    | 5GY3/1  | 101" Fine Sand, Little Medium Sand, Trace Silt, Soft. | 9:27 | 02/12/14 |                       | 0         |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |   |      |          | 0                     |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |   |      |          | 0                     |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |   |      |          | 0                     |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         | End of Boring   |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |   |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |   |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |   |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |   |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |   |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |   |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |   |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |   |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |   |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |   |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |   |      |          |                       |           |           |          |                   |

# FIELD BORING LOG SHEET


## BORING LOG SHEET

|   |  |  |
|---|--|--|
| <b>BORING NUMBER: MOR-SED-03</b>  | PROJECT: NJ Intercoastal Waterway        | DATE STARTED: 2/12/204   |
|   | PROJECT NO.: 194-8346.01                 | DATE COMPLETED: 2/12/204   |
|   | LOCATION (well or boring ID): MOR-SED-03 | WATER DEPTH (FT): 6.3'   |
|   | TOTAL DEPTH (FT): 7'                     | GROUND ELEVATION (FT):   |
|  | GEOLOGIST: Alex Valli                    | X COORDINATE: 267236   |
|   | DRILLER: AquaSurvey Inc.                 | Y COORDINATE: 563147.8   |
| DRILLING/SAMPLING METHOD: VibraCore   |  | DATUM: <span style="background-color: #FFC0CB; display: inline-block; width: 100px; height: 15px;"></span> |

| Sample ID            | Start Depth (feet) | End Depth (feet) | BLOWS per 6" | Recovery (ft) | Consolidated ? Y or N | USCS Soil Classification or Material | Geologic Unit Code | Color   | Description  | TIME | DATE     | Depth of PID/FID (ft) | FID (ppm) | PID (ppm) | Comments | Contact (A, H, U) |
|----------------------|--------------------|------------------|--------------|---------------|-----------------------|--------------------------------------|--------------------|---------|--|------|----------|-----------------------|-----------|-----------|----------|-------------------|
| MOR-SED-03<br>Run #1 | 0                  | 7                |              | 102"          | N                     | SP                                   |                    | 10GY4/1 | 4" Fine Sand, Trace Silt, Soft.                      | 9:35 | 02/12/14 |                       | 0         |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          | 0                     |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          | 0                     |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          | 0                     |           |           |          |                   |
|                      |                    |                  |              |               |                       | SP                                   |                    | 5GY3/1  | 98" Fine Sand, Little Medium Sand, Trace Silt, Soft. | 9:35 | 02/12/14 |                       | 0         |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          | 0                     |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          | 0                     |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          | 0                     |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         | End of Boring  |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          |                       |           |           |          |                   |
|                      |                    |                  |              |               |                       |                                      |                    |         |  |      |          |                       |           |           |          |                   |

# FIELD BORING LOG SHEET

## BORING LOG SHEET

|   |  |   |
|---|--|---|
| <b>BORING NUMBER: SH-SED-01</b>   | PROJECT: NJ Intercoastal Waterway      | DATE STARTED: 2/11/204  |
|   | PROJECT NO.: 194-8346.01               | DATE COMPLETED: 2/11/2014   |
|   | LOCATION (well or boring ID): AV-GS-01 | WATER DEPTH (FT): 4.0'  |
|   | TOTAL DEPTH (FT): 4'                   | GROUND ELEVATION (FT):  |
|    | GEOLOGIST: Alex Valli                  | X COORDINATE: 412768.7  |
|   | DRILLER: AquaSurvey Inc.               | Y COORDINATE: 77253.4   |
| DRILLING/SAMPLING METHOD: <span style="background-color: #e0ffff;">VibraCore</span> |  | DATUM: NAD 83 <span style="background-color: #ffb6c1; display: inline-block; width: 100px; height: 15px;"></span> |

| Sample ID          | Start Depth (feet) | End Depth (feet) | BLOWS per 6" | Recovery (ft) | Consolidated ? Y or N | USCS Soil Classification or Material | Geologic Unit Code | Color   | Description   | TIME  | DATE     | Depth of PID/FID (ft) | FID (ppm) | PID (ppm) | Comments | Contact (A, H, U) |
|--------------------|--------------------|------------------|--------------|---------------|-----------------------|--------------------------------------|--------------------|---------|---|-------|----------|-----------------------|-----------|-----------|----------|-------------------|
| AV-GS-01<br>Run #1 | 0                  | 4                |              | 48"           | N                     | SW                                   |                    | 10GY5/1 | 48" Fine to Medium Sand, Trace Silt and Clay, Medium Dense, . | 10:21 | 02/11/14 |                       | 0         |           |          |                   |
|                    |                    |                  |              |               |                       |                                      |                    |         |   |       |          |                       | 0         |           |          |                   |
|                    |                    |                  |              |               |                       |                                      |                    |         |   |       |          |                       | 0         |           |          |                   |
|                    |                    |                  |              |               |                       |                                      |                    |         | End of Boring   |       |          |                       |           |           |          |                   |
|                    |                    |                  |              |               |                       |                                      |                    |         |   |       |          |                       |           |           |          |                   |
|                    |                    |                  |              |               |                       |                                      |                    |         |   |       |          |                       |           |           |          |                   |
|                    |                    |                  |              |               |                       |                                      |                    |         |   |       |          |                       |           |           |          |                   |
|                    |                    |                  |              |               |                       |                                      |                    |         |   |       |          |                       |           |           |          |                   |
|                    |                    |                  |              |               |                       |                                      |                    |         |   |       |          |                       |           |           |          |                   |



## ATTACHMENT B – DATA PACKAGE