APPLICATION FOR
RISK BASED PCB DISPOSAL APPROVAL
450 & 490 SOUTH AVENUE (BLOCK 401, LOT 1) &
50 CENTER STREET (BLOCK 401, LOT 2)
GARWOOD, UNION COUNTY, NEW JERSEY
NJDEP PI #: 032470 & 631620
ISRA #: E20140122, E2014123 & E20140065

Prepared for Submittal to:

United States Environmental Protection Agency
Region 2
290 Broadway, 26^{th} Floor
New York, NY 10007-1866
Attention: Judith Enck, Regional Administrator

Prepared on behalf of:

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1. INTRODUCTION

Pursuant to the Toxic Substances Control Act (TSCA), 40 CFR §761, this Application for a Risk Based Disposal Approval has been prepared by EcolSciences, Inc. (EcolSciences) on behalf of 490 South Avenue, LLC for the former industrial-use properties at 450-490 South Avenue (Lot 1) and 50 Center Street (Lot 2) located in the Borough of Garwood, Union County, New Jersey. Lots 1 and 2 are collectively referred to herein as the 'Site'. The location of the Site is shown on Figure 1. The lots were historically one larger parcel that was used for industrial purposes since the later 1800s including C&C Electric Co., The Aluminum Company of America (ALCOA) prior to the individual operations conducted by Petro Plastics Company and Petro Extrusions Technologies on Lot 1 and Casale Industries on Lot 2.

The Site, along with the Lots identified below, has recently been designated an Area-In-Need of Redevelopment, pursuant to a Resolution of the Mayor and Council of the Borough of Garwood adopted October 13, 2015. Acting on said Resolution, the Garwood Planning Board directed the Borough Planner to prepare a Redevelopment Plan expressly permitting the redevelopment of the Site as a multi-family, mixed use development, as contemplated by 490 South Avenue, LLC. In addition to Lots 1 and 2, the designated redevelopment area also includes the following lots:

- **Block 401, Lot 4 –** located adjacent to the south of Lot 2. Lot 4 was historically used for industrial and/or office type operations. Sampling has not identified any PCB impacts on Lot 4;
- **Block 401, Lot 5 –** located adjacent to the southeast of Lot 2. Lot 5 was developed sometime between 1928 and 1949 with a building that has always been used as a bank or gym/fitness center;
- **Block 403, Lots 4-6 and Lots 19-22 –** located across South Avenue to the south of Block 401. These lots have always been used for parking lots.

The plan for the designated redevelopment area is shown in Attachment B. Based on the Phase I/Preliminary Assessments, sampling conducted on Block 401, Lot 4, and the historic uses of Block 401, Lots 5 (bank and gym) and Block 403 Lots 4-6 and 19-22 (parking lots), no PCB usage or impacts have been identified and these lots are therefore not included in this Risk Based Disposal Application.

The following describes the environmental history associated with Lots 1 and 2.

Lot 1

Environmental investigations were initiated at the Lot 1 property in the early 1990s due to contamination identified during the closure of aboveground heating oil tanks. In addition, the Industrial Site Recovery Act (ISRA) regulations were triggered on January 24, 2014 when the most recent industrial operations, Petro Plastics Company and Petro Extrusions Technologies, announced the cessation of operations and sale of the property to 490 South Avenue, LLC. The ISRA case numbers for these former operators are E20140122 and E20140123, respectively, under New Jersey Department of Environmental Protection (NJDEP) Program of Interest (PI) numbers 032470 and 437456.

For the purposes of NJDEP reporting 490 South Avenue, LLC is the Person Responsible for Conducting Remediation (PRCR) and retained Peter A. Hansen of EcolSciences, Inc. (EcolSciences) as the Licensed Site Remediation Professional (LSRP) for these ISRA cases on July 14, 2014. Extensive investigation was conducted by EcolSciences in 2014 culminating in the submittal of a Remedial Investigation Report (RIR) on May 7, 2014, prior to the NJDEP's mandatory timeframe for such cases. Additional investigation was conducted in 2015.

Lot 2

With respect to Lot 2, ISRA was triggered on August 1, 2013 when Casale Industries announced the cessation of operations and ISRA case number E20140065 was established under NJDEP PI number 613620. Casale Industries (Casale) retained Mr. Kenneth Goldstein of Ransom Environmental (Ransom) as the LSRP for Lot 2 on March 12, 2014. A Preliminary Assessment/Site Investigation (PA/SI) was submitted by Ransom to the NJDEP on July 31, 2015. The SI was based on extensive due diligence sampling activities conducted by EcolSciences on behalf of 490 South Avenue, LLC, the contract purchaser of Lot 2.

The Remedial Investigations conducted on Lot 1 and the extensive due diligence investigations conducted on Lot 2 by EcolSciences have documented the presence of polychlorinated biphenyls (PCBs) in both the soil and groundwater in the southeastern portion of Lot 1 and the south western/south central portion of Lot 2. The concentrations of PCBs in the soil in this area exceed the NJDEP residential direct contact soil remediation standard (RDCSRS) of 0.2 milligrams/kilogram (mg/kg), and the NJDEP non-residential direct contact soil remediation standard (NRDCSRS) of 1.0 mg/kg, and the United State Environmental Protection Agency (USEPA) TSCA self-implementing threshold of 1.0 mg/kg. Specifically, PCBs are present in a combined ±0.45-acre area of the two lots at concentrations ranging from non-detect to 280 mg/kg with a small area of PCBs in the soil at concentrations up to 3,700 mg/kg. PCBs are present in the shallow groundwater (at concentrations up to 32 µg/L) above the NJDEP Groundwater Quality Standard (GWQS) and the USEPA unrestricted use standard [40 CFR761.79(b)(1)(iii)] of 0.5 micrograms/liter (µg/L). With few exceptions, the only PCB congener identified on the Site above the USEPA self-implementing threshold of 1.0 mg/kg and the only PCB congener identified on the Site above the high occupancy threshold of 10 mg/kg is Arochlor 1248. According to the National Institute for Occupational Safety and Health (NIOSH) Publication number 78-127, Aroclor-1248 production peaked in the late 1950s and early to mid-1960s and Aroclor 1248 was not produced or sold after 1972. In addition, with the exception of transformer oils, PCB usage was outlawed in 1978. The onsite electrical transformers are located at least 100-feet from the areas where elevated concentrations of Aroclor 1248 is present and soil sampling conducted around all of the electrical transformers did not identify the presence of any PCB congeners.

This Application for a Risk Based Cleanup Approval has been prepared pursuant to 40 CFR 761.61(c) and presents the details of a planned remediation and redevelopment by the current property owner of Lot 1, 490 South Avenue, LLC, who is also the contract purchaser of Lot 2 (the redeveloper). As described above, the redevelopment plan for the Site consists of the demolition of all existing improvements and construction for mixed-use (commercial/retail with rental apartments) purposes. This Application for a Risk Based Disposal Approval is organized as follows:

1. Introduction (Section 1.0);
2. Site Description (Section 2.0);
3. Site History (Section 3.0);
4. Soil and Groundwater Investigations (Section 4.0);
5. Proposed Cleanup Plan (Sections 5.0);
6. Quality Assurance/Quality Control Plan (Section 6.0);
7. Conclusion (Section 7.0); and
8. References (Section 8.0)

The Certification required by 40 CFR§761.61(a)(3) is included in Attachment A of this Application. Figures depicting the site location, sample results, and other pertinent information and laboratory data summary tables are also included in the Figures and Tables appendices of this Report.

2. SITE DESCRIPTION

The following sections describe the environmental setting of the Site. This site description includes the regional location and physical features of the Site. Figures 1, 2 and 3 present a USGS regional site location map, a municipal tax map and a 2012 aerial overview.

2.1 Regional Location

The location of the Site is as follows:

- **County –** Union
- **Municipality –** Borough of Garwood
- **Block –** 401
- **Lots –** 1 and 2
- **Street Address –** The Lot 1 portion of the Site is known as 450 and 490 South Avenue. The address for Lot 2 is 50 Center Street.
- **Additional Parcels –** As described above, the proposed redevelopment also consists of Block 401, Lots 4 and 5 (located north of South Avenue and adjacent to Lots 1 and 2) and Block 403, Lots 4-6 and 19-22 (located south of South Avenue).
- **Nearest Cross Street –** the Site lies northwest of the intersection of Center Street and South Avenue.

2.2 Physical Features

The physical features of the Site, including a brief description of the onsite improvements and exterior grounds, are summarized below:

- **Site Area –** 5.053 acres (Lot 1 is 2.87 acres and Lot 2 is 2.183 acres). The overall site is 5.67 acres in size.
- **Site Configuration –** The Lots are irregular in shape and feature roadway frontage along South Avenue (to the south) and Center Street (to the east). An active NJ transit rail line is located adjacent to the north of the Site.
- **Structures and Operations –** Lot 1 is improved with a series of interconnected and detached vacant industrial buildings most recently utilized for plastics extrusion operations by Petro Plastic Company and Petro Extrusion Technologies. Lot 2 is improved with a vacant industrial building which was most recently occupied by Casale Industries for sheet metal manufacturing. The Lot 1 and Lot 2 industrial buildings are connected and divided by an interior partition wall.

- **Exterior Grounds –** The exterior grounds on the Site consist of concrete sidewalks along frontage with South Avenue and Center Street, and a combination of concrete and asphalt paved surfaces, driveways and shipping and receiving areas.

- **Topography –** The Site is characterized by gently south/southeast sloping topography, with an average elevation of $90^{\pm}$ feet above Mean Sea Level (MSL).

- **Drainage –** Storm water generated on the Site discharges to municipal storm sewers.

- **Regional Geology/Hydrogeology –** the Site is located within the Piedmont physiographic province and is underlain by the Passaic Formation which is predominantly red beds consisting of siltstone and fine-grained sandstone. Overburden soils are comprised of unconsolidated sands, silts and clays. In addition, non-native fill material was observed across the site ranging in average depth from approximately 3-6 feet, although deeper areas of fill material were encountered in certain portions of the site. Groundwater is generally encountered at approximately 10 feet below ground surface. Based on the investigations to date, overburden groundwater flows from the northwest to the southeast across the site. During EcolSciences' Remedial and due diligence investigations, bedrock was encountered at approximately 25 feet below ground surface in the northwestern portion of the site. The bedrock was not encountered in the southern/southeastern portions of the Site. Based on the Roselle geologic map, bedrock increases in depth to the south/southeast portion of the site and is present at depths greater than 50 feet in the southeastern portion of the site.

- **Soils –** According to the Union County Soil Survey, as prepared by the U.S. Natural Resources Conservation Service (NRCS, 2002), the Site and surrounding properties are mapped as Urban Land (UR).

- **Easements –** According to the tax mapping for Garwood Borough, no apparent major utility easement encumber the Site.

- **Zoning and Surrounding Land Use –** According to the Borough of Garwood Zoning Map (October 2011), the Site is within an area that is currently zoned L-1 Light Industrial, and is surrounded by various industrial and commercially developed properties. The Site has recently been designated an Area-In-Need of Redevelopment, pursuant to a Resolution of the Mayor and Council of the Borough of Garwood adopted October 13, 2015. Acting on said Resolution, the Garwood Planning Board directed the Borough Planner to prepare a Redevelopment Plan expressly permitting the redevelopment of the Site as a multi-family, mixed use development, as contemplated by 490 South Avenue, LLC.

3. SITE HISTORY

Available information pertaining to Site history was reviewed by EcolSciences. This history was compiled by examining historical aerial photographs and maps, and by reviewing available background environmental documents available through the municipal offices and local library, and discussions with the current and former site owners and operators. The following sections describe the findings of EcolSciences' historical review with an emphasis on the areas of the Site where elevated concentrations of PCBs are present (i.e. the southeastern portion of Lot 1 and the south/southwestern portion of Lot 2).

3.1 Sanborn Fire Insurance Maps

Sanborn Fire Insurance Maps, produced by the Sanborn Map Company, are maps that depict general building construction and usage, fire protection measures, heating methods, hazardous material storage areas, and certain underground storage tanks. These maps have been prepared nationwide for most historically urbanized areas. Review of the Sanborn Fire Insurance Map inventory revealed site-specific Sanborn Map coverage for the years 1901, 1909, 1916, 1921, 1928, 1949, and 1963. Copies of the Sanborn Maps are included in Attachment C.

- **1901 and 1909 –** The 1901 and 1909 Sanborn Maps show Lots 1 and 2 were a single Site, improved with a steel-framed industrial building that was occupied by "C&C Electric Company – Manufacturers of Dynamos, Etc." Portions of the building were labeled as a brass foundry; pattern, polishing, paint and machine shops; a boiler room; and storage/shipping rooms; winding department; stock room; charcoal soldering; oil and varnish; storage, and steam oven. In addition to the larger industrial building, a one story oil house, a two-story office building, a post office, and a small single story structure adjacent to the railroad were depicted in the northeastern portion of the property. The building was served by the public water supply and the boilers were fueled by coal. Two railroad sidings were mapped within the northern portion of the Site. The sidings entered the Site at the northwest corner off a series of adjacent railroad tracks. One siding extended across the rear of the building, and the second siding extended through the present-day loading docks on Lot 1. A small building labeled "Testing House" was mapped within the southern portion of the Site along South Avenue. With specific regard to the area of the Site currently impacted with elevated concentrations of PCBs, these areas of the site were labeled 'winding department' and 'machine shop'.

- **1916 and 1921 –** The 1916 and 1921 Sanborn Maps show onsite land use conditions being generally similar to those evident in 1909, except that by 1916, the "Testing House" along South Avenue was no longer mapped and a small building labeled "Pickling Room" was mapped within an area in the western portion of the Site. The 1921 Sanborn map indicates that the C&C Electric Company had been closed at the time of survey. With specific regard to the area of the Site currently impacted with elevated concentrations of PCBs, these areas of the site were labeled 'testing department' and 'machine shop'.

- **1928 –** The 1928 Sanborn Map shows the onsite building in the same configuration as evident in 1921, except that it was now occupied by the United States Aluminum Company, a manufacturer of castings. The 1928 Sanborn map shows the building heated at that time by oil. Four "Crude oil" tanks were depicted in the northern portion of the property (beyond the railroad siding). A long, narrow building was mapped in the area of the present-day office/warehouse building on Lot 1. The oil house formerly located in the northeastern portion of the property on Lot 2 was removed by this time. With specific regard to the area of the Site currently impacted with elevated concentrations of PCBs, these areas of the site were labeled 'machine shop'.

- **1949** – The 1949 Sanborn Map indicates that the Aluminum Company of America (ALCOA) occupied the onsite buildings. The map shows several additions onto the onsite building complex including additions to the northern portion of the building (labeled 'die shop' and 'factory building'). The southern portion of the building where PCB-impacted soil is currently present was labeled 'aluminum castings' and 'manufacturing'. The crude oil tanks depicted on the previous maps were not depicted although four oil tanks were depicted to the west of the northernmost addition. The present-day manufacturing building at 490 South Avenue (south westernmost portion of the property) had been constructed and was labeled "Warehouse/Shipping." The Building on Lot 5 in the southeastern corner of Block 401 is depicted and is noted to be a bank.

- **1963 –** The 1963 Sanborn Map shows the two buildings at 490 South Avenue (southwestern portion of the property) being vacant. ALCOA no longer occupied the main building complex. Lot 1 was labeled "Various Occupants" and Lot 2 was labeled "Sheet Metal Works".

3.2 Aerial Photography

Historical aerial photographs were reviewed by EcolSciences to identify past land use on, and in the vicinity of, the Site. The following available site-specific aerial photographs were reviewed as part of this historical assessment; a description of the onsite and surrounding conditions depicted on these photographs is provided below.

- 1930 (NJDEP Geoweb);
- April 3, 1959 (JER-4W-3);
- March 23, 1969 (NJP-2-121);
- April 17, 1976 (UN-10-6);
- 1995 (NJDEP Geoweb); and
- 2012 (NJDEP Geoweb)

Although the 1930 aerial photograph is of poor reproduction quality, this photograph shows the majority of the Site and surrounding properties occupied by apparent industrial buildings of various sizes. Railroad tracks were visible in the northern portion of Lot 2 and offsite to the immediate north of the Site beyond which were other apparent industrial and commercial buildings. The 1959 aerial photograph shows the majority of buildings on the Site being developed to their present-day configuration. Four rectangular structures in the same approximate configuration as the storage tanks on the 1949 Sanborn map were visible within the northeast corner of Lot 1. A small, rectangular building and an exterior storage area were visible along the northern Site boundary to the west of the tanks. An apparent exterior storage area was also visible to the north of the building at 490 South Avenue (western portion of Lot 1). An irregular shaped building occupied the location of the office/warehouse building at 490 South Avenue. The 1976 aerial photographs shows onsite land use conditions being generally similar to those visible in 1959.

The 1995 and 2007 aerial photograph shows onsite land use conditions being generally similar to the present-day conditions. The above ground tanks within the northeast corner of Lot 1 of the Site were not apparent by 2007.

Throughout these photographs (1930-2007), the parcels to the south of South Avenue were shown as parking lots and the building at the corner of Center Street and South Avenue was shown as a standalone building.

3.3 Ownership and Operational History

Based on the historical information, discussion with past and current property owner representatives and Title Search documents, Lots 1 and 2 were formerly part of a singular larger industrial Site. C&C Electric Company operated within the industrial building on the Site from prior to 1901 until sometime between 1916 and 1921 for the manufacturing of electrical components (i.e. generators, dynamos, etc.). From sometime between 1921 and 1928 until 1961, the United States Aluminum Company (which became ALCOA) conducted industrial operations on the entirety of the Site (both Lots 1 and 2). Based on Sanborn Maps these operations including aluminum casting (per the 1949 Sanborn Map). In addition, information from the Department of Energy (DOE) indicates that altering and construction of die-casting dies and die casting operations were conducted on the site by ALCOA. Specifically, ALCOA engaged in the experimental casting of uranium slugs for approximately 17 days in 1944. These operations at the Site were evaluated by the DOE in 1987 as part of the Formerly Utilized Sites Remedial Action Program (FUSRAP). The DOE concluded that the potential for residual radiological contamination was remote because the operations were conducted for a very short period of time

(17 days) and all uranium was removed from the site at the cessation of the experimental die casting operation in 1944. Furthermore, 490 South Avenue, LLC retained a radiation investigation specialist (Wesley R. Van Pelt Associates, Incorporated) to evaluate this potential issue. The evaluation concluded that residual uranium radioactivity in the site soil, if any, would likely be well below the NJDEP limit for unrestricted use.

According to title information provided by 490 South Avenue, LLC, on August 11, 1961, ALCOA sold the property to Herbert I. Segal and Sol Berger. The sale included a schedule of certain Personal Property at the Garwood Plant including a cellulube (hydraulic fluid) circulating pump and cooler identified in the 'Casting Department' and a cellulube (hydraulic fluid) circulating pump in a pit and a cooler in the 'Magnesium building'. Sub grade pits are located in the PCB impacted area.

The Site was subdivided into the current configuration sometime between August 11, 1961 and prior to April 12, 1963. From 1961 through 1963 Lot 1 was occupied by various tenants, and the operations are unknown. Casale Sheet Metal Co. acquired Lot 2 from the Segal and Berger families and Petro Plastics Company acquired Lot 1 from the Berger family on April 12, 1963.

From circa 1963 through the end of 2014 Lot 1 was operated by Petro Plastics Company and Petro Extrusions for plastic extruding operations. The extrusion process involved the heating of blended plastic (i.e. acrylic, nylon, polypropylene) pellets that were manufactured offsite and delivered in bulk cardboard containers. The molten pellets passed through the extrusion line via augers and molds into a formed product that was then cooled in a water bath. The product was then cut to specified lengths and packaged for customer delivery. In some instances, the pellets were heated in electric kilns to reach desired dryness prior to extrusion. Scrap plastic materials were recycled back into the extrusion process or disposed offsite as solid waste. Hazardous materials utilized by Petro were limited to small amounts of oils and lubricants used in maintenance of extrusion line and machine shop equipment for maintenance of their extrusion machinery. Based on EcolSciences' conversations with Petro Plastics personnel (Mr. Louis Petrozziello), no PCB-containing materials were utilized as part of the plastics extrusion operations which date to 1963. Furthermore, the majority of the PCB impacted area was used by Petro Plastics as offices and a locker room/rest room.

From circa 1960 through 2013 Lot 2 was occupied by Casale Industries for the manufacturing of custom sheet metal products. These operations included welding, sand blasting, painting, stamping, cutting, drilling, and pressing of premanufactured metal into the desired shape or configuration. Based on conversations with Mr. Ken Casale and review of community right to know surveys, the hazardous materials utilized on the Casale portion of the Site included welding gases, xylenes (reportedly used for cleaning the metal prior to painting), cleaners, paints, and heating oil. Mr. Casale further indicated that only small amounts of lubricating oils and hydraulic fluids were used in the metal working machinery and that no PCB-containing materials were used as part of the Casale Industries operations which date to the early 1960s. The PCB impacted area was reportedly used as a painting area and acetylene cutting area during Casale's sheet metal manufacturing operations.

4. SOIL AND GROUNDWATER INVESTIGATIONS

The following subsections describe the soil and groundwater investigations conducted for PCB Site Characterization purposes pursuant to 40 CFR§761.61(a)(2) and present the information required pursuant to 40 CFR§761.61(a)(3)(B) and (C). As indicated in Section 1.0, above, both the former Petro and Casale operations on the Site are being investigated pursuant to New Jersey's Industrial Site Recovery Act (ISRA) regulations. Copies of the ISRA submissions, which include discussions of all of the areas of concern, will be made available at the request of the USEPA (as indicated on the Certification located in Attachment A).

4.1 Soil Sample Methodology

Soil samples were collected using track-mounted Geoprobe drilling equipment operated by TPI Inc. of New Hope, Pennsylvania. The Geoprobe drilling system consists of pneumatically driven drill rods used to advance a 4-foot long, 2-inch diameter stainless steel core sampler downward into the soil profile. Soil samples were collected from the corer using dedicated clear polypropylene macro-core tube liners. Upon sample collection, the macro-core tubes were cut open and the soil samples extracted using a pre-cleaned, dedicated stainless steel trowel. The soil samples were field screened with a calibrated photoionization detector (PID). The respective samples were collected following methods outlined in the NJDEP August 2005 *Field Sampling Procedures Manual*. All soil samples collected in each area of concern were subsequently transferred to pre-cleaned sample jars and packed on ice in a cooler to ensure a preservation temperature of 4°C. Samples for PCB analysis were analyzed by TestAmerica, Inc. (TestAmerica) utilizing USEPA SW-846 method 8082 or 8082A (depending on the date of analysis). The PCBs were extracted using method 3546. TestAmerica is a National Environmental Laboratory Accreditation Program (NELAP) certified laboratory and their New Jersey NELAP accreditation number is 12028.

PCB soil sample results were compared to the current NJDEP RDCSRS and the DIGWSSL of 0.2 mg/kg, the NJDEP NRDCSRS and TSCA self-implementing cleanup criteria of 1.0 mg/kg, and the TSCA self-implementing cleanup criteria in (future) Defined High Occupancy Areas of 10 mg/kg. The PCB sample results tables, including the date of collection are located in the Tables appendix of this report. All of the PCB samples were analyzed within two weeks of collection in order to comply with NJDEP holding times. Copies of the NJDEP-compliant reduced format laboratory data packages are not included in this Application but are available, upon request.

4.2 Summary PCBs identified In Site Soils – Lot 1 (former Petro parcel)

Initial soil investigations on Lot 1 were conducted between February 27 and March 6, 2014 by EcolSciences to evaluate specific areas of concern (AOCs) identified during EcolSciences Phase I Assessment/Preliminary Assessment of Lot 1. As part of the investigation, soil borings were conducted in the southeastern portion of the Lot 1 building, adjacent to several sumps. Initial soil samples identified low levels of PCBs in three samples, 8/19-12, 8/19-14 and 8/19-15 (ranging from 0.32 mg/kg to 0.79 mg/kg), specifically Aroclor 1248, below 1.0 mg/kg; however, exceedances of the NJDEP RDCSRS of 0.2 mg/kg were identified. Samples 8/19-14 and 8/19-15 were collected from 6.5-7 feet below grade and sample 8/19-12 was collected from 7.5-8 feet below grade.

Additional investigations were conducted from March 28 to April 14, 2014 by EcolSciences to further characterize the site and in an effort to delineate the exceedances identified during the initial sampling activities. As part of this additional investigation, additional sampling conducted in the southeastern corner of the building identified higher concentrations of PCBs in the site soils, at concentrations ranging from below 1.0 mg/kg to 280 mg/kg. Exceedances were identified in the subsurface soils at depths ranging from the surface to sixteen feet below ground surface.

As a result of the PCB exceedances identified during the March and April 2014 investigations, EcolSciences conducted additional soil sampling in the southeastern portion of the property on an approximate 20-foot sample grid in January 2015. The purpose of the sampling was to supplement the existing PCB data and to conduct grid sampling in general accordance with 40 CFR§761 Subparts N and O.

As shown on the attached comprehensive PCB soil sample results plan for Lot 1 (Figure 4) attached to this report, a total of 283 samples collected throughout Lot 1 at varying depths were analyzed for PCBs. The majority of these samples contained no detectable concentrations of PCBs. However, PCBs were identified at concentrations exceeding the NJDEP's RDCSRS and DIGWSSL in a number of soil samples generally in the northwestern portion of the site and in the southeastern portion of the site, with a few sporadic PCB exceedances elsewhere onsite. **No PCB exceedances of the USEPA high occupancy threshold of 10 mg/kg were identified with the exception of the southeast corner of Lot 1.** PCB concentrations in the southeastern portion of the site were identified at concentrations ranging from Non-Detect (ND) to 280 mg/kg, with ten samples exceeding the high occupancy threshold limit of 10 mg/kg as indicated on the table below (organized by sample depth). All of the PCB soil and concrete laboratory sample result tables from Lot 1 are shown on Table 1.

Samples Containing PCBs above 10 mg/kg – Lot 1		
Sample ID	Depth (ft bgs)	PCBs
10-12D1	4-4.5	180
10-12M	4-4.5	150
10-12E1	4-4.5	190
8/19-14BS	7.5-8	37
SE-13B	7.5-8	15
10-12F2	7-7.5	71
10-12-1	7-7.5	47
10-12E2	7-7.5	280
SE-9D	13.5-14	14
SE-9E	15.5-16	33

Although other PCB congeners were identified in some of the samples from the northeastern and northwestern portions of the site, the PCB congener generally identified in the southeastern portion of Lot 1 above the USEPA self-implementing regulatory standard of 1.0 mg/kg and the PCB congener exclusively identified above the TSCA high occupancy threshold of 10 mg/kg is Aroclor 1248. As previously stated in Section 1 and further documented in Section 4.6, Aroclor-1248 was not produced after 1972. As shown on Figure 4, the horizontal extent of the PCB impacted soil was delineated at that time to the north, south, and west. However, horizontal delineation on Lot 1 was not achieved to the east, at that time due to the constraints of the Casale property buildings, although the Petro PCB findings at the eastern property boundary were indicative of PCB contamination on the adjacent Lot 2. Subsequent investigations conducted to the east (on Lot 2) are described below. Cross Sections of the PCB concentrations within the southeastern portion of Lot 1 and Lot 2 are shown on Figure 6.

4.3 <u>Summary PCBs identified in Site Soils – Lot 2 (former Casale parcel)</u>

Initial soil investigations on Lot 2 were conducted between February 18 and February 26, 2015, with supplemental investigations conducted in May, August, and October 2015. All sampling activities were conducted by EcolSciences for due diligence purposes on behalf of 490 South Avenue, LLC, the contract purchaser. As a result of the investigations conducted on Lot 1 which indicated the potential presence of PCBs on Lot 2, soil sampling was conducted throughout the southwestern and south central portions of Lot 2 with a focus on PCBs in a similar manner (i.e. a roughly 20-foot sample grid in the suspected PCB impacted area) as that conducted on Lot 1. In light of the findings of the Petro investigations, PCB analysis was also conducted on the samples collected throughout the remainder of the facility, along the pipes, trenches, and pits that are located throughout the Lot 2 building, and at all other areas of environmental concern on Lot 2. These soil sampling activities were conducted utilizing dual-tube drilling techniques to minimize the potential for vertical cross-contamination throughout the soil column, although in some areas due to overhead clearance issues, hand tools were utilized in order to completed drilling activities, and therefore the dual tube methodologies could not be employed. In total, 514 PCB samples were collected and analyzed from the Lot 2 portion of the property. Table 2 presents the PCB laboratory results tables from the Lot 2 PCB samples.

PCBs were identified in the southwestern and south central portion of the property in excess of the NJDEP DIGWSSL, RDCSRS, and NRDCSRS. In addition, 69 soil samples collected from this area of the site contained PCBs in excess of the USEPA high occupancy threshold limit of 10 mg/kg. These sample results are indicated on the table below and are organized by sample depth. PCB results are shown in mg/kg.

Samples Containing PCBs above 10 mg/kg – Lot 2										
Sample ID	Depth (ft bgs)	PCBs		Sample ID	Depth (ft bgs)	PCBs		Sample ID	Depth (ft bgs)	PCBs
B3a	3.5-4	41		B6b	7.5-8	19		31d	12-12.5	180
B2a	3.5-4	11		B11b	7.5-8	21		LD3Sd	12-12.5	70
10a	3-3.5	110		ABE-3c	8.5-9	35		LD3Nd	12-12.5	120
20a	3-3.5	24		10c	9.5-10	17		PR1Da	15.5-16	190
26a	3-3.5	43		B3c	9.5-10	24		10e	15.5-16	23
AW-1a	3-3.5	110		B2c	9.5-10	31		13e	15.5-16	69
LD3Da	3-3.5	3000		25c	9.5-10	12		PR3Da	15.5-16	110
LD3Na	3-3.5	410		B6c	9.5-10	30		B2e	15.5-16	32
ABE-3a	3-3.5	16		AW-1c	9.5-10	180		20e	15.5-16	52
PR2a	5.5-6	15		FM13b	9.5-10	28		PR5Da	15.5-16	16
10b	6.5-7	15		31c	9.5-10	3000		B6e	15.5-16	29
13b	6.5-7	41		LD3Sc	9.5-10	930		32e	15.5-16	44
25b	6.5-7	160		LD3Dc	9.5-10	660		LD3Se	15.5-16	1100
16b	6.5-7	100		B3d	11.5-12	23		PR1Db	17.5-18	43
31b	6.5-7	740		PR2b	11.5-12	11		PR3Db	17.5-18	18
LD3Sb	6.5-7	3700		B2d	11.5-12	19		PR5Db	17.5-18	37
LD3Db	6.5-7	1100		B6d	11.5-12	60		LD3Sf	17.5-18	24
LD3Nb	6.5-7	27		B11d	11.5-12	68		PR1Dc	19.5-20	45
PR3a	6-6.5	22		10d	12-12.5	23		10f	19.5-20	48
FM13a	6-6.5	16		13d	12-12.5	11		PR3Dc	19.5-20	47
ABE-3b	6-6.5	140		20d	12-12.5	50		20f	19.5-20	41
B3b	7.5-8	13		26d	12-12.5	17		PR5Dc	19.5-20	21
B2b	7.5-8	59		16d	12-12.5	50		14f	19.5-20	180

The PCB sample results from the southwest portion of Lot 2, as well as the PCB results identified across the site in excess of 1.0 mg/kg, including sample depths, are shown on the attached Figure 5 and cross sections of the PCB impacted area across Lots 1 and 2 are shown on Figure 6. Table 3 presents all of the PCB results as well as the sample depths, collected from Lot 2. Consistent with the Lot 1 findings, PCB congener 1248 is the main PCB congener impacting the Site and Aroclor 1248 is the only congener identified above 1.0 mg/kg on Lot 2. As indicated on Figure 5, the PCB impacts above the applicable regulatory standards have been horizontally delineated and confined to the Site. Although vertical delineation at every location could not be achieved due to the drilling methodologies required based on access constraints (i.e. use of hand drilling tools within some areas of the building) limiting the depth of drilling to approximately 10 feet below grade), the PCB impacted areas above 10 mg/kg have been predominantly delineated to approximately 20 feet below ground surface.

4.4 PCBs in Concrete and Wood Block Floor

The concrete in both of the buildings was sampled in accordance with the NJDEP Guidance for Characterization of Concrete and Clean Material Certification for Recycling (March 2010) for Site Remediation Program Sites. This characterization included PCB analysis in accordance with the laboratory methodology described in Section 4.1. A total of 39 concrete chip samples have been collected (twenty-six from the Lot 1 buildings and thirteen from the Lot 2 building) from the Site.

Concrete chip PCB results range from ND to 1.0 mg/kg in 29 of the 39 samples. Concrete chip samples containing PCBs above 1.0 mg/kg, are shown in the table below. Sample CC-LD (collected from the loading dock adjacent to the high level PCB soil impacted area) contained PCBs at 77 mg/kg and this was the only concrete chip sample to contain PCBs in excess of 10 mg/kg. The concrete chip sample locations and exceedances for Lot 1 are shown on Figure 7. The locations of the concrete chip samples from Lot 2 are shown on Figure 5.

Concrete Chip PCB sample results in excess of 1.0 mg/kg			
Lot 1 (former Petro)		Lot 2 (former Casale)	
Sample ID	PCB conc. (mg/kg)	Sample ID	PCB conc. (mg/kg)
C-4	1.3	C5	7.4
C-16	1.3	C8	1.4
C-17	1.3	CC-LD	77
C-19	1.2		
C-20	3.2		
C-22	4.8		
C-23	1.4		

A portion of the Lot 2 building also features a wood block floor in certain areas. Three composite samples (WB-1, WB-2, and WB-3) of the wood block floor were collected for waste characterization purposes. PCB analysis was included in the waste characterization sampling. PCB results (Aroclor 1248) ranged from ND to 2.1 mg/kg.

4.5 PCB Area Groundwater Investigations

As a result of contamination (including PCB impacts) identified on the Lots 1 and 2, a series of monitoring wells were installed by TPI (a New Jersey licensed well driller) under EcolSciences' oversight. The wells are installed in the overburden soils at varying depths. In general, the monitoring well network consists of 19 shallow overburden monitoring wells installed to a depth of 15 feet below grade and seven deeper overburden monitoring wells installed to 35 feet below grade. There are seven shallow overburden and three deeper overburden monitoring wells within and around the PCB impacted area in the southeastern portion of Lot 1 and the southwestern/south central portion of Lot 2. A summary of these wells is presented in the table below. The monitoring well locations are shown on Figure 8.

Lot 1 (former Petro parcel)		
Well ID	Depth (feet)	Screened interval (feet below grade)
MW-5	16	4-16
MW-7	15	5-15
MW-7D	35	25-35
MW-10	15	5-15

Lot 2 (former Casale parcel)		
Well ID	Depth (feet)	Screened interval (feet below grade)
MW-6	15	5-15
MW-6D	35	30-35
MW-7	15	5-15
MW-7D	35	25-35
MW-8	15	5-15
MW-9	15	5-15

The well screen consists of two inch diameter, 0.01-inch slotted PVC with solid two-inch PVC risers. The interval around and two feet above the screened interval was sand-packed, and the remainder of the well casing was grouted to the surface with Portland cement and a bentonite slurry. The wells are finished as flush-mounted wells and were surveyed by a NJ-licensed surveyor. Based on the survey and depth to water information, the groundwater flows from northwest to southeast, across the Site.

The monitoring wells within the PCB impacted area were sampled by TestAmerica, Inc. for PCBs utilizing low-flow methodologies on February 19, 2015, May 26, 2015, August 19-20, 2015, and October 15-16, 2015. The results were analyzed for PCBs via USEPA SW-846 method 8082A and extracted via method 3510C. Generally, the low flow pump was set at the midpoint of the water column. However, in accordance with NJDEP protocol, two samples were collected from wells with more than a five foot water column in the screened portion of the well (the two sampling points were evenly distributed across the water column). The pump intake depth is specified as the numerical value designated after the well ID (eg. C-MW-8_7.5 corresponds to the Casale Lot well MW-8 with the pump intake depth set at 7.5 feet bgs) in instances where more than one sample was collected from the well.

The following subsections discuss the results of these sampling activities. The sample results were compared to the NJDEP Groundwater Quality Standards (GWQS) and the USEPA unrestricted use standard [40 CFR761.79(b)(1)(iii)] of 0.5 µg/L. The sample results are also shown on Figure 8. The groundwater PCB results are shown on Table 3.

4.5.1. February 19, 2015 Sampling Event

On February 19, 2015 monitoring wells MW-5 and MW-10 (the only monitoring wells installed in the PCB area at the time) on Lot 1 were sampled for PCBs. One sample was collected from each monitoring well and PCBs were not detected.

4.5.2. May 26, 2015 Sampling Event

On May 26, 2015 monitoring wells MW-5 and MW-10 (the only monitoring wells installed in the PCB area at the time) on Lot 1 were sampled for PCBs. One sample was collected from each monitoring well and PCBs were not detected.

4.5.3. August 19 & 20, 2015 Sampling Event

On August 19 and 20, 2015, monitoring wells MW-5, MW-7, MW-7D, and MW-10 on Lot 1 and monitoring wells MW-6, MW-7, and MW-7D on Lot 2 (which were the only monitoring wells installed in the PCB area at that time) were sampled for PCBs. The results are shown on the table below.

August 19 and 20, 2015 PCB Area Monitoring Well Sample Results (in µg/L)					
Lot 1 Monitoring Wells					
Sample ID:	P-MW-5	P-MW-7	P-MW-7D-31.9	P-MW-7D-26.9	P-MW-10
Total PCBs	**1.1**	ND	ND	ND	**1.0**

Lot 2 Monitoring Wells				
Sample ID:	C-MW-6	C-MW-7	C-MW-7D-27.5	C-MW-7D-32.5
Total PCBs	**32**	ND	ND	ND

ND - Not Detected

As indicated in the table above, PCBs were identified in wells MW-5 and MW-10 on Lot 1 and MW-6 on Lot 2 in excess of the NJDEP and USEPA standard of 0.5 µg/L. As shown on Figure 8, these well locations correspond to the areas where elevated concentrations of PCBs are present in the soil. PCBs were not detected in the upgradient wells MW-7 and MW-7D on Lot 1 and PCBs were not detected in Sentinel wells MW-7 and MW-7D located on Lot 2.

4.5.4. October 15 & 16, 2015 Sampling Event

On October 15 and 16, 2015 monitoring wells MW-5, MW-7, MW-7D, and MW-10 on

Lot 1 and monitoring wells MW-6, MW-6D, MW-7, MW-7D, MW-8, and MW-9 on Lot 2 were sampled for PCBs. The results are shown on the table below.

October 15 and 16, 2015 PCB Area Monitoring Well Sample Results (in µg/L)					
Lot 1 Monitoring Wells					
Sample ID:	P-MW-5	P-MW-7	P-MW-7D-31.9	P-MW-7D_26.9	P-MW-10
Total PCBs	**1.3**	ND	ND	ND	**1.6**

Lot 2 Monitoring Wells					
Sample ID:	C-MW-6	C-MW-6D	C-MW-7	C-MW-7D-27.5	C-MW-7D-32.5
Total PCBs	**25**	**2.0**	ND	ND	ND
Sample ID:	C-MW-8_7.5	C-MW-8_12.5	C-MW-9_9.2	C-MW-9_13.2	
Total PCBs	**4.7**	**11**	ND	ND	

ND - Not Detected

As indicated in the table above, PCBs were identified in wells MW-5 and MW-10 on Lot 1 and MW-6, MW-6D, and MW-8 on Lot 2 in excess of the NJDEP and USEPA standards. As shown on Figure 8, these locations correspond to the areas where elevated concentrations of PCBs are present in the soil. Based on the results from the remaining wells (i.e. no detectable concentrations of PCBs in the downgradient sentinel wells MW-7, MW-7D, and MW-9 on Lot 2), the groundwater plume has been horizontally delineated in both the shallow and deeper zones. Due to spatial constraints, installation of a deeper overburden well in the vicinity of MW-6D was not feasible. However, given the significant PCB concentration decrease from MW-6 (shallow well) to MW-6D (deeper overburden well screened from 30 to 35 feet below grade), and the limited vertical water column distance between these samples (i.e. attenuation from 25 µg/L to 2 µg/L in 15 vertical feet), vertical delineation of PCBs in the groundwater to the NJDEP GWQS is conceptually complete and will be confirmed with a deeper well after building demolition.

4.6 Site Characterization Conclusions

Aroclor 1248 is present throughout the southcentral portion of the Site (southeastern corner of Lot 1 and southwest corner of Lot 2, within an approximate 0.45-acre area) with concentrations identified in the soil up to 3,700 mg/kg. It is the only PCB congener identified excess of the USEPA high occupancy threshold of 10 mg/kg. With the exception of the Lot 2 loading dock area and three additional small areas (soil samples from borings AW-1, 10-12, and 10), PCBs are present at concentrations under 50 mg/kg in the top six feet of soil throughout the impacted area and range from ND to 190 mg/kg at depths ranging from six to 24 feet below grade.

Based on the Site history, no potential sources of PCB contamination have been identified in connection with the plastic extrusions or sheet metal operations which began circa 1963. Moreover, according to Mr. Casale, the equipment used in the Casale operations such as drill presses and sheet metal brakes and rollers, which potentially used cutting or hydraulic fluids, were not located or historically operated in the PCB-impacted area.

Sampling conducted in the locations where the Casale equipment that could have used cutting or hydraulic fluids revealed no PCB exceedances of the USEPA self-implementing threshold, with the exception of one sample (BP-1 containing PCBs at 5.0 mg/kg) containing PCBs above 1.0 mg/kg. The sizeable PCB-impacted area in the southeastern corner of Lot 1 and southwestern portion of Lot 2 corresponds to an area where a series of pipes, trenches, and a pit are present within and beneath the concrete slab. Mr. Casale indicated that these features were never used by Casale. However, the area where the trenches and a pit are located (the PCB impacted area) correspond to the location shown on Sanborn Maps where ALCOA conducted aluminum casting.

The North American Die Casting Association (NADCA) indicates that die casting machinery often utilizes significant amounts of hydraulic fluids to drive hydraulic pistons during injection of the molten metal and potentially for coating dies. Based on the Agency for Toxic Substances and Disease Registry (ATSDR), Aroclor 1248 was commonly present in hydraulic fluids. The National Institute for Occupational Safety and Health (NIOSH) Publication number 78-127 indicates that Aroclor-1248 production peaked in the late 1950s and early to mid-1960s and Aroclor 1248 was not produced or sold after 1972. Given the location of the contamination proximal to the area where aluminum casting was historically conducted and the nature of the contaminant (Aroclor 1248), a potential source of the PCB contamination is hydraulic fluid associated with the historic die casting operations.

Further evidence of historic hydraulic fluid usage on the site is based on the notation of a 'cellulube circulating pump and cooler' present in the ALCOA Casting Department and a 'cellulube circulating pump in pit and cooler' present onsite. These features were specifically identified as 'scheduled personal property' included in the Deed at the time ALCOA sold the property in 1961. Based on ATSDR, cellulube is a hydraulic fluid.

490 South Avenue, LLC also retained Trillium, Inc., Consultants in Environmental Chemistry, to review the Site Characterization sampling data generated during EcolSciences' investigations. Their review of the semi-volatile organic compounds (SVOC) gas chromatography-mass spectrometry (GC/MS) shows a direct correlation between locations where Aroclor 1248 was detected and the presence of tricresyl phosphate (TCP) in these

samples. TCP, also known as lindol, has been available since the 1920s. The scheduled personal property attachment to the 1961 Deed referenced above also included a ‘lindol cooling tank’ in the same area of the facility as the ‘cellulube circulating pump in pit and cooler’ referenced above. The Trillium Report is included in Attachment D.

The presence of TCP relative to PCBs may be significant because the Monsanto Company was assigned a patent for a mixture of TCP and Aroclor-1248 for flame-resistant fluids with improved viscosity characteristics (i.e. hydraulic fluid). This patent was granted on April 26, 1955 and was applied for on January 15, 1951. In 1971, Monsanto voluntarily restricted the sales of all Aroclors with the exception of those used in closed circuit electrical transformers such as transformers and capacitors. Given the lack of PCB containing material usage by both Petro and Casale and the presence of widespread PCBs at elevated concentrations in the area where aluminum die casting was conducted by ALCOA, it appears that the PCB discharge predates the 1960s.

Based on this information, summarized below, the contamination was ‘disposed’ at the Site prior to 1978 pursuant to 40 CFR§761.50(b)(3)(i)(B) and is the result of a pre-1978 spill:

- Aroclor 1248 was not produced or sold after 1972;
- Aroclor 1248 and TCP were used together in hydraulic fluids;
- Hydraulic fluid and TCP related equipment was present onsite in 1961;
- Hydraulic fluids were often used in die casting machinery;
- Die casting was conducted on the property from at least the 1940s through the early 1960s; and,
- There is no known PCB usage at the Site after the early 1960s as indicated by persons with first-hand knowledge of the historic Site operations dating to 1963.

With regard to the groundwater, sampling from monitoring wells located upgradient, downgradient, and throughout the PCB-impacted area indicate that PCBs are present in the groundwater above the GWQS of 0.5 µg/L in a limited shallow area centered around the PCB-impacted soils. As noted in this Section, the PCB discharges would have occurred prior to 1961, and likely even earlier. Accordingly, PCBs in the groundwater have likely been present for at least 55 years, and likely even longer. Since the PCB impact to groundwater has been present for a significant period of time, are centered around areas of notable PCB impacts to the soil, attenuate rapidly over a short distance moving away from the soil source areas, and have not migrated offsite, the plume is considered stable.

Pursuant to 40 CFR§761.50(b)(3)(i)(B) cleanup in accordance with 40 CFR§761.61 is not required with the exception of future disposal of disturbed PCB remediation waste since it appears that the discharge of PCBs at the site predates 1978. Even though USEPA approval of the remedial plan is not required because the discharges occurred prior to 1978, 490 South Avenue, LLC is voluntarily seeking USEPA approval of this Risk-Based Disposal Application in support of future mixed use residential development of the Site. The proposed disposal activities for the PCB remediation waste are outlined in the following section.

5. PROPOSED SITE CLEANUP PLAN

The following section presents a discussion of the planned Site Cleanup to facilitate as part of redeveloping the property by the 490 South Avenue, LLC in accordance with 40 CFR§761.61(c). As stated above, 490 South Avenue, LLC plans to redevelop the site for mixed use commercial and residential purposes.

5.1 Overall Remedial Approach

490 South Avenue, LLC plans to remediate the Site through the removal of the identified PCB impacts above 50 mg/kg from the upper six feet of the site soils, as well as removal of the identified PCB soil concentrations greater than 190 mg/kg from six feet below ground surface and deeper on the Site. In order to meet these concentrations, the following areas will be excavated for offsite disposal with post excavation soil sampling to document compliance with the concentrations described above. The excavation locations are shown on Figure 9.

- Soils in the vicinity of sample 10-12 (PCBs up to 280 mg/kg) on Lot 1 (Petro) to a depth of approximately eight feet below grade (Area A);
- Soil and concrete in the vicinity of sample LD3 and CC-LD (PCBs up to 3,700 mg/kg) on Lot 2 (Casale) to an average depth of 14 feet below grade (Area B);
- Soils in the vicinity of sample location 10 (PCBs up to 110 mg/kg) on Lot 2 (Casale) to a depth of approximately six feet below grade (Area C);
- Soils in the vicinity of sample location AW-1 (PCBs up to 110 mg/kg) on Lot 2 (Casale) to a depth of approximately six feet below grade (Area D);

In short, there will be no PCB soil concentrations above 50 mg/kg in the upper six feet of soil following the targeted excavation of the areas above. Once the targeted excavations are complete, the entire Site (as well as the other lots north of South Avenue (i.e. Block 401 Lots 4 and 5) will be capped in accordance with the NJDEP's presumptive remedies and 40 CFR§761.61(a)7 (i.e. building foundations, pavement, 28 inches of clean landscape cover) thereby providing an effective barrier between future occupants and the underlying soil and groundwater. With the exception of the concrete in the vicinity of CC-LD, the concrete from the remaining portions of the building will be crushed and reused onsite beneath the cap. After Site redevelopment is complete, the cap will be inspected on a semi-annual basis to document the integrity and continues effectiveness of the cap and biennial certifications to the NJDEP will be completed. The inspections and biennial certifications will be completed under the oversight of an LSRP in accordance with NJDEP requirements.

With regard to groundwater, an indeterminate groundwater Classification Exception Area (CEA) for PCBs will be instituted in accordance with NJDEP regulations and guidance for the stable groundwater PCB plume. Groundwater monitoring will be conducted on an annual basis to document the continued long-term stability of the PCB plume. Of note, it is anticipated that the targeted excavation activities will improve the groundwater conditions through the removal of the most significant PCB source material.

5.2 Proposed Excavation

With regard to the excavation and offsite disposal activities, the material from the four areas described above (Areas A-D) will be excavated and transported to CWM Chemical Services, LLC in Model City, New York or Wayne Disposal, Inc. in Belleville, Michigan. If shipment to these facilities is not possible, another TSCA landfill certified to handle TSCA PCB wastes will be selected and the USEPA will be notified prior to shipment.

By removing the soil or concrete from Areas A through D for offsite disposal at a TSCA landfill, no PCB impacted soil will remain above 50 mg/kg in the surficial six feet of the Site soils. PCB concentrations above 50 mg/kg are proposed to remain undisturbed onsite in the deeper soil below six feet from the current ground surface to 24 feet below grade. Based on EcolSciences' soil sampling conducted to date this conceptual remedial plan would leave PCBs up to 190 mg/kg in the deeper soil horizon (i.e. below six feet). The proposed excavation areas are shown on Figure 9. The PCB soil concentrations to remain onsite below the cap (see Section 5.2, below for capping specifications) are shown in the tables below.

Samples Containing PCBs above 10 mg/kg – Lot 1 to Remain Beneath the Cap		
Sample ID	Depth (ft bgs)	PCBs
8/19-14BS	7.5-8	37
SE-13B	7.5-8	15
10-12F2	7-7.5	71
10/12/2001	7-7.5	47
SE-9D	13.5-14	14
SE-9E	15.5-16	33

Samples Containing PCBs above 10 mg/kg – Lot 2 to Remain Beneath the Cap								
Sample ID	Depth (ft bgs)	PCBs	Sample ID	Depth (ft bgs)	PCBs	Sample ID	Depth (ft bgs)	PCBs
B3a	3.5-4	41	ABE-3c	8.5-9	35	PR1Da	15.5-16	190
B2a	3.5-4	11	10c	9.5-10	17	10e	15.5-16	23
20a	3-3.5	24	B3c	9.5-10	24	13e	15.5-16	69
26a	3-3.5	43	B2c	9.5-10	31	PR3Da	15.5-16	110
ABE-3a	3-3.5	16	25c	9.5-10	12	B2e	15.5-16	32
PR2a	5.5-6	15	B6c	9.5-10	30	20e	15.5-16	52
10b	6.5-7	15	AW-1c	9.5-10	180	PR5Da	15.5-16	16
13b	6.5-7	41	FM13b	9.5-10	28	B6e	15.5-16	29
25b	6.5-7	160	B3d	11.5-12	23	32e	15.5-16	44
16b	6.5-7	100	PR2b	11.5-12	11	PR1Db	17.5-18	43
LD3Nb	6.5-7	27	B2d	11.5-12	19	PR3Db	17.5-18	18
PR3a	6-6.5	22	B6d	11.5-12	60	PR5Db	17.5-18	37
FM13a	6-6.5	16	B11d	11.5-12	68	LD3Sf	17.5-18	24
ABE-3b	6-6.5	140	10d	12-12.5	23	PR1Dc	19.5-20	45
B3b	7.5-8	13	13d	12-12.5	11	10f	19.5-20	48
B2b	7.5-8	59	20d	12-12.5	50	PR3Dc	19.5-20	47
B6b	7.5-8	19	26d	12-12.5	17	20f	19.5-20	41
B11b	7.5-8	21	16d	12-12.5	50	PR5Dc	19.5-20	21
			LD3Nd	12-12.5	120	14f	19.5-20	180
PCB Concentrations in mg/kg								

After removal of Areas A-D, post excavation soil sampling will be conducted at a rate of one sample location for each 30 feet of sidewall (minimum of one sample location per sidewall) from every five foot depth interval and a fifteen foot sample grid throughout the excavation floor to ensure removal of PCB containing material above 50 ppm from the upper six feet of the site and PCB containing material above 190 mg/kg from the deeper soil intervals.

The remaining concrete containing PCBs ranging from non-detect to 7.9 mg/kg will be crushed and reused onsite beneath the cap (see Section 5.2, below) in accordance with applicable NJDEP Solid Waste and Site Remediation Program regulations or disposed offsite in accordance with this Application.

Since the PCB groundwater plume is stable, confined to the Site boundary, and there are no potential groundwater receptors in the vicinity of the Site (further discussed in Section 5.7, below), groundwater remediation will consist of long-term monitoring (annual sampling) to document the continued long-term stability of the plume. An indeterminate CEA will also be established with the NJDEP to provide an institutional control. From a practical standpoint, it is anticipated that the groundwater quality will improve upon the removal of the most significant source of the PCBs in the soil.

5.3 Decontamination

Any equipment utilized during the remediation which comes in contact with the PCB impacted material will be decontaminated in accordance with 40 CFR§761.79 and 40 CFR§761 Subpart S.

5.4 Proposed Redevelopment and Engineering Controls

After excavation of Areas A-D, the entirety of the Site will be capped in accordance with 40 CFR§761.61(a)7 and the NJDEP Technical Requirements for Site Remediation (N.J.A.C. 7:26E). These engineering controls will be protective of public health and safety and of the environment. Specifically, the objectives of the engineering controls are to prevent direct human contact by isolating and containing the contaminated soil, to prevent generation of airborne particulate contamination and public exposure to airborne particulates; and to prevent erosion or off-site migration of contaminated soil due to storm runoff. Specifically, the following engineering controls will be employed:

Impervious Cover Capping

- Building - Six inch (minimum) concrete building slab underlain by 18 inches of NJDEP compliant certified clean fill with a visible contaminant barrier and a vapor barrier (Liquid Boot or equivalent) with a sub-slab depressurization system; or

- Non Building Concrete Surfaces (i.e. sidewalks or other concrete surfaces) - Six inches of concrete (minimum) underlain by 18 inches of NJDEP compliant certified clean fill with a visible contaminant barrier; and

- Driveways and Parking Areas - Six inches of concrete or asphalt (minimum) underlain by 18 inches of NJDEP compliant certified clean fill with a visible contaminant barrier;

Green Area Capping

- 18 inches of NJDEP certified compliant clean fill underlain by ten inches of compacted soil pursuant to 40 CFR§761.61(a)7 above a geotextile fabric in green areas.

Utility Trenches

- While not anticipated, if utility trenches are installed in the PCB remediation waste disposal area all of the soil removed from the trench excavation will be disposed as described in Section 5.1. The trench will be lined with a contaminant barrier and backfilled a minimum of 12 inches of NJDEP certified compliant clean fill around and underneath the utility and to the ground surface.

The capping protocols will also comply with 40 CFR§264.310(a) and 40 CFR§761.75(b)(1)(ii) through (b)(1)(v).

The NJDEP compliant clean fill to be used during capping will be certified quarry material or material sampled in accordance with NJDEP's Fill Guidance, Chapter 6, for Target Compound List/Target Analyte List plus thirty tentatively identified compounds (TCL/TAL+30) and extractable petroleum hydrocarbons (EPH – category 2). The results will be compared to the NJDEP RDCSRS, NRDCSRS, and DIGWSSL to ensure compliance with NJDEP and USEPA protocol. The 10 inches of compacted soil pursuant to 40 CFR§761.61(a)7 will be sampled in accordance with NJDEP's Fill Guidance Document to document that it is free of PCBs above 1.0 mg/kg.

A map depicting the engineering control cross sections is included on Figure 10. Upon completion of the engineering control a final Deed Notice will be prepared and will be recorded with appropriate government agencies (i.e. Union County, New Jersey) to serve as an institutional control, ensuring that the engineering controls remain protective of public health and safety and of the environment. A draft of the Deed Notice is included in Attachment E. Once the engineering control has been installed and the Deed Notice has been recorded, the USEPA will be notified pursuant to 40 CFR§761.61(a)8(i)(B).

A filed copy of the Deed Notice will be forwarded to the NJDEP and USEPA with the Remedial Action Report and the Application for a Remedial Action Permit Application (RAP) for Soils. The RAP will also include the establishment of financial assurance pursuant to NJDEP regulations in order to ensure the continued monitoring and maintenance of the Engineering Control.

As a condition of the RAP and Deed Notice, periodic monitoring (i.e. semi-annually) and maintenance will be conducted to ensure the integrity of the cap. Any breaches in the integrity of the cap (i.e., cracking or deterioration of asphalt surfaces, soil erosion in the landscaped areas) identified during routine inspections will be repaired in accordance with the Deed Notice. General maintenance tasks will include patching any cracked areas in the impervious surfaces, and ensuring that a sufficient vegetative cover pursuant to the aforementioned specification is maintained in the landscaped areas.

In accordance with NJDEP requirements, a certification of the remedial action's protectiveness will be provided to NJDEP every two years, confirming that the institutional and engineering controls are being properly maintained and continue to be protective of public health and safety and the environment. The semi-annual monitoring, repair, and biennial certifications will be conducted under the oversight of a LSRP.

5.5 Engineering Control Capping Coverages

The site redevelopment plan is included in Attachment B. As indicated previously, the main PCB impacted area (where PCBs were identified at concentrations above 10 mg/kg) has been delineated to an approximately 0.45-acre area on Lots 1 and 2 which encompass a total of 5.053 acres. The overall redevelopment area north of South Avenue (which also includes Block 401, Lots 4 and 5) encompasses approximately 5.263 acres and approximately 11% of the overall redevelopment area will consist of green area. The remaining portions of the Site will be covered by impervious surfaces. The redevelopment plan and PCB impacted area overlays are shown on Figure 11.

5.6 Redevelopment and Remediation Plan Precautions

During the remediation of the main PCB-impacted area and redevelopment of the Site by 490 South Avenue, LLC, the necessary precautions will be taken to ensure proper control of the PCB-impacted material to avoid cross-contamination and protect workers while the PCB remediation waste is exposed and excavated. The following is the general approach to the excavation and capping activities.

1. Install soil erosion control measures which will be continuously inspected and maintained throughout the duration of the redevelopment;
2. Cut and cap existing utilities;
3. Throughout demolition and earthwork activities onsite, an air monitoring program will be employed using aerosol monitors to ensure that no fugitive dusts are emitted. The most stringent Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) for PCBs is 0.5 mg/m^3. However, the National Ambient Air Quality Standard (NAAQS) for particulate matter 10 microns [PM(10)] and below is 0.15 mg/m^3. Therefore, the more stringent 0.15 mg/m^3 standard will be employed. Dust control measures will include wetting of the site;
4. Demolish the existing building except for the concrete slabs overlying the PCB impacted area (i.e. area with concentrations above 10 mg/kg) which will be left in place until capping will be conducted. The wood block floors in the Lot 2 Building (maximum PCB concentration of 2.1 mg/kg) will be disposed through the Union County Solid Waste Stream or at Conestoga Landfill in Morgantown, Pennsylvania;
5. The concrete foundation overlying the PCB impacted areas to be excavated (Areas A-D) will be removed and disposed in accordance with Section 5.1 (if required);

6. Contractors trained pursuant to 29CFR§1910 and §1926 will complete the excavation of the PCB impacted Areas A-D as described in Sections 5.1 and 5.2;
7. Excavation Areas A-D will be backfilled with clean fill from a quarry or will be sampled in accordance with the NJDEP clean fill guidance to document compliance with 40 CFR§761.61(a)7. The remaining concrete slab areas will be removed working from the center of the PCB remediation waste disposal area out as the cap is installed, to eliminate the potential for cross contamination. PCB remediation waste will not be left exposed during earthwork activities. Dedicated excavation equipment for PCB impacted material and clean capping material will be utilized to avoid the potential for cross-contamination;
8. As part of redevelopment, the site will be capped in accordance with Section 5.2;
9. If utility installations are required below the cap within the PCB-impacted areas, clean utility corridors will be installed with a minimum of one foot of NJDEP-compliant certified clean fill from the surface extending to one foot below the utility and one foot of clean fill on either side of the utility. A visible demarcating layer/liner will also be installed. Any excess PCB-impacted material will be disposed of in accordance with Number 10, below;
10. Should any areas containing PCBs above 10 mg/kg require removal as part of new building foundation or utility installations, the excess material will be segregated, isolated, and removed for offsite disposal. If the material is PCB remediation waste (based on current Site Characterization results), it will be transported to and disposed at CWM Chemical Services, LLC in Model City, New York, Wayne Disposal, Inc. in Belleville, Michigan, or another TSCA landfill. If PCBs are present in the material below 44 mg/kg based on current sampling data (i.e. Site Characterization results) this material will be disposed at Hazelton Creek Properties, LLC in Hazelton, Pennsylvania; Coplay Aggregates land development portion at the Coplay Quarry, Whitehall, Pennsylvania; or Bethlehem Earth LP, Bethlehem, PA. Material containing PCBs between 44 mg/kg and 50 mg/kg will be disposed at CWM Chemical Services, LLC in Model City, New York, Wayne Disposal, Inc. in Belleville, Michigan, or another TSCA landfill.
11. Equipment used in the PCB impacted areas will be decontaminated in accordance with 40 CFR§761.79 and 40 CFR§761 Subpart S.

5.7 <u>Potential Human and Ecological Receptors and Post Remedial Pathway Evaluation</u>

A receptor evaluation was conducted Lots 1 and 2 in accordance with NJDEP regulations (Attachment F). Residences along South Avenue and Willow Street, to the south of the Site, are the only potential sensitive receptors identified within 200 feet of Lots 1 and 2. No potable or irrigation wells were identified within a half-mile of the site pursuant to review of NJDEP water allocation and well permitting records. In addition, the Site is not within any wellhead protection areas. Considering that the onsite PCB impacts are currently effectively capped, and as part of the remedial action proposed herein will continue to be capped, and there is no potable or irrigation usage of groundwater in the vicinity of the site, there is no pathway for sensitive receptor exposure.

In addition, no environmentally sensitive natural resources were identified at or nearby the site. No visual evidence of potential ecological impact was observed on or adjacent to the site, including stressed or dead vegetation due to contamination, discolored soil, sediment, or water, seeps or discharges, or the absence of any expected wildlife or plant species. EcolSciences' review of the NJDEP Landscape Project (Version 3.1) wildlife habitat map indicates that the areas located on and within 200 feet of site are not ranked as critical habitat, and are not afforded any special regulatory considerations at this time. The closest surface water feature (i.e. Rahway River Tributary (a.k.a. Garwood Brook), classified as a FW2-NT surface water) is 475 feet to the south. Therefore, the site is not part of any 300-foot Special Water Resource Protection Area as applied to Category 1 waters, according to the New Jersey Stormwater Management regulations (N.J.A.C. 7:8), or part of any riparian zone, as per the New Jersey Flood Hazard Area Control Act Rules (N.J.A.C. 7:13-1 et seq.). Based on this information, no further action relative to ecological impacts is warranted.

As stated in Section 4.6, PCB impacts in the soil and the table PCB groundwater plume are confined to Lots 1 and 2. These areas are currently capped with the existing building improvements. The pre-1978 discharged PCBs are currently disposed of in accordance with 40 CFR§761.50(b)(3)(i)(B) and there are no potential receptors. Once remediation and redevelopment are complete, the PCB impacted material will remain at depth and there will continue to be no potential receptors because there are no potential groundwater, soil, or air migratory pathways given the proposed capping plan. Specifically, the existing disposed PCB remediation waste (i.e. material containing PCBs above 50 mg/kg) will be below a 24 to 28 inch cap, a vapor barrier (below buildings), and a six foot buffer of material containing PCBs below 50 mg/kg. Furthermore, the monitoring and maintenance plan, which is required by the NJDEP as part of the Deed Notice, will ensure the continued future integrity of all impervious and pervious surfaces. As a condition of the future NJDEP Remedial Action Permit for Site Soils, a Remedial Action Protectiveness/Biennial Certification form for soil will be certified by a New Jersey-licensed LSRP and submitted to the NJDEP every two years, documenting that the remedial action for site soils is effective and continues to be protective of human health and the environment. The limited PCB-impacted groundwater plume is stable, is delineated onsite (with the exception of confirmatory deeper sampling although vertical contaminant migration attenuates rapidly in a short vertical distance below the main PCB-impacted source area) and will be addressed with institutional controls (CEA) and long-term monitoring to verify the continued stability of the PCB plume.

In summary, there are no potential migratory pathways for PCBs and there is no risk to the future Site occupants once the proposed remedial actions are complete based on the following multiple lines of evidence:

- PCBs are generally immobile in the soil profile. The NJDEP 'Guidance for the Evaluation of Immobile Chemicals for the Impact to Groundwater Pathway' (June 2008) conducted various simulations utilizing modeling scenarios and the NJDEP found that PCBs remain strongly adsorbed to the soil. With specific regard to the Site, the PCB impacted material has been present on the Site since at least the early 1960s (i.e. a pre-1978 discharge) and has not migrated offsite. Although there are currently some limited impacts to the groundwater up to 32 µg/L, excavation of the high-level impacted material above 190 mg/kg and up to 3,700 mg/kg is anticipated to improve the groundwater quality on the site. However, regardless of whether groundwater concentrations improve, there are no migratory pathways for the groundwater as is has been established that the groundwater contamination has been confined to the Site for decades;

- The proposed remedial action (capping utilizing engineering controls) will completely isolate the PCB contamination from the future Users of the site. Furthermore, all PCB remediation waste (i.e. PCB containing material above 50 mg/kg) will be at least eight feet (two foot clean cap plus six feet of PCB containing material below 50 mg/kg) below any future Users of the site;

- Averaging using the 95% Upper Confidence Limit of the Mean (UCL), generated utilizing ProUCL version 5.0 (recognized by the USEPA as a valid statistical model), of the 201 samples collected with detectable PCB soil concentrations remaining in the ±0.45-acre PCB remediation waste area after removal of the areas A-D described in Section 5.1 and 5.2 is 24.65 mg/kg. The 95% UCL of the of the 32 samples collected with detectable PCB soil concentrations remaining in the upper six feet of the ±0.45-acre PCB remediation waste area after removal of the areas described in Section 5.1 and 5.2 (i.e. the mean concentration within the six foot buffer above the PCB remediation waste) varies between 9.2 mg/kg and 14.92 mg/kg with a ProUCL suggest 97.5% UCL of 18.21 mg/kg. These UCLs are below or only marginally above the USEPA's High Occupancy criterion of 10 mg/kg; and

- Passive vapor mitigation systems with a vapor barrier (Liquid Boot ® or equivalent) will be installed beneath the occupied structures as an added protective measure.

5.8 Schedule

Pending USEPA approval, the redevelopment activities are scheduled to begin in the Fall of 2016. Active remedial activities (excavation) are expected to take approximately one month over the winter of 2016-2017, and the redevelopment project, including capping, is scheduled to be completed by the end of 2018.

6. QUALITY ASSURANCE/QUALITY CONTROL PLAN

The following Quality Assurance/Quality Control Plan applies to both the investigations conducted to date and the post excavation soil sampling and groundwater monitoring that will be conducted following soil excavation in the PCB impacted areas. All post excavation samples will be collected as grab samples following procedures set forth in the NJDEP *Field Sampling Procedures Manual* (August 2005) and 40 CFR§761 Subpart N. All groundwater samples will be collected via low flow methodologies as previously described.

6.1 Sample Handling and Chain-of-Custody Procedures

The sample handling and Chain-of-Custody procedures to be employed during the sampling are as follows:

- **Sample Identification and Labeling –** Individual sample bottles will have identification labels. Each label will generally contain the project name, project number, sample number, listing of analytical parameters, sample preservation, and the time and date of sampling.

- **Field Sample Shipment and Preservation Procedures –** All samples will be preserved in a cooler containing ice for shipment to the laboratory at ± 4 degrees Centigrade.

- **Sample Shipment/Chain-of-Custody -** All sample bottles will be obtained from the laboratory prior to sampling, with the samples shipped in coolers with custody seals and Chain-of-Custody. The Chain-of-Custody for the shipment of the pre-cleaned sample bottles from the laboratory will be kept as part of the project file. The packed samples will be retrieved by the laboratory, with a Chain-of-Custody form prepared to document sample shipment and receipt by the laboratory. Every sample collected in the field will be included on the Chain-of-Custody record. Information on the Chain-of-Custody will include the Company name and address, project name and number, sample numbers, sample matrix, number of sample containers per sample, date and time of sample collection, analytical parameters for each sample, the type of laboratory deliverables to be completed for each sample, and the type of sample preservation. The Chain-of-Custody will include the signature of the person relinquishing custody of the sample and the time and date the samples were relinquished for shipment to the laboratory. The Chain-of-Custody will also include the signature of the person receiving the samples for transport to the laboratory.

- **Laboratory Sample Preservation Procedures –** Upon receipt of the samples at the laboratory, the samples will be stored in a secured refrigerated room at ±4 degrees Centigrade until time of sample analysis.

- **Sample Holding Times –** Sample holding times will be as per the NJDEP *Field Sampling Procedures Manual*.

- **Equipment Decontamination Procedures –** Soil samples will be collected using dedicated plastic spatulas or equivalent. The spatulas will not be reused, which will preclude the need for field decontamination of the sampling equipment. They will be properly disposed offsite.

- **Laboratory Shipment –** The soil samples will be placed on ice immediately upon collection in coolers supplied by the laboratory. The samples will be transported to the laboratory by laboratory personnel under chain of custody (COC); laboratory pick-up will be arranged for the day of sampling

6.2 Laboratory Analysis

TestAmerica will perform all laboratory analysis for the project. The TestAmerica reporting and method detection limits for PCBs are shown on the table below. A copy of the most recent laboratory QA manual is included in Attachment G.

Polychlorinated Biphenyls (PCBs) by Gas Chromatography - Method 8082A_DKQP				
Analyte Description	CAS Number	Reference RL - Limit	Reference RL - Units	Reference MDL - Limit
Aroclor 1016	12674-11-2	0.0670	mg/Kg	0.0227
Aroclor 1221	11104-28-2	0.0670	mg/Kg	0.0227
Aroclor 1232	11141-16-5	0.0670	mg/Kg	0.0227
Aroclor 1242	53469-21-9	0.0670	mg/Kg	0.0227
Aroclor 1248	12672-29-6	0.0670	mg/Kg	0.0227
Aroclor 1254	11097-69-1	0.0670	mg/Kg	0.0208
Aroclor 1260	11096-82-5	0.0670	mg/Kg	0.0208
Aroclor 1262	37324-23-5	0.0670	mg/Kg	0.0208
Aroclor 1268	11100-14-4	0.0670	mg/Kg	0.0208
Polychlorinated biphenyls, Total	1336-36-3	0.0670	mg/Kg	0.0208

6.3 Data Validation

All laboratory data is validated by EcolSciences pursuant to the NJDEP data of known quality protocol (DKQP). This includes review of holding times, calibration standards, method blanks, surrogate recoveries, dilution factors, etc. Any data that is qualified will be explained fully and a discussion of the appropriateness and usefulness of any qualified data will also be incorporated into the results discussion.

7. CONCLUSION

EcolSciences, Inc. has prepared this Application for a Risk Based PCB Disposal Approval for the Site known as Block 401, Lots 1 and 2 in the Borough of Garwood, New Jersey. PCBs (Aroclor 1248) are present throughout the southcentral portion of the Site (southeastern corner of Lot 1 and southwest corner of Lot 2, within a combined approximate 0.45-acre area). Based on the Site history, no potential source of PCB contamination has been identified in connection with the plastic extrusions or sheet metal operations, which began circa 1963 and continued through circa 2014 (the property has been vacant since the cessation of these operations). Prior to these operations, the site was used for industrial operations including die casting operations.

Based on the facts summarized below, the contamination was disposed at the Site prior to 1978 pursuant to 40 CFR§761.50(b)(3)(i)(B) and is the result of a pre-1978 spill:

- Aroclor 1248 was not produced or sold after 1972;
- Aroclor 1248 and TCP were used together in hydraulic fluids;
- Hydraulic fluid and TCP related equipment was present onsite in 1961;
- Hydraulic fluids were often used in die casting machinery;
- Die casting was conducted on the property from at least the 1940s through the early 1960s; and,
- There is no known PCB usage at the Site after the early 1960s as indicated by persons with first-hand knowledge of the historic Site operations dating to 1963.

The PCB groundwater plume is centered around the PCB soil source areas, delineated onsite, and is stable. Pursuant to 40 CFR§761.50(b)(3)(i)(B) cleanup in accordance with 40 CFR§761.61 is not required with the exception of disposal of excess PCB remediation waste because the material was disposed of in place prior to 1961. However, 490 South Avenue, LLC is voluntarily seeking a Risk-Based Disposal Approval from the USEPA in light of the proposed redevelopment of the site.

As demonstrated herein, there are no ecological receptors in proximal to the site and no pathways for human or ecological exposure exist or will exist after completion of the remedial action. The targeted excavation of Areas A-D will result in a significant reduction in PCB concentrations, including the removal of all PCB impacts above 50 mg/kg from the 0-6 foot below grade interval in the PCB remediation waste area. After the targeted excavation activities are completed, the average 95% UCL PCB concentration in the 0-6 foot interval ranges from between 9.2 mg/kg and 14.92 mg/kg and the average 95% UCL PCB concentration in the deeper zone (6-24 feet below grade) will be 24.65 mg/kg. Furthermore, installation of an adequate cap in accordance with 40 CFR§761.61(a)7 with a vapor barrier and passive mitigation below occupied buildings as part of the redevelopment of the site for mixed use (commercial and residential), and the establishment of the appropriate institutional controls with long term monitoring (i.e. Deed Notice and CEA with Biennial Certifications) requirements will not pose an unreasonable risk of injury to health or the environment.

On behalf of 490 South Avenue, LLC, EcolSciences requests a written Approval of this Application. In accordance with 40 CFR§761.61(a)(3)(E), written certifications signed by the property owners are presented in Attachment A.

8. REFERENCES

Agency for Toxic Substances and Disease Registry (ATSDR). (2011) Addendum to the Toxicological Profile for PCBs.

National Institute for Occupational Safety and Health (NIOSH) Current Intelligence Bulletin 7: Polychlorinated (PCBs) Publication number 78-127. (R. J. William Lloyd, Sc.D.; Roscoe M. Moore, Jr., D.V.M.; Barbara S. Woolf, M.S.; and Harvey P. Stein, Ph.D.)

North American Die Casting Association (NADCA). Operator Training Program Book.

NJDEP. (1930, 1995, 2012) Aerial Photographs of the Site.

NJDEP. (2008) Guidance for the Evaluation of Immobile Chemicals for the Impact to Ground Water Pathway

Robinson Aerial Surveys, Inc. (1959, 1969, 1976) Aerial Photographs of the Site.

State of Washington Department of Ecology v. Aluminum Company of America, Inc.,

Trillium, Inc. Forensic Assessment Report. November 4, 2015

FIGURES

EcolSciences, Inc.
Environmental Management & Regulatory Compliance

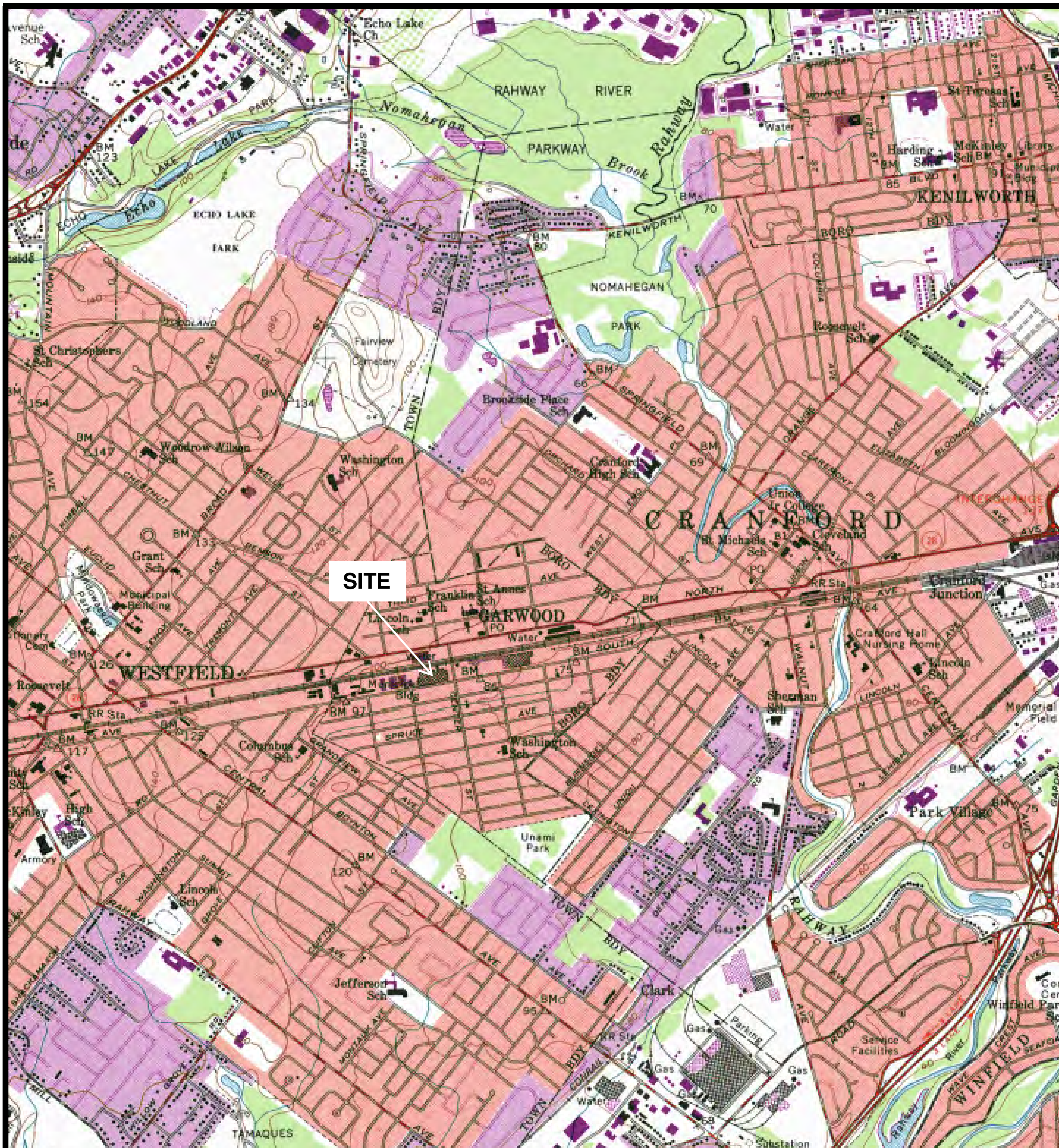
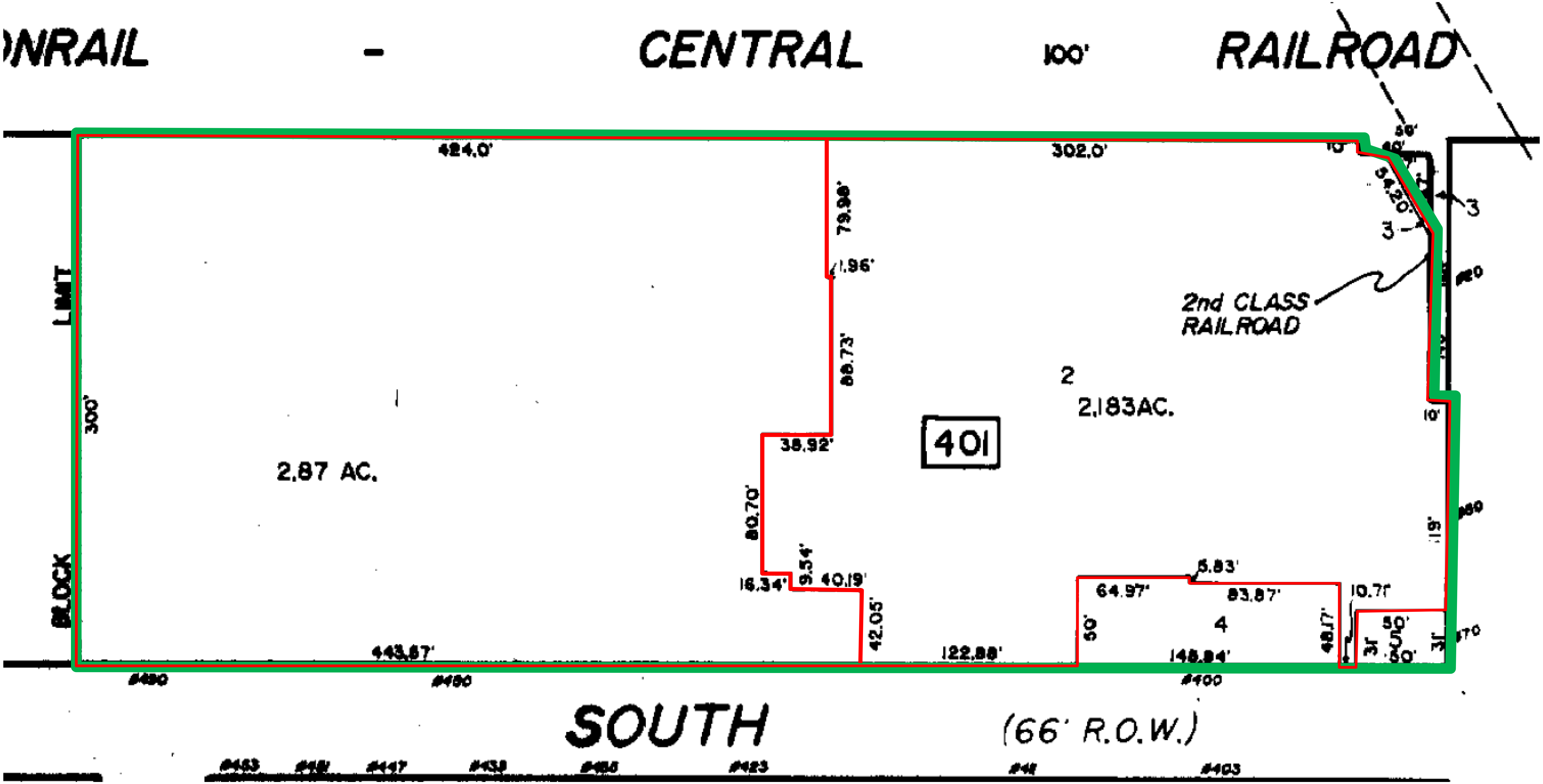


FIGURE 1: REGIONAL SITE LOCATION

450-490 South Avenue and 50 Center Street
Block 401, Lots 1 and 2
Garwood Borough
Union County, New Jersey

EcolSciences, Inc.
Environmental Management and Regulatory Compliance

DATE: 10-2015
Scale: ~1'=±2000'



Overall Redevelopment Area North of South Avenue

Block 401, Lot 1 and 2 Property Boundary

Map Source: Njtaxmaps.com

Figure 2: Municipal Tax Map

Former Industrial Property
Block 401, Lots 1 and 2
Borough of Garwood
Union County, New Jersey

EcolSciences, Inc.
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Scale: ~1"=55'
10/2015

N

Photograph Source: NJDEP Geoweb Imagery

Figure 3: 2012 Aerial Overview

Block 401, Lots 1, 2, 4, and 5
Borough of Garwood
Union County, New Jersey

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Scale: ~1"=60'
10/2015

LEGEND

- APPROXIMATE PROPERTY LINE
- FLOOR DRAIN
- POLE TRANSFORMERS
- PAD TRANSFORMERS
- RI SOIL SAMPLE LOCATION
- SI SOIL SAMPLE LOCATION

0 30 60 60
SCALE: 1"=30'

PCB Regulatory Standards/Criteria	
NJDEP DIGWSSL	0.2
NJDEP RDCSRS	0.2
NJDEP NRDCSRS	1.0
USEPA High Occupany Threshold	10
All values in milligrams/kilogram (mg/kg)	
Blue text indicates an exceedance of the RSRS/DIGWSSL	
Shaded Indicates an exceedance of the NRSRS	
Red Shaded indicated an exceedance of 10 mg/kg	
NJDEP DIGWSSL - Default Impact to Groundwater Soil Screening Level	
NJDEP RDCSRS - Residential Direct Contact Soil Remediation Standard	
NJDEP NRDCSRS - Non-Residential Direct Contact Soil Remediation Standard	

Data Box Key and Examples

Sample ID	Depth (Ft. Below Grade)	PCB Concentration (mg/kg)
13-6	0.5-1	0.75
13-6A	3-3.5	ND
ND - Not Detected		

SOURCES:
1. P.J. GRALL PROFESSIONAL ENGINEER AND SURVEYOR, "SURVEY OF PROPERTY", DATED MARCH 14, 1963.

TITLE:
LOT 1 PCB SOIL SAMPLE RESULTS MAP

450 & 490 SOUTH AVENUE
GARWOOD, NEW JERSEY

EcolSciences, Inc.
Environmental Management & Regulatory Compliance

DRAWN BY:	DESIGNED BY:	APPROVED BY:	PLATE NUMBER:
AG	D. LOEFFLER	D. LOEFFLER	4
DATE: 11/3/15	SCALE: AS SHOWN	PROJECT NO.: HW14-020	

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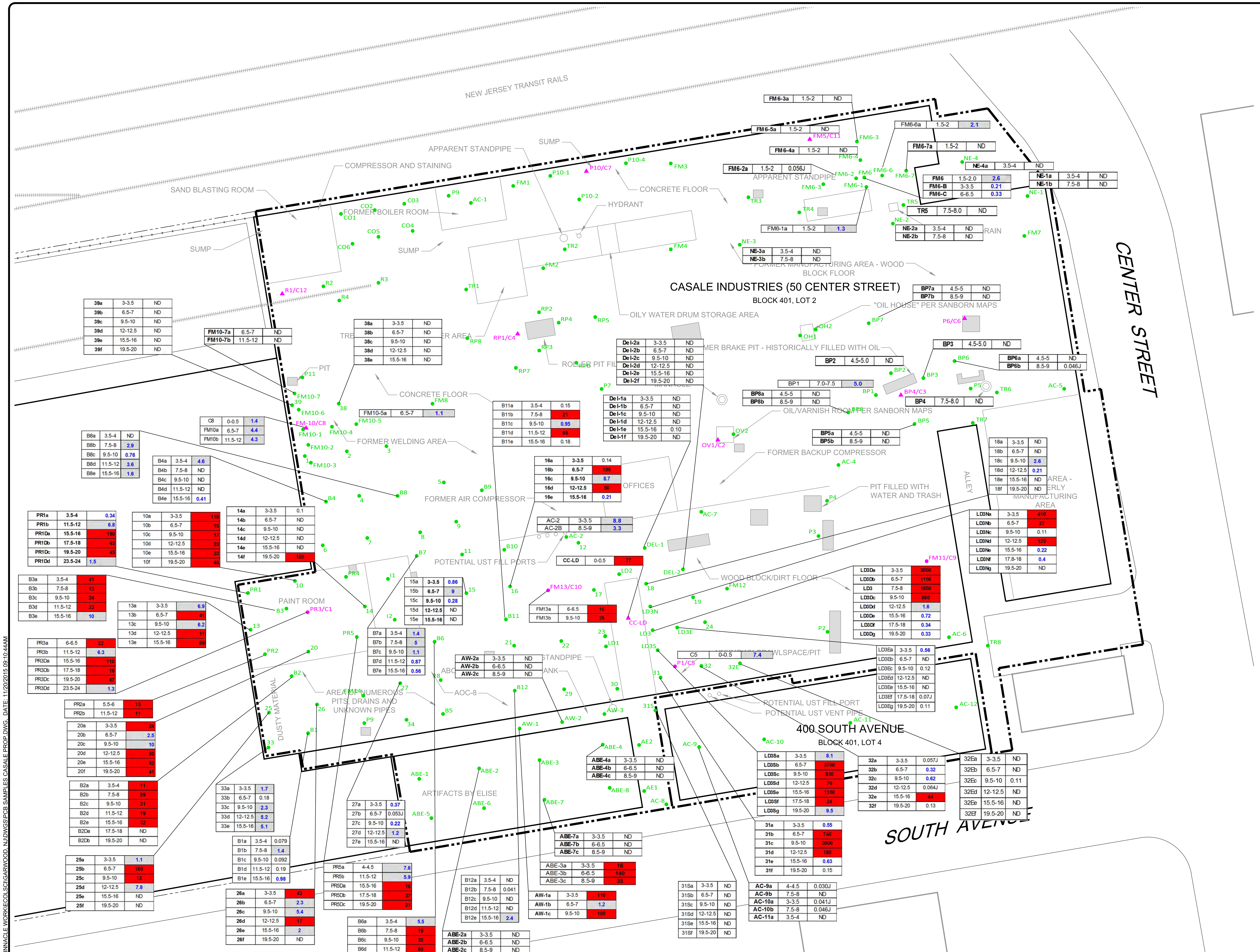


SOURCES:
1. P.J. GRALL PROFESSIONAL ENGINEER AND SURVEYOR, "SURVEY OF PROPERTY", DATED MARCH 14, 1963.

NORTH

LEGEND

- APPROXIMATE PROPERTY LINE
- APPROXIMATE LOCATION OF PIT OR METAL PLATE
- SAMPLE LOCATION
- CONCRETE/SOIL SAMPLE LOCATION

NOTE:
1. SAMPLE LOCATIONS SHOWN ON THE MAP INDICATE LOCATIONS WHERE PCB SAMPLES WERE COLLECTED. GIVEN THE VOLUME OF SAMPLES COLLECTED, ONLY THE PCB RESULTS ABOVE 1.0 MG/KG AND DELINEATION SAMPLES ARE SHOWN ON THIS MAP. TABLE 4 OF THE RISK BASED DISPOSAL APPLICATION SHOWS ALL OF THE PCB SAMPLE RESULTS AND DEPTHS FROM LOT 2.

PCB Regulatory Standards/Criteria	
NJDEP DIGWSSL	0.2
NJDEP RDCSRS	0.2
NJDEP NRDCSRS	1.0
USEPA High Occupany Threshold	10
All values in milligrams/kilogram (mg/kg)	
Blue text indicates an exceedance of the RSRS/DIGWSSL	
Shaded Indicates an exceedance of the NRSRS	
Red Shaded indicated an exceedance of 10 mg/kg	
NJDEP DIGWSSL - Default Impact to Groundwater Soil Screening Level	
NJDEP RDCSRS - Residential Direct Contact Soil Remediation Standard	
NJDEP NRDCSRS - Non-Residential Direct Contact Soil Remediation Standard	

Data Box Key and Examples		
Sample ID	Depth (Ft. Below Grade)	PCB Concentration (mg/kg)
BP5a	4.5-5	ND
ND - Not Detected		

0 20 40 80
SCALE: 1"=20'

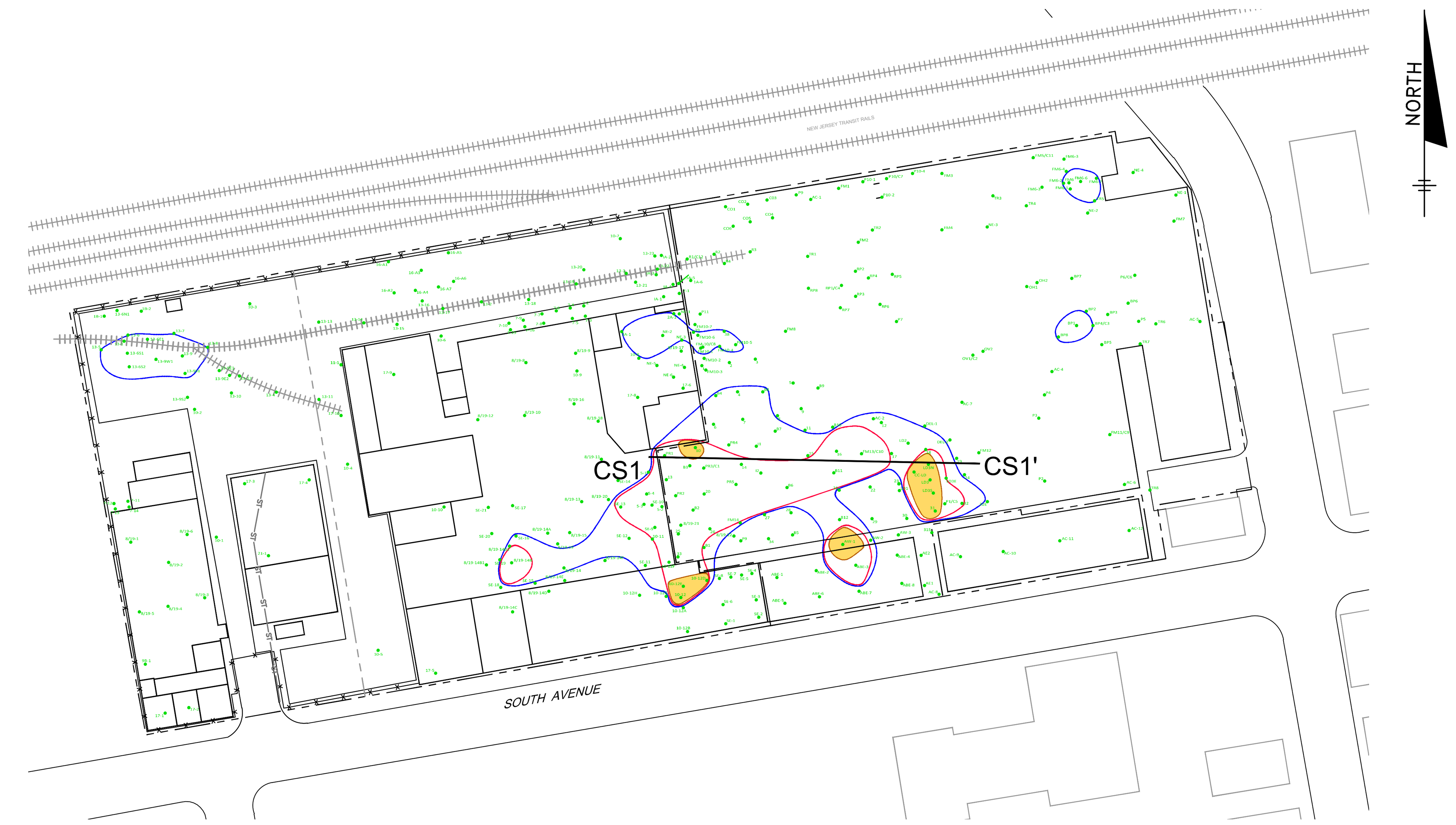
TITLE:
LOT 2 PCB SOIL AND CONCRETE SAMPLE SAMPLE LOCATIONS AND RESULTS

50 CENTER STREET & 400 SOUTH AVENUE
GARWOOD, NEW JERSEY

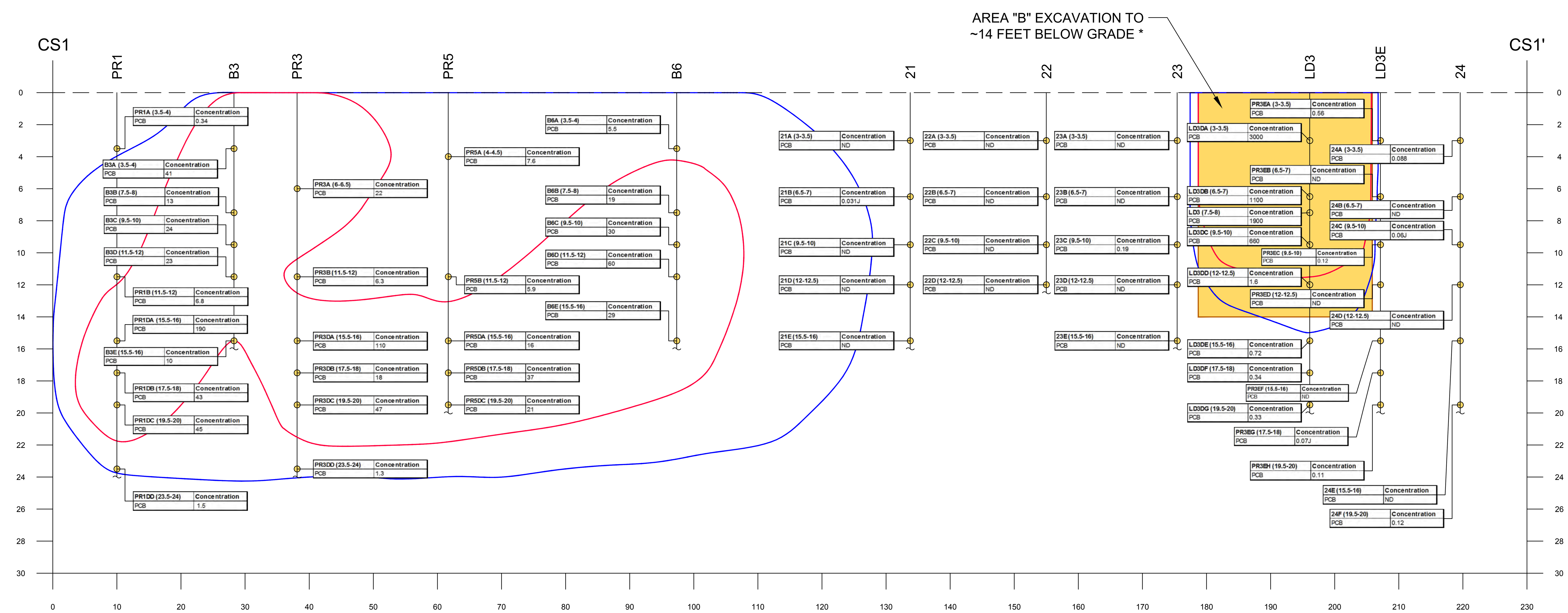
EcolSciences, Inc.
Environmental Management & Regulatory Compliance

DRAWN BY:	DESIGNED BY:	APPROVED BY:	PLATE NUMBER:
AG	D. LOEFFLER	D. LOEFFLER	5
DATE: 11/3/15	SCALE: AS SHOWN	PROJECT NO.: HW14-020	

FILE: L:\PINNACLE WORK\ECOSCI\GARWOOD, NJ\DWGS\PCB SAMPLES CASALE PROP DWG, DATE: 11/20/2015 09:10:44AM



SITE KEY PLAN
SCALE: 1" = 80'



1 inch = 4 ft.
1 inch = 10 ft.

LEGEND

- SAMPLE LOCATION
- SAMPLE LOCATION
- BORING LOCATION
- BORING DEPTH MAY CONTINUE
- APPROXIMATE PROPERTY LINE
- AREA CONTAINING PCBs ABOVE 10 mg/kg
- DELINEATED AREA CONTAINING PCBs ABOVE 1.0 mg/kg (LESS THAN 10.0 mg/kg) IN THIS PORTION OF THE SITE
- AREA TO BE EXCAVATED *

* OVERALL EXCAVATION AREA TO BE BASED UPON POST-EXCAVATION PCB SOIL SAMPLE RESULTS

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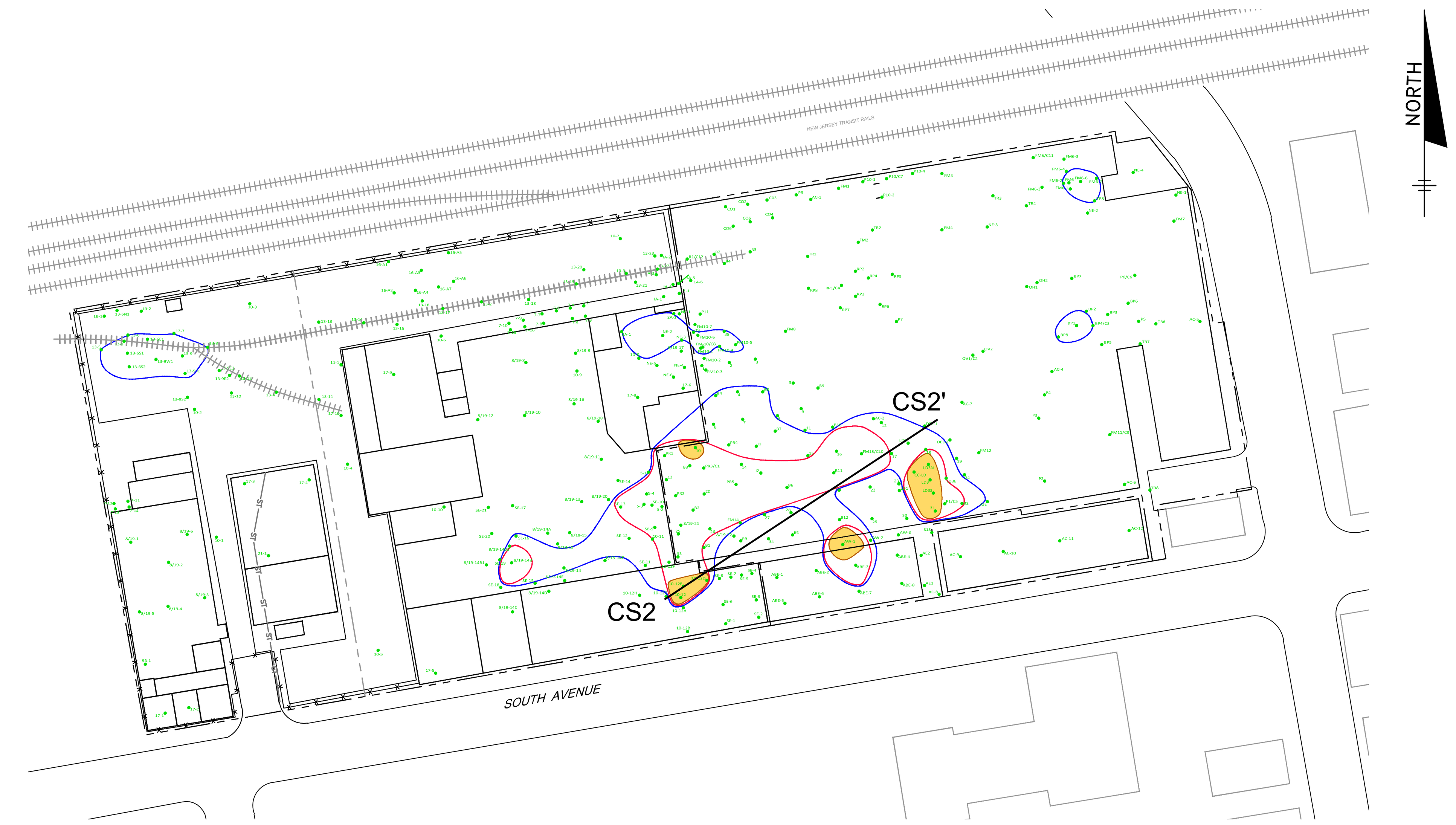
TITLE:

PCB ISOCONCENTRATION
CROSS-SECTION CS-1

LOT 1 (450 & 490 SOUTH AVENUE) AND LOT 2
(50 CENTER STREET)
GARWOOD, NEW JERSEY

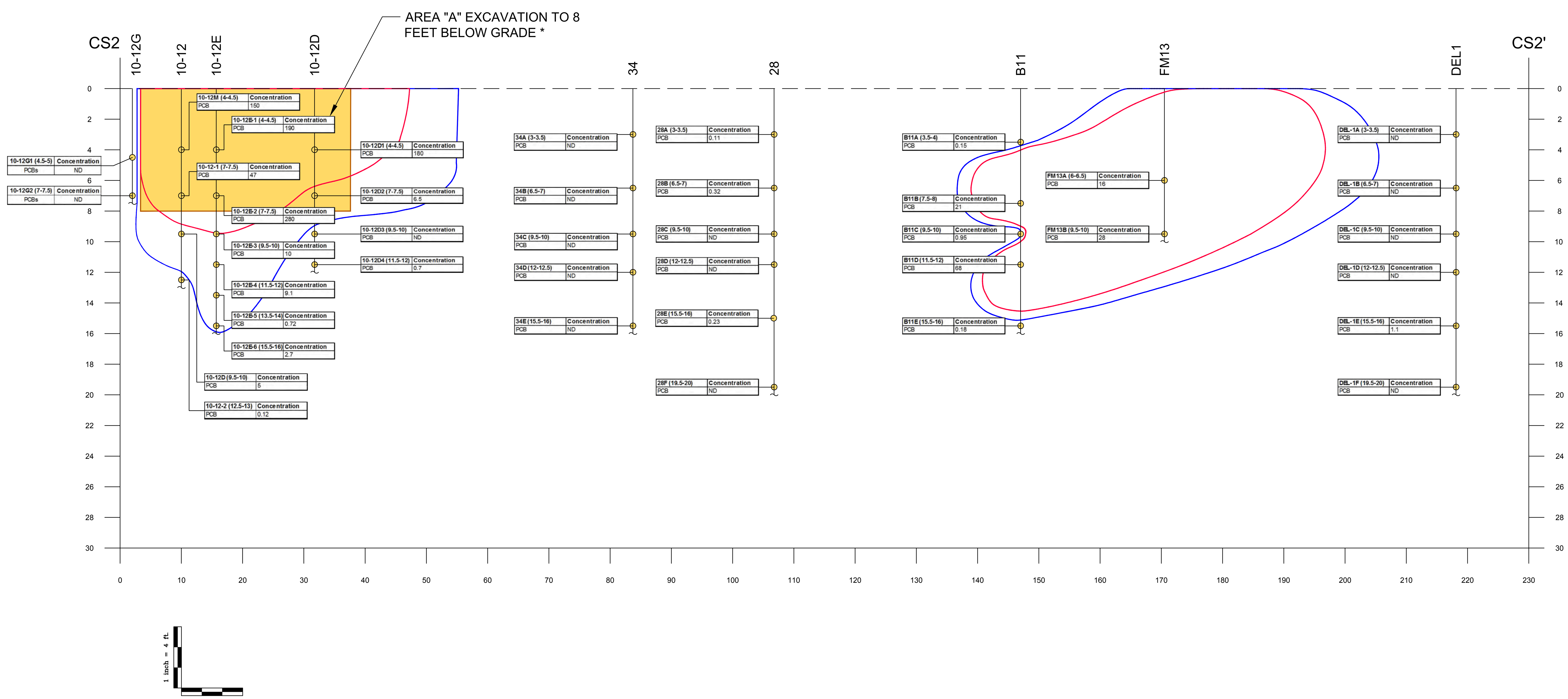
EcolSciences, Inc.
Environmental Management & Regulatory Compliance

DRAWN BY:	DESIGNED BY:	APPROVED BY:	PLATE NUMBER:
AG	D. LOEFFLER	D. LOEFFLER	6A
DATE: 11/16/15	SCALE: AS SHOWN	PROJECT NO.: HW14-020	



SITE KEY PLAN

SCALE: 1" = 80'



LEGEND

B10 SAMPLE LOCATION

SAMPLE LOCATION

BORING LOCATION

BORING DEPTH MAY CONTINUE

APPROXIMATE PROPERTY LINE

AREA CONTAINING PCBs ABOVE 10 mg/kg

DELINEATED AREA CONTAINING PCBs ABOVE 1.0 mg/kg (LESS THAN 10.0 mg/kg) IN THIS PORTION OF THE SITE

AREA TO BE EXCAVATED *

* OVERALL EXCAVATION AREA TO BE BASED UPON POST-EXCAVATION PCB SOIL SAMPLE RESULTS

TITLE:

PCB ISOCONCENTRATION CROSS-SECTION CS-2

LOT 1 (450 & 490 SOUTH AVENUE) AND LOT 2 (50 CENTER STREET) GARWOOD, NEW JERSEY

EcolSciences, Inc.
Environmental Management & Regulatory Compliance

DRAWN BY:	DESIGNED BY:	APPROVED BY:	PLATE NUMBER:
AG	D. LOEFFLER	D. LOEFFLER	6B
DATE: 11/16/15	SCALE: AS SHOWN	PROJECT NO.: HW14-020	

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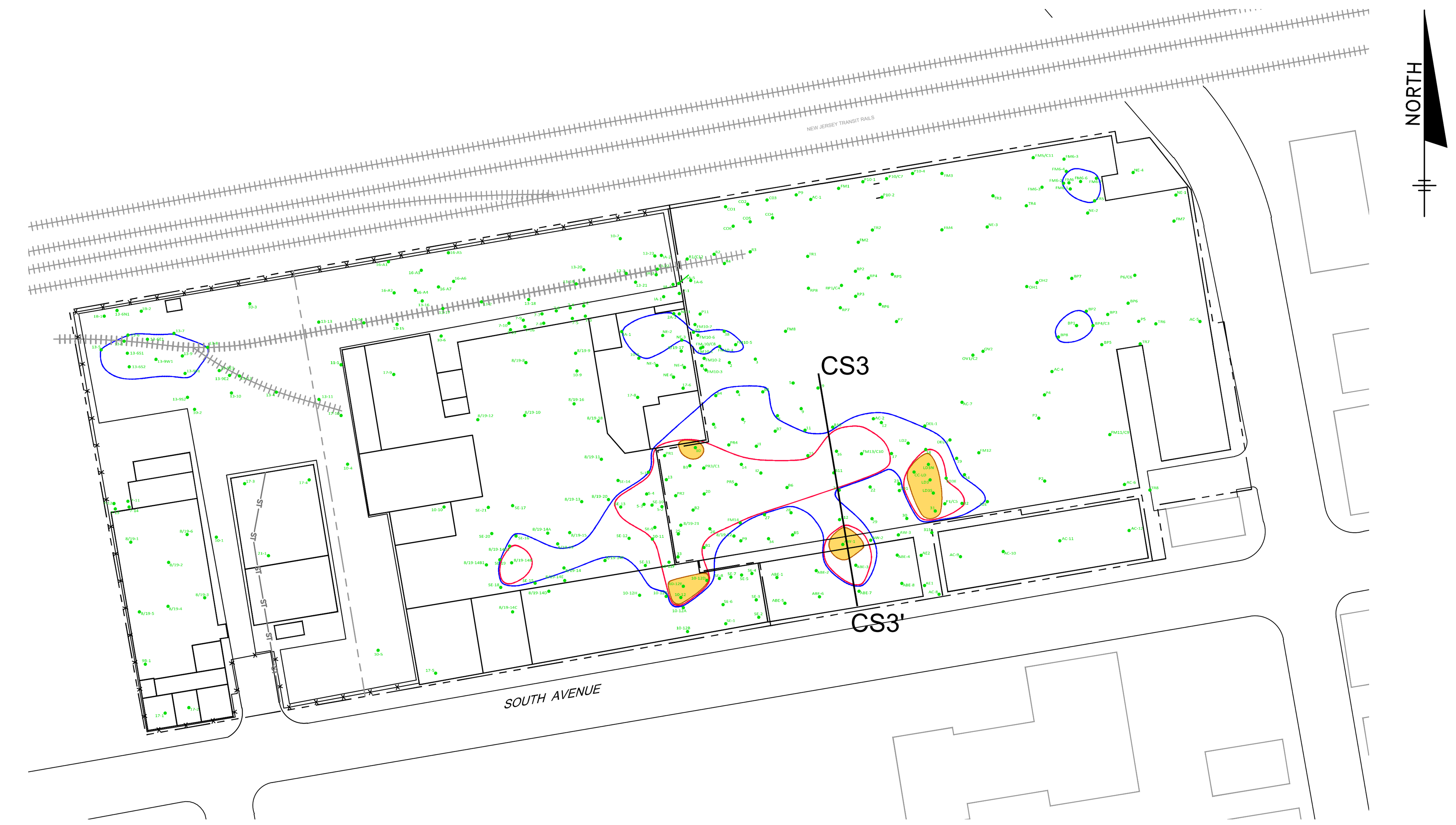
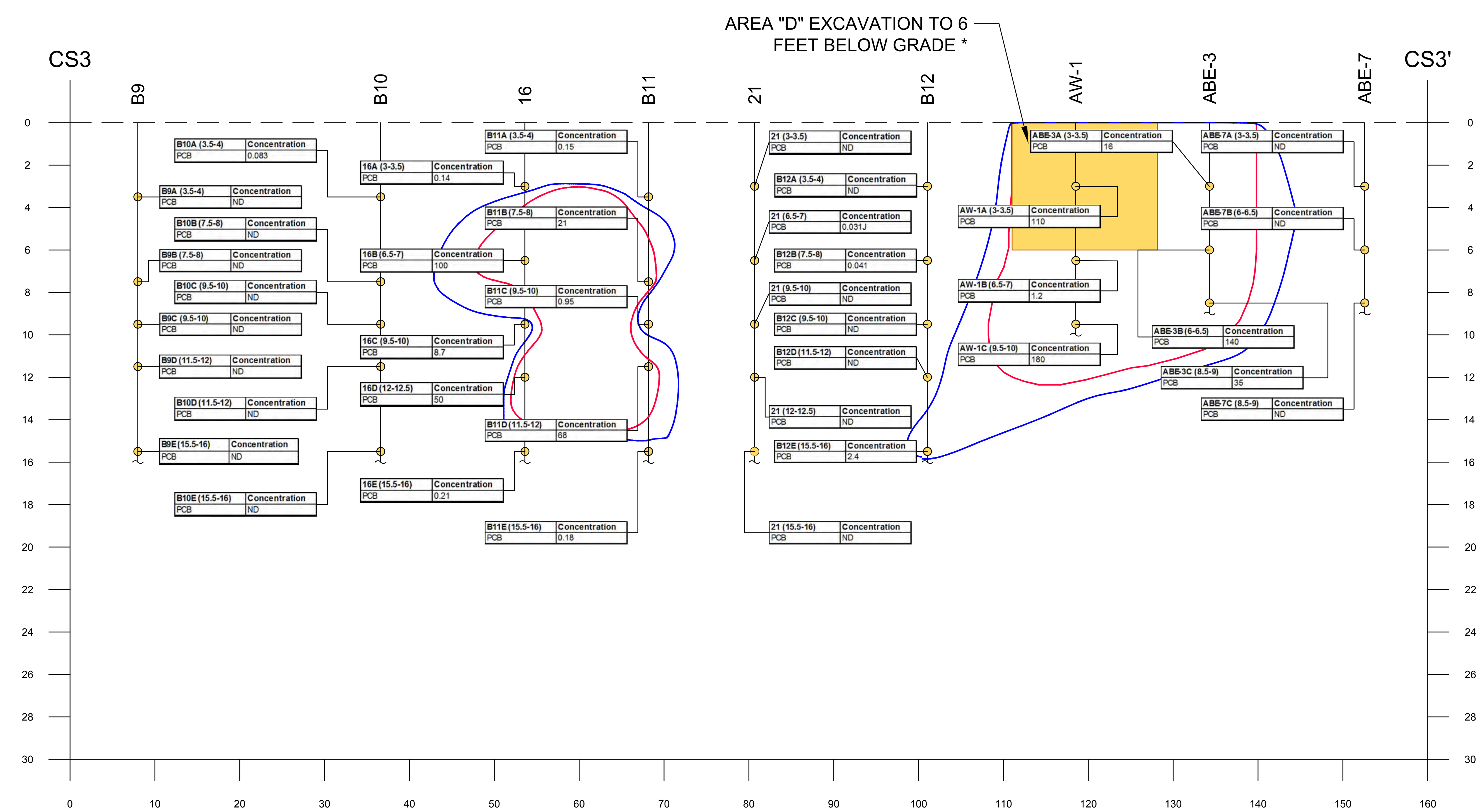
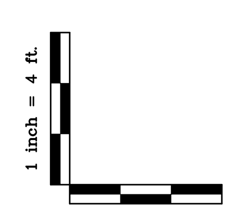
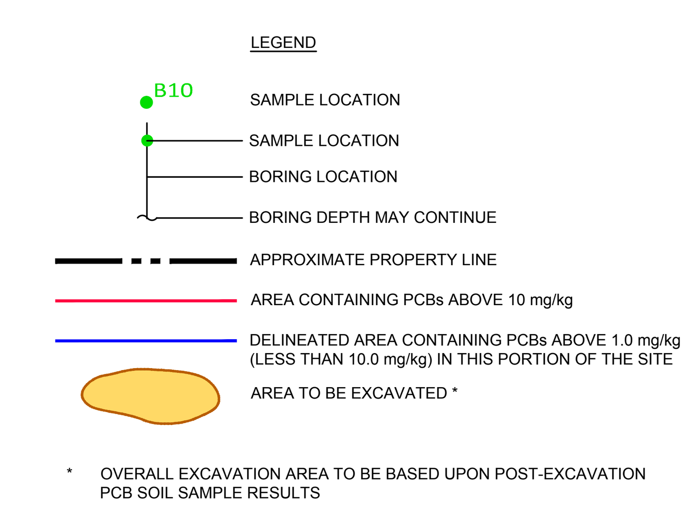


SITE KEY PLAN

SCALE: 1" = 80'







TITLE:

PCB ISOCONCENTRATION CROSS-SECTION CS-3

LOT 1 (450 & 490 SOUTH AVENUE) AND LOT 2 (50 CENTER STREET) GARWOOD, NEW JERSEY

EcolSciences, Inc.
Environmental Management & Regulatory Compliance

DRAWN BY:	DESIGNED BY:	APPROVED BY:	PLATE NUMBER:
AG	D. LOEFFLER	D. LOEFFLER	6C
DATE: 11/16/15	SCALE: AS SHOWN	PROJECT NO.: HW14-020	

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ID	Depth	Compound	ppm	RDCSRS	DIGWSSL
C-20	0-1.5"	PCBs	3.2	0.2	0.2
C-19	0-1.5"	PCBs	1.2	0.2	0.2
C-24	0-1.5"	PCBs	0.29	0.2	0.2
C-27	0-1.5"	PCBs	0.26	0.2	0.2
C-22	0-1.5"	PCBs	4.8	0.2	0.2
C-14	0-1.5"	PCBs	U	0.2	0.2
C-8	0-1.5"	PCBs	U	0.2	0.2
C-28	0-1.5"	PCBs	0.18	0.2	0.2
C-10	0-1.5"	PCBs	0.11	0.2	0.2
C-3	0-1.5"	PCBs	U	0.2	0.2
C-13	0-1.5"	PCBs	U	0.2	0.2
C11-N2	0-1.5"	PCBs	0.025J	0.2	0.2
C-12	0-1.5"	PCBs	.068J	0.2	0.2
C11-N1	0-1.5"	PCBs	0.26	0.2	0.2
C-2	0-1.5"	PCBs	U	0.2	0.2
C11-W2	0-1.5"	PCBs	0.42	0.2	0.2
C11-W1	0-1.5"	PCBs	0.99	0.2	0.2
C-11	0-1.5"	PCBs	0.52	0.2	0.2
C-1	0-1.5"	PCBs	U	0.2	0.2
C-9	0-1.5"	PCBs	U	0.2	0.2
C-21	0-1.5"	PCBs	0.23	0.2	0.2
C-17	0-1.5"	PCBs	1.3	0.2	0.2
C-4	0-1.5"	PCBs	1.3	0.2	0.2
C-18	0-1.5"	PCBs	0.77	0.2	0.2
C-16	0-1.5"	PCBs	1.3	0.2	0.2
C-25	0-1.5"	PCBs	0.64	0.2	0.2
C-23	0-1.5"	PCBs	1.4	0.2	0.2
C-5	0-1.5"	PCBs	0.11	0.2	0.2
C-26	0-1.5"	PCBs	0.034J	0.2	0.2
C-31	0-1.5"	PCBs	U	0.2	0.2
C-6	0-1.5"	PCBs	0.12	0.2	0.2
C-30	0-1.5"	PCBs	0.94	0.2	0.2
C-7	0-1.5"	PCBs	0.17	0.2	0.2
C-15	0-1.5"	PCBs	U	0.2	0.2
C11-E1	0-1.5"	PCBs	0.86	0.2	0.2
C11-E2	0-1.5"	PCBs	0.4	0.2	0.2
C11-S1	0-1.5"	PCBs	0.18	0.2	0.2
C11-S2	0-1.5"	PCBs	U	0.2	0.2

SOURCES:
1. P.J. GRALL PROFESSIONAL ENGINEER AND SURVEYOR, "SURVEY OF PROPERTY", DATED MARCH 14, 1963.

TITLE:

Lot 1 PCBs in Concrete

450 & 490 SOUTH AVENUE
GARWOOD, NEW JERSEY

EcolSciences, Inc.
Environmental Management & Regulatory Compliance

DRAWN BY:	DESIGNED BY:	APPROVED BY:	PLATE NUMBER:
AG	DL	DL	7
DATE: 5/11/15	SCALE: AS SHOWN	PROJECT NO.: HW14-020	

FILE: D:\CLIENTS\E\ECOLSCIENCES\HW14-020 450 SOUTH AVE\SITEMAP3.DWG, DATE: 05/11/2015 11:17:09AM

P-MW-7			
2/19/2015	5/26/2015	8/19-20,2015	10/15-16,2015
NS	NS	ND	ND

P-MW-7D			
2/19/2015	5/26/2015	8/19-20,2015	10/15-16,2015
NS	NS	ND	ND

C-MW8			
2/19/2015	5/26/2015	8/19-20,2015	10/15-16,2015
-	-	-	**4.7/11 ***

P-MW-5			
2/19/2015	5/26/2015	8/19-20,2015	10/15-16,2015
ND	ND	**1.1**	**1.3**

P-MW-10			
2/19/2015	5/26/2015	8/19-20,2015	10/15-16,2015
ND	ND	**1.0**	**1.6**

C-MW-6			
2/19/2015	5/26/2015	8/19-20,2015	10/15-16,2015
-	-	**32**	**25**

C-MW6D			
2/19/2015	5/26/2015	8/19-20,2015	10/15-16,2015
-	-	-	**2**

C-MW7			
2/19/2015	5/26/2015	8/19-20,2015	10/15-16,2015
-	-	ND	ND

C-MW7D			
2/19/2015	5/26/2015	8/19-20,2015	10/15-16,2015
-	-	ND	ND

C-MW9			
2/19/2015	5/26/2015	8/19-20,2015	10/15-16,2015
-	-	-	ND

LEGEND

- APPROXIMATE PROPERTY LINE
- APPROXIMATE LOCATION OF PIT OR METAL PLATE
- SAMPLE LOCATION
- MONITORING WELL LOCATION
- AREA CONTAINING PCBs ABOVE 10 mg/kg
- DELINEATED AREA CONTAINING PCBs ABOVE 1.0 mg/kg (LESS THAN 10.0 mg/kg) IN THIS PORTION OF THE SITE
- PCB IMPACTED GROUNDWATER ISOPLETH
- AREA TO BE EXCAVATED *

* OVERALL EXCAVATION AREA TO BE BASED UPON POST-EXCAVATION PCB SOIL SAMPLE RESULTS

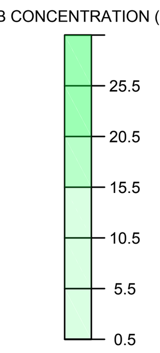
Data Box Legend
Well ID
Sample Date
PCB Groundwater Concentration (µg/L)

PCBs in Groundwater Regulatory Standards	
NJDEP GWQS	0.5 µg/L
USEPA Unrestircted Use*	0.5 µg/L
*761.79(b)(1)(iii)	

Notes:

Isopleth concentrations based on most recent (October 2015) shallow PCB groundwater sampling results

Concentrations in micrograms/Liter (µg/L)



SOURCES:
1. P.J. GRALL PROFESSIONAL ENGINEER AND SURVEYOR, "SURVEY OF PROPERTY", DATED MARCH 14, 1963.

TITLE:

PCB GROUNDWATER SAMPLE RESULTS AND ISOPLETH

LOT 1 (450 & 490 SOUTH AVENUE) AND LOT 2 (50 CENTER STREET)
GARWOOD, NEW JERSEY

EcolSciences, Inc.
Environmental Management & Regulatory Compliance

DRAWN BY:	DESIGNED BY:	APPROVED BY:	PLATE NUMBER:
AG	D. LOEFFLER	D. LOEFFLER	8
DATE: 11/16/15	SCALE: AS SHOWN	PROJECT NO.: HW14-020	

FILE: L:\PINNACLE WORK\ECOLSCI\GARWOOD, NJ\DWGS\FIGURE 8.DWG, DATE: 11/30/2015 08:22:53AM

LD3Na	3-3.5	410
LD3Nb	6.5-7	27
LD3Nc	9.5-10	0.11
LD3Nd	12-12.5	120
LD3Ne	15.5-16	0.22
LD3Nf	17.8-18	0.4
LD3Ng	19.5-20	ND

LD3Da	3-3.5	3000
LD3Db	6.5-7	1100
LD3	7.5-8	1900
LD3Dc	9.5-10	860
LD3Dd	12-12.5	1.6
LD3De	15.5-16	0.72
LD3Df	17.5-18	0.34
LD3Dg	19.5-20	0.33

10a	3-3.5	110
10b	6.5-7	15
10c	9.5-10	17
10d	12-12.5	23
10e	15.5-16	23
10f	19.5-20	48

CC-LD	0-0.5	77

LD3Sa	3-3.5	8.1
LD3Sb	6.5-7	3700
LD3Sc	9.5-10	930
LD3Sd	12-12.5	70
LD3Se	15.5-16	1100
LD3Sf	17.5-18	24
LD3Sg	19.5-20	9.5

AW-1a	3-3.5	110
AW-1b	6.5-7	1.2
AW-1c	9.5-10	180

31a	3-3.5	0.55
31b	6.5-7	740
31c	9.5-10	3000
31d	12-12.5	180
31e	15.5-16	0.63
31f	19.5-20	0.15

10-12E1	4-4.5	190
10-12E2	7-7.5	280
10-12E3	9.5-10	10
10-12E4	11.5-12	9.1
10-12E-5	13.5-14	0.72
10-12E-6	15.5-16	2.7

10-12M	4-4.5	150
10-12-1	7-7.5	47
10-12D	9.5-10	5.0
10-12-2	12.5-13	0.12

10-12D1	4-4.5	180
10-12D2	7-7.5	6.5
10-12D3	9.5-10	ND
10-12D4	11.5-12	0.70

LEGEND

- APPROXIMATE PROPERTY LINE
- APPROXIMATE LOCATION OF PIT OR METAL PLATE
- SAMPLE LOCATION
- MONITORING WELL LOCATION
- AREA CONTAINING PCBs ABOVE 10 mg/kg
- DELINEATED AREA CONTAINING PCBs ABOVE 1.0 mg/kg (LESS THAN 10.0 mg/kg) IN THIS PORTION OF THE SITE
- AREA TO BE EXCAVATED *

* OVERALL EXCAVATION AREA TO BE BASED UPON POST-EXCAVATION PCB SOIL SAMPLE RESULTS

PCB Regulatory Standards/Criteria	
NJDEP DIGWSSL	0.2
NJDEP RDCSRS	0.2
NJDEP NRDCSRS	1.0
USEPA High Occupany Threshold	10
All values in milligrams/kilogram (mg/kg)	
Blue text indicates an exceedance of the RSRS/DIGWSSL	
Shaded Indicates an exceedance of the NRSRS	
Red Shaded indicated an exceedance of 10 mg/kg	
NJDEP DIGWSSL - Default Impact to Groundwater Soil Screening Level	
NJDEP RDCSRS - Residential Direct Contact Soil Remediation Standard	
NJDEP NRDCSRS - Non-Residential Direct Contact Soil Remediation Standard	

Data Box Key and Examples

Sample ID	Depth (Ft. Below Grade)	PCB Concentration (mg/kg)
13-6	0.5-1	0.75
13-6A	3-3.5	ND
ND - Not Detected		

SOURCES:
1. P.J. GRALL PROFESSIONAL ENGINEER AND SURVEYOR, "SURVEY OF PROPERTY", DATED MARCH 14, 1963.

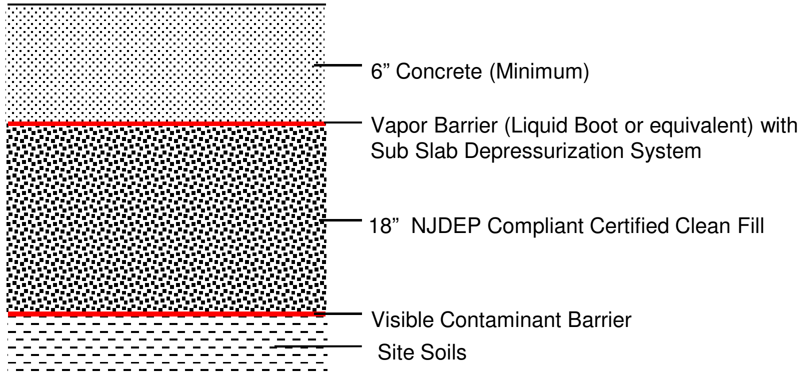
TITLE:
OVERALL PCB IMPACTED AREA AND PROPOSED EXCAVATION AREAS "A" THROUGH "D"

LOT 1 (450 & 490 SOUTH AVENUE) AND LOT 2 (50 CENTER STREET)
GARWOOD, NEW JERSEY

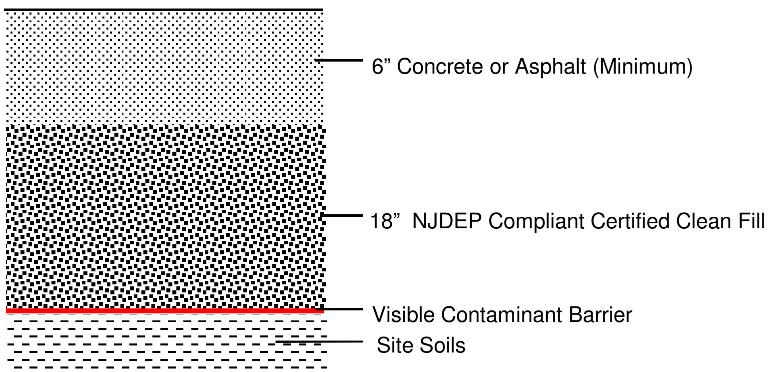
EcolSciences, Inc.
Environmental Management & Regulatory Compliance

DRAWN BY:	DESIGNED BY:	APPROVED BY:	PLATE NUMBER:
AG	D. LOEFFLER	D. LOEFFLER	9
DATE: 11/16/15	SCALE: AS SHOWN	PROJECT NO.: HW14-020	

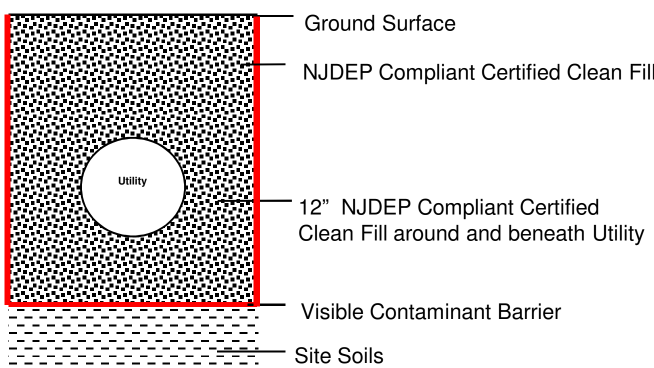
FILE: E:\PINNACLE WORK\11-09-15\ECOLSCI\GARWOOD, NJ\DWGS\PCB SAMPLES TOTAL.DWG DATE: 11/17/2015 09:09:28PM



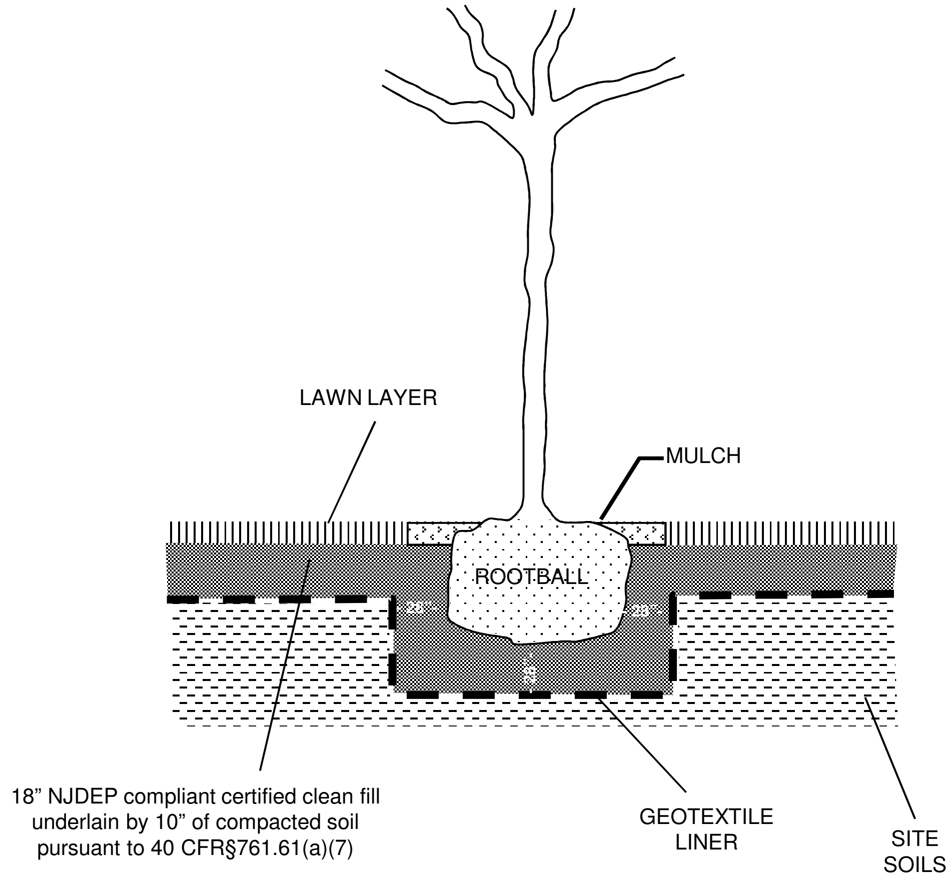
BUILDING FOUNDATION SLAB SECTION DETAIL



NON BUILDING CONCRETE SURFACES, ASPHALT DRIVEWAYS AND PARKING AREAS SECTION DETAIL



Utility Corridors



GREEN AREA SECTION DETAIL

FIGURE 10: CAP CROSS SECTIONS

450-490 South Avenue and 50 Center Street
Block 401, Lots 1 and 2
Garwood Borough
Union County, New Jersey

EcolSciences, Inc.
Environmental Management and Regulatory Compliance

DATE: 10-2015

LEGEND

- AREA CONTAINING PCBs ABOVE 10 mg/kg
- DELINEATED AREA CONTAINING PCBs ABOVE 1.0 mg/kg (LESS THAN 10.0 mg/kg) IN THIS PORTION OF THE SITE
- PROPOSED BUILDING LOCATION
- EXISTING BUILDING/FEATURE
- PCB IMPACTED GROUNDWATER ISOPLETH
- AREA TO BE EXCAVATED *

* OVERALL EXCAVATION AREA TO BE BASED UPON POST-EXCAVATION PCB SOIL SAMPLE RESULTS

SCALE: 1"=30'

TITLE:

REDEVELOPMENT PLAN AND PCB IMPACTED AREA

LOT 1 (450 & 490 SOUTH AVENUE) AND LOT 2
(50 CENTER STREET)
GARWOOD, NEW JERSEY

EcolSciences, Inc.
Environmental Management & Regulatory Compliance

DRAWN BY:	DESIGNED BY:	APPROVED BY:	PLATE NUMBER:
AG	D. LOEFFLER	D. LOEFFLER	11
DATE: 11/16/15	SCALE: AS SHOWN	PROJECT NO.: HW14-020	

FILE: L:\PINNACLE WORK\ECOLSCI\GARWOOD NJ\DWGS\GS (PCB PLAN OVERLAY) 10-23-15.DWG, DATE: 11/30/2015 08:40:44AM

TABLES

EcolSciences, Inc.
Environmental Management & Regulatory Compliance

Table 1: PCB Soil and Concrete Sample Results
450 and 490 South Avenue
Block 401, Lot 1
Garwood, New Jersey

Lab ID:	460-71837-5			460-73660-1			460-73660-2			460-73660-3			460-73660-4			460-73660-5			460-73660-6			460-73660-7			460-73660-8		
Client ID:	1B-1			10-8M			10-8D			10-7S			10-7M			10-7D			10-6M			10-6D			10-3S		
Date Sampled:	02/27/2014			04/02/2014			04/02/2014			04/02/2014			04/02/2014			04/02/2014			04/02/2014			04/02/2014			04/02/2014		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082/8082A																											
Aroclor 1016	0.092	U	0.021	0.078	U	0.018	0.077	U	0.017	0.077	U	0.017	0.081	U	0.018	0.078	U	0.017	0.083	U	0.019	0.076	U	0.017	0.079	U	0.018
Aroclor 1221	0.092	U	0.021	0.078	U	0.018	0.077	U	0.017	0.077	U	0.017	0.081	U	0.018	0.078	U	0.017	0.083	U	0.019	0.076	U	0.017	0.079	U	0.018
Aroclor 1232	0.092	U	0.021	0.078	U	0.018	0.077	U	0.017	0.077	U	0.017	0.081	U	0.018	0.078	U	0.017	0.083	U	0.019	0.076	U	0.017	0.079	U	0.018
Aroclor 1242	0.33		0.021	0.078	U	0.018	0.077	U	0.017	0.077	U	0.017	0.081	U	0.018	0.078	U	0.017	0.083	U	0.019	0.076	U	0.017	0.079	U	0.018
Aroclor 1248	0.092	U	0.021	0.078	U	0.018	0.077	U	0.017	0.077	U	0.017	0.081	U	0.018	0.078	U	0.017	0.083	U	0.019	0.076	U	0.017	0.079	U	0.018
Aroclor 1254	0.092	U	0.026	0.078	U	0.022	0.077	U	0.022	0.077	U	0.022	0.081	U	0.023	0.078	U	0.022	0.083	U	0.024	0.076	U	0.022	0.079	U	0.022
Aroclor 1260	0.092	U	0.026	0.078	U	0.022	0.077	U	0.022	0.077	U	0.022	0.081	U	0.023	0.078	U	0.022	0.083	U	0.024	0.076	U	0.022	0.079	U	0.022
Aroclor 1262	0.092	U	0.026	0.078	U	0.022	0.077	U	0.022	0.077	U	0.022	0.081	U	0.023	0.078	U	0.022	0.083	U	0.024	0.076	U	0.022	0.079	U	0.022
Aroclor 1268	0.092	U	0.026	0.078	U	0.022	0.077	U	0.022	0.077	U	0.022	0.081	U	0.023	0.078	U	0.022	0.083	U	0.024	0.076	U	0.022	0.079	U	0.022
Total PCBs	0.33		0.026	0.078	U	0.022	0.077	U	0.022	0.077	U	0.022	0.081	U	0.023	0.078	U	0.022	0.083	U	0.024	0.076	U	0.022	0.079	U	0.022

Lab ID:	460-73660-9			460-73660-10			460-73660-11			460-73660-12			460-73660-17			460-73660-19			460-73660-20			460-73658-13			460-73658-14		
Client ID:	10-3M			10-3D			10-2M			10-2D			10-9S			10-10D			10-10M			7-13			7-14		
Date Sampled:	04/02/2014			04/02/2014			04/02/2014			04/02/2014			04/02/2014			04/02/2014			04/02/2014			04/02/2014			04/02/2014		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082/8082A																											
Aroclor 1016	0.078	U	0.017	0.078	U	0.017	0.078	U	0.018	0.077	U	0.017	0.082	U	0.018	0.074	U	0.017	0.078	U	0.017	0.078	U	0.018	0.079	U	0.018
Aroclor 1221	0.078	U	0.017	0.078	U	0.017	0.078	U	0.018	0.077	U	0.017	0.082	U	0.018	0.074	U	0.017	0.078	U	0.017	0.078	U	0.018	0.079	U	0.018
Aroclor 1232	0.078	U	0.017	0.078	U	0.017	0.078	U	0.018	0.077	U	0.017	0.082	U	0.018	0.074	U	0.017	0.078	U	0.017	0.078	U	0.018	0.079	U	0.018
Aroclor 1242	0.078	U	0.017	0.078	U	0.017	0.078	U	0.018	0.077	U	0.017	0.082	U	0.018	0.074	U	0.017	0.078	U	0.017	0.078	U	0.018	0.079	U	0.018
Aroclor 1248	0.078	U	0.017	0.078	U	0.017	0.078	U	0.018	0.077	U	0.017	0.082	U	0.018	0.074	U	0.017	0.078	U	0.017	0.078	U	0.018	0.079	U	0.018
Aroclor 1254	0.078	U	0.022	0.078	U	0.022	0.078	U	0.022	0.077	U	0.022	0.082	U	0.023	0.074	U	0.021	0.078	U	0.022	0.078	U	0.022	0.096		0.022
Aroclor 1260	0.078	U	0.022	0.078	U	0.022	0.078	U	0.022	0.077	U	0.022	0.082	U	0.023	0.074	U	0.021	0.078	U	0.022	0.078	U	0.022	0.079	U	0.022
Aroclor 1262	0.078	U	0.022	0.078	U	0.022	0.078	U	0.022	0.077	U	0.022	0.082	U	0.023	0.074	U	0.021	0.078	U	0.022	0.078	U	0.022	0.079	U	0.022
Aroclor 1268	0.078	U	0.022	0.078	U	0.022	0.078	U	0.022	0.077	U	0.022	0.082	U	0.023	0.074	U	0.021	0.078	U	0.022	0.078	U	0.022	0.079	U	0.022
Total PCBs	0.078	U	0.022	0.078	U	0.022	0.078	U	0.022	0.077	U	0.022	0.082	U	0.023	0.074	U	0.021	0.078	U	0.022	0.078	U	0.022	0.096		0.022

Lab ID:	460-73658-15			460-73658-16			460-71834-1			460-71834-2			460-73593-1		
Client ID:	7-15			7-16			3A-1			2A-1			8/19-14M		
Date Sampled:	04/02/2014			04/02/2014			02/28/2014			02/28/2014			03/31/2014		
Matrix:	Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082/8082A															
Aroclor 1016	0.092	U	0.021	0.094	U	0.021	0.084	U	0.019	0.091	U	0.020	0.077	U	0.017
Aroclor 1221	0.092	U	0.021	0.094	U	0.021	0.084	U	0.019	0.091	U	0.020	0.077	U	0.017
Aroclor 1232	0.092	U	0.021	0.094	U	0.021	0.084	U	0.019	0.091	U	0.020	0.077	U	0.017
Aroclor 1242	0.092	U	0.021	0.094	U	0.021	0.084	U	0.019	0.091	U	0.020	0.077	U	0.017
Aroclor 1248	0.092	U	0.021	0.094	U	0.021	0.084	U	0.019	0.091	U	0.020	0.64		0.017
Aroclor 1254	0.13		0.026	0.094	U	0.027	0.084	U	0.024	0.091	U	0.026	0.077	U	0.022
Aroclor 1260	0.092	U	0.026	0.094	U	0.027	0.084	U	0.024	0.091	U	0.026	0.077	U	0.022
Aroclor 1262	0.092	U	0.026	0.094	U	0.027	0.084	U	0.024	0.091	U	0.026	0.077	U	0.022
Aroclor 1268	0.092	U	0.026	0.094	U	0.027	0.084	U	0.024	0.091	U	0.026	0.077	U	0.022
Total PCBs	0.13		0.026	0.094	U	0.027	0.084	U	0.024	0.091	U	0.026	0.64		0.022

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 1: PCB Soil and Concrete Sample Results
450 and 490 South Avenue
Block 401, Lot 1
Garwood, New Jersey

Lab ID:	460-72124-1			460-72124-2			460-72005-1			460-72005-2			460-72005-3			460-72005-4			460-72005-5			460-72005-6			460-72005-7		
Client ID:	5-1			11-1			7-1			7-2			7-3			7-4			7-5			7-6			7-7		
Date Sampled:	03/06/2014			03/06/2014			03/05/2014			03/05/2014			03/05/2014			03/05/2014			03/05/2014			03/05/2014			03/05/2014		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082/8082A																											
Aroclor 1016	0.078	U	0.017	0.076	U	0.017	0.075	U	0.017	0.091	U	0.020	0.091	U	0.020	0.090	U	0.020	0.12	U	0.027	0.12	U	0.026	0.17	U	0.037
Aroclor 1221	0.078	U	0.017	0.076	U	0.017	0.075	U	0.017	0.091	U	0.020	0.091	U	0.020	0.090	U	0.020	0.12	U	0.027	0.12	U	0.026	0.17	U	0.037
Aroclor 1232	0.078	U	0.017	0.076	U	0.017	0.075	U	0.017	0.091	U	0.020	0.091	U	0.020	0.090	U	0.020	0.12	U	0.027	0.12	U	0.026	0.17	U	0.037
Aroclor 1242	0.063	J	0.017	0.074	J	0.017	0.075	U	0.017	0.091	U	0.020	0.091	U	0.020	0.090	U	0.020	0.12	U	0.027	0.12	U	0.026	0.17	U	0.037
Aroclor 1248	0.078	U	0.017	0.076	U	0.017	0.075	U	0.017	0.091	U	0.020	0.091	U	0.020	0.090	U	0.020	0.12	U	0.027	0.12	U	0.026	0.17	U	0.037
Aroclor 1254	0.078	U	0.022	0.076	U	0.021	0.075	U	0.021	0.091	U	0.026	0.091	U	0.026	0.090	U	0.025	0.12	U	0.034	0.12	U	0.033	0.17	U	0.047
Aroclor 1260	0.078	U	0.022	0.076	U	0.021	0.075	U	0.021	0.091	U	0.026	0.091	U	0.026	0.090	U	0.025	0.12	U	0.034	0.12	U	0.033	0.17	U	0.047
Aroclor 1262	0.078	U	0.022	0.076	U	0.021	0.075	U	0.021	0.091	U	0.026	0.091	U	0.026	0.090	U	0.025	0.12	U	0.034	0.12	U	0.033	0.17	U	0.047
Aroclor 1268	0.078	U	0.022	0.076	U	0.021	0.075	U	0.021	0.091	U	0.026	0.091	U	0.026	0.090	U	0.025	0.12	U	0.034	0.12	U	0.033	0.17	U	0.047
Total PCBs	0.063	J	0.022	0.074	J	0.021	0.075	U	0.021	0.091	U	0.026	0.091	U	0.026	0.090	U	0.025	0.12	U	0.034	0.12	U	0.033	0.17	U	0.047

Lab ID:	460-72005-8			460-72005-9			460-72005-10			460-72005-11			460-72005-12			460-73776-1			460-73776-2			460-73776-3			460-73776-4		
Client ID:	7-8			7-9			7-10			7-11			7-12			10-9S			10-9M			10-9D			10-5M		
Date Sampled:	03/05/2014			03/05/2014			03/05/2014			03/05/2014			03/05/2014			04/02/2014			04/02/2014			04/02/2014			04/03/2014		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082/8082A																											
Aroclor 1016	0.13	U	0.030	0.14	U	0.031	0.13	U	0.029	0.12	U	0.027	0.088	U	0.020	0.076	U	0.017	0.083	U	0.019	0.077	U	0.017	0.075	U	0.017
Aroclor 1221	0.13	U	0.030	0.14	U	0.031	0.13	U	0.029	0.12	U	0.027	0.088	U	0.020	0.076	U	0.017	0.083	U	0.019	0.077	U	0.017	0.075	U	0.017
Aroclor 1232	0.13	U	0.030	0.14	U	0.031	0.13	U	0.029	0.12	U	0.027	0.088	U	0.020	0.076	U	0.017	0.083	U	0.019	0.077	U	0.017	0.075	U	0.017
Aroclor 1242	0.13	U	0.030	0.14	U	0.031	0.13	U	0.029	0.12	U	0.027	0.088	U	0.020	0.076	U	0.017	0.083	U	0.019	0.077	U	0.017	0.075	U	0.017
Aroclor 1248	0.13	U	0.030	0.14	U	0.031	0.13	U	0.029	0.12	U	0.027	0.088	U	0.020	0.076	U	0.017	0.083	U	0.019	0.077	U	0.017	0.075	U	0.017
Aroclor 1254	0.13	U	0.038	0.14	U	0.039	0.13	U	0.037	0.12	U	0.034	0.088	U	0.025	0.076	U	0.022	0.083	U	0.024	0.077	U	0.022	0.075	U	0.021
Aroclor 1260	0.13	U	0.038	0.14	U	0.039	0.13	U	0.037	0.12	U	0.034	0.088	U	0.025	0.076	U	0.022	0.083	U	0.024	0.077	U	0.022	0.075	U	0.021
Aroclor 1262	0.13	U	0.038	0.14	U	0.039	0.13	U	0.037	0.12	U	0.034	0.088	U	0.025	0.076	U	0.022	0.083	U	0.024	0.077	U	0.022	0.075	U	0.021
Aroclor 1268	0.13	U	0.038	0.14	U	0.039	0.13	U	0.037	0.12	U	0.034	0.088	U	0.025	0.076	U	0.022	0.083	U	0.024	0.077	U	0.022	0.075	U	0.021
Total PCBs	0.13	U	0.038	0.14	U	0.039	0.13	U	0.037	0.12	U	0.034	0.088	U	0.025	0.076	U	0.022	0.083	U	0.024	0.077	U	0.022	0.075	U	0.021

Lab ID:	460-73776-5			460-73776-6			460-73776-7			460-73776-8			460-73776-9			460-73776-10			460-73776-11			460-73776-14			460-73776-16		
Client ID:	10-5D			10-4S			10-4M			10-4D			10-1S			10-1M			10-1D			8/19-21S			8/19-22S		
Date Sampled:	04/03/2014			04/03/2014			04/03/2014			04/03/2014			04/03/2014			04/03/2014			04/03/2014			04/03/2014			04/03/2014		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082/8082A																											
Aroclor 1016	0.076	U	0.017	0.084	U	0.019	0.083	U	0.019	0.075	U	0.017	0.080	U	0.018	0.085	U	0.019	0.077	U	0.017	0.081	U	0.018	0.080	U	0.018
Aroclor 1221	0.076	U	0.017	0.084	U	0.019	0.083	U	0.019	0.075	U	0.017	0.080	U	0.018	0.085	U	0.019	0.077	U	0.017	0.081	U	0.018	0.080	U	0.018
Aroclor 1232	0.076	U	0.017	0.084	U	0.019	0.083	U	0.019	0.075	U	0.017	0.080	U	0.018	0.085	U	0.019	0.077	U	0.017	0.081	U	0.018	0.080	U	0.018
Aroclor 1242	0.076	U	0.017	0.084	U	0.019	0.083	U	0.019	0.075	U	0.017	0.080	U	0.018	0.085	U	0.019	0.077	U	0.017	0.081	U	0.018	0.080	U	0.018
Aroclor 1248	0.076	U	0.017	0.084	U	0.019	0.083	U	0.019	0.075	U	0.017	0.080	U	0.018	0.085	U	0.019	0.077	U	0.017	0.081	U	0.018	0.080	U	0.018
Aroclor 1254	0.076	U	0.022	0.084	U	0.024	0.083	U	0.024	0.075	U	0.021	0.080	U	0.023	0.085	U	0.024	0.077	U	0.022	0.081	U	0.023	0.080	U	0.023
Aroclor 1260	0.076	U	0.022	0.084	U	0.024	0.083	U	0.024	0.075	U	0.021	0.080	U	0.023	0.085	U	0.024	0.077	U	0.022	0.081	U	0.023	0.080	U	0.023
Aroclor 1262	0.076	U	0.022	0.084	U	0.024	0.083	U	0.024	0.075	U	0.021	0.080	U	0.023	0.085	U	0.024	0.077	U	0.022	0.081	U	0.023	0.080	U	0.023
Aroclor 1268	0.076	U	0.022	0.084	U	0.024	0.083	U	0.024	0.075	U	0.021	0.080	U	0.023	0.085	U	0.024	0.077	U	0.022	0.081	U	0.023	0.080	U	0.023
Total PCBs	0.076	U	0.022	0.084	U	0.024	0.083	U	0.024	0.075	U	0.021	0.080	U	0.023	0.085	U	0.024	0.077	U	0.022	0.081	U	0.023	0.080	U	0.023

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 1: PCB Soil and Concrete Sample Results
450 and 490 South Avenue
Block 401, Lot 1
Garwood, New Jersey

Lab ID:	460-73776-18			460-72122-2			460-72122-3			460-71999-5			460-71836-3			460-73593-1			460-73593-2			460-73593-3			460-73593-4		
Client ID:	8/19-14DS			8/19-14			8/19-15			8/19-5			8/19-12			8/19-14M			8/19-14DP			8/19-14ES			8/19-14ED		
Date Sampled:	04/03/2014			03/06/2014			03/06/2014			03/04/2014			02/28/2014			03/31/2014			03/31/2014			03/31/2014			03/31/2014		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082/8082A																											
Aroclor 1016	0.082	U	0.018	0.078	U	0.018	0.074	U	0.017	0.088	U	0.020	0.075	U	0.017	0.077	U	0.017	0.077	U	0.017	0.076	U	0.017	0.075	U	0.017
Aroclor 1221	0.082	U	0.018	0.078	U	0.018	0.074	U	0.017	0.088	U	0.020	0.075	U	0.017	0.077	U	0.017	0.077	U	0.017	0.076	U	0.017	0.075	U	0.017
Aroclor 1232	0.082	U	0.018	0.078	U	0.018	0.074	U	0.017	0.088	U	0.020	0.075	U	0.017	0.077	U	0.017	0.077	U	0.017	0.076	U	0.017	0.075	U	0.017
Aroclor 1242	0.082	U	0.018	0.078	U	0.018	0.074	U	0.017	0.088	U	0.020	0.32		0.017	0.077	U	0.017	0.077	U	0.017	0.13		0.017	0.075	U	0.017
Aroclor 1248	0.082	U	0.018	0.71		0.018	0.79		0.017	0.088	U	0.020	0.075	U	0.017	0.64		0.017	0.72		0.017	0.076	U	0.017	0.075	U	0.017
Aroclor 1254	0.082	U	0.023	0.078	U	0.022	0.074	U	0.021	0.088	U	0.025	0.075	U	0.021	0.077	U	0.022	0.077	U	0.022	0.076	U	0.022	0.075	U	0.021
Aroclor 1260	0.082	U	0.023	0.078	U	0.022	0.074	U	0.021	0.088	U	0.025	0.075	U	0.021	0.077	U	0.022	0.077	U	0.022	0.076	U	0.022	0.075	U	0.021
Aroclor 1262	0.082	U	0.023	0.078	U	0.022	0.074	U	0.021	0.088	U	0.025	0.075	U	0.021	0.077	U	0.022	0.077	U	0.022	0.076	U	0.022	0.075	U	0.021
Aroclor 1268	0.082	U	0.023	0.078	U	0.022	0.074	U	0.021	0.088	U	0.025	0.075	U	0.021	0.077	U	0.022	0.077	U	0.022	0.076	U	0.022	0.075	U	0.021
Total PCBs	0.082	U	0.023	0.60	p	0.022	0.79		0.021	0.088	U	0.025	0.32		0.021	0.64		0.022	0.67	p	0.022	0.12	p	0.022	0.075	U	0.021

Lab ID:	460-73593-5			460-73593-6			460-73593-7			460-73593-8			460-73593-9			460-73593-10			460-73593-11			460-73593-12			460-73593-13		
Client ID:	8/19-19S			8/19-19D			8/19-14FS			8/19-14FD			8/19-14BS			8/19-14BD			8/19-14AS			8/19-14AD			8/19-20S		
Date Sampled:	03/31/2014			03/31/2014			03/31/2014			03/31/2014			03/31/2014			03/31/2014			03/31/2014			03/31/2014			03/31/2014		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			50			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082/8082A																											
Aroclor 1016	0.077	U	0.017	0.076	U	0.017	0.076	U	0.017	0.075	U	0.017	3.9	U	0.87	0.077	U H	0.017	0.075	U	0.017	0.080	U	0.018	0.084	U	0.019
Aroclor 1221	0.077	U	0.017	0.076	U	0.017	0.076	U	0.017	0.075	U	0.017	3.9	U	0.87	0.077	U H	0.017	0.075	U	0.017	0.080	U	0.018	0.084	U	0.019
Aroclor 1232	0.077	U	0.017	0.076	U	0.017	0.076	U	0.017	0.075	U	0.017	3.9	U	0.87	0.077	U H	0.017	0.075	U	0.017	0.080	U	0.018	0.084	U	0.019
Aroclor 1242	0.077	U	0.017	0.076	U	0.017	0.076	U	0.017	0.075	U	0.017	3.9	U	0.87	0.077	U H	0.017	0.075	U	0.017	0.080	U	0.018	0.084	U	0.019
Aroclor 1248	0.077	U	0.017	0.076	U	0.017	0.076	U	0.017	0.36		0.017	37		0.87	0.077	U H	0.017	0.075	U	0.017	0.080	U	0.018	0.084	U	0.019
Aroclor 1254	0.077	U	0.022	0.076	U	0.022	0.076	U	0.022	0.075	U	0.021	3.9	U	1.1	0.077	U H	0.022	0.075	U	0.021	0.080	U	0.023	0.084	U	0.024
Aroclor 1260	0.077	U	0.022	0.076	U	0.022	0.076	U	0.022	0.075	U	0.021	3.9	U	1.1	0.077	U H	0.022	0.075	U	0.021	0.080	U	0.023	0.084	U	0.024
Aroclor 1262	0.077	U	0.022	0.076	U	0.022	0.076	U	0.022	0.075	U	0.021	3.9	U	1.1	0.077	U H	0.022	0.075	U	0.021	0.080	U	0.023	0.084	U	0.024
Aroclor 1268	0.077	U	0.022	0.076	U	0.022	0.076	U	0.022	0.075	U	0.021	3.9	U	1.1	0.077	U H	0.022	0.075	U	0.021	0.080	U	0.023	0.084	U	0.024
Total PCBs	0.077	U	0.022	0.076	U	0.022	0.076	U	0.022	0.36		0.021	37		1.1	0.077	U H	0.022	0.075	U	0.021	0.080	U	0.023	0.084	U	0.024

Lab ID:	460-73593-14			460-73593-15			460-73593-16			460-73593-17			460-73593-18			460-73593-19			460-73593-20			460-73593-21-DL			460-73593-22-DL		
Client ID:	8/19-20D			5-3S			5-3D			5-2S			5-2D			5-4S			5-4D			10-12M			10-12D		
Date Sampled:	03/31/2014			03/31/2014			03/31/2014			03/31/2014			03/31/2014			03/31/2014			03/31/2014			04/01/2014			04/01/2014		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			100			10		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082/8082A																											
Aroclor 1016	0.076	U	0.017	0.079	U	0.018	0.074	U	0.017	0.074	U	0.017	0.076	U	0.017	0.076	U	0.017	0.074	U	0.017	8.4	U	1.9	0.76	U	0.17
Aroclor 1221	0.076	U	0.017	0.079	U	0.018	0.074	U	0.017	0.074	U	0.017	0.076	U	0.017	0.076	U	0.017	0.074	U	0.017	8.4	U	1.9	0.76	U	0.17
Aroclor 1232	0.076	U	0.017	0.079	U	0.018	0.074	U	0.017	0.074	U	0.017	0.076	U	0.017	0.076	U	0.017	0.074	U	0.017	8.4	U	1.9	0.76	U	0.17
Aroclor 1242	0.076	U	0.017	0.079	U	0.018	0.074	U	0.017	0.074	U	0.017	0.076	U	0.017	0.15		0.017	0.074	U	0.017	8.4	U	1.9	0.76	U	0.17
Aroclor 1248	0.076	U	0.017	0.079	U	0.018	0.074	U	0.017	0.074	U	0.017	0.076	U	0.017	0.076	U	0.017	0.074	U	0.017	150	D	1.9	5.0	D	0.17
Aroclor 1254	0.076	U	0.022	0.079	U	0.022	0.074	U	0.021	0.074	U	0.021	0.076	U	0.021	0.076	U	0.021	0.074	U	0.021	8.4	U	2.4	0.76	U	0.22
Aroclor 1260	0.076	U	0.022	0.079	U	0.022	0.074	U	0.021	0.074	U	0.021	0.076	U	0.021	0.076	U	0.021	0.074	U	0.021	8.4	U	2.4	0.76	U	0.22
Aroclor 1262	0.076	U	0.022	0.079	U	0.022	0.074	U	0.021	0.074	U	0.021	0.076	U	0.021	0.076	U	0.021	0.074	U	0.021	8.4	U	2.4	0.76	U	0.22
Aroclor 1268	0.076	U	0.022	0.079	U	0.022	0.074	U	0.021	0.074	U	0.021	0.076	U	0.021	0.076	U	0.021	0.074	U	0.021	8.4	U	2.4	0.76	U	0.22
Total PCBs	0.076	U	0.022	0.079	U	0.022	0.074	U	0.021	0.074	U	0.021	0.076	U	0.021	0.15		0.021	0.074	U	0.021	150	D	2.4	5.0	D	0.22

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 1: PCB Soil and Concrete Sample Results
450 and 490 South Avenue
Block 401, Lot 1
Garwood, New Jersey

Lab ID:	**460-73593-23**			**460-73593-24-DL**			**460-73593-25-DL**			**460-73593-26**			**460-73593-27**			**460-73593-28**			**460-73593-29**			**460-73593-30**			**460-73593-31**		
Client ID:	**10-11S**			**10-11M**			**10-11D**			**8/19-14CS**			**8/19-14CD**			**8/19-18S**			**8/19-18D**			**8/19-16S**			**8/19-16D**		
Date Sampled:	**04/01/2014**			**04/01/2014**			**04/01/2014**			**04/01/2014**			**04/01/2014**			**04/01/2014**			**04/01/2014**			**04/01/2014**			**04/01/2014**		
Matrix:	**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**		
Unit:	**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**		
Dilution:	**1**			**10**			**5**			**1**			**1**			**1**			**1**			**1**			**1**		
	Conc.	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**
SOIL BY 8082/8082A																											
Aroclor 1016	0.077	U	0.017	0.83	U	0.18	0.38	U	0.085	0.088	U	0.020	0.071	U	0.016	0.086	U	0.019	0.077	U	0.017	0.084	U	0.019	0.076	U	0.017
Aroclor 1221	0.077	U	0.017	0.83	U	0.18	0.38	U	0.085	0.088	U	0.020	0.071	U	0.016	0.086	U	0.019	0.077	U	0.017	0.084	U	0.019	0.076	U	0.017
Aroclor 1232	0.077	U	0.017	0.83	U	0.18	0.38	U	0.085	0.088	U	0.020	0.071	U	0.016	0.086	U	0.019	0.077	U	0.017	0.084	U	0.019	0.076	U	0.017
Aroclor 1242	0.077	U	0.017	0.83	U	0.18	0.38	U	0.085	0.088	U	0.020	0.071	U	0.016	0.086	U	0.019	0.077	U	0.017	0.084	U	0.019	0.076	U	0.017
Aroclor 1248	0.077	U	0.017	8.4	D	0.18	5.0	D	0.085	0.088	U	0.020	0.071	U	0.016	0.086	U	0.019	0.077	U	0.017	0.084	U	0.019	0.076	U	0.017
Aroclor 1254	0.077	U	0.022	0.83	U	0.23	0.38	U	0.11	0.088	U	0.025	0.071	U	0.020	0.086	U	0.024	0.077	U	0.022	0.084	U	0.024	0.076	U	0.022
Aroclor 1260	0.077	U	0.022	0.83	U	0.23	0.38	U	0.11	0.088	U	0.025	0.071	U	0.020	0.086	U	0.024	0.077	U	0.022	0.084	U	0.024	0.076	U	0.022
Aroclor 1262	0.077	U	0.022	0.83	U	0.23	0.38	U	0.11	0.088	U	0.025	0.071	U	0.020	0.086	U	0.024	0.077	U	0.022	0.084	U	0.024	0.076	U	0.022
Aroclor 1268	0.077	U	0.022	0.83	U	0.23	0.38	U	0.11	0.088	U	0.025	0.071	U	0.020	0.086	U	0.024	0.077	U	0.022	0.084	U	0.024	0.076	U	0.022
Total PCBs	0.077	U	0.022	8.4	D	0.23	5.0	D	0.11	0.088	U	0.025	0.071	U	0.020	0.086	U	0.024	0.077	U	0.022	0.084	U	0.024	0.076	U	0.022

Lab ID:	**460-73593-32**			**460-73593-33**			**460-73776-15**			**460-73776-17**			**460-73776-18**			**460-73776-19**			**460-73587-1**			**460-73587-2**			**460-73587-3**		
Client ID:	**8/19-17S**			**8/19-17D**			**8/19-21D**			**8/19-22D**			**8/19-14DS**			**8/19-14DD**			**13-23**			**13-21**			**13-20**		
Date Sampled:	**04/01/2014**			**04/01/2014**			**04/03/2014**			**04/03/2014**			**04/03/2014**			**04/03/2014**			**04/01/2014**			**04/01/2014**			**04/01/2014**		
Matrix:	**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**		
Unit:	**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**		
Dilution:	**1**			**1**			**20**			**5**			**1**			**1**			**1**			**1**			**1**		
	Conc.	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**
SOIL BY 8082/8082A																											
Aroclor 1016	0.075	U	0.017	0.077	U	0.017	1.5	U	0.34	0.38	U	0.084	0.082	U	0.018	0.077	U	0.017	0.078	U	0.018	0.084	U	0.019	0.081	U	0.018
Aroclor 1221	0.075	U	0.017	0.077	U	0.017	1.5	U	0.34	0.38	U	0.084	0.082	U	0.018	0.077	U	0.017	0.078	U	0.018	0.084	U	0.019	0.081	U	0.018
Aroclor 1232	0.075	U	0.017	0.077	U	0.017	1.5	U	0.34	0.38	U	0.084	0.082	U	0.018	0.077	U	0.017	0.078	U	0.018	0.084	U	0.019	0.081	U	0.018
Aroclor 1242	0.075	U	0.017	0.077	U	0.017	1.5	U	0.34	0.38	U	0.084	0.082	U	0.018	0.077	U	0.017	0.078	U	0.018	0.084	U	0.019	0.081	U	0.018
Aroclor 1248	0.075	U	0.017	0.077	U	0.017	19		0.34	3.5		0.084	0.082	U	0.018	0.077	U	0.017	0.078	U	0.018	0.084	U	0.019	0.081	U	0.018
Aroclor 1254	0.075	U	0.021	0.077	U	0.022	1.5	U	0.43	0.38	U	0.11	0.082	U	0.023	0.077	U	0.022	0.078	U	0.022	0.084	U	0.024	0.081	U	0.023
Aroclor 1260	0.075	U	0.021	0.077	U	0.022	1.5	U	0.43	0.38	U	0.11	0.082	U	0.023	0.077	U	0.022	0.078	U	0.022	0.084	U	0.024	0.081	U	0.023
Aroclor 1262	0.075	U	0.021	0.077	U	0.022	1.5	U	0.43	0.38	U	0.11	0.082	U	0.023	0.077	U	0.022	0.078	U	0.022	0.084	U	0.024	0.081	U	0.023
Aroclor 1268	0.075	U	0.021	0.077	U	0.022	1.5	U	0.43	0.38	U	0.11	0.082	U	0.023	0.077	U	0.022	0.078	U	0.022	0.084	U	0.024	0.081	U	0.023
Total PCBs	0.075	U	0.021	0.077	U	0.022	19		0.43	3.5		0.11	0.082	U	0.023	0.077	U	0.022	0.078	U	0.022	0.084	U	0.024	0.081	U	0.023

Lab ID:	**460-73587-4**			**460-73587-5**			**460-73587-6**			**460-73587-7**			**460-73587-9**			**460-73587-10**			**460-73587-11**			**460-73587-12**			**460-73587-13**		
Client ID:	**13-19**			**13-15**			**13-14**			**13-22**			**13-16**			**13-17**			**13-18**			**13-5**			**13-6**		
Date Sampled:	**04/01/2014**			**04/01/2014**			**04/01/2014**			**04/01/2014**			**04/01/2014**			**04/01/2014**			**04/01/2014**			**04/01/2014**			**04/01/2014**		
Matrix:	**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**		
Unit:	**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**		
Dilution:	**1**			**1**			**1**			**1**			**1**			**1**			**1**			**1**			**1**		
	Conc.	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**
SOIL BY 8082/8082A																											
Aroclor 1016	0.080	U	0.018	0.081	U	0.018	0.078	U	0.018	0.083	U	0.019	0.097	U	0.022	0.088	U	0.020	0.082	U	0.018	0.091	U	0.020	0.085	U	0.019
Aroclor 1221	0.080	U	0.018	0.081	U	0.018	0.078	U	0.018	0.083	U	0.019	0.097	U	0.022	0.088	U	0.020	0.082	U	0.018	0.091	U	0.020	0.085	U	0.019
Aroclor 1232	0.080	U	0.018	0.081	U	0.018	0.078	U	0.018	0.083	U	0.019	0.097	U	0.022	0.088	U	0.020	0.082	U	0.018	0.091	U	0.020	0.085	U	0.019
Aroclor 1242	0.080	U	0.018	0.081	U	0.018	0.078	U	0.018	0.083	U	0.019	0.097	U	0.022	0.088	U	0.020	0.082	U	0.018	0.091	U	0.020	0.085	U	0.019
Aroclor 1248	0.080	U	0.018	0.081	U	0.018	0.078	U	0.018	0.083	U	0.019	0.097	U	0.022	0.088	U	0.020	0.082	U	0.018	0.091	U	0.020	0.75		0.019
Aroclor 1254	0.080	U	0.023	0.081	U	0.023	0.078	U	0.022	0.083	U	0.024	0.097	U	0.028	0.088	U	0.025	0.082	U	0.023	0.091	U	0.026	0.085	U	0.024
Aroclor 1260	0.080	U	0.023	0.081	U	0.023	0.078	U	0.022	0.083	U	0.024	0.097	U	0.028	0.088	U	0.025	0.082	U	0.023	0.091	U	0.026	0.085	U	0.024
Aroclor 1262	0.080	U	0.023	0.081	U	0.023	0.078	U	0.022	0.083	U	0.024	0.097	U	0.028	0.088	U	0.025	0.082	U	0.023	0.091	U	0.026	0.085	U	0.024
Aroclor 1268	0.080	U	0.023	0.081	U	0.023	0.078	U	0.022	0.083	U	0.024	0.097	U	0.028	0.088	U	0.025	0.082	U	0.023	0.091	U	0.026	0.085	U	0.024
Total PCBs	0.080	U	0.023	0.081	U	0.023	0.078	U	0.022	0.083	U	0.024	0.097	U	0.028	0.088	U	0.025	0.082	U	0.023	0.091	U	0.026	0.75		0.024

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 1: PCB Soil and Concrete Sample Results
450 and 490 South Avenue
Block 401, Lot 1
Garwood, New Jersey

Lab ID:	460-73587-14			460-73587-15			460-73587-16			460-73587-17			460-73587-18			460-73587-19			460-73587-20			460-73587-21			460-72006-1		
Client ID:	13-7			13-8			13-9			13-10			13-12			13-11			13-13			13-1			9B-1		
Date Sampled:	04/01/2014			04/01/2014			04/01/2014			04/01/2014			04/01/2014			04/01/2014			04/01/2014			04/01/2014			03/04/2014		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			5			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082/8082A																											
Aroclor 1016	0.083	U	0.019	0.12	U	0.026	0.39	U	0.087	0.079	U	0.018	0.085	U	0.019	0.075	U	0.017	0.091	U	0.020	0.077	U	0.017	0.083	U	0.019
Aroclor 1221	0.083	U	0.019	0.12	U	0.026	0.39	U	0.087	0.079	U	0.018	0.085	U	0.019	0.075	U	0.017	0.091	U	0.020	0.077	U	0.017	0.083	U	0.019
Aroclor 1232	0.083	U	0.019	0.12	U	0.026	0.39	U	0.087	0.079	U	0.018	0.085	U	0.019	0.075	U	0.017	0.091	U	0.020	0.077	U	0.017	0.083	U	0.019
Aroclor 1242	0.083	U	0.019	0.12	U	0.026	0.39	U	0.087	0.079	U	0.018	0.085	U	0.019	0.075	U	0.017	0.091	U	0.020	0.077	U	0.017	0.083	U	0.019
Aroclor 1248	0.083	U	0.019	0.12	U	0.026	4.8		0.087	0.079	U	0.018	0.085	U	0.019	0.075	U	0.017	0.091	U	0.020	0.077	U	0.017	0.083	U	0.019
Aroclor 1254	0.083	U	0.024	0.12	U	0.033	0.39	U	0.11	0.079	U	0.022	0.085	U	0.024	0.075	U	0.021	0.091	U	0.026	0.077	U	0.022	0.083	U	0.024
Aroclor 1260	0.083	U	0.024	0.12	U	0.033	0.39	U	0.11	0.079	U	0.022	0.085	U	0.024	0.075	U	0.021	0.091	U	0.026	0.077	U	0.022	0.083	U	0.024
Aroclor 1262	0.083	U	0.024	0.12	U	0.033	0.39	U	0.11	0.079	U	0.022	0.085	U	0.024	0.075	U	0.021	0.091	U	0.026	0.077	U	0.022	0.083	U	0.024
Aroclor 1268	0.083	U	0.024	0.12	U	0.033	0.39	U	0.11	0.079	U	0.022	0.085	U	0.024	0.075	U	0.021	0.091	U	0.026	0.077	U	0.022	0.083	U	0.024
Total PCBs	0.083	U	0.024	0.12	U	0.033	4.8		0.11	0.079	U	0.022	0.085	U	0.024	0.075	U	0.021	0.091	U	0.026	0.077	U	0.022	0.083	U	0.024

Lab ID:	460-72006-2			460-73832-11			460-73832-12			460-73832-13			460-73832-14			460-73832-15			460-73832-16			460-73832-17			460-73832-18		
Client ID:	13-4			C-11			C-12			C-13			C-14			C-15			C-16			C-17			C-18		
Date Sampled:	03/05/2014			04/03/2014			04/04/2014			04/03/2014			04/03/2014			04/03/2014			04/04/2014			04/04/2014			04/04/2014		
Matrix:	Soil			Concrete			Concrete			Concrete			Concrete			Concrete			Concrete			Concrete			Concrete		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082/8082A																											
Aroclor 1016	0.082	U	0.018	0.068	U	0.015	0.070	U	0.016	0.068	U	0.015	0.069	U	0.015	0.067	U	0.015	0.068	U	0.015	0.068	U	0.015	0.071	U	0.016
Aroclor 1221	0.082	U	0.018	0.068	U	0.015	0.070	U	0.016	0.068	U	0.015	0.069	U	0.015	0.067	U	0.015	0.068	U	0.015	0.068	U	0.015	0.071	U	0.016
Aroclor 1232	0.082	U	0.018	0.068	U	0.015	0.070	U	0.016	0.068	U	0.015	0.069	U	0.015	0.067	U	0.015	0.068	U	0.015	0.068	U	0.015	0.071	U	0.016
Aroclor 1242	0.082	U	0.018	0.068	U	0.015	0.070	U	0.016	0.068	U	0.015	0.069	U	0.015	0.067	U	0.015	0.068	U	0.015	0.068	U	0.015	0.071	U	0.016
Aroclor 1248	0.082	U	0.018	0.068	U	0.015	0.070	U	0.016	0.068	U	0.015	0.069	U	0.015	0.067	U	0.015	0.068	U	0.015	0.068	U	0.015	0.071	U	0.016
Aroclor 1254	0.082	U	0.023	0.40		0.019	0.068	J	0.020	0.068	U	0.019	0.069	U	0.019	0.067	U	0.019	0.76		0.019	0.76		0.019	0.47		0.020
Aroclor 1260	0.082	U	0.023	0.14		0.019	0.070	U	0.020	0.068	U	0.019	0.069	U	0.019	0.067	U	0.019	0.63		0.019	0.49		0.019	0.30		0.020
Aroclor 1262	0.082	U	0.023	0.068	U	0.019	0.070	U	0.020	0.068	U	0.019	0.069	U	0.019	0.067	U	0.019	0.068	U	0.019	0.068	U	0.019	0.071	U	0.020
Aroclor 1268	0.082	U	0.023	0.068	U	0.019	0.070	U	0.020	0.068	U	0.019	0.069	U	0.019	0.067	U	0.019	0.068	U	0.019	0.068	U	0.019	0.071	U	0.020
Total PCBs	0.082	U	0.023	0.52		0.019	0.068	J	0.020	0.068	U	0.019	0.069	U	0.019	0.067	U	0.019	1.3		0.019	1.3		0.019	0.77		0.020

Lab ID:	460-73832-19			460-73832-20			460-73832-21			460-73832-22			460-74419-1			460-74419-2			460-74419-3			460-74419-4			460-74419-8		
Client ID:	C-19			C-20			C-21			C-22			10-12-1			10-12-2			10-12A-1			10-12A-2			10-12B1		
Date Sampled:	04/04/2014			04/04/2014			04/04/2014			04/04/2014			04/14/2014			04/14/2014			04/14/2014			04/14/2014			04/14/2014		
Matrix:	Concrete			Concrete			Concrete			Concrete			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			2			1			5			50			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082/8082A																											
Aroclor 1016	0.069	U	0.015	0.13	U	0.030	0.068	U	0.015	0.34	U	0.076	4.0	U	0.90	0.074	U	0.017	0.082	U	0.018	0.080	U	0.018	0.080	U	0.018
Aroclor 1221	0.069	U	0.015	0.13	U	0.030	0.068	U	0.015	0.34	U	0.076	4.0	U	0.90	0.074	U	0.017	0.082	U	0.018	0.080	U	0.018	0.080	U	0.018
Aroclor 1232	0.069	U	0.015	0.13	U	0.030	0.068	U	0.015	0.34	U	0.076	4.0	U	0.90	0.074	U	0.017	0.082	U	0.018	0.080	U	0.018	0.080	U	0.018
Aroclor 1242	0.069	U	0.015	0.13	U	0.030	0.068	U	0.015	0.34	U	0.076	4.0	U	0.90	0.074	U	0.017	0.082	U	0.018	0.080	U	0.018	0.080	U	0.018
Aroclor 1248	0.069	U	0.015	0.13	U	0.030	0.068	U	0.015	0.34	U	0.076	47		0.90	0.12		0.017	0.082	U	0.018	0.24		0.018	0.080	U	0.018
Aroclor 1254	0.73		0.020	2.0		0.038	0.23		0.019	2.9		0.096	4.0	U	1.1	0.074	U	0.021	0.082	U	0.023	0.080	U	0.023	0.080	U	0.023
Aroclor 1260	0.46		0.020	1.2		0.038	0.068	U	0.019	2.0		0.096	4.0	U	1.1	0.074	U	0.021	0.082	U	0.023	0.080	U	0.023	0.080	U	0.023
Aroclor 1262	0.069	U	0.020	0.13	U	0.038	0.068	U	0.019	0.34	U	0.096	4.0	U	1.1	0.074	U	0.021	0.082	U	0.023	0.080	U	0.023	0.080	U	0.023
Aroclor 1268	0.069	U	0.020	0.13	U	0.038	0.068	U	0.019	0.34	U	0.096	4.0	U	1.1	0.074	U	0.021	0.082	U	0.023	0.080	U	0.023	0.080	U	0.023
Total PCBs	1.2		0.020	3.2		0.038	0.23		0.019	4.8		0.096	47		1.1	0.12		0.021	0.082	U	0.023	0.24		0.023	0.080	U	0.023

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 1: PCB Soil and Concrete Sample Results
450 and 490 South Avenue
Block 401, Lot 1
Garwood, New Jersey

Lab ID:	460-74419-9			460-74419-12			460-74419-13			460-74419-16			460-74419-17			460-74419-20			460-74419-21			460-74419-24			460-74419-25		
Client ID:	10-12B2			10-12H1			10-12H2			10-12G1			10-12G2			10-12D1			10-12D2			10-12E1			10-12E2		
Date Sampled:	04/14/2014			04/14/2014			04/14/2014			04/14/2014			04/14/2014			04/14/2014			04/14/2014			04/14/2014			04/14/2014		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			100			10			100			200		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082/8082A																											
Aroclor 1016	0.081	U	0.018	0.082	U	0.018	0.082	U	0.018	0.086	U	0.019	0.082	U	0.018	8.6	U	1.9	0.80	U	0.18	8.4	U	1.9	16	U	3.5
Aroclor 1221	0.081	U	0.018	0.082	U	0.018	0.082	U	0.018	0.086	U	0.019	0.082	U	0.018	8.6	U	1.9	0.80	U	0.18	8.4	U	1.9	16	U	3.5
Aroclor 1232	0.081	U	0.018	0.082	U	0.018	0.082	U	0.018	0.086	U	0.019	0.082	U	0.018	8.6	U	1.9	0.80	U	0.18	8.4	U	1.9	16	U	3.5
Aroclor 1242	0.081	U	0.018	0.082	U	0.018	0.082	U	0.018	0.086	U	0.019	0.082	U	0.018	8.6	U	1.9	0.80	U	0.18	8.4	U	1.9	16	U	3.5
Aroclor 1248	0.081	U	0.018	0.082	U	0.018	0.082	U	0.018	0.086	U	0.019	0.082	U	0.018	180		1.9	6.5		0.18	190		1.9	280		3.5
Aroclor 1254	0.081	U	0.023	0.082	U	0.023	0.082	U	0.023	0.086	U	0.024	0.082	U	0.023	8.6	U	2.5	0.80	U	0.23	8.4	U	2.4	16	U	4.4
Aroclor 1260	0.081	U	0.023	0.082	U	0.023	0.082	U	0.023	0.086	U	0.024	0.082	U	0.023	8.6	U	2.5	0.80	U	0.23	8.4	U	2.4	16	U	4.4
Aroclor 1262	0.081	U	0.023	0.082	U	0.023	0.082	U	0.023	0.086	U	0.024	0.082	U	0.023	8.6	U	2.5	0.80	U	0.23	8.4	U	2.4	16	U	4.4
Aroclor 1268	0.081	U	0.023	0.082	U	0.023	0.082	U	0.023	0.086	U	0.024	0.082	U	0.023	8.6	U	2.5	0.80	U	0.23	8.4	U	2.4	16	U	4.4
Total PCBs	0.081	U	0.023	0.082	U	0.023	0.082	U	0.023	0.086	U	0.024	0.082	U	0.023	180		2.5	6.5		0.23	190		2.4	280		4.4

Lab ID:	460-74419-28			460-74419-29			460-74419-32			460-74419-33			460-74419-36			460-74419-37			460-71832-1			460-71832-2			460-71832-3		
Client ID:	10-12F1			10-12F2			8/19-14B2A			8/19-14B2B			8/19-14B1A			8/19-14B1B			13-1			13-2			13-3		
Date Sampled:	04/14/2014			04/14/2014			04/14/2014			04/14/2014			04/14/2014			04/14/2014			02/27/2014			02/27/2014			02/27/2014		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			50			1			1			1			1			5			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082/8082A																											
Aroclor 1016	0.085	U	0.019	3.9	U	0.87	0.084	U	0.019	0.074	U	0.017	0.083	U	0.019	0.074	U	0.017	0.48	U	0.11	0.082	U	0.018	0.079	U	0.018
Aroclor 1221	0.085	U	0.019	3.9	U	0.87	0.084	U	0.019	0.074	U	0.017	0.083	U	0.019	0.074	U	0.017	0.48	U	0.11	0.082	U	0.018	0.079	U	0.018
Aroclor 1232	0.085	U	0.019	3.9	U	0.87	0.084	U	0.019	0.074	U	0.017	0.083	U	0.019	0.074	U	0.017	0.48	U	0.11	0.082	U	0.018	0.079	U	0.018
Aroclor 1242	0.085	U	0.019	3.9	U	0.87	0.084	U	0.019	0.074	U	0.017	0.083	U	0.019	0.074	U	0.017	0.48	U	0.11	0.082	U	0.018	0.079	U	0.018
Aroclor 1248	0.085	U	0.019	71		0.87	0.084	U	0.019	0.074	U	0.017	0.083	U	0.019	0.074	U	0.017	6.7		0.11	0.082	U	0.018	0.079	U	0.018
Aroclor 1254	0.085	U	0.024	3.9	U	1.1	0.084	U	0.024	0.074	U	0.021	0.083	U	0.024	0.074	U	0.021	0.48	U	0.14	0.082	U	0.023	0.079	U	0.022
Aroclor 1260	0.085	U	0.024	3.9	U	1.1	0.084	U	0.024	0.074	U	0.021	0.083	U	0.024	0.074	U	0.021	0.48	U	0.14	0.082	U	0.023	0.079	U	0.022
Aroclor 1262	0.085	U	0.024	3.9	U	1.1	0.084	U	0.024	0.074	U	0.021	0.083	U	0.024	0.074	U	0.021	0.48	U	0.14	0.082	U	0.023	0.079	U	0.022
Aroclor 1268	0.085	U	0.024	3.9	U	1.1	0.084	U	0.024	0.074	U	0.021	0.083	U	0.024	0.074	U	0.021	0.48	U	0.14	0.082	U	0.023	0.079	U	0.022
Total PCBs	0.085	U	0.024	71		1.1	0.084	U	0.024	0.074	U	0.021	0.083	U	0.024	0.074	U	0.021	6.7		0.14	0.082	U	0.023	0.079	U	0.022

Lab ID:	460-71835-1			460-72000-1			460-72000-3			460-72003-1			460-72003-2			460-72003-3			460-72104-1			460-72104-2			460-72104-3		
Client ID:	17-6			17-2			17-4			C-2			C-1			C-3			C-6			C-9			C-8		
Date Sampled:	02/28/2014			03/04/2014			03/04/2014			03/04/2014			03/04/2014			03/04/2014			03/06/2014			03/06/2014			03/06/2014		
Matrix:	Soil			Soil			Soil			Concrete			Concrete			Concrete			Concrete			Concrete			Concrete		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082/8082A																											
Aroclor 1016	0.080	U	0.018	0.083	U	0.019	0.087	U	0.019	0.078	U	0.018	0.070	U	0.016	0.075	U	0.017	0.076	U	0.017	0.072	U	0.016	0.082	U	0.018
Aroclor 1221	0.080	U	0.018	0.083	U	0.019	0.087	U	0.019	0.078	U	0.018	0.070	U	0.016	0.075	U	0.017	0.076	U	0.017	0.072	U	0.016	0.082	U	0.018
Aroclor 1232	0.080	U	0.018	0.083	U	0.019	0.087	U	0.019	0.078	U	0.018	0.070	U	0.016	0.075	U	0.017	0.076	U	0.017	0.072	U	0.016	0.082	U	0.018
Aroclor 1242	0.080	U	0.018	0.083	U	0.019	0.087	U	0.019	0.078	U	0.018	0.070	U	0.016	0.075	U	0.017	0.076	U	0.017	0.072	U	0.016	0.082	U	0.018
Aroclor 1248	0.080	U	0.018	0.083	U	0.019	0.087	U	0.019	0.078	U	0.018	0.070	U	0.016	0.075	U	0.017	0.076	U	0.017	0.072	U	0.016	0.082	U	0.018
Aroclor 1254	0.080	U	0.023	0.083	U	0.024	0.087	U	0.025	0.078	U	0.022	0.070	U	0.020	0.075	U	0.021	0.12		0.022	0.072	U	0.020	0.082	U	0.023
Aroclor 1260	0.080	U	0.023	0.083	U	0.024	0.087	U	0.025	0.078	U	0.022	0.070	U	0.020	0.075	U	0.021	0.076	U	0.022	0.072	U	0.020	0.082	U	0.023
Aroclor 1262	0.080	U	0.023	0.083	U	0.024	0.087	U	0.025	0.078	U	0.022	0.070	U	0.020	0.075	U	0.021	0.076	U	0.022	0.072	U	0.020	0.082	U	0.023
Aroclor 1268	0.080	U	0.023	0.083	U	0.024	0.087	U	0.025	0.078	U	0.022	0.070	U	0.020	0.075	U	0.021	0.076	U	0.022	0.072	U	0.020	0.082	U	0.023
Total PCBs	0.080	U	0.023	0.083	U	0.024	0.087	U	0.025	0.078	U	0.022	0.070	U	0.020	0.075	U	0.021	0.12		0.022	0.072	U	0.020	0.082	U	0.023

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 1: PCB Soil and Concrete Sample Results
450 and 490 South Avenue
Block 401, Lot 1
Garwood, New Jersey

Lab ID:	460-74419-22			460-74419-23			460-74419-26			460-74419-27			460-74419-30			460-74419-31			460-89049-1			460-89049-2			460-89049-3		
Client ID:	10-12D3			10-12D4			10-12E3			10-12E4			10-12F3			10-12F4			NE-1			NE-2			NE-3		
Date Sampled:	04/14/2014			04/14/2014			04/14/2014			04/14/2014			04/14/2014			04/14/2014			01/12/2015			01/12/2015			01/12/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			10			10			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082/8082A																											
Aroclor 1016	0.075	U	0.017	0.076	U	0.017	0.76	U	0.17	0.76	U	0.17	0.075	U	0.017	0.076	U	0.017	0.088	U	0.030	0.088	U	0.030	0.083	U	0.028
Aroclor 1221	0.075	U	0.017	0.076	U	0.017	0.76	U	0.17	0.76	U	0.17	0.075	U	0.017	0.076	U	0.017	0.088	U	0.030	0.088	U	0.030	0.083	U	0.028
Aroclor 1232	0.075	U	0.017	0.076	U	0.017	0.76	U	0.17	0.76	U	0.17	0.075	U	0.017	0.076	U	0.017	0.088	U	0.030	0.088	U	0.030	0.083	U	0.028
Aroclor 1242	0.075	U	0.017	0.076	U	0.017	0.76	U	0.17	0.76	U	0.17	0.075	U	0.017	0.076	U	0.017	0.088	U	0.030	0.088	U	0.030	0.083	U	0.028
Aroclor 1248	0.075	U	0.017	0.70		0.017	10		0.17	9.1		0.17	0.075	U	0.017	0.076	U	0.017	0.088	U	0.030	1.0		0.030	0.083	U	0.028
Aroclor 1254	0.075	U	0.021	0.076	U	0.022	0.76	U	0.22	0.76	U	0.22	0.075	U	0.021	0.076	U	0.022	0.088	U	0.027	1.4		0.027	0.083	U	0.026
Aroclor 1260	0.075	U	0.021	0.076	U	0.022	0.76	U	0.22	0.76	U	0.22	0.075	U	0.021	0.076	U	0.022	0.056	J	0.027	1.1		0.027	0.083	U	0.026
Aroclor 1262	0.075	U	0.021	0.076	U	0.022	0.76	U	0.22	0.76	U	0.22	0.075	U	0.021	0.076	U	0.022	0.088	U	0.027	0.088	U	0.027	0.083	U	0.026
Aroclor 1268	0.075	U	0.021	0.076	U	0.022	0.76	U	0.22	0.76	U	0.22	0.075	U	0.021	0.076	U	0.022	0.088	U	0.027	0.088	U	0.027	0.083	U	0.026
Total PCBs	0.075	U	0.021	0.70		0.022	10		0.22	9.1		0.22	0.075	U	0.021	0.076	U	0.022	0.056	J	0.027	3.4		0.027	0.083	U	0.026

Lab ID:	460-89049-4			460-89049-5			460-89049-6			460-89049-7			460-89049-8			460-89049-9			460-89049-10			460-89049-32			460-89049-33		
Client ID:	NE-4			NE-5			NE-6			C-23			C-24			C-25			C-26			C-27			C-28		
Date Sampled:	01/12/2015			01/12/2015			01/13/2015			01/12/2015			01/12/2015			01/12/2015			01/12/2015			01/13/2015			01/13/2015		
Matrix:	Soil			Soil			Soil			Concrete			Concrete			Concrete			Concrete			Concrete			Concrete		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082/8082A																											
Aroclor 1016	0.083	U	0.028	0.083	U	0.028	0.098	U	0.033	0.072	U	0.025	0.068	U	0.023	0.068	U	0.023	0.071	U	0.024	0.069	U	0.024	0.069	U	0.023
Aroclor 1221	0.083	U	0.028	0.083	U	0.028	0.098	U	0.033	0.072	U	0.025	0.068	U	0.023	0.068	U	0.023	0.071	U	0.024	0.069	U	0.024	0.069	U	0.023
Aroclor 1232	0.083	U	0.028	0.083	U	0.028	0.098	U	0.033	0.072	U	0.025	0.068	U	0.023	0.068	U	0.023	0.071	U	0.024	0.069	U	0.024	0.069	U	0.023
Aroclor 1242	0.083	U	0.028	0.083	U	0.028	0.098	U	0.033	0.072	U	0.025	0.068	U	0.023	0.068	U	0.023	0.071	U	0.024	0.069	U	0.024	0.069	U	0.023
Aroclor 1248	0.083	U	0.028	0.083	U	0.028	0.098	U	0.033	0.072	U	0.025	0.22		0.023	0.53		0.023	0.071	U	0.024	0.069	U	0.024	0.069	U	0.023
Aroclor 1254	0.083	U	0.026	0.083	U	0.026	0.098	U	0.030	0.79		0.022	0.068	U	0.021	0.068	U	0.021	0.034	J	0.022	0.18		0.022	0.096		0.021
Aroclor 1260	0.083	U	0.026	0.083	U	0.026	0.098	U	0.030	0.68		0.022	0.068		0.021	0.11		0.021	0.071	U	0.022	0.080		0.022	0.069	U	0.021
Aroclor 1262	0.083	U	0.026	0.083	U	0.026	0.098	U	0.030	0.072	U	0.022	0.068	U	0.021	0.068	U	0.021	0.071	U	0.022	0.069	U	0.022	0.079		0.021
Aroclor 1268	0.083	U	0.026	0.083	U	0.026	0.098	U	0.030	0.072	U	0.022	0.068	U	0.021	0.068	U	0.021	0.071	U	0.022	0.069	U	0.022	0.069	U	0.021
Total PCBs	0.083	U	0.026	0.083	U	0.026	0.098	U	0.030	1.4		0.022	0.29		0.021	0.64		0.021	0.034	J	0.022	0.26		0.022	0.18		0.021

Lab ID:	460-89049-35			460-89049-36			460-89114-26			460-89114-27			460-89114-28			460-89114-29			460-89114-30			460-89114-31			460-89114-32		
Client ID:	C-30			C-31			SE5-A			SE5-B			SE5-C			SE5-D			SE5-E			SE6-A			SE6-B		
Date Sampled:	01/13/2015			01/13/2015			01/14/2015			01/14/2015			01/14/2015			01/14/2015			01/14/2015			01/14/2015			01/14/2015		
Matrix:	Concrete			Concrete			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082/8082A																											
Aroclor 1016	0.069	U	0.023	0.070	U	0.024	0.081	U	0.027	0.074	U	0.025	0.075	U	0.025	0.076	U	0.026	0.077	U	0.026	0.081	U	0.027	0.074	U	0.025
Aroclor 1221	0.069	U	0.023	0.070	U	0.024	0.081	U	0.027	0.074	U	0.025	0.075	U	0.025	0.076	U	0.026	0.077	U	0.026	0.081	U	0.027	0.074	U	0.025
Aroclor 1232	0.069	U	0.023	0.070	U	0.024	0.081	U	0.027	0.074	U	0.025	0.075	U	0.025	0.076	U	0.026	0.077	U	0.026	0.081	U	0.027	0.074	U	0.025
Aroclor 1242	0.069	U	0.023	0.070	U	0.024	0.081	U	0.027	0.074	U	0.025	0.075	U	0.025	0.076	U	0.026	0.077	U	0.026	0.081	U	0.027	0.074	U	0.025
Aroclor 1248	0.36		0.023	0.070	U	0.024	0.081	U	0.027	0.074	U	0.025	0.075	U	0.025	0.076	U	0.026	0.077	U	0.026	0.081	U	0.027	0.074	U	0.025
Aroclor 1254	0.41		0.021	0.070	U	0.022	0.081	U	0.025	0.074	U	0.023	0.075	U	0.023	0.076	U	0.023	0.077	U	0.024	0.081	U	0.025	0.074	U	0.023
Aroclor 1260	0.21		0.021	0.070	U	0.022	0.081	U	0.025	0.074	U	0.023	0.075	U	0.023	0.076	U	0.023	0.077	U	0.024	0.081	U	0.025	0.074	U	0.023
Aroclor 1262	0.069	U	0.021	0.070	U	0.022	0.081	U	0.025	0.074	U	0.023	0.075	U	0.023	0.076	U	0.023	0.077	U	0.024	0.081	U	0.025	0.074	U	0.023
Aroclor 1268	0.069	U	0.021	0.070	U	0.022	0.081	U	0.025	0.074	U	0.023	0.075	U	0.023	0.076	U	0.023	0.077	U	0.024	0.081	U	0.025	0.074	U	0.023
Total PCBs	0.94		0.021	0.070	U	0.022	0.081	U	0.025	0.074	U	0.023	0.075	U	0.023	0.076	U	0.023	0.077	U	0.024	0.081	U	0.025	0.074	U	0.023

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 1: PCB Soil and Concrete Sample Results
450 and 490 South Avenue
Block 401, Lot 1
Garwood, New Jersey

Lab ID:	460-89114-33			460-89114-34			460-89114-35			460-89114-36			460-89114-37			460-89114-38			460-89114-39			460-89114-40			460-89114-41		
Client ID:	SE6-C			SE6-D			SE6-E			SE7-A			SE7-B			SE7-C			SE7-D			SE7-E			SE8-A		
Date Sampled:	01/14/2015			01/14/2015			01/14/2015			01/14/2015			01/14/2015			01/14/2015			01/14/2015			01/14/2015			01/14/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082/8082A																											
Aroclor 1016	0.079	U	0.027	0.078	U	0.026	0.079	U	0.027	0.081	U	0.027	0.075	U	0.025	0.077	U	0.026	0.075	U	0.026	0.083	U	0.028	0.079	U	0.027
Aroclor 1221	0.079	U	0.027	0.078	U	0.026	0.079	U	0.027	0.081	U	0.027	0.075	U	0.025	0.077	U	0.026	0.075	U	0.026	0.083	U	0.028	0.079	U	0.027
Aroclor 1232	0.079	U	0.027	0.078	U	0.026	0.079	U	0.027	0.081	U	0.027	0.075	U	0.025	0.077	U	0.026	0.075	U	0.026	0.083	U	0.028	0.079	U	0.027
Aroclor 1242	0.079	U	0.027	0.078	U	0.026	0.079	U	0.027	0.081	U	0.027	0.075	U	0.025	0.077	U	0.026	0.075	U	0.026	0.083	U	0.028	0.079	U	0.027
Aroclor 1248	0.079	U	0.027	0.078	U	0.026	0.079	U	0.027	0.081	U	0.027	0.075	U	0.025	0.077	U	0.026	0.075	U	0.026	0.083	U	0.028	0.079	U	0.027
Aroclor 1254	0.079	U	0.024	0.078	U	0.024	0.079	U	0.025	0.081	U	0.025	0.075	U	0.023	0.077	U	0.024	0.075	U	0.023	0.083	U	0.026	0.079	U	0.025
Aroclor 1260	0.079	U	0.024	0.078	U	0.024	0.079	U	0.025	0.081	U	0.025	0.075	U	0.023	0.077	U	0.024	0.075	U	0.023	0.083	U	0.026	0.079	U	0.025
Aroclor 1262	0.079	U	0.024	0.078	U	0.024	0.079	U	0.025	0.081	U	0.025	0.075	U	0.023	0.077	U	0.024	0.075	U	0.023	0.083	U	0.026	0.079	U	0.025
Aroclor 1268	0.079	U	0.024	0.078	U	0.024	0.079	U	0.025	0.081	U	0.025	0.075	U	0.023	0.077	U	0.024	0.075	U	0.023	0.083	U	0.026	0.079	U	0.025
Total PCBs	0.079	U	0.024	0.078	U	0.024	0.079	U	0.025	0.081	U	0.025	0.075	U	0.023	0.077	U	0.024	0.075	U	0.023	0.083	U	0.026	0.079	U	0.025

Lab ID:	460-89114-42			460-89114-43			460-89114-44			460-89114-45			460-89114-46			460-89114-47			460-89221-1			460-89221-2			460-89221-3		
Client ID:	SE8-B			SE8-C			SE8-D			SE8-E			10-12E-5			10-12E-6			SE9-A			SE9-B			SE9-C		
Date Sampled:	01/14/2015			01/14/2015			01/14/2015			01/14/2015			01/14/2015			01/14/2015			01/14/2015			01/14/2015			01/14/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			5			1			5			10		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082/8082A																											
Aroclor 1016	0.074	U	0.025	0.076	U	0.026	0.078	U	0.026	0.074	U	0.025	0.078	U	0.026	0.39	U	0.13	0.084	U	0.028	0.40	U	0.14	0.75	U	0.26
Aroclor 1221	0.074	U	0.025	0.076	U	0.026	0.078	U	0.026	0.074	U	0.025	0.078	U	0.026	0.39	U	0.13	0.084	U	0.028	0.40	U	0.14	0.75	U	0.26
Aroclor 1232	0.074	U	0.025	0.076	U	0.026	0.078	U	0.026	0.074	U	0.025	0.078	U	0.026	0.39	U	0.13	0.084	U	0.028	0.40	U	0.14	0.75	U	0.26
Aroclor 1242	0.074	U	0.025	0.076	U	0.026	0.078	U	0.026	0.074	U	0.025	0.078	U	0.026	0.39	U	0.13	0.084	U	0.028	0.40	U	0.14	0.75	U	0.26
Aroclor 1248	0.074	U	0.025	0.076	U	0.026	0.078	U	0.026	0.074	U	0.025	0.72		0.026	2.7		0.13	0.11		0.028	6.1		0.14	9.8		0.26
Aroclor 1254	0.074	U	0.023	0.076	U	0.024	0.078	U	0.024	0.074	U	0.023	0.078	U	0.024	0.39	U	0.12	0.084	U	0.026	0.40	U	0.12	0.75	U	0.23
Aroclor 1260	0.074	U	0.023	0.076	U	0.024	0.078	U	0.024	0.074	U	0.023	0.078	U	0.024	0.39	U	0.12	0.084	U	0.026	0.40	U	0.12	0.75	U	0.23
Aroclor 1262	0.074	U	0.023	0.076	U	0.024	0.078	U	0.024	0.074	U	0.023	0.078	U	0.024	0.39	U	0.12	0.084	U	0.026	0.40	U	0.12	0.75	U	0.23
Aroclor 1268	0.074	U	0.023	0.076	U	0.024	0.078	U	0.024	0.074	U	0.023	0.078	U	0.024	0.39	U	0.12	0.084	U	0.026	0.40	U	0.12	0.75	U	0.23
Total PCBs	0.074	U	0.023	0.076	U	0.024	0.078	U	0.024	0.074	U	0.023	0.72		0.024	2.7		0.12	0.11		0.026	6.1		0.12	9.8		0.23

Lab ID:	460-89221-4			460-89221-5			460-89221-6			460-89221-7			460-89221-8			460-89221-32			460-89221-34			460-89342-12			460-89342-13		
Client ID:	SE9-D			SE9-E			SE10-A			SE10-B			SE10-C			13-6N1A			13-6A			SE-11A			SE-11B		
Date Sampled:	01/14/2015			01/14/2015			01/14/2015			01/14/2015			01/14/2015			01/15/2015			01/15/2015			01/16/2015			01/16/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	10			25			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082/8082A																											
Aroclor 1016	0.75	U	0.26	1.9	U	0.66	0.085	U	0.029	0.076	U	0.026	0.076	U	0.026	0.085	U	0.029	0.078	U	0.026	0.077	U	0.026	0.075	U	0.026
Aroclor 1221	0.75	U	0.26	1.9	U	0.66	0.085	U	0.029	0.076	U	0.026	0.076	U	0.026	0.085	U	0.029	0.078	U	0.026	0.077	U	0.026	0.075	U	0.026
Aroclor 1232	0.75	U	0.26	1.9	U	0.66	0.085	U	0.029	0.076	U	0.026	0.076	U	0.026	0.085	U	0.029	0.078	U	0.026	0.077	U	0.026	0.075	U	0.026
Aroclor 1242	0.75	U	0.26	1.9	U	0.66	0.085	U	0.029	0.076	U	0.026	0.076	U	0.026	0.085	U	0.029	0.078	U	0.026	0.077	U	0.026	0.075	U	0.026
Aroclor 1248	14		0.26	33		0.66	0.085	U	0.029	0.076	U	0.026	0.076	U	0.026	0.085	U	0.029	0.078	U	0.026	0.077	U	0.026	0.075	U	0.026
Aroclor 1254	0.75	U	0.23	1.9	U	0.60	0.085	U	0.026	0.076	U	0.024	0.076	U	0.024	0.085	U	0.026	0.078	U	0.024	0.077	U	0.024	0.075	U	0.023
Aroclor 1260	0.75	U	0.23	1.9	U	0.60	0.085	U	0.026	0.076	U	0.024	0.076	U	0.024	0.085	U	0.026	0.078	U	0.024	0.077	U	0.024	0.075	U	0.023
Aroclor 1262	0.75	U	0.23	1.9	U	0.60	0.085	U	0.026	0.076	U	0.024	0.076	U	0.024	0.085	U	0.026	0.078	U	0.024	0.077	U	0.024	0.075	U	0.023
Aroclor 1268	0.75	U	0.23	1.9	U	0.60	0.085	U	0.026	0.076	U	0.024	0.076	U	0.024	0.085	U	0.026	0.078	U	0.024	0.077	U	0.024	0.075	U	0.023
Total PCBs	14		0.23	33		0.60	0.085	U	0.026	0.076	U	0.024	0.076	U	0.024	0.085	U	0.026	0.078	U	0.024	0.077	U	0.024	0.075	U	0.023

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 1: PCB Soil and Concrete Sample Results
450 and 490 South Avenue
Block 401, Lot 1
Garwood, New Jersey

Lab ID:		460-89342-14			460-89342-15			460-89342-16			460-89342-17			460-89342-18			460-89342-19			460-89342-20			460-89342-21			460-89342-22	
Client ID:		SE-11C			SE-11D			SE-11E			SE-12A			SE-12B			SE-12C			SE-12D			SE-12E			SE-13A	
Date Sampled:		01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/16/2015	
Matrix:		Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil	
Unit:		mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg	
Dilution:		1			1			1			1			5			1			1			1			1	
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082/8082A																											
Aroclor 1016	0.076	U	0.026	0.072	U	0.024	0.072	U	0.025	0.078	U	0.027	0.37	U	0.13	0.076	U	0.026	0.074	U	0.025	0.072	U	0.024	0.087	U	0.029
Aroclor 1221	0.076	U	0.026	0.072	U	0.024	0.072	U	0.025	0.078	U	0.027	0.37	U	0.13	0.076	U	0.026	0.074	U	0.025	0.072	U	0.024	0.087	U	0.029
Aroclor 1232	0.076	U	0.026	0.072	U	0.024	0.072	U	0.025	0.078	U	0.027	0.37	U	0.13	0.076	U	0.026	0.074	U	0.025	0.072	U	0.024	0.087	U	0.029
Aroclor 1242	0.076	U	0.026	0.072	U	0.024	0.072	U	0.025	0.078	U	0.027	0.37	U	0.13	0.076	U	0.026	0.074	U	0.025	0.072	U	0.024	0.087	U	0.029
Aroclor 1248	0.076	U	0.026	0.25		0.024	1.1		0.025	0.078	U	0.027	5.9		0.13	1.3		0.026	0.74		0.025	1.0		0.024	0.087	U	0.029
Aroclor 1254	0.076	U	0.023	0.072	U	0.022	0.072	U	0.022	0.078	U	0.024	0.37	U	0.12	0.076	U	0.024	0.074	U	0.023	0.072	U	0.022	0.087	U	0.027
Aroclor 1260	0.076	U	0.023	0.072	U	0.022	0.072	U	0.022	0.078	U	0.024	0.37	U	0.12	0.076	U	0.024	0.074	U	0.023	0.072	U	0.022	0.087	U	0.027
Aroclor 1262	0.076	U	0.023	0.072	U	0.022	0.072	U	0.022	0.078	U	0.024	0.37	U	0.12	0.076	U	0.024	0.074	U	0.023	0.072	U	0.022	0.087	U	0.027
Aroclor 1268	0.076	U	0.023	0.072	U	0.022	0.072	U	0.022	0.078	U	0.024	0.37	U	0.12	0.076	U	0.024	0.074	U	0.023	0.072	U	0.022	0.087	U	0.027
Total PCBs	0.076	U	0.023	**0.25**		0.022	**1.1**		0.022	0.078	U	0.024	**5.9**		0.12	**1.3**		0.024	**0.74**		0.023	**1.0**		0.022	0.087	U	0.027

Lab ID:		460-89342-23			460-89342-24			460-89342-25			460-89342-26			460-89342-27			460-89342-28			460-89342-29			460-89342-30			460-89342-31	
Client ID:		SE-13B			SE-13C			SE-13D			SE-13E			SE-14A			SE-14B			SE-14C			SE-14D			SE-14E	
Date Sampled:		01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/16/2015	
Matrix:		Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil	
Unit:		mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg	
Dilution:		10			2			1			1			1			1			1			1			1	
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082/8082A																											
Aroclor 1016	0.75	U	0.25	0.15	U	0.052	0.076	U	0.026	0.079	U	0.027	0.079	U	0.027	0.075	U	0.025	0.076	U	0.026	0.074	U	0.025	0.080	U	0.027
Aroclor 1221	0.75	U	0.25	0.15	U	0.052	0.076	U	0.026	0.079	U	0.027	0.079	U	0.027	0.075	U	0.025	0.076	U	0.026	0.074	U	0.025	0.080	U	0.027
Aroclor 1232	0.75	U	0.25	0.15	U	0.052	0.076	U	0.026	0.079	U	0.027	0.079	U	0.027	0.075	U	0.025	0.076	U	0.026	0.074	U	0.025	0.080	U	0.027
Aroclor 1242	0.75	U	0.25	0.15	U	0.052	0.076	U	0.026	0.079	U	0.027	0.079	U	0.027	0.075	U	0.025	0.076	U	0.026	0.074	U	0.025	0.080	U	0.027
Aroclor 1248	15		0.25	2.2		0.052	0.25		0.026	0.72		0.027	0.079	U	0.027	0.075	U	0.025	0.076	U	0.026	0.074	U	0.025	0.080	U	0.027
Aroclor 1254	0.75	U	0.23	0.15	U	0.048	0.076	U	0.024	0.079	U	0.024	0.079	U	0.024	0.075	U	0.023	0.076	U	0.023	0.074	U	0.023	0.080	U	0.025
Aroclor 1260	0.75	U	0.23	0.15	U	0.048	0.076	U	0.024	0.079	U	0.024	0.079	U	0.024	0.075	U	0.023	0.076	U	0.023	0.074	U	0.023	0.080	U	0.025
Aroclor 1262	0.75	U	0.23	0.15	U	0.048	0.076	U	0.024	0.079	U	0.024	0.079	U	0.024	0.075	U	0.023	0.076	U	0.023	0.074	U	0.023	0.080	U	0.025
Aroclor 1268	0.75	U	0.23	0.15	U	0.048	0.076	U	0.024	0.079	U	0.024	0.079	U	0.024	0.075	U	0.023	0.076	U	0.023	0.074	U	0.023	0.080	U	0.025
Total PCBs	**15**		0.23	**2.2**		0.048	**0.25**		0.024	**0.72**		0.024	0.079	U	0.024	0.075	U	0.023	0.076	U	0.023	0.074	U	0.023	0.080	U	0.025

Lab ID:		460-89342-32			460-89342-34			460-89342-35			460-89342-36			460-89342-37			460-89342-38			460-89342-39			460-89342-40			460-89342-41	
Client ID:		8/19-14FD1			SE-15A			SE-15B			SE-15C			SE-15D			SE-15E			SE-16A			SE-16B			SE-16C	
Date Sampled:		01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/16/2015	
Matrix:		Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil	
Unit:		mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg	
Dilution:		1			1			1			1			1			1			1			1			1	
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082/8082A																											
Aroclor 1016	0.076	U	0.026	0.078	U	0.026	0.077	U	0.026	0.076	U	0.026	0.072	U	0.024	0.075	U	0.025	0.082	U	0.028	0.073	U	0.025	0.075	U	0.026
Aroclor 1221	0.076	U	0.026	0.078	U	0.026	0.077	U	0.026	0.076	U	0.026	0.072	U	0.024	0.075	U	0.025	0.082	U	0.028	0.073	U	0.025	0.075	U	0.026
Aroclor 1232	0.076	U	0.026	0.078	U	0.026	0.077	U	0.026	0.076	U	0.026	0.072	U	0.024	0.075	U	0.025	0.082	U	0.028	0.073	U	0.025	0.075	U	0.026
Aroclor 1242	0.076	U	0.026	0.078	U	0.026	0.077	U	0.026	0.076	U	0.026	0.072	U	0.024	0.075	U	0.025	0.082	U	0.028	0.073	U	0.025	0.075	U	0.026
Aroclor 1248	0.076	U	0.026	0.078	U	0.026	0.077	U	0.026	0.076	U	0.026	0.072	U	0.024	0.075	U	0.025	0.082	U	0.028	1.2		0.025	0.075	U	0.026
Aroclor 1254	0.076	U	0.024	0.078	U	0.024	0.077	U	0.024	0.076	U	0.024	0.072	U	0.022	0.075	U	0.023	0.082	U	0.026	0.073	U	0.023	0.075	U	0.023
Aroclor 1260	0.076	U	0.024	0.078	U	0.024	0.077	U	0.024	0.076	U	0.024	0.072	U	0.022	0.075	U	0.023	0.082	U	0.026	0.073	U	0.023	0.075	U	0.023
Aroclor 1262	0.076	U	0.024	0.078	U	0.024	0.077	U	0.024	0.076	U	0.024	0.072	U	0.022	0.075	U	0.023	0.082	U	0.026	0.073	U	0.023	0.075	U	0.023
Aroclor 1268	0.076	U	0.024	0.078	U	0.024	0.077	U	0.024	0.076	U	0.024	0.072	U	0.022	0.075	U	0.023	0.082	U	0.026	0.073	U	0.023	0.075	U	0.023
Total PCBs	0.076	U	0.024	0.078	U	0.024	0.077	U	0.024	0.076	U	0.024	0.072	U	0.022	0.075	U	0.023	0.082	U	0.026	**1.2**		0.023	0.075	U	0.023

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 1: PCB Soil and Concrete Sample Results
450 and 490 South Avenue
Block 401, Lot 1
Garwood, New Jersey

Lab ID:		460-89342-42			460-89342-43			460-89342-44			460-89342-45			460-89342-46			460-89342-47			460-89342-48			460-89342-49			460-89342-50	
Client ID:		SE-16D			SE-16E			SE-17A			SE-17B			SE-17C			SE-17D			SE-17E			SE-18A			SE-18B	
Date Sampled:		01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/16/2015	
Matrix:		Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil	
Unit:		mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg	
Dilution:		1			1			1			1			1			1			1			1			1	
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082/8082A																											
Aroclor 1016	0.076	U	0.026	0.073	U	0.025	0.080	U	0.027	0.075	U	0.025	0.075	U	0.026	0.076	U	0.026	0.074	U	0.025	0.078	U	0.026	0.077	U	0.026
Aroclor 1221	0.076	U	0.026	0.073	U	0.025	0.080	U	0.027	0.075	U	0.025	0.075	U	0.026	0.076	U	0.026	0.074	U	0.025	0.078	U	0.026	0.077	U	0.026
Aroclor 1232	0.076	U	0.026	0.073	U	0.025	0.080	U	0.027	0.075	U	0.025	0.075	U	0.026	0.076	U	0.026	0.074	U	0.025	0.078	U	0.026	0.077	U	0.026
Aroclor 1242	0.076	U	0.026	0.073	U	0.025	0.080	U	0.027	0.075	U	0.025	0.075	U	0.026	0.076	U	0.026	0.074	U	0.025	0.078	U	0.026	0.077	U	0.026
Aroclor 1248	0.076	U	0.026	0.073	U	0.025	0.080	U	0.027	0.075	U	0.025	0.075	U	0.026	0.076	U	0.026	0.074	U	0.025	0.078	U	0.026	0.36		0.026
Aroclor 1254	0.076	U	0.023	0.073	U	0.023	0.080	U	0.025	0.075	U	0.023	0.075	U	0.023	0.076	U	0.024	0.074	U	0.023	0.078	U	0.024	0.077	U	0.024
Aroclor 1260	0.076	U	0.023	0.073	U	0.023	0.080	U	0.025	0.075	U	0.023	0.075	U	0.023	0.076	U	0.024	0.074	U	0.023	0.078	U	0.024	0.077	U	0.024
Aroclor 1262	0.076	U	0.023	0.073	U	0.023	0.080	U	0.025	0.075	U	0.023	0.075	U	0.023	0.076	U	0.024	0.074	U	0.023	0.078	U	0.024	0.077	U	0.024
Aroclor 1268	0.076	U	0.023	0.073	U	0.023	0.080	U	0.025	0.075	U	0.023	0.075	U	0.023	0.076	U	0.024	0.074	U	0.023	0.078	U	0.024	0.077	U	0.024
Total PCBs	0.076	U	0.023	0.073	U	0.023	0.080	U	0.025	0.075	U	0.023	0.075	U	0.023	0.076	U	0.024	0.074	U	0.023	0.078	U	0.024	0.36		0.024

Lab ID:		460-89342-51			460-89342-52			460-89342-53			460-89342-54			460-89342-55			460-89342-56			460-89342-57			460-89342-58			460-89342-59	
Client ID:		SE-18C			SE-18D			SE-18E			SE-19C			SE-19D			SE-19E			SE-20A			SE-20B			SE-20C	
Date Sampled:		01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/16/2015	
Matrix:		Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil	
Unit:		mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg	
Dilution:		1			1			1			1			1			1			1			1			1	
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082/8082A																											
Aroclor 1016	0.076	U	0.026	0.077	U	0.026	0.075	U	0.026	0.076	U	0.026	0.075	U	0.026	0.076	U	0.026	0.078	U	0.026	0.075	U	0.025	0.074	U	0.025
Aroclor 1221	0.076	U	0.026	0.077	U	0.026	0.075	U	0.026	0.076	U	0.026	0.075	U	0.026	0.076	U	0.026	0.078	U	0.026	0.075	U	0.025	0.074	U	0.025
Aroclor 1232	0.076	U	0.026	0.077	U	0.026	0.075	U	0.026	0.076	U	0.026	0.075	U	0.026	0.076	U	0.026	0.078	U	0.026	0.075	U	0.025	0.074	U	0.025
Aroclor 1242	0.076	U	0.026	0.077	U	0.026	0.075	U	0.026	0.076	U	0.026	0.075	U	0.026	0.076	U	0.026	0.078	U	0.026	0.075	U	0.025	0.074	U	0.025
Aroclor 1248	0.076	U	0.026	0.22		0.026	0.075	U	0.026	0.076	U	0.026	0.075	U	0.026	0.076	U	0.026	0.078	U	0.026	0.075	U	0.025	0.074	U	0.025
Aroclor 1254	0.076	U	0.024	0.077	U	0.024	0.075	U	0.023	0.076	U	0.024	0.075	U	0.023	0.076	U	0.023	0.078	U	0.024	0.075	U	0.023	0.074	U	0.023
Aroclor 1260	0.076	U	0.024	0.077	U	0.024	0.075	U	0.023	0.076	U	0.024	0.075	U	0.023	0.076	U	0.023	0.078	U	0.024	0.075	U	0.023	0.074	U	0.023
Aroclor 1262	0.076	U	0.024	0.077	U	0.024	0.075	U	0.023	0.076	U	0.024	0.075	U	0.023	0.076	U	0.023	0.078	U	0.024	0.075	U	0.023	0.074	U	0.023
Aroclor 1268	0.076	U	0.024	0.077	U	0.024	0.075	U	0.023	0.076	U	0.024	0.075	U	0.023	0.076	U	0.023	0.078	U	0.024	0.075	U	0.023	0.074	U	0.023
Total PCBs	0.076	U	0.024	0.22		0.024	0.075	U	0.023	0.076	U	0.024	0.075	U	0.023	0.076	U	0.023	0.078	U	0.024	0.075	U	0.023	0.074	U	0.023

Lab ID:		460-89342-60			460-89342-61			460-89342-67			460-89342-68			460-89342-69			460-89342-70			460-89342-71			460-89342-72			460-89362-1	
Client ID:		SE-20D			SE-20E			C11-E1			C11-E2			C11-N1			C11-N2			C11-W1			C11-W2			SE-10D	
Date Sampled:		01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/16/2015			01/19/2015	
Matrix:		Soil			Soil			Concrete			Concrete			Concrete			Concrete			Concrete			Concrete			Soil	
Unit:		mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg	
Dilution:		1			1			1			1			1			1			1			1			1	
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082/8082A																											
Aroclor 1016	0.077	U	0.026	0.077	U	0.026	0.069	U	0.023	0.068	U	0.023	0.069	U	0.023	0.069	U	0.023	0.069	U	0.023	0.068	U	0.023	0.074	U	0.025
Aroclor 1221	0.077	U	0.026	0.077	U	0.026	0.069	U	0.023	0.068	U	0.023	0.069	U	0.023	0.069	U	0.023	0.069	U	0.023	0.068	U	0.023	0.074	U	0.025
Aroclor 1232	0.077	U	0.026	0.077	U	0.026	0.069	U	0.023	0.068	U	0.023	0.069	U	0.023	0.069	U	0.023	0.069	U	0.023	0.068	U	0.023	0.074	U	0.025
Aroclor 1242	0.077	U	0.026	0.077	U	0.026	0.069	U	0.023	0.068	U	0.023	0.069	U	0.023	0.069	U	0.023	0.069	U	0.023	0.068	U	0.023	0.074	U	0.025
Aroclor 1248	0.077	U	0.026	0.077	U	0.026	0.86		0.023	0.32		0.023	0.069	U	0.023	0.069	U	0.023	0.90		0.023	0.35		0.023	0.074	U	0.025
Aroclor 1254	0.077	U	0.024	0.077	U	0.024	0.069	U	0.021	0.068	U	0.021	0.16		0.021	0.069	U	0.021	0.069	U	0.021	0.068	U	0.021	0.074	U	0.023
Aroclor 1260	0.077	U	0.024	0.077	U	0.024	0.069	U	0.021	0.082		0.021	0.069	U	0.021	0.069	U	0.021	0.095		0.021	0.072		0.021	0.074	U	0.023
Aroclor 1262	0.077	U	0.024	0.077	U	0.024	0.069	U	0.021	0.068	U	0.021	0.10		0.021	0.025	J	0.021	0.069	U	0.021	0.068	U	0.021	0.074	U	0.023
Aroclor 1268	0.077	U	0.024	0.077	U	0.024	0.069	U	0.021	0.068	U	0.021	0.069	U	0.021	0.069	U	0.021	0.069	U	0.021	0.068	U	0.021	0.074	U	0.023
Total PCBs	0.077	U	0.024	0.077	U	0.024	0.86		0.021	0.40		0.021	0.26		0.021	0.025	J	0.021	0.99		0.021	0.42		0.021	0.074	U	0.023

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 1: PCB Soil and Concrete Sample Results
450 and 490 South Avenue
Block 401, Lot 1
Garwood, New Jersey

Lab ID:	460-89362-2			460-89362-3			460-89362-4			460-89362-5			460-89362-7			460-89362-8			460-89362-9			460-89362-10			460-89362-11		
Client ID:	SE-10E			C11-S1			C11-S2			13-9B			13-9W1A			13-9W1B			13-9E1A			13-9E1B			13-9E2A		
Date Sampled:	01/19/2015			01/19/2015			01/19/2015			01/19/2015			01/19/2015			01/19/2015			01/19/2015			01/19/2015			01/19/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082/8082A																											
Aroclor 1016	0.078	U	0.027	0.068	U	0.023	0.068	U	0.023	0.080	U	0.027	0.088	U	0.030	0.077	U	0.026	0.085	U	0.029	0.077	U	0.026	0.079	U	0.027
Aroclor 1221	0.078	U	0.027	0.068	U	0.023	0.068	U	0.023	0.080	U	0.027	0.088	U	0.030	0.077	U	0.026	0.085	U	0.029	0.077	U	0.026	0.079	U	0.027
Aroclor 1232	0.078	U	0.027	0.068	U	0.023	0.068	U	0.023	0.080	U	0.027	0.088	U	0.030	0.077	U	0.026	0.085	U	0.029	0.077	U	0.026	0.079	U	0.027
Aroclor 1242	0.078	U	0.027	0.068	U	0.023	0.068	U	0.023	0.080	U	0.027	0.088	U	0.030	0.077	U	0.026	0.085	U	0.029	0.077	U	0.026	0.079	U	0.027
Aroclor 1248	0.078	U	0.027	0.068	U	0.023	0.068	U	0.023	0.080	U	0.027	1.8		0.030	0.077	U	0.026	1.2		0.029	0.077	U	0.026	0.53		0.027
Aroclor 1254	0.078	U	0.024	0.068	U	0.021	0.068	U	0.021	0.080	U	0.025	0.088	U	0.027	0.077	U	0.024	0.085	U	0.026	0.077	U	0.024	0.079	U	0.025
Aroclor 1260	0.078	U	0.024	0.18	p	0.021	0.068	U	0.021	0.080	U	0.025	0.088	U	0.027	0.077	U	0.024	0.14		0.026	0.077	U	0.024	0.079	U	0.025
Aroclor 1262	0.078	U	0.024	0.068	U	0.021	0.068	U	0.021	0.080	U	0.025	0.088	U	0.027	0.077	U	0.024	0.085	U	0.026	0.077	U	0.024	0.079	U	0.025
Aroclor 1268	0.078	U	0.024	0.068	U	0.021	0.068	U	0.021	0.080	U	0.025	0.088	U	0.027	0.077	U	0.024	0.085	U	0.026	0.077	U	0.024	0.079	U	0.025
Total PCBs	0.078	U	0.024	0.18		0.021	0.068	U	0.021	0.080	U	0.025	**1.8**		0.027	0.077	U	0.024	**1.3**		0.026	0.077	U	0.024	**0.53**		0.025

Lab ID:	460-89362-12			460-89362-13			460-89362-17			460-89362-18			460-89362-19			460-89362-20			460-89362-21			460-89362-22		
Client ID:	13-9E2B			13-9S1A			13-6E1A			13-6E1B			13-6S1A			13-6S1B			13-6S2A			13-6S2B		
Date Sampled:	01/19/2015			01/19/2015			01/19/2015			01/19/2015			01/19/2015			01/19/2015			01/19/2015			01/19/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			2			1			1			1			10			2		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082/8082A																								
Aroclor 1016	0.077	U	0.026	0.076	U	0.026	0.17	U	0.058	0.074	U	0.025	0.088	U	0.030	0.078	U	0.026	0.89	U	0.30	0.16	U	0.055
Aroclor 1221	0.077	U	0.026	0.076	U	0.026	0.17	U	0.058	0.074	U	0.025	0.088	U	0.030	0.078	U	0.026	0.89	U	0.30	0.16	U	0.055
Aroclor 1232	0.077	U	0.026	0.076	U	0.026	0.17	U	0.058	0.074	U	0.025	0.088	U	0.030	0.078	U	0.026	0.89	U	0.30	0.16	U	0.055
Aroclor 1242	0.077	U	0.026	0.076	U	0.026	0.17	U	0.058	0.074	U	0.025	0.088	U	0.030	0.078	U	0.026	0.89	U	0.30	0.16	U	0.055
Aroclor 1248	0.077	U	0.026	0.35		0.026	2.4		0.058	0.074	U	0.025	1.2		0.030	1.7		0.026	7.6		0.30	2.3		0.055
Aroclor 1254	0.077	U	0.024	0.076	U	0.024	0.17	U	0.053	0.074	U	0.023	0.088	U	0.027	0.078	U	0.024	0.89	U	0.28	0.16	U	0.051
Aroclor 1260	0.077	U	0.024	0.076	U	0.024	0.17	U	0.053	0.074	U	0.023	0.16		0.027	0.078	U	0.024	0.89	U	0.28	0.16	U	0.051
Aroclor 1262	0.077	U	0.024	0.076	U	0.024	0.17	U	0.053	0.074	U	0.023	0.088	U	0.027	0.078	U	0.024	0.89	U	0.28	0.16	U	0.051
Aroclor 1268	0.077	U	0.024	0.076	U	0.024	0.17	U	0.053	0.074	U	0.023	0.088	U	0.027	0.078	U	0.024	0.89	U	0.28	0.16	U	0.051
Total PCBs	0.077	U	0.024	**0.35**		0.024	**2.4**		0.053	0.074	U	0.023	**1.4**		0.027	**1.7**		0.024	**7.6**		0.28	**2.3**		0.051

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 2: PCB Soil, Concrete, and Wood Block Floor Sample Results
50 Center Street
Block 401, Lot 2
Garwood, New Jersey

Lab ID:	**460-90690-1**			**460-90690-2**			**460-90690-3**			**460-90690-4**			**460-90690-5**			**460-90690-6**			**460-90690-7**			**460-90690-8**			**460-90690-9**		
Client ID:	**PR1a**			**PR1b**			**PR2a**			**PR2b**			**PR3a**			**PR3b**			**PR4a**			**PR4b**			**PR5a**		
Date Sampled:	**02/18/2015**			**02/18/2015**			**02/18/2015**			**02/18/2015**			**02/18/2015**			**02/18/2015**			**02/18/2015**			**02/18/2015**			**02/18/2015**		
Matrix:	**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**		
Unit:	**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**		
Dilution:	**1**			**5**			**10**			**10**			**20**			**5**			**1**			**1**			**5**		
	Conc.	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**
SOIL BY 8082A																											
Aroclor 1016	0.075	U	0.025	0.37	U	0.12	0.76	U	0.26	0.84	U	0.29	1.5	U	0.52	0.37	U	0.12	0.079	U	0.027	0.076	U	0.026	0.37	U	0.13
Aroclor 1221	0.075	U	0.025	0.37	U	0.12	0.76	U	0.26	0.84	U	0.29	1.5	U	0.52	0.37	U	0.12	0.079	U	0.027	0.076	U	0.026	0.37	U	0.13
Aroclor 1232	0.075	U	0.025	0.37	U	0.12	0.76	U	0.26	0.84	U	0.29	1.5	U	0.52	0.37	U	0.12	0.079	U	0.027	0.076	U	0.026	0.37	U	0.13
Aroclor 1242	0.075	U	0.025	0.37	U	0.12	0.76	U	0.26	0.84	U	0.29	1.5	U	0.52	0.37	U	0.12	0.079	U	0.027	0.076	U	0.026	0.37	U	0.13
Aroclor 1248	0.34		0.025	6.8		0.12	15		0.26	11		0.29	22		0.52	6.3		0.12	0.72		0.027	0.076	U	0.026	7.6		0.13
Aroclor 1254	0.075	U	0.023	0.37	U	0.11	0.76	U	0.24	0.84	U	0.26	1.5	U	0.48	0.37	U	0.11	0.079	U	0.025	0.076	U	0.023	0.37	U	0.11
Aroclor 1260	0.075	U	0.023	0.37	U	0.11	0.76	U	0.24	0.84	U	0.26	1.5	U	0.48	0.37	U	0.11	0.079	U	0.025	0.076	U	0.023	0.37	U	0.11
Aroclor 1262	0.075	U	0.023	0.37	U	0.11	0.76	U	0.24	0.84	U	0.26	1.5	U	0.48	0.37	U	0.11	0.079	U	0.025	0.076	U	0.023	0.37	U	0.11
Aroclor 1268	0.075	U	0.023	0.37	U	0.11	0.76	U	0.24	0.84	U	0.26	1.5	U	0.48	0.37	U	0.11	0.079	U	0.025	0.076	U	0.023	0.37	U	0.11
Total PCBs	**0.34**		0.023	**6.8**		0.11	**15**		0.24	**11**		0.26	**22**		0.48	**6.3**		0.11	**0.72**		0.025	0.076	U	0.023	**7.6**		0.11

Lab ID:	**460-90690-10**			**460-90690-11**			**460-90690-12**			**460-90690-13**			**460-90690-14**			**460-90690-15**			**460-90690-16**			**460-90690-17**			**460-90690-18**		
Client ID:	**PR5b**			**R1**			**R2**			**R3**			**R4**			**CO1**			**CO2**			**CO3**			**CO4**		
Date Sampled:	**02/18/2015**			**02/19/2015**			**02/19/2015**			**02/19/2015**			**02/19/2015**			**02/19/2015**			**02/18/2015**			**02/19/2015**			**02/18/2015**		
Matrix:	**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**		
Unit:	**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**		
Dilution:	**5**			**1**			**1**			**1**			**1**			**1**			**1**			**1**			**1**		
	Conc.	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**
SOIL BY 8082A																											
Aroclor 1016	0.43	U	0.15	0.077	U	0.026	0.078	U	0.026	0.076	U	0.026	0.076	U	0.026	0.077	U	0.026	0.080	U	0.027	0.082	U	0.028	0.081	U	0.027
Aroclor 1221	0.43	U	0.15	0.077	U	0.026	0.078	U	0.026	0.076	U	0.026	0.076	U	0.026	0.077	U	0.026	0.080	U	0.027	0.082	U	0.028	0.081	U	0.027
Aroclor 1232	0.43	U	0.15	0.077	U	0.026	0.078	U	0.026	0.076	U	0.026	0.076	U	0.026	0.077	U	0.026	0.080	U	0.027	0.082	U	0.028	0.081	U	0.027
Aroclor 1242	0.43	U	0.15	0.077	U	0.026	0.078	U	0.026	0.076	U	0.026	0.076	U	0.026	0.077	U	0.026	0.080	U	0.027	0.082	U	0.028	0.081	U	0.027
Aroclor 1248	5.9		0.15	0.077	U	0.026	0.078	U	0.026	0.076	U	0.026	0.076	U	0.026	0.077	U	0.026	0.080	U	0.027	0.082	U	0.028	0.081	U	0.027
Aroclor 1254	0.43	U	0.13	0.077	U	0.024	0.078	U	0.024	0.076	U	0.024	0.076	U	0.023	0.077	U	0.024	0.080	U	0.025	0.082	U	0.025	0.081	U	0.025
Aroclor 1260	0.43	U	0.13	0.077	U	0.024	0.078	U	0.024	0.076	U	0.024	0.076	U	0.023	0.077	U	0.024	0.080	U	0.025	0.082	U	0.025	0.081	U	0.025
Aroclor 1262	0.43	U	0.13	0.077	U	0.024	0.078	U	0.024	0.076	U	0.024	0.076	U	0.023	0.077	U	0.024	0.080	U	0.025	0.082	U	0.025	0.081	U	0.025
Aroclor 1268	0.43	U	0.13	0.077	U	0.024	0.078	U	0.024	0.076	U	0.024	0.076	U	0.023	0.077	U	0.024	0.080	U	0.025	0.082	U	0.025	0.081	U	0.025
Total PCBs	**5.9**		0.13	0.077	U	0.024	0.078	U	0.024	0.076	U	0.024	0.076	U	0.023	0.077	U	0.024	0.080	U	0.025	0.082	U	0.025	0.081	U	0.025

Lab ID:	**460-90690-19**			**460-90690-20**			**460-90690-21**			**460-90690-23**			**460-90690-24**			**460-90690-25**			**460-90690-26**			**460-90690-27**			**460-90690-28**		
Client ID:	**CO5**			**CO6**			**I1**			**FM14a**			**FM14b**			**P9**			**FM13a**			**FM13b**			**BP1**		
Date Sampled:	**02/18/2015**			**02/18/2015**			**02/19/2015**			**02/19/2015**			**02/19/2015**			**02/19/2015**			**02/19/2015**			**02/19/2015**			**02/19/2015**		
Matrix:	**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**		
Unit:	**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**		
Dilution:	**1**			**1**			**1**			**1**			**1**			**1**			**10**			**50**			**5**		
	Conc.	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**
SOIL BY 8082A																											
Aroclor 1016	0.078	U	0.026	0.081	U	0.027	0.076	U	0.026	0.076	U	0.026	0.076	U	0.026	0.076	U	0.026	0.74	U	0.25	3.8	U	1.3	0.39	U	0.13
Aroclor 1221	0.078	U	0.026	0.081	U	0.027	0.076	U	0.026	0.076	U	0.026	0.076	U	0.026	0.076	U	0.026	0.74	U	0.25	3.8	U	1.3	0.39	U	0.13
Aroclor 1232	0.078	U	0.026	0.081	U	0.027	0.076	U	0.026	0.076	U	0.026	0.076	U	0.026	0.076	U	0.026	0.74	U	0.25	3.8	U	1.3	0.39	U	0.13
Aroclor 1242	0.078	U	0.026	0.081	U	0.027	0.076	U	0.026	0.076	U	0.026	0.076	U	0.026	0.076	U	0.026	0.74	U	0.25	3.8	U	1.3	0.39	U	0.13
Aroclor 1248	0.078	U	0.026	0.081	U	0.027	0.77		0.026	0.076	U	0.026	0.076	U	0.026	0.076	U	0.026	16		0.25	28		1.3	5.0		0.13
Aroclor 1254	0.078	U	0.024	0.081	U	0.025	0.076	U	0.024	0.076	U	0.024	0.076	U	0.023	0.076	U	0.024	0.74	U	0.23	3.8	U	1.2	0.39	U	0.12
Aroclor 1260	0.078	U	0.024	0.081	U	0.025	0.076	U	0.024	0.076	U	0.024	0.076	U	0.023	0.076	U	0.024	0.74	U	0.23	3.8	U	1.2	0.39	U	0.12
Aroclor 1262	0.078	U	0.024	0.081	U	0.025	0.076	U	0.024	0.076	U	0.024	0.076	U	0.023	0.076	U	0.024	0.74	U	0.23	3.8	U	1.2	0.39	U	0.12
Aroclor 1268	0.078	U	0.024	0.081	U	0.025	0.076	U	0.024	0.076	U	0.024	0.076	U	0.023	0.076	U	0.024	0.74	U	0.23	3.8	U	1.2	0.39	U	0.12
Total PCBs	0.078	U	0.024	0.081	U	0.025	**0.77**		0.024	0.076	U	0.024	0.076	U	0.023	0.076	U	0.024	**16**		0.23	**28**		1.2	**5.0**		0.12

NA: Not Applicable

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

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

D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

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

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

Table 2: PCB Soil, Concrete, and Wood Block Floor Sample Results
50 Center Street
Block 401, Lot 2
Garwood, New Jersey

Lab ID:	460-90690-29			460-90690-30			460-90690-31			460-90690-32			460-90690-33			460-90690-34			460-90690-35			460-90690-36			460-90690-37		
Client ID:	BP2			BP3			BP4			OH1			OH1a			OH2			OH2a			OV1			OV1a		
Date Sampled:	02/19/2015			02/19/2015			02/19/2015			02/19/2015			02/19/2015			02/19/2015			02/19/2015			02/19/2015			02/19/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.077	U	0.026	0.079	U	0.027	0.078	U	0.026	0.074	U	0.025	0.076	U	0.026	0.075	U	0.025	0.081	U	0.027	0.080	U	0.027	0.075	U	0.025
Aroclor 1221	0.077	U	0.026	0.079	U	0.027	0.078	U	0.026	0.074	U	0.025	0.076	U	0.026	0.075	U	0.025	0.081	U	0.027	0.080	U	0.027	0.075	U	0.025
Aroclor 1232	0.077	U	0.026	0.079	U	0.027	0.078	U	0.026	0.074	U	0.025	0.076	U	0.026	0.075	U	0.025	0.081	U	0.027	0.080	U	0.027	0.075	U	0.025
Aroclor 1242	0.077	U	0.026	0.079	U	0.027	0.078	U	0.026	0.074	U	0.025	0.076	U	0.026	0.075	U	0.025	0.081	U	0.027	0.080	U	0.027	0.075	U	0.025
Aroclor 1248	0.077	U	0.026	0.079	U	0.027	0.078	U	0.026	0.074	U	0.025	0.076	U	0.026	0.075	U	0.025	0.081	U	0.027	0.080	U	0.027	0.075	U	0.025
Aroclor 1254	0.077	U	0.024	0.079	U	0.025	0.078	U	0.024	0.074	U	0.023	0.076	U	0.024	0.075	U	0.023	0.081	U	0.025	0.080	U	0.025	0.075	U	0.023
Aroclor 1260	0.077	U	0.024	0.079	U	0.025	0.078	U	0.024	0.074	U	0.023	0.076	U	0.024	0.075	U	0.023	0.081	U	0.025	0.080	U	0.025	0.075	U	0.023
Aroclor 1262	0.077	U	0.024	0.079	U	0.025	0.078	U	0.024	0.074	U	0.023	0.076	U	0.024	0.075	U	0.023	0.081	U	0.025	0.080	U	0.025	0.075	U	0.023
Aroclor 1268	0.077	U	0.024	0.079	U	0.025	0.078	U	0.024	0.074	U	0.023	0.076	U	0.024	0.075	U	0.023	0.081	U	0.025	0.080	U	0.025	0.075	U	0.023
Total PCBs	0.077	U	0.024	0.079	U	0.025	0.078	U	0.024	0.074	U	0.023	0.076	U	0.024	0.075	U	0.023	0.081	U	0.025	0.080	U	0.025	0.075	U	0.023

Lab ID:	460-90690-38			460-90690-39			460-90741-1			460-90741-2			460-90741-3			460-90741-4			460-90741-5			460-90741-6			460-90741-7		
Client ID:	OV2			OV2a			LD1			LD2			LD3			P1			P2			P3			FM12a		
Date Sampled:	02/19/2015			02/19/2015			02/20/2015			02/20/2015			02/20/2015			02/20/2015			02/20/2015			02/20/2015			02/20/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			2000			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.083	U	0.028	0.076	U	0.026	0.075	U	0.025	0.077	U	0.026	150	U	50	0.075	U	0.025	0.070	U	0.024	0.083	U	0.028	0.076	U	0.026
Aroclor 1221	0.083	U	0.028	0.076	U	0.026	0.075	U	0.025	0.077	U	0.026	150	U	50	0.075	U	0.025	0.070	U	0.024	0.083	U	0.028	0.076	U	0.026
Aroclor 1232	0.083	U	0.028	0.076	U	0.026	0.075	U	0.025	0.077	U	0.026	150	U	50	0.075	U	0.025	0.070	U	0.024	0.083	U	0.028	0.076	U	0.026
Aroclor 1242	0.083	U	0.028	0.076	U	0.026	0.075	U	0.025	0.077	U	0.026	150	U	50	0.075	U	0.025	0.070	U	0.024	0.083	U	0.028	0.076	U	0.026
Aroclor 1248	0.083	U	0.028	0.076	U	0.026	0.075	U	0.025	0.077	U	0.026	1900		50	0.075	U	0.025	0.070	U	0.024	0.083	U	0.028	0.076	U	0.026
Aroclor 1254	0.083	U	0.026	0.076	U	0.024	0.075	U	0.023	0.077	U	0.024	150	U	46	0.075	U	0.023	0.070	U	0.022	0.083	U	0.026	0.076	U	0.024
Aroclor 1260	0.083	U	0.026	0.076	U	0.024	0.075	U	0.023	0.077	U	0.024	150	U	46	0.075	U	0.023	0.070	U	0.022	0.083	U	0.026	0.076	U	0.024
Aroclor 1262	0.083	U	0.026	0.076	U	0.024	0.075	U	0.023	0.077	U	0.024	150	U	46	0.075	U	0.023	0.070	U	0.022	0.083	U	0.026	0.076	U	0.024
Aroclor 1268	0.083	U	0.026	0.076	U	0.024	0.075	U	0.023	0.077	U	0.024	150	U	46	0.075	U	0.023	0.070	U	0.022	0.083	U	0.026	0.076	U	0.024
Total PCBs	0.083	U	0.026	0.076	U	0.024	0.075	U	0.023	0.077	U	0.024	**1900**		46	0.075	U	0.023	0.070	U	0.022	0.083	U	0.026	0.076	U	0.024

Lab ID:	460-90741-8			460-90741-9			460-90741-10			460-90741-11			460-90741-12			460-90741-13			460-90741-14			460-90741-15			460-90796-1		
Client ID:	FM12b			TR1			TR2			TR3			TR4			TR5			TR6			TR7			FM1a		
Date Sampled:	02/20/2015			02/20/2015			02/20/2015			02/20/2015			02/20/2015			02/20/2015			02/20/2015			02/20/2015			02/23/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.074	U	0.025	0.081	U	0.027	0.079	U	0.027	0.080	U	0.027	0.077	U	0.026	0.075	U	0.025	0.075	U	0.025	0.076	U	0.026	0.082	U	0.028
Aroclor 1221	0.074	U	0.025	0.081	U	0.027	0.079	U	0.027	0.080	U	0.027	0.077	U	0.026	0.075	U	0.025	0.075	U	0.025	0.076	U	0.026	0.082	U	0.028
Aroclor 1232	0.074	U	0.025	0.081	U	0.027	0.079	U	0.027	0.080	U	0.027	0.077	U	0.026	0.075	U	0.025	0.075	U	0.025	0.076	U	0.026	0.082	U	0.028
Aroclor 1242	0.074	U	0.025	0.081	U	0.027	0.079	U	0.027	0.080	U	0.027	0.077	U	0.026	0.075	U	0.025	0.075	U	0.025	0.076	U	0.026	0.082	U	0.028
Aroclor 1248	0.074	U	0.025	0.081	U	0.027	0.079	U	0.027	0.38		0.027	0.20		0.026	0.075	U	0.025	0.17		0.025	0.076	U	0.026	0.082	U	0.028
Aroclor 1254	0.074	U	0.023	0.51		0.025	0.079	U	0.025	0.080	U	0.025	0.077	U	0.024	0.075	U	0.023	0.075	U	0.023	0.076	U	0.024	0.082	U	0.025
Aroclor 1260	0.074	U	0.023	0.081	U	0.025	0.079	U	0.025	0.080	U	0.025	0.077	U	0.024	0.075	U	0.023	0.075	U	0.023	0.076	U	0.024	0.082	U	0.025
Aroclor 1262	0.074	U	0.023	0.081	U	0.025	0.079	U	0.025	0.080	U	0.025	0.077	U	0.024	0.075	U	0.023	0.075	U	0.023	0.076	U	0.024	0.082	U	0.025
Aroclor 1268	0.074	U	0.023	0.081	U	0.025	0.079	U	0.025	0.080	U	0.025	0.077	U	0.024	0.075	U	0.023	0.075	U	0.023	0.076	U	0.024	0.082	U	0.025
Total PCBs	0.074	U	0.023	**0.51**		0.025	0.079	U	0.025	**0.38**		0.025	0.20		0.024	0.075	U	0.023	0.17		0.023	0.076	U	0.024	0.082	U	0.025

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 2: PCB Soil, Concrete, and Wood Block Floor Sample Results
50 Center Street
Block 401, Lot 2
Garwood, New Jersey

Lab ID:	460-90796-2			460-90796-3			460-90796-4			460-90796-5			460-90796-6			460-90796-7			460-90796-8			460-90796-9			460-90796-10		
Client ID:	FM1b			FM2a			FM2b			FM3			FM3a			FM4			FM4a			FM5			FM5a		
Date Sampled:	02/23/2015			02/23/2015			02/23/2015			02/23/2015			02/23/2015			02/23/2015			02/23/2015			02/23/2015			02/23/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.079	U	0.027	0.079	U	0.027	0.080	U	0.027	0.078	U	0.026	0.079	U	0.027	0.078	U	0.027	0.075	U	0.026	0.074	U	0.025	0.079	U	0.027
Aroclor 1221	0.079	U	0.027	0.079	U	0.027	0.080	U	0.027	0.078	U	0.026	0.079	U	0.027	0.078	U	0.027	0.075	U	0.026	0.074	U	0.025	0.079	U	0.027
Aroclor 1232	0.079	U	0.027	0.079	U	0.027	0.080	U	0.027	0.078	U	0.026	0.079	U	0.027	0.078	U	0.027	0.075	U	0.026	0.074	U	0.025	0.079	U	0.027
Aroclor 1242	0.079	U	0.027	0.079	U	0.027	0.080	U	0.027	0.078	U	0.026	0.079	U	0.027	0.078	U	0.027	0.075	U	0.026	0.074	U	0.025	0.079	U	0.027
Aroclor 1248	0.079	U	0.027	0.079	U	0.027	0.080	U	0.027	0.054	J	0.026	0.079	U	0.027	0.078	U	0.027	0.23		0.026	0.074	U	0.025	0.079	U	0.027
Aroclor 1254	0.079	U	0.025	0.079	U	0.024	0.080	U	0.025	0.078	U	0.024	0.079	U	0.024	0.078	U	0.024	0.075	U	0.023	0.074	U	0.023	0.079	U	0.024
Aroclor 1260	0.079	U	0.025	0.079	U	0.024	0.080	U	0.025	0.078	U	0.024	0.079	U	0.024	0.078	U	0.024	0.075	U	0.023	0.074	U	0.023	0.079	U	0.024
Aroclor 1262	0.079	U	0.025	0.079	U	0.024	0.080	U	0.025	0.078	U	0.024	0.079	U	0.024	0.078	U	0.024	0.075	U	0.023	0.074	U	0.023	0.079	U	0.024
Aroclor 1268	0.079	U	0.025	0.079	U	0.024	0.080	U	0.025	0.078	U	0.024	0.079	U	0.024	0.078	U	0.024	0.075	U	0.023	0.074	U	0.023	0.079	U	0.024
Total PCBs	0.079	U	0.025	0.079	U	0.024	0.080	U	0.025	0.054	J	0.024	0.079	U	0.024	0.078	U	0.024	0.23		0.023	0.074	U	0.023	0.079	U	0.024

Lab ID:	460-90796-11			460-90796-12			460-90796-13			460-90796-14			460-90796-15			460-90796-16			460-90796-17			460-90796-18			460-90796-19		
Client ID:	FM6			FM7			FM7a			FM8a			FM8b			FM10a			FM10b			FM11a			FM11b		
Date Sampled:	02/23/2015			02/23/2015			02/23/2015			02/23/2015			02/23/2015			02/23/2015			02/23/2015			02/23/2015			02/23/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	2			1			1			1			1			5			5			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.18	U	0.061	0.079	U	0.027	0.075	U	0.025	0.078	U	0.027	0.079	U	0.027	0.38	U	0.13	0.38	U	0.13	0.076	U	0.026	0.076	U	0.026
Aroclor 1221	0.18	U	0.061	0.079	U	0.027	0.075	U	0.025	0.078	U	0.027	0.079	U	0.027	0.38	U	0.13	0.38	U	0.13	0.076	U	0.026	0.076	U	0.026
Aroclor 1232	0.18	U	0.061	0.079	U	0.027	0.075	U	0.025	0.078	U	0.027	0.079	U	0.027	0.38	U	0.13	0.38	U	0.13	0.076	U	0.026	0.076	U	0.026
Aroclor 1242	0.18	U	0.061	0.079	U	0.027	0.075	U	0.025	0.078	U	0.027	0.079	U	0.027	0.38	U	0.13	0.38	U	0.13	0.076	U	0.026	0.076	U	0.026
Aroclor 1248	2.6		0.061	0.079	U	0.027	0.057	J	0.025	0.078	U	0.027	0.079	U	0.027	4.4		0.13	4.3		0.13	0.076	U	0.026	0.076	U	0.026
Aroclor 1254	0.18	U	0.056	0.079	U	0.024	0.075	U	0.023	0.078	U	0.024	0.079	U	0.025	0.38	U	0.12	0.38	U	0.12	0.076	U	0.023	0.076	U	0.024
Aroclor 1260	0.18	U	0.056	0.079	U	0.024	0.075	U	0.023	0.078	U	0.024	0.079	U	0.025	0.38	U	0.12	0.38	U	0.12	0.076	U	0.023	0.076	U	0.024
Aroclor 1262	0.18	U	0.056	0.079	U	0.024	0.075	U	0.023	0.078	U	0.024	0.079	U	0.025	0.38	U	0.12	0.38	U	0.12	0.076	U	0.023	0.076	U	0.024
Aroclor 1268	0.18	U	0.056	0.079	U	0.024	0.075	U	0.023	0.078	U	0.024	0.079	U	0.025	0.38	U	0.12	0.38	U	0.12	0.076	U	0.023	0.076	U	0.024
Total PCBs	2.6		0.056	0.079	U	0.024	0.057	J	0.023	0.078	U	0.024	0.079	U	0.025	4.4		0.12	4.3		0.12	0.076	U	0.023	0.076	U	0.024

Lab ID:	460-90796-21			460-90796-22			460-90796-23			460-90796-24			460-90796-25			460-90796-26			460-90796-27			460-90796-28			460-90796-29		
Client ID:	P4			P5			P6			P7			P8			P9			P11			RP1			RP2		
Date Sampled:	02/23/2015			02/23/2015			02/23/2015			02/23/2015			02/23/2015			02/23/2015			02/23/2015			02/23/2015			02/23/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.075	U	0.026	0.080	U	0.027	0.074	U	0.025	0.075	U	0.026	0.080	U	0.027	0.079	U	0.027	0.075	U	0.025	0.078	U	0.026	0.078	U	0.026
Aroclor 1221	0.075	U	0.026	0.080	U	0.027	0.074	U	0.025	0.075	U	0.026	0.080	U	0.027	0.079	U	0.027	0.075	U	0.025	0.078	U	0.026	0.078	U	0.026
Aroclor 1232	0.075	U	0.026	0.080	U	0.027	0.074	U	0.025	0.075	U	0.026	0.080	U	0.027	0.079	U	0.027	0.075	U	0.025	0.078	U	0.026	0.078	U	0.026
Aroclor 1242	0.075	U	0.026	0.080	U	0.027	0.074	U	0.025	0.075	U	0.026	0.080	U	0.027	0.079	U	0.027	0.075	U	0.025	0.078	U	0.026	0.078	U	0.026
Aroclor 1248	0.075	U	0.026	0.080	U	0.027	0.074	U	0.025	0.075	U	0.026	0.080	U	0.027	0.079	U	0.027	0.075	U	0.025	0.078	U	0.026	0.078	U	0.026
Aroclor 1254	0.075	U	0.023	0.080	U	0.025	0.074	U	0.023	0.075	U	0.023	0.080	U	0.025	0.079	U	0.025	0.075	U	0.023	0.078	U	0.024	0.078	U	0.024
Aroclor 1260	0.075	U	0.023	0.080	U	0.025	0.074	U	0.023	0.075	U	0.023	0.080	U	0.025	0.079	U	0.025	0.075	U	0.023	0.078	U	0.024	0.078	U	0.024
Aroclor 1262	0.075	U	0.023	0.080	U	0.025	0.074	U	0.023	0.075	U	0.023	0.080	U	0.025	0.079	U	0.025	0.075	U	0.023	0.078	U	0.024	0.078	U	0.024
Aroclor 1268	0.075	U	0.023	0.080	U	0.025	0.074	U	0.023	0.075	U	0.023	0.080	U	0.025	0.079	U	0.025	0.075	U	0.023	0.078	U	0.024	0.078	U	0.024
Total PCBs	0.075	U	0.023	0.080	U	0.025	0.074	U	0.023	0.075	U	0.023	0.080	U	0.025	0.079	U	0.025	0.075	U	0.023	0.078	U	0.024	0.078	U	0.024

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 2: PCB Soil, Concrete, and Wood Block Floor Sample Results
50 Center Street
Block 401, Lot 2
Garwood, New Jersey

Lab ID:	460-90796-30			460-90796-31			460-90858-1			460-90858-2			460-90858-3			460-90858-4			460-90858-5			460-90858-6			460-90858-7		
Client ID:	RP3			RP4			B1a			B1b			B1c			B1d			B1e			B2a			B2b		
Date Sampled:	02/23/2015			02/23/2015			02/24/2015			02/24/2015			02/24/2015			02/24/2015			02/24/2015			02/24/2015			02/24/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			10			50		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.079	U	0.027	0.080	U	0.027	0.084	U	0.028	0.074	U	0.025	0.076	U	0.026	0.075	U	0.025	0.074	U	0.025	0.89	U	0.30	3.8	U	1.3
Aroclor 1221	0.079	U	0.027	0.080	U	0.027	0.084	U	0.028	0.074	U	0.025	0.076	U	0.026	0.075	U	0.025	0.074	U	0.025	0.89	U	0.30	3.8	U	1.3
Aroclor 1232	0.079	U	0.027	0.080	U	0.027	0.084	U	0.028	0.074	U	0.025	0.076	U	0.026	0.075	U	0.025	0.074	U	0.025	0.89	U	0.30	3.8	U	1.3
Aroclor 1242	0.079	U	0.027	0.080	U	0.027	0.084	U	0.028	0.074	U	0.025	0.076	U	0.026	0.075	U	0.025	0.074	U	0.025	0.89	U	0.30	3.8	U	1.3
Aroclor 1248	0.079	U	0.027	0.080	U	0.027	0.079	J	0.028	1.4		0.025	0.092		0.026	0.19		0.025	0.98		0.025	11		0.30	59		1.3
Aroclor 1254	0.079	U	0.024	0.080	U	0.025	0.084	U	0.026	0.074	U	0.023	0.076	U	0.024	0.075	U	0.023	0.074	U	0.023	0.89	U	0.28	3.8	U	1.2
Aroclor 1260	0.079	U	0.024	0.080	U	0.025	0.084	U	0.026	0.074	U	0.023	0.076	U	0.024	0.075	U	0.023	0.074	U	0.023	0.89	U	0.28	3.8	U	1.2
Aroclor 1262	0.079	U	0.024	0.080	U	0.025	0.084	U	0.026	0.074	U	0.023	0.076	U	0.024	0.075	U	0.023	0.074	U	0.023	0.89	U	0.28	3.8	U	1.2
Aroclor 1268	0.079	U	0.024	0.080	U	0.025	0.084	U	0.026	0.074	U	0.023	0.076	U	0.024	0.075	U	0.023	0.074	U	0.023	0.89	U	0.28	3.8	U	1.2
Total PCBs	0.079	U	0.024	0.080	U	0.025	0.079	J	0.026	1.4		0.023	0.092		0.024	0.19		0.023	0.98		0.023	11		0.28	59		1.2

Lab ID:	460-90858-8			460-90858-9			460-90858-10			460-90858-11			460-90858-12			460-90858-13			460-90858-14			460-90858-15			460-90858-16		
Client ID:	B2c			B2d			B2e			B3a			B3b			B3c			B3d			B3e			B5a		
Date Sampled:	02/24/2015			02/24/2015			02/24/2015			02/24/2015			02/24/2015			02/24/2015			02/24/2015			02/24/2015			02/24/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	25			20			50			50			10			20			20			10			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	1.9	U	0.64	1.5	U	0.51	3.7	U	1.3	4.0	U	1.4	0.90	U	0.30	1.5	U	0.52	1.5	U	0.51	0.76	U	0.26	0.082	U	0.028
Aroclor 1221	1.9	U	0.64	1.5	U	0.51	3.7	U	1.3	4.0	U	1.4	0.90	U	0.30	1.5	U	0.52	1.5	U	0.51	0.76	U	0.26	0.082	U	0.028
Aroclor 1232	1.9	U	0.64	1.5	U	0.51	3.7	U	1.3	4.0	U	1.4	0.90	U	0.30	1.5	U	0.52	1.5	U	0.51	0.76	U	0.26	0.082	U	0.028
Aroclor 1242	1.9	U	0.64	1.5	U	0.51	3.7	U	1.3	4.0	U	1.4	0.90	U	0.30	1.5	U	0.52	1.5	U	0.51	0.76	U	0.26	0.082	U	0.028
Aroclor 1248	31		0.64	19		0.51	32		1.3	41		1.4	13		0.30	24		0.52	23		0.51	10		0.26	0.11		0.028
Aroclor 1254	1.9	U	0.58	1.5	U	0.47	3.7	U	1.2	4.0	U	1.2	0.90	U	0.28	1.5	U	0.47	1.5	U	0.47	0.76	U	0.24	0.082	U	0.025
Aroclor 1260	1.9	U	0.58	1.5	U	0.47	3.7	U	1.2	4.0	U	1.2	0.90	U	0.28	1.5	U	0.47	1.5	U	0.47	0.76	U	0.24	0.082	U	0.025
Aroclor 1262	1.9	U	0.58	1.5	U	0.47	3.7	U	1.2	4.0	U	1.2	0.90	U	0.28	1.5	U	0.47	1.5	U	0.47	0.76	U	0.24	0.082	U	0.025
Aroclor 1268	1.9	U	0.58	1.5	U	0.47	3.7	U	1.2	4.0	U	1.2	0.90	U	0.28	1.5	U	0.47	1.5	U	0.47	0.76	U	0.24	0.082	U	0.025
Total PCBs	31		0.58	19		0.47	32		1.2	41		1.2	13		0.28	24		0.47	23		0.47	10		0.24	0.11		0.025

Lab ID:	460-90858-17			460-90858-18			460-90858-19			460-90858-20			460-90858-21			460-90858-22			460-90858-23			460-90858-24			460-90858-25		
Client ID:	B5b			B5c			B5d			B5e			B6a			B6b			B6c			B6d			B6e		
Date Sampled:	02/24/2015			02/24/2015			02/24/2015			02/24/2015			02/24/2015			02/24/2015			02/24/2015			02/24/2015			02/24/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			5			20			20			50			20		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.078	U	0.026	0.076	U	0.026	0.075	U	0.025	0.075	U	0.025	0.39	U	0.13	1.5	U	0.51	1.5	U	0.51	3.7	U	1.2	1.5	U	0.50
Aroclor 1221	0.078	U	0.026	0.076	U	0.026	0.075	U	0.025	0.075	U	0.025	0.39	U	0.13	1.5	U	0.51	1.5	U	0.51	3.7	U	1.2	1.5	U	0.50
Aroclor 1232	0.078	U	0.026	0.076	U	0.026	0.075	U	0.025	0.075	U	0.025	0.39	U	0.13	1.5	U	0.51	1.5	U	0.51	3.7	U	1.2	1.5	U	0.50
Aroclor 1242	0.078	U	0.026	0.076	U	0.026	0.075	U	0.025	0.075	U	0.025	0.39	U	0.13	1.5	U	0.51	1.5	U	0.51	3.7	U	1.2	1.5	U	0.50
Aroclor 1248	0.61		0.026	0.74		0.026	0.15		0.025	0.075	U	0.025	5.5		0.13	19		0.51	30		0.51	60		1.2	29		0.50
Aroclor 1254	0.078	U	0.024	0.076	U	0.024	0.075	U	0.023	0.075	U	0.023	0.39	U	0.12	1.5	U	0.46	1.5	U	0.47	3.7	U	1.1	1.5	U	0.46
Aroclor 1260	0.078	U	0.024	0.076	U	0.024	0.075	U	0.023	0.075	U	0.023	0.39	U	0.12	1.5	U	0.46	1.5	U	0.47	3.7	U	1.1	1.5	U	0.46
Aroclor 1262	0.078	U	0.024	0.076	U	0.024	0.075	U	0.023	0.075	U	0.023	0.39	U	0.12	1.5	U	0.46	1.5	U	0.47	3.7	U	1.1	1.5	U	0.46
Aroclor 1268	0.078	U	0.024	0.076	U	0.024	0.075	U	0.023	0.075	U	0.023	0.39	U	0.12	1.5	U	0.46	1.5	U	0.47	3.7	U	1.1	1.5	U	0.46
Total PCBs	0.61		0.024	0.74		0.024	0.15		0.023	0.075	U	0.023	5.5		0.12	19		0.46	30		0.47	60		1.1	29		0.46

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 2: PCB Soil, Concrete, and Wood Block Floor Sample Results
50 Center Street
Block 401, Lot 2
Garwood, New Jersey

Lab ID:	460-90858-26			460-90858-27			460-90858-28			460-90858-29			460-90858-30			460-90858-31			460-90858-32			460-90858-33			460-90858-34		
Client ID:	B7a			B7b			B7c			B7d			B7e			B10a			B10b			B10c			B10d		
Date Sampled:	02/24/2015			02/24/2015			02/24/2015			02/24/2015			02/24/2015			02/24/2015			02/24/2015			02/24/2015			02/24/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			5			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.083	U	0.028	0.39	U	0.13	0.074	U	0.025	0.076	U	0.026	0.075	U	0.025	0.083	U	0.028	0.076	U	0.026	0.076	U	0.026	0.075	U	0.025
Aroclor 1221	0.083	U	0.028	0.39	U	0.13	0.074	U	0.025	0.076	U	0.026	0.075	U	0.025	0.083	U	0.028	0.076	U	0.026	0.076	U	0.026	0.075	U	0.025
Aroclor 1232	0.083	U	0.028	0.39	U	0.13	0.074	U	0.025	0.076	U	0.026	0.075	U	0.025	0.083	U	0.028	0.076	U	0.026	0.076	U	0.026	0.075	U	0.025
Aroclor 1242	0.083	U	0.028	0.39	U	0.13	0.074	U	0.025	0.076	U	0.026	0.075	U	0.025	0.083	U	0.028	0.076	U	0.026	0.076	U	0.026	0.075	U	0.025
Aroclor 1248	1.4		0.028	5.0		0.13	1.1		0.025	0.87		0.026	0.56		0.025	0.083		0.028	0.076	U	0.026	0.076	U	0.026	0.075	U	0.025
Aroclor 1254	0.083	U	0.026	0.39	U	0.12	0.074	U	0.023	0.076	U	0.024	0.075	U	0.023	0.083	U	0.026	0.076	U	0.024	0.076	U	0.024	0.075	U	0.023
Aroclor 1260	0.083	U	0.026	0.39	U	0.12	0.074	U	0.023	0.076	U	0.024	0.075	U	0.023	0.083	U	0.026	0.076	U	0.024	0.076	U	0.024	0.075	U	0.023
Aroclor 1262	0.083	U	0.026	0.39	U	0.12	0.074	U	0.023	0.076	U	0.024	0.075	U	0.023	0.083	U	0.026	0.076	U	0.024	0.076	U	0.024	0.075	U	0.023
Aroclor 1268	0.083	U	0.026	0.39	U	0.12	0.074	U	0.023	0.076	U	0.024	0.075	U	0.023	0.083	U	0.026	0.076	U	0.024	0.076	U	0.024	0.075	U	0.023
Total PCBs	1.4		0.026	5.0		0.12	1.1		0.023	0.87		0.024	0.56		0.023	0.083		0.026	0.076	U	0.024	0.076	U	0.024	0.075	U	0.023

Lab ID:	460-90858-35			460-90858-36			460-90858-37			460-90858-38			460-90858-39			460-90858-40			460-90858-41			460-90858-42			460-90858-43		
Client ID:	B10e			B11a			B11b			B11c			B11d			B11e			B12a			B12b			B12c		
Date Sampled:	02/24/2015			02/24/2015			02/24/2015			02/24/2015			02/24/2015			02/24/2015			02/24/2015			02/24/2015			02/24/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			20			1			50			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.075	U	0.026	0.086	U	0.029	1.5	U	0.50	0.076	U	0.026	3.8	U	1.3	0.074	U	0.025	0.083	U	0.028	0.082	U	0.028	0.079	U	0.027
Aroclor 1221	0.075	U	0.026	0.086	U	0.029	1.5	U	0.50	0.076	U	0.026	3.8	U	1.3	0.074	U	0.025	0.083	U	0.028	0.082	U	0.028	0.079	U	0.027
Aroclor 1232	0.075	U	0.026	0.086	U	0.029	1.5	U	0.50	0.076	U	0.026	3.8	U	1.3	0.074	U	0.025	0.083	U	0.028	0.082	U	0.028	0.079	U	0.027
Aroclor 1242	0.075	U	0.026	0.086	U	0.029	1.5	U	0.50	0.076	U	0.026	3.8	U	1.3	0.074	U	0.025	0.083	U	0.028	0.082	U	0.028	0.079	U	0.027
Aroclor 1248	0.075	U	0.026	0.15		0.029	21		0.50	0.95		0.026	68		1.3	0.18		0.025	0.083	U	0.028	0.041	J	0.028	0.079	U	0.027
Aroclor 1254	0.075	U	0.023	0.086	U	0.027	1.5	U	0.45	0.076	U	0.024	3.8	U	1.2	0.074	U	0.023	0.083	U	0.026	0.082	U	0.025	0.079	U	0.024
Aroclor 1260	0.075	U	0.023	0.086	U	0.027	1.5	U	0.45	0.076	U	0.024	3.8	U	1.2	0.074	U	0.023	0.083	U	0.026	0.082	U	0.025	0.079	U	0.024
Aroclor 1262	0.075	U	0.023	0.086	U	0.027	1.5	U	0.45	0.076	U	0.024	3.8	U	1.2	0.074	U	0.023	0.083	U	0.026	0.082	U	0.025	0.079	U	0.024
Aroclor 1268	0.075	U	0.023	0.086	U	0.027	1.5	U	0.45	0.076	U	0.024	3.8	U	1.2	0.074	U	0.023	0.083	U	0.026	0.082	U	0.025	0.079	U	0.024
Total PCBs	0.075	U	0.023	0.15		0.027	21		0.45	0.95		0.024	68		1.2	0.18		0.023	0.083	U	0.026	0.041	J	0.025	0.079	U	0.024

Lab ID:	460-90858-44			460-90858-45			460-90888-1			460-90888-2			460-90888-3			460-90888-4			460-90888-5			460-90888-6			460-90888-7		
Client ID:	B12d			B12e			P10			TR8			AE-1			AE-1a			AE-2			AE-2a			SM1		
Date Sampled:	02/24/2015			02/24/2015			02/25/2015			02/25/2015			02/25/2015			02/25/2015			02/25/2015			02/25/2015			02/24/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			2			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.075	U	0.025	0.15	U	0.050	0.078	U	0.026	0.074	U	0.025	0.079	U	0.027	0.074	U	0.025	0.078	U	0.026	0.074	U	0.025	0.067	U	0.023
Aroclor 1221	0.075	U	0.025	0.15	U	0.050	0.078	U	0.026	0.074	U	0.025	0.079	U	0.027	0.074	U	0.025	0.078	U	0.026	0.074	U	0.025	0.067	U	0.023
Aroclor 1232	0.075	U	0.025	0.15	U	0.050	0.078	U	0.026	0.074	U	0.025	0.079	U	0.027	0.074	U	0.025	0.078	U	0.026	0.074	U	0.025	0.067	U	0.023
Aroclor 1242	0.075	U	0.025	0.15	U	0.050	0.078	U	0.026	0.074	U	0.025	0.079	U	0.027	0.074	U	0.025	0.078	U	0.026	0.074	U	0.025	0.067	U	0.023
Aroclor 1248	0.075	U	0.025	2.4		0.050	0.078	U	0.026	0.074	U	0.025	0.079	U	0.027	0.074	U	0.025	0.078	U	0.026	0.074	U	0.025	0.067	U	0.023
Aroclor 1254	0.075	U	0.023	0.15	U	0.046	0.078	U	0.024	0.074	U	0.023	0.079	U	0.025	0.074	U	0.023	0.078	U	0.024	0.074	U	0.023	0.067	U	0.021
Aroclor 1260	0.075	U	0.023	0.15	U	0.046	0.078	U	0.024	0.074	U	0.023	0.079	U	0.025	0.074	U	0.023	0.078	U	0.024	0.074	U	0.023	0.067	U	0.021
Aroclor 1262	0.075	U	0.023	0.15	U	0.046	0.078	U	0.024	0.074	U	0.023	0.079	U	0.025	0.074	U	0.023	0.078	U	0.024	0.074	U	0.023	0.067	U	0.021
Aroclor 1268	0.075	U	0.023	0.15	U	0.046	0.078	U	0.024	0.074	U	0.023	0.079	U	0.025	0.074	U	0.023	0.078	U	0.024	0.074	U	0.023	0.067	U	0.021
Total PCBs	0.075	U	0.023	2.4		0.046	0.078	U	0.024	0.074	U	0.023	0.079	U	0.025	0.074	U	0.023	0.078	U	0.024	0.074	U	0.023	0.067	U	0.021

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 2: PCB Soil, Concrete, and Wood Block Floor Sample Results
50 Center Street
Block 401, Lot 2
Garwood, New Jersey

Lab ID:	**460-90888-8**			**460-90888-10**			**460-90888-11**			**460-90888-12**			**460-90888-13**			**460-90888-14**			**460-90888-15**			**460-90888-16**			**460-90888-17**		
Client ID:	**SM2**			**B4a**			**B4b**			**B4c**			**B4d**			**B4e**			**B8a**			**B8b**			**B8c**		
Date Sampled:	**02/24/2015**			**02/25/2015**			**02/25/2015**			**02/25/2015**			**02/25/2015**			**02/25/2015**			**02/25/2015**			**02/25/2015**			**02/25/2015**		
Matrix:	**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**		
Unit:	**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**		
Dilution:	**1**			**10**			**1**			**1**			**1**			**1**			**1**			**2**			**1**		
	Conc.	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**
SOIL BY 8082A																											
Aroclor 1016	0.067	U	0.023	0.71	U	0.24	0.083	U	0.028	0.086	U	0.029	0.089	U	0.030	0.082	U	0.028	0.082	U	0.028	0.16	U	0.053	0.089	U	0.030
Aroclor 1221	0.067	U	0.023	0.71	U	0.24	0.083	U	0.028	0.086	U	0.029	0.089	U	0.030	0.082	U	0.028	0.082	U	0.028	0.16	U	0.053	0.089	U	0.030
Aroclor 1232	0.067	U	0.023	0.71	U	0.24	0.083	U	0.028	0.086	U	0.029	0.089	U	0.030	0.082	U	0.028	0.082	U	0.028	0.16	U	0.053	0.089	U	0.030
Aroclor 1242	0.067	U	0.023	0.71	U	0.24	0.083	U	0.028	0.086	U	0.029	0.089	U	0.030	0.082	U	0.028	0.082	U	0.028	0.16	U	0.053	0.089	U	0.030
Aroclor 1248	0.067	U	0.023	4.6		0.24	0.083	U	0.028	0.086	U	0.029	0.089	U	0.030	0.41		0.028	0.082	U	0.028	2.9		0.053	0.76		0.030
Aroclor 1254	0.067	U	0.021	0.71	U	0.22	0.083	U	0.026	0.086	U	0.027	0.089	U	0.028	0.082	U	0.025	0.082	U	0.025	0.16	U	0.048	0.089	U	0.028
Aroclor 1260	0.067	U	0.021	0.71	U	0.22	0.083	U	0.026	0.086	U	0.027	0.089	U	0.028	0.082	U	0.025	0.082	U	0.025	0.16	U	0.048	0.089	U	0.028
Aroclor 1262	0.067	U	0.021	0.71	U	0.22	0.083	U	0.026	0.086	U	0.027	0.089	U	0.028	0.082	U	0.025	0.082	U	0.025	0.16	U	0.048	0.089	U	0.028
Aroclor 1268	0.067	U	0.021	0.71	U	0.22	0.083	U	0.026	0.086	U	0.027	0.089	U	0.028	0.082	U	0.025	0.082	U	0.025	0.16	U	0.048	0.089	U	0.028
Total PCBs	0.067	U	0.021	4.6		0.22	0.083	U	0.026	0.086	U	0.027	0.089	U	0.028	0.41		0.025	0.082	U	0.025	2.9		0.048	0.76		0.028

Lab ID:	**460-90888-18**			**460-90888-19**			**460-90888-20**			**460-90888-21**			**460-90888-22**			**460-90888-23**			**460-90888-24**			**460-90931-7**			**460-90931-8**		
Client ID:	**B8d**			**B8e**			**B9a**			**B9b**			**B9c**			**B9d**			**B9e**			**C1**			**C2**		
Date Sampled:	**02/25/2015**			**02/25/2015**			**02/25/2015**			**02/25/2015**			**02/25/2015**			**02/25/2015**			**02/25/2015**			**02/25/2015**			**02/25/2015**		
Matrix:	**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Concrete**			**Concrete**		
Unit:	**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**		
Dilution:	**5**			**1**			**1**			**1**			**1**			**1**			**1**			**1**			**1**		
	Conc.	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**
SOIL BY 8082A																											
Aroclor 1016	0.39	U	0.13	0.074	U	0.025	0.084	U	0.028	0.074	U	0.025	0.076	U	0.026	0.076	U	0.026	0.074	U	0.025	0.069	U	0.023	0.068	U	0.023
Aroclor 1221	0.39	U	0.13	0.074	U	0.025	0.084	U	0.028	0.074	U	0.025	0.076	U	0.026	0.076	U	0.026	0.074	U	0.025	0.069	U	0.023	0.068	U	0.023
Aroclor 1232	0.39	U	0.13	0.074	U	0.025	0.084	U	0.028	0.074	U	0.025	0.076	U	0.026	0.076	U	0.026	0.074	U	0.025	0.069	U	0.023	0.068	U	0.023
Aroclor 1242	0.39	U	0.13	0.074	U	0.025	0.084	U	0.028	0.074	U	0.025	0.076	U	0.026	0.076	U	0.026	0.074	U	0.025	0.069	U	0.023	0.068	U	0.023
Aroclor 1248	3.6		0.13	1.6		0.025	0.084	U	0.028	0.074	U	0.025	0.076	U	0.026	0.076	U	0.026	0.074	U	0.025	0.069	U	0.023	0.068	U	0.023
Aroclor 1254	0.39	U	0.12	0.074	U	0.023	0.060	J	0.026	0.074	U	0.023	0.076	U	0.024	0.076	U	0.023	0.074	U	0.023	0.069	U	0.021	0.068	U	0.021
Aroclor 1260	0.39	U	0.12	0.074	U	0.023	0.084	U	0.026	0.074	U	0.023	0.076	U	0.024	0.076	U	0.023	0.074	U	0.023	0.069	U	0.021	0.068	U	0.021
Aroclor 1262	0.39	U	0.12	0.074	U	0.023	0.084	U	0.026	0.074	U	0.023	0.076	U	0.024	0.076	U	0.023	0.074	U	0.023	0.069	U	0.021	0.068	U	0.021
Aroclor 1268	0.39	U	0.12	0.074	U	0.023	0.084	U	0.026	0.074	U	0.023	0.076	U	0.024	0.076	U	0.023	0.074	U	0.023	0.069	U	0.021	0.068	U	0.021
Total PCBs	3.6		0.12	1.6		0.023	0.060	J	0.026	0.074	U	0.023	0.076	U	0.024	0.076	U	0.023	0.074	U	0.023	0.069	U	0.021	0.068	U	0.021

Lab ID:	**460-90931-9**			**460-90931-10**			**460-90931-11**			**460-90931-12**			**460-90931-13**			**460-90931-14**			**460-90931-15**			**460-90931-16**			**460-90931-17**		
Client ID:	**C3**			**C4**			**C5**			**C6**			**C7**			**C8**			**C9**			**C10**			**C11**		
Date Sampled:	**02/25/2015**			**02/25/2015**			**02/25/2015**			**02/25/2015**			**02/25/2015**			**02/25/2015**			**02/25/2015**			**02/25/2015**			**02/25/2015**		
Matrix:	**Concrete**			**Concrete**			**Concrete**			**Concrete**			**Concrete**			**Concrete**			**Concrete**			**Concrete**			**Concrete**		
Unit:	**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**		
Dilution:	**1**			**1**			**10**			**1**			**1**			**1**			**1**			**1**			**1**		
	Conc.	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**
SOIL BY 8082A																											
Aroclor 1016	0.069	U	0.023	0.071	U	0.024	0.69	U	0.23	0.068	U	0.023	0.069	U	0.023	0.069	U	0.023	0.069	U	0.024	0.071	U	0.024	0.071	U	0.024
Aroclor 1221	0.069	U	0.023	0.071	U	0.024	0.69	U	0.23	0.068	U	0.023	0.069	U	0.023	0.069	U	0.023	0.069	U	0.024	0.071	U	0.024	0.071	U	0.024
Aroclor 1232	0.069	U	0.023	0.071	U	0.024	0.69	U	0.23	0.068	U	0.023	0.069	U	0.023	0.069	U	0.023	0.069	U	0.024	0.071	U	0.024	0.071	U	0.024
Aroclor 1242	0.069	U	0.023	0.071	U	0.024	0.69	U	0.23	0.068	U	0.023	0.069	U	0.023	0.069	U	0.023	0.069	U	0.024	0.071	U	0.024	0.071	U	0.024
Aroclor 1248	0.72		0.023	0.071	U	0.024	7.4		0.23	0.068	U	0.023	0.77		0.023	0.069	U	0.023	0.12		0.024	0.35		0.024	0.055	J	0.024
Aroclor 1254	0.069	U	0.021	0.071	U	0.022	0.69	U	0.21	0.068	U	0.021	0.069	U	0.021	1.4		0.021	0.069	U	0.022	0.071	U	0.022	0.071	U	0.022
Aroclor 1260	0.069	U	0.021	0.071	U	0.022	0.69	U	0.21	0.068	U	0.021	0.069	U	0.021	0.069	U	0.021	0.069	U	0.022	0.071	U	0.022	0.071	U	0.022
Aroclor 1262	0.21		0.021	0.071	U	0.022	0.69	U	0.21	0.068	U	0.021	0.18		0.021	0.069	U	0.021	0.069	U	0.022	0.071	U	0.022	0.071	U	0.022
Aroclor 1268	0.069	U	0.021	0.071	U	0.022	0.69	U	0.21	0.068	U	0.021	0.069	U	0.021	0.069	U	0.021	0.069	U	0.022	0.071	U	0.022	0.071	U	0.022
Total PCBs	0.93		0.021	0.071	U	0.022	7.4		0.21	0.068	U	0.021	0.95		0.021	1.4		0.021	0.12		0.022	0.35		0.022	0.055	J	0.022

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 2: PCB Soil, Concrete, and Wood Block Floor Sample Results
50 Center Street
Block 401, Lot 2
Garwood, New Jersey

Lab ID:	**460-90931-18**			**460-90931-19**			**460-90931-20**			**460-90931-21**			**460-95268-1**			**460-95268-2-DL**			**460-95268-3-DL**			**460-95268-4-DL**			**460-95268-5**		
Client ID:	**C12**			**WB1**			**WB2**			**WB3**			**31a**			**31b**			**31c**			**31d**			**31e**		
Date Sampled:	**02/25/2015**			**02/25/2015**			**02/25/2015**			**02/25/2015**			**05/20/2015**			**05/20/2015**			**05/20/2015**			**05/20/2015**			**05/20/2015**		
Matrix:	**Concrete**			**Wood Block Floor**			**Wood Block Floor**			**Wood Block Floor**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**		
Unit:	**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**		
Dilution:	**1**			**1**			**2**			**1**			**1**			**1000**			**5000**			**200**			**1**		
	Conc.	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**
SOIL BY 8082A																											
Aroclor 1016	0.068	U	0.023	0.067	U	0.023	0.13	U	0.045	0.067	U	0.023	0.081	U	0.011	76	U	10	370	U	49	16	U	2.1	0.077	U	0.010
Aroclor 1221	0.068	U	0.023	0.067	U	0.023	0.13	U	0.045	0.067	U	0.023	0.081	U	0.011	76	U	10	370	U	49	16	U	2.1	0.077	U	0.010
Aroclor 1232	0.068	U	0.023	0.067	U	0.023	0.13	U	0.045	0.067	U	0.023	0.081	U	0.011	76	U	10	370	U	49	16	U	2.1	0.077	U	0.010
Aroclor 1242	0.068	U	0.023	0.067	U	0.023	0.13	U	0.045	0.067	U	0.023	0.081	U	0.011	76	U	10	370	U	49	16	U	2.1	0.077	U	0.010
Aroclor 1248	0.068	U	0.023	0.067	U	0.023	2.1		0.045	1.1		0.023	0.55		0.011	740		10	3000		49	180		2.1	0.63		0.010
Aroclor 1254	0.081		0.021	0.067	U	0.021	0.13	U	0.042	0.067	U	0.021	0.081	U	0.011	76	U	10	370	U	51	16	U	2.2	0.077	U	0.011
Aroclor 1260	0.068	U	0.021	0.067	U	0.021	0.13	U	0.042	0.067	U	0.021	0.081	U	0.011	76	U	10	370	U	51	16	U	2.2	0.077	U	0.011
Aroclor 1262	0.068	U	0.021	0.067	U	0.021	0.13	U	0.042	0.067	U	0.021	0.081	U	0.011	76	U	10	370	U	51	16	U	2.2	0.077	U	0.011
Aroclor 1268	0.068	U	0.021	0.067	U	0.021	0.13	U	0.042	0.067	U	0.021	0.081	U	0.011	76	U	10	370	U	51	16	U	2.2	0.077	U	0.011
Total PCBs	0.081		0.021	0.067	U	0.021	2.1		0.042	1.1		0.021	0.55		0.011	740		10	3000		51	180		2.2	0.63		0.011

Lab ID:	**460-95268-6**			**460-95268-7**			**460-95268-8**			**460-95268-9**			**460-95268-10**			**460-95268-11**			**460-95268-12**			**460-95268-13**			**460-95268-14**		
Client ID:	**31f**			**32a**			**32b**			**32c**			**32d**			**32e**			**32f**			**24a**			**24b**		
Date Sampled:	**05/20/2015**			**05/20/2015**			**05/20/2015**			**05/20/2015**			**05/20/2015**			**05/20/2015**			**05/20/2015**			**05/20/2015**			**05/20/2015**		
Matrix:	**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**		
Unit:	**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**		
Dilution:	**1**			**1**			**1**			**1**			**1**			**50**			**1**			**1**			**1**		
	Conc.	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**
SOIL BY 8082A																											
Aroclor 1016	0.082	U	0.011	0.075	U	0.010	0.075	U	0.010	0.076	U	0.010	0.074	U	0.0098	3.6	U	0.48	0.074	U	0.0098	0.080	U	0.011	0.081	U	0.011
Aroclor 1221	0.082	U	0.011	0.075	U	0.010	0.075	U	0.010	0.076	U	0.010	0.074	U	0.0098	3.6	U	0.48	0.074	U	0.0098	0.080	U	0.011	0.081	U	0.011
Aroclor 1232	0.082	U	0.011	0.075	U	0.010	0.075	U	0.010	0.076	U	0.010	0.074	U	0.0098	3.6	U	0.48	0.074	U	0.0098	0.080	U	0.011	0.081	U	0.011
Aroclor 1242	0.082	U	0.011	0.075	U	0.010	0.075	U	0.010	0.076	U	0.010	0.074	U	0.0098	3.6	U	0.48	0.074	U	0.0098	0.080	U	0.011	0.081	U	0.011
Aroclor 1248	0.15		0.011	0.057	J	0.010	0.32		0.010	0.62		0.010	0.064	J	0.0098	44		0.48	0.13		0.0098	0.088		0.011	0.081	U	0.011
Aroclor 1254	0.082	U	0.011	0.075	U	0.010	0.075	U	0.010	0.076	U	0.010	0.074	U	0.010	3.6	U	0.49	0.074	U	0.010	0.080	U	0.011	0.081	U	0.011
Aroclor 1260	0.082	U	0.011	0.075	U	0.010	0.075	U	0.010	0.076	U	0.010	0.074	U	0.010	3.6	U	0.49	0.074	U	0.010	0.080	U	0.011	0.081	U	0.011
Aroclor 1262	0.082	U	0.011	0.075	U	0.010	0.075	U	0.010	0.076	U	0.010	0.074	U	0.010	3.6	U	0.49	0.074	U	0.010	0.080	U	0.011	0.081	U	0.011
Aroclor 1268	0.082	U	0.011	0.075	U	0.010	0.075	U	0.010	0.076	U	0.010	0.074	U	0.010	3.6	U	0.49	0.074	U	0.010	0.080	U	0.011	0.081	U	0.011
Total PCBs	0.15		0.011	0.057	J	0.010	0.32		0.010	0.62		0.010	0.064	J	0.010	44		0.49	0.13		0.010	0.088		0.011	0.081	U	0.011

Lab ID:	**460-95268-15**			**460-95268-16**			**460-95268-17**			**460-95268-18**			**460-95268-19**			**460-95268-20**			**460-95268-21**			**460-95268-22**			**460-95268-23**		
Client ID:	**24c**			**24d**			**24e**			**24f**			**19a**			**19b**			**19c**			**19d**			**19e**		
Date Sampled:	**05/20/2015**			**05/20/2015**			**05/20/2015**			**05/20/2015**			**05/20/2015**			**05/20/2015**			**05/20/2015**			**05/20/2015**			**05/20/2015**		
Matrix:	**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**		
Unit:	**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**		
Dilution:	**1**			**1**			**1**			**1**			**1**			**1**			**1**			**1**			**1**		
	Conc.	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**
SOIL BY 8082A																											
Aroclor 1016	0.073	U	0.0097	0.082	U	0.011	0.074	U	0.0099	0.074	U	0.0098	0.080	U	0.011	0.075	U	0.0099	0.074	U	0.0099	0.075	U	0.010	0.075	U	0.010
Aroclor 1221	0.073	U	0.0097	0.082	U	0.011	0.074	U	0.0099	0.074	U	0.0098	0.080	U	0.011	0.075	U	0.0099	0.074	U	0.0099	0.075	U	0.010	0.075	U	0.010
Aroclor 1232	0.073	U	0.0097	0.082	U	0.011	0.074	U	0.0099	0.074	U	0.0098	0.080	U	0.011	0.075	U	0.0099	0.074	U	0.0099	0.075	U	0.010	0.075	U	0.010
Aroclor 1242	0.073	U	0.0097	0.082	U	0.011	0.074	U	0.0099	0.074	U	0.0098	0.080	U	0.011	0.075	U	0.0099	0.074	U	0.0099	0.075	U	0.010	0.075	U	0.010
Aroclor 1248	0.060	J	0.0097	0.082	U	0.011	0.074	U	0.0099	0.12		0.0098	0.16		0.011	0.12		0.0099	0.069	J	0.0099	0.12		0.010	0.027	J	0.010
Aroclor 1254	0.073	U	0.010	0.082	U	0.011	0.074	U	0.010	0.074	U	0.010	0.080	U	0.011	0.075	U	0.010	0.074	U	0.010	0.075	U	0.010	0.075	U	0.010
Aroclor 1260	0.073	U	0.010	0.082	U	0.011	0.074	U	0.010	0.074	U	0.010	0.080	U	0.011	0.075	U	0.010	0.074	U	0.010	0.075	U	0.010	0.075	U	0.010
Aroclor 1262	0.073	U	0.010	0.082	U	0.011	0.074	U	0.010	0.074	U	0.010	0.080	U	0.011	0.075	U	0.010	0.074	U	0.010	0.075	U	0.010	0.075	U	0.010
Aroclor 1268	0.073	U	0.010	0.082	U	0.011	0.074	U	0.010	0.074	U	0.010	0.080	U	0.011	0.075	U	0.010	0.074	U	0.010	0.075	U	0.010	0.075	U	0.010
Total PCBs	0.060	J	0.010	0.082	U	0.011	0.074	U	0.010	0.12		0.010	0.16		0.011	0.12		0.010	0.069	J	0.010	0.12		0.010	0.027	J	0.010

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 2: PCB Soil, Concrete, and Wood Block Floor Sample Results
50 Center Street
Block 401, Lot 2
Garwood, New Jersey

Lab ID:	460-95268-24			460-95268-25			460-95268-26			460-95268-27			460-95268-28			460-95268-29			460-95268-30			460-95268-31-DL			460-95268-32		
Client ID:	19f			18a			18b			18c			18d			18e			18f			LD3Na			LD3Nb		
Date Sampled:	05/20/2015			05/20/2015			05/20/2015			05/20/2015			05/20/2015			05/20/2015			05/20/2015			05/21/2015			05/21/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			2			1			1			1			1000			50		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.074	U	0.0098	0.084	U	0.011	0.078	U	0.010	0.15	U	0.020	0.076	U	0.010	0.075	U	0.010	0.075	U	0.0099	73	U	9.7	3.7	U	0.50
Aroclor 1221	0.074	U	0.0098	0.084	U	0.011	0.078	U	0.010	0.15	U	0.020	0.076	U	0.010	0.075	U	0.010	0.075	U	0.0099	73	U	9.7	3.7	U	0.50
Aroclor 1232	0.074	U	0.0098	0.084	U	0.011	0.078	U	0.010	0.15	U	0.020	0.076	U	0.010	0.075	U	0.010	0.075	U	0.0099	73	U	9.7	3.7	U	0.50
Aroclor 1242	0.074	U	0.0098	0.084	U	0.011	0.078	U	0.010	0.15	U	0.020	0.076	U	0.010	0.075	U	0.010	0.075	U	0.0099	73	U	9.7	3.7	U	0.50
Aroclor 1248	0.081		0.0098	0.084	U	0.011	0.078	U	0.010	2.6		0.020	0.21		0.010	0.075	U	0.010	0.075	U	0.0099	410		9.7	27		0.50
Aroclor 1254	0.074	U	0.010	0.084	U	0.012	0.078	U	0.011	0.15	U	0.021	0.076	U	0.010	0.075	U	0.010	0.075	U	0.010	73	U	10	3.7	U	0.51
Aroclor 1260	0.074	U	0.010	0.084	U	0.012	0.078	U	0.011	0.15	U	0.021	0.076	U	0.010	0.075	U	0.010	0.075	U	0.010	73	U	10	3.7	U	0.51
Aroclor 1262	0.074	U	0.010	0.084	U	0.012	0.078	U	0.011	0.15	U	0.021	0.076	U	0.010	0.075	U	0.010	0.075	U	0.010	73	U	10	3.7	U	0.51
Aroclor 1268	0.074	U	0.010	0.084	U	0.012	0.078	U	0.011	0.15	U	0.021	0.076	U	0.010	0.075	U	0.010	0.075	U	0.010	73	U	10	3.7	U	0.51
Total PCBs	0.081		0.010	0.084	U	0.012	0.078	U	0.011	2.6		0.021	0.21		0.010	0.075	U	0.010	0.075	U	0.010	410		10	27		0.51

Lab ID:	460-95268-33			460-95268-34			460-95268-35			460-95268-36			460-95268-37			460-95268-38			460-95268-39			460-95268-40			460-95268-41		
Client ID:	LD3Nc			LD3Nd			LD3Ne			LD3Nf			LD3Ng			LD3Ea			LD3Eb			LD3Ec			LD3Ed		
Date Sampled:	05/21/2015			05/21/2015			05/21/2015			05/21/2015			05/21/2015			05/21/2015			05/21/2015			05/21/2015			05/21/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			100			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.073	U	0.0096	7.4	U	0.98	0.075	U	0.0099	0.073	U	0.0097	0.074	U	0.0098	0.076	U	0.010	0.076	U	0.010	0.074	U	0.0099	0.086	U	0.011
Aroclor 1221	0.073	U	0.0096	7.4	U	0.98	0.075	U	0.0099	0.073	U	0.0097	0.074	U	0.0098	0.076	U	0.010	0.076	U	0.010	0.074	U	0.0099	0.086	U	0.011
Aroclor 1232	0.073	U	0.0096	7.4	U	0.98	0.075	U	0.0099	0.073	U	0.0097	0.074	U	0.0098	0.076	U	0.010	0.076	U	0.010	0.074	U	0.0099	0.086	U	0.011
Aroclor 1242	0.073	U	0.0096	7.4	U	0.98	0.075	U	0.0099	0.073	U	0.0097	0.074	U	0.0098	0.076	U	0.010	0.076	U	0.010	0.074	U	0.0099	0.086	U	0.011
Aroclor 1248	0.11		0.0096	120		0.98	0.22		0.0099	0.40		0.0097	0.074	U	0.0098	0.56		0.010	0.076	U	0.010	0.12		0.0099	0.086	U	0.011
Aroclor 1254	0.073	U	0.010	7.4	U	1.0	0.075	U	0.010	0.073	U	0.010	0.074	U	0.010	0.076	U	0.011	0.076	U	0.010	0.074	U	0.010	0.086	U	0.012
Aroclor 1260	0.073	U	0.010	7.4	U	1.0	0.075	U	0.010	0.073	U	0.010	0.074	U	0.010	0.076	U	0.011	0.076	U	0.010	0.074	U	0.010	0.086	U	0.012
Aroclor 1262	0.073	U	0.010	7.4	U	1.0	0.075	U	0.010	0.073	U	0.010	0.074	U	0.010	0.076	U	0.011	0.076	U	0.010	0.074	U	0.010	0.086	U	0.012
Aroclor 1268	0.073	U	0.010	7.4	U	1.0	0.075	U	0.010	0.073	U	0.010	0.074	U	0.010	0.076	U	0.011	0.076	U	0.010	0.074	U	0.010	0.086	U	0.012
Total PCBs	0.11		0.010	120		1.0	0.22		0.010	0.40		0.010	0.074	U	0.010	0.56		0.011	0.076	U	0.010	0.12		0.010	0.086	U	0.012

Lab ID:	460-95268-42			460-95268-43			460-95268-44			460-95268-45			460-95268-46			460-95268-47			460-95268-48			460-95268-49			460-95268-50		
Client ID:	LD3Ee			LD3Ef			LD3Eg			LD3Da			LD3Db			LD3Dc			LD3Dd			LD3De			LD3Df		
Date Sampled:	05/21/2015			05/21/2015			05/21/2015			05/21/2015			05/21/2015			05/21/2015			05/21/2015			05/21/2015			05/21/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			5000			2000			1000			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.074	U	0.0098	0.074	U	0.0098	0.073	U	0.0097	370	U	49	160	U	21	78	U	10	0.073	U	0.0097	0.073	U	0.0097	0.072	U	0.0096
Aroclor 1221	0.074	U	0.0098	0.074	U	0.0098	0.073	U	0.0097	370	U	49	160	U	21	78	U	10	0.073	U	0.0097	0.073	U	0.0097	0.072	U	0.0096
Aroclor 1232	0.074	U	0.0098	0.074	U	0.0098	0.073	U	0.0097	370	U	49	160	U	21	78	U	10	0.073	U	0.0097	0.073	U	0.0097	0.072	U	0.0096
Aroclor 1242	0.074	U	0.0098	0.074	U	0.0098	0.073	U	0.0097	370	U	49	160	U	21	78	U	10	0.073	U	0.0097	0.073	U	0.0097	0.072	U	0.0096
Aroclor 1248	0.074	U	0.0098	0.070	J	0.0098	0.11		0.0097	3000		49	1100		21	660		10	1.6		0.0097	0.72		0.0097	0.34		0.0096
Aroclor 1254	0.074	U	0.010	0.074	U	0.010	0.073	U	0.010	370	U	51	160	U	21	78	U	11	0.073	U	0.010	0.073	U	0.010	0.072	U	0.0099
Aroclor 1260	0.074	U	0.010	0.074	U	0.010	0.073	U	0.010	370	U	51	160	U	21	78	U	11	0.073	U	0.010	0.073	U	0.010	0.072	U	0.0099
Aroclor 1262	0.074	U	0.010	0.074	U	0.010	0.073	U	0.010	370	U	51	160	U	21	78	U	11	0.073	U	0.010	0.073	U	0.010	0.072	U	0.0099
Aroclor 1268	0.074	U	0.010	0.074	U	0.010	0.073	U	0.010	370	U	51	160	U	21	78	U	11	0.073	U	0.010	0.073	U	0.010	0.072	U	0.0099
Total PCBs	0.074	U	0.010	0.070	J	0.010	0.11		0.010	3000		51	1100		21	660		11	1.6		0.010	0.72		0.010	0.34		0.0099

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 2: PCB Soil, Concrete, and Wood Block Floor Sample Results
50 Center Street
Block 401, Lot 2
Garwood, New Jersey

Lab ID:	460-95268-51			460-95268-52			460-95268-53			460-95268-54			460-95268-55			460-95268-56			460-95268-57			460-95268-58			460-95268-59		
Client ID:	LD3Dg			LD3Sa			LD3Sb			LD3Sc			LD3Sd			LD3Se			LD3Sf			LD3Sg			12a		
Date Sampled:	05/21/2015			05/21/2015			05/21/2015			05/21/2015			05/21/2015			05/21/2015			05/21/2015			05/21/2015			05/21/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			10			5000			2000			50			2000			25			10			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.080	U	0.011	0.76	U	0.10	380	U	51	150	U	20	3.7	U	0.49	160	U	21	1.9	U	0.25	0.73	U	0.097	0.086	U	0.011
Aroclor 1221	0.080	U	0.011	0.76	U	0.10	380	U	51	150	U	20	3.7	U	0.49	160	U	21	1.9	U	0.25	0.73	U	0.097	0.086	U	0.011
Aroclor 1232	0.080	U	0.011	0.76	U	0.10	380	U	51	150	U	20	3.7	U	0.49	160	U	21	1.9	U	0.25	0.73	U	0.097	0.086	U	0.011
Aroclor 1242	0.080	U	0.011	0.76	U	0.10	380	U	51	150	U	20	3.7	U	0.49	160	U	21	1.9	U	0.25	0.73	U	0.097	0.086	U	0.011
Aroclor 1248	0.33		0.011	8.1		0.10	3700		51	930		20	70		0.49	1100		21	24		0.25	9.5		0.097	0.18		0.011
Aroclor 1254	0.080	U	0.011	0.76	U	0.10	380	U	52	150	U	21	3.7	U	0.51	160	U	22	1.9	U	0.26	0.73	U	0.10	0.086	U	0.012
Aroclor 1260	0.080	U	0.011	0.76	U	0.10	380	U	52	150	U	21	3.7	U	0.51	160	U	22	1.9	U	0.26	0.73	U	0.10	0.086	U	0.012
Aroclor 1262	0.080	U	0.011	0.76	U	0.10	380	U	52	150	U	21	3.7	U	0.51	160	U	22	1.9	U	0.26	0.73	U	0.10	0.086	U	0.012
Aroclor 1268	0.080	U	0.011	0.76	U	0.10	380	U	52	150	U	21	3.7	U	0.51	160	U	22	1.9	U	0.26	0.73	U	0.10	0.086	U	0.012
Total PCBs	0.33		0.011	8.1		0.10	3700		52	930		21	70		0.51	1100		22	24		0.26	9.5		0.10	0.18		0.012

Lab ID:	460-95268-60			460-95268-61			460-95268-62			460-95268-63			460-95268-64			460-95268-65			460-95268-66			460-95268-67			460-95268-68		
Client ID:	12b			12c			12d			12e			12f			11a			11b			11c			11d		
Date Sampled:	05/21/2015			05/21/2015			05/21/2015			05/21/2015			05/21/2015			05/21/2015			05/21/2015			05/21/2015			05/21/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.078	U	0.010	0.076	U	0.010	0.075	U	0.0099	0.075	U	0.010	0.078	U	0.010	0.082	U	0.011	0.080	U	0.011	0.075	U	0.0099	0.074	U	0.0099
Aroclor 1221	0.078	U	0.010	0.076	U	0.010	0.075	U	0.0099	0.075	U	0.010	0.078	U	0.010	0.082	U	0.011	0.080	U	0.011	0.075	U	0.0099	0.074	U	0.0099
Aroclor 1232	0.078	U	0.010	0.076	U	0.010	0.075	U	0.0099	0.075	U	0.010	0.078	U	0.010	0.082	U	0.011	0.080	U	0.011	0.075	U	0.0099	0.074	U	0.0099
Aroclor 1242	0.078	U	0.010	0.076	U	0.010	0.075	U	0.0099	0.075	U	0.010	0.078	U	0.010	0.082	U	0.011	0.080	U	0.011	0.075	U	0.0099	0.074	U	0.0099
Aroclor 1248	0.29		0.010	0.21		0.010	0.39		0.0099	0.22		0.010	0.36		0.010	0.073	J	0.011	0.19		0.011	0.042	J	0.0099	0.40		0.0099
Aroclor 1254	0.078	U	0.011	0.076	U	0.010	0.075	U	0.010	0.075	U	0.010	0.078	U	0.011	0.082	U	0.011	0.080	U	0.011	0.075	U	0.010	0.074	U	0.010
Aroclor 1260	0.078	U	0.011	0.076	U	0.010	0.075	U	0.010	0.075	U	0.010	0.078	U	0.011	0.082	U	0.011	0.080	U	0.011	0.075	U	0.010	0.074	U	0.010
Aroclor 1262	0.078	U	0.011	0.076	U	0.010	0.075	U	0.010	0.075	U	0.010	0.078	U	0.011	0.082	U	0.011	0.080	U	0.011	0.075	U	0.010	0.074	U	0.010
Aroclor 1268	0.078	U	0.011	0.076	U	0.010	0.075	U	0.010	0.075	U	0.010	0.078	U	0.011	0.082	U	0.011	0.080	U	0.011	0.075	U	0.010	0.074	U	0.010
Total PCBs	0.29		0.011	0.21		0.010	0.39		0.010	0.22		0.010	0.36		0.011	0.073	J	0.011	0.19		0.011	0.042	J	0.010	0.40		0.010

Lab ID:	460-95268-69			460-95268-70			460-95338-1			460-95338-2			460-95338-3			460-95338-4			460-95338-5			460-95338-6			460-95338-7		
Client ID:	11e			11f			9a			9b			9c			9d			9e			9f			5a		
Date Sampled:	05/21/2015			05/21/2015			05/22/2015			05/22/2015			05/22/2015			05/22/2015			05/22/2015			05/22/2015			05/22/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.073	U	0.0097	0.073	U	0.0097	0.082	U	0.011	0.077	U	0.010	0.076	U	0.010	0.074	U	0.0099	0.074	U	0.0098	0.073	U	0.0097	0.096	U	0.013
Aroclor 1221	0.073	U	0.0097	0.073	U	0.0097	0.082	U	0.011	0.077	U	0.010	0.076	U	0.010	0.074	U	0.0099	0.074	U	0.0098	0.073	U	0.0097	0.096	U	0.013
Aroclor 1232	0.073	U	0.0097	0.073	U	0.0097	0.082	U	0.011	0.077	U	0.010	0.076	U	0.010	0.074	U	0.0099	0.074	U	0.0098	0.073	U	0.0097	0.096	U	0.013
Aroclor 1242	0.073	U	0.0097	0.073	U	0.0097	0.082	U	0.011	0.077	U	0.010	0.076	U	0.010	0.074	U	0.0099	0.074	U	0.0098	0.073	U	0.0097	0.096	U	0.013
Aroclor 1248	0.33		0.0097	0.062	J	0.0097	0.082	U	0.011	0.077	U	0.010	0.076	U	0.010	0.074	U	0.0099	0.14		0.0098	0.026	J	0.0097	0.096	U	0.013
Aroclor 1254	0.073	U	0.010	0.073	U	0.010	0.063	J	0.011	0.077	U	0.011	0.076	U	0.010	0.074	U	0.010	0.074	U	0.010	0.073	U	0.010	0.096	U	0.013
Aroclor 1260	0.073	U	0.010	0.073	U	0.010	0.082	U	0.011	0.077	U	0.011	0.076	U	0.010	0.074	U	0.010	0.074	U	0.010	0.073	U	0.010	0.096	U	0.013
Aroclor 1262	0.073	U	0.010	0.073	U	0.010	0.082	U	0.011	0.077	U	0.011	0.076	U	0.010	0.074	U	0.010	0.074	U	0.010	0.073	U	0.010	0.096	U	0.013
Aroclor 1268	0.073	U	0.010	0.073	U	0.010	0.082	U	0.011	0.077	U	0.011	0.076	U	0.010	0.074	U	0.010	0.074	U	0.010	0.073	U	0.010	0.096	U	0.013
Total PCBs	0.33		0.010	0.062	J	0.010	0.063	J	0.011	0.077	U	0.011	0.076	U	0.010	0.074	U	0.010	0.14		0.010	0.026	J	0.010	0.096	U	0.013

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 2: PCB Soil, Concrete, and Wood Block Floor Sample Results
50 Center Street
Block 401, Lot 2
Garwood, New Jersey

Lab ID:	460-95338-8			460-95338-9			460-95338-10			460-95338-11			460-95338-12			460-95338-13			460-95338-14			460-95338-15			460-95338-16		
Client ID:	5b			5c			5d			5e			5f			3a			3b			3c			3d		
Date Sampled:	05/22/2015			05/22/2015			05/22/2015			05/22/2015			05/22/2015			05/22/2015			05/22/2015			05/22/2015			05/22/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.079	U	0.010	0.075	U	0.010	0.074	U	0.0098	0.072	U	0.0096	0.075	U	0.010	0.090	U	0.012	0.075	U	0.010	0.077	U	0.010	0.075	U	0.0099
Aroclor 1221	0.079	U	0.010	0.075	U	0.010	0.074	U	0.0098	0.072	U	0.0096	0.075	U	0.010	0.090	U	0.012	0.075	U	0.010	0.077	U	0.010	0.075	U	0.0099
Aroclor 1232	0.079	U	0.010	0.075	U	0.010	0.074	U	0.0098	0.072	U	0.0096	0.075	U	0.010	0.090	U	0.012	0.075	U	0.010	0.077	U	0.010	0.075	U	0.0099
Aroclor 1242	0.079	U	0.010	0.075	U	0.010	0.074	U	0.0098	0.072	U	0.0096	0.075	U	0.010	0.090	U	0.012	0.075	U	0.010	0.077	U	0.010	0.075	U	0.0099
Aroclor 1248	0.079	U	0.010	0.075	U	0.010	0.074	U	0.0098	0.072	U	0.0096	0.075	U	0.010	0.090	U	0.012	0.075	U	0.010	0.077	U	0.010	0.075	U	0.0099
Aroclor 1254	0.079	U	0.011	0.075	U	0.010	0.074	U	0.010	0.072	U	0.0099	0.075	U	0.010	0.090	U	0.012	0.075	U	0.010	0.077	U	0.011	0.075	U	0.010
Aroclor 1260	0.079	U	0.011	0.075	U	0.010	0.074	U	0.010	0.072	U	0.0099	0.075	U	0.010	0.090	U	0.012	0.075	U	0.010	0.077	U	0.011	0.075	U	0.010
Aroclor 1262	0.079	U	0.011	0.075	U	0.010	0.074	U	0.010	0.072	U	0.0099	0.075	U	0.010	0.090	U	0.012	0.075	U	0.010	0.077	U	0.011	0.075	U	0.010
Aroclor 1268	0.079	U	0.011	0.075	U	0.010	0.074	U	0.010	0.072	U	0.0099	0.075	U	0.010	0.090	U	0.012	0.075	U	0.010	0.077	U	0.011	0.075	U	0.010
Total PCBs	0.079	U	0.011	0.075	U	0.010	0.074	U	0.010	0.072	U	0.0099	0.075	U	0.010	0.090	U	0.012	0.075	U	0.010	0.077	U	0.011	0.075	U	0.010

Lab ID:	460-95338-17			460-95338-18			460-95338-19			460-95338-20			460-95338-21			460-95338-22			460-95338-23			460-95338-24			460-95338-25		
Client ID:	3e			38a			38b			38c			38d			38e			39a			39b			39c		
Date Sampled:	05/22/2015			05/22/2015			05/22/2015			05/22/2015			05/22/2015			05/22/2015			05/22/2015			05/22/2015			05/22/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.076	U	0.010	0.076	U	0.010	0.078	U	0.010	0.078	U	0.010	0.077	U	0.010	0.075	U	0.010	0.076	U	0.010	0.079	U	0.010	0.079	U	0.011
Aroclor 1221	0.076	U	0.010	0.076	U	0.010	0.078	U	0.010	0.078	U	0.010	0.077	U	0.010	0.075	U	0.010	0.076	U	0.010	0.079	U	0.010	0.079	U	0.011
Aroclor 1232	0.076	U	0.010	0.076	U	0.010	0.078	U	0.010	0.078	U	0.010	0.077	U	0.010	0.075	U	0.010	0.076	U	0.010	0.079	U	0.010	0.079	U	0.011
Aroclor 1242	0.076	U	0.010	0.076	U	0.010	0.078	U	0.010	0.078	U	0.010	0.077	U	0.010	0.075	U	0.010	0.076	U	0.010	0.079	U	0.010	0.079	U	0.011
Aroclor 1248	0.076	U	0.010	0.076	U	0.010	0.078	U	0.010	0.078	U	0.010	0.077	U	0.010	0.075	U	0.010	0.076	U	0.010	0.079	U	0.010	0.079	U	0.011
Aroclor 1254	0.076	U	0.010	0.076	U	0.011	0.078	U	0.011	0.078	U	0.011	0.077	U	0.011	0.075	U	0.010	0.076	U	0.010	0.079	U	0.011	0.079	U	0.011
Aroclor 1260	0.076	U	0.010	0.076	U	0.011	0.078	U	0.011	0.078	U	0.011	0.077	U	0.011	0.075	U	0.010	0.076	U	0.010	0.079	U	0.011	0.079	U	0.011
Aroclor 1262	0.076	U	0.010	0.076	U	0.011	0.078	U	0.011	0.078	U	0.011	0.077	U	0.011	0.075	U	0.010	0.076	U	0.010	0.079	U	0.011	0.079	U	0.011
Aroclor 1268	0.076	U	0.010	0.076	U	0.011	0.078	U	0.011	0.078	U	0.011	0.077	U	0.011	0.075	U	0.010	0.076	U	0.010	0.079	U	0.011	0.079	U	0.011
Total PCBs	0.076	U	0.010	0.076	U	0.011	0.078	U	0.011	0.078	U	0.011	0.077	U	0.011	0.075	U	0.010	0.076	U	0.010	0.079	U	0.011	0.079	U	0.011

Lab ID:	460-95338-26			460-95338-27			460-95338-28			460-95338-29			460-95338-30			460-95338-31			460-95338-32			460-95338-33			460-95338-34		
Client ID:	39d			39e			39f			2a			2b			2c			2d			1a			1b		
Date Sampled:	05/22/2015			05/22/2015			05/22/2015			05/22/2015			05/22/2015			05/22/2015			05/22/2015			05/22/2015			05/22/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.076	U	0.010	0.074	U	0.0098	0.077	U	0.010	0.075	U	0.010	0.084	U	0.011	0.080	U	0.011	0.078	U	0.010	0.083	U	0.011	0.078	U	0.010
Aroclor 1221	0.076	U	0.010	0.074	U	0.0098	0.077	U	0.010	0.075	U	0.010	0.084	U	0.011	0.080	U	0.011	0.078	U	0.010	0.083	U	0.011	0.078	U	0.010
Aroclor 1232	0.076	U	0.010	0.074	U	0.0098	0.077	U	0.010	0.075	U	0.010	0.084	U	0.011	0.080	U	0.011	0.078	U	0.010	0.083	U	0.011	0.078	U	0.010
Aroclor 1242	0.076	U	0.010	0.074	U	0.0098	0.077	U	0.010	0.075	U	0.010	0.084	U	0.011	0.080	U	0.011	0.078	U	0.010	0.083	U	0.011	0.078	U	0.010
Aroclor 1248	0.076	U	0.010	0.074	U	0.0098	0.077	U	0.010	0.075	U	0.010	0.084	U	0.011	0.080	U	0.011	0.078	U	0.010	0.083	U	0.011	0.078	U	0.010
Aroclor 1254	0.076	U	0.010	0.074	U	0.010	0.077	U	0.011	0.075	U	0.010	0.084	U	0.011	0.080	U	0.011	0.078	U	0.011	0.083	U	0.011	0.078	U	0.011
Aroclor 1260	0.076	U	0.010	0.074	U	0.010	0.077	U	0.011	0.075	U	0.010	0.084	U	0.011	0.080	U	0.011	0.078	U	0.011	0.083	U	0.011	0.078	U	0.011
Aroclor 1262	0.076	U	0.010	0.074	U	0.010	0.077	U	0.011	0.075	U	0.010	0.084	U	0.011	0.080	U	0.011	0.078	U	0.011	0.083	U	0.011	0.078	U	0.011
Aroclor 1268	0.076	U	0.010	0.074	U	0.010	0.077	U	0.011	0.075	U	0.010	0.084	U	0.011	0.080	U	0.011	0.078	U	0.011	0.083	U	0.011	0.078	U	0.011
Total PCBs	0.076	U	0.010	0.074	U	0.010	0.077	U	0.011	0.075	U	0.010	0.084	U	0.011	0.080	U	0.011	0.078	U	0.011	0.083	U	0.011	0.078	U	0.011

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 2: PCB Soil, Concrete, and Wood Block Floor Sample Results
50 Center Street
Block 401, Lot 2
Garwood, New Jersey

Lab ID:	460-95338-35			460-95338-36			460-95338-37		
Client ID:	1c			1d			1e		
Date Sampled:	05/22/2015			05/22/2015			05/22/2015		
Matrix:	Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A									
Aroclor 1016	0.081	U	0.011	0.075	U	0.010	0.076	U	0.010
Aroclor 1221	0.081	U	0.011	0.075	U	0.010	0.076	U	0.010
Aroclor 1232	0.081	U	0.011	0.075	U	0.010	0.076	U	0.010
Aroclor 1242	0.081	U	0.011	0.075	U	0.010	0.076	U	0.010
Aroclor 1248	0.081	U	0.011	0.075	U	0.010	0.076	U	0.010
Aroclor 1254	0.081	U	0.011	0.075	U	0.010	0.076	U	0.010
Aroclor 1260	0.081	U	0.011	0.075	U	0.010	0.076	U	0.010
Aroclor 1262	0.081	U	0.011	0.075	U	0.010	0.076	U	0.010
Aroclor 1268	0.081	U	0.011	0.075	U	0.010	0.076	U	0.010
Total PCBs	0.081	U	0.011	0.075	U	0.010	0.076	U	0.010

Lab ID:	460-95504-1			460-95504-2			460-95504-3		
Client ID:	4a			4b			4c		
Date Sampled:	05/26/2015			05/26/2015			05/26/2015		
Matrix:	Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A									
Aroclor 1016	0.084	U	0.011	0.082	U	0.011	0.092	U	0.012
Aroclor 1221	0.084	U	0.011	0.082	U	0.011	0.092	U	0.012
Aroclor 1232	0.084	U	0.011	0.082	U	0.011	0.092	U	0.012
Aroclor 1242	0.084	U	0.011	0.082	U	0.011	0.092	U	0.012
Aroclor 1248	0.084	U	0.011	0.082	U	0.011	0.092	U	0.012
Aroclor 1254	0.084	U	0.012	0.082	U	0.011	0.092	U	0.013
Aroclor 1260	0.084	U	0.012	0.082	U	0.011	0.092	U	0.013
Aroclor 1262	0.084	U	0.012	0.082	U	0.011	0.092	U	0.013
Aroclor 1268	0.084	U	0.012	0.082	U	0.011	0.092	U	0.013
Total PCBs	0.084	U	0.012	0.082	U	0.011	0.092	U	0.013

Lab ID:	460-95504-4			460-95504-5			460-95504-6		
Client ID:	4d			4e			6a		
Date Sampled:	05/26/2015			05/26/2015			05/26/2015		
Matrix:	Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A									
Aroclor 1016	0.077	U	0.010	0.076	U	0.010	0.084	U	0.011
Aroclor 1221	0.077	U	0.010	0.076	U	0.010	0.084	U	0.011
Aroclor 1232	0.077	U	0.010	0.076	U	0.010	0.084	U	0.011
Aroclor 1242	0.077	U	0.010	0.076	U	0.010	0.084	U	0.011
Aroclor 1248	0.077	U	0.010	0.076	U	0.010	0.084	U	0.011
Aroclor 1254	0.077	U	0.011	0.076	U	0.010	0.084	U	0.012
Aroclor 1260	0.077	U	0.011	0.076	U	0.010	0.084	U	0.012
Aroclor 1262	0.077	U	0.011	0.076	U	0.010	0.084	U	0.012
Aroclor 1268	0.077	U	0.011	0.076	U	0.010	0.084	U	0.012
Total PCBs	0.077	U	0.011	0.076	U	0.010	0.084	U	0.012

Lab ID:	460-95504-7			460-95504-8			460-95504-9		
Client ID:	6b			6c			6d		
Date Sampled:	05/26/2015			05/26/2015			05/26/2015		
Matrix:	Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A									
Aroclor 1016	0.076	U	0.010	0.077	U	0.010	0.076	U	0.010
Aroclor 1221	0.076	U	0.010	0.077	U	0.010	0.076	U	0.010
Aroclor 1232	0.076	U	0.010	0.077	U	0.010	0.076	U	0.010
Aroclor 1242	0.076	U	0.010	0.077	U	0.010	0.076	U	0.010
Aroclor 1248	0.076	U	0.010	0.077	U	0.010	0.076	U	0.010
Aroclor 1254	0.076	U	0.010	0.077	U	0.011	0.076	U	0.010
Aroclor 1260	0.076	U	0.010	0.077	U	0.011	0.076	U	0.010
Aroclor 1262	0.076	U	0.010	0.077	U	0.011	0.076	U	0.010
Aroclor 1268	0.076	U	0.010	0.077	U	0.011	0.076	U	0.010
Total PCBs	0.076	U	0.010	0.077	U	0.011	0.076	U	0.010

Lab ID:	460-95504-10			460-95504-11			460-95504-12		
Client ID:	7a			7b			7c		
Date Sampled:	05/26/2015			05/26/2015			05/26/2015		
Matrix:	Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A									
Aroclor 1016	0.082	U	0.011	0.080	U	0.011	0.074	U	0.0098
Aroclor 1221	0.082	U	0.011	0.080	U	0.011	0.074	U	0.0098
Aroclor 1232	0.082	U	0.011	0.080	U	0.011	0.074	U	0.0098
Aroclor 1242	0.082	U	0.011	0.080	U	0.011	0.074	U	0.0098
Aroclor 1248	0.32		0.011	0.55		0.011	0.67		0.0098
Aroclor 1254	0.082	U	0.011	0.080	U	0.011	0.074	U	0.010
Aroclor 1260	0.082	U	0.011	0.080	U	0.011	0.074	U	0.010
Aroclor 1262	0.082	U	0.011	0.080	U	0.011	0.074	U	0.010
Aroclor 1268	0.082	U	0.011	0.080	U	0.011	0.074	U	0.010
Total PCBs	0.32		0.011	0.55		0.011	0.67		0.010

Lab ID:	460-95504-13			460-95504-14			460-95504-15		
Client ID:	7d			B8Da			B8Db		
Date Sampled:	05/26/2015			05/26/2015			05/26/2015		
Matrix:	Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg		
Dilution:	1			2			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A									
Aroclor 1016	0.072	U	0.0096	0.16	U	0.021	0.077	U	0.010
Aroclor 1221	0.072	U	0.0096	0.16	U	0.021	0.077	U	0.010
Aroclor 1232	0.072	U	0.0096	0.16	U	0.021	0.077	U	0.010
Aroclor 1242	0.072	U	0.0096	0.16	U	0.021	0.077	U	0.010
Aroclor 1248	0.99		0.0096	3.3		0.021	0.17		0.010
Aroclor 1254	0.072	U	0.0099	0.16	U	0.022	0.077	U	0.011
Aroclor 1260	0.072	U	0.0099	0.16	U	0.022	0.077	U	0.011
Aroclor 1262	0.072	U	0.0099	0.16	U	0.022	0.077	U	0.011
Aroclor 1268	0.072	U	0.0099	0.16	U	0.022	0.077	U	0.011
Total PCBs	0.99		0.0099	3.3		0.022	0.17		0.011

Lab ID:	460-95504-16			460-95504-17			460-95504-18		
Client ID:	8a			8b			8c		
Date Sampled:	05/26/2015			05/26/2015			05/26/2015		
Matrix:	Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A									
Aroclor 1016	0.095	U	0.013	0.079	U	0.010	0.075	U	0.010
Aroclor 1221	0.095	U	0.013	0.079	U	0.010	0.075	U	0.010
Aroclor 1232	0.095	U	0.013	0.079	U	0.010	0.075	U	0.010
Aroclor 1242	0.095	U	0.013	0.079	U	0.010	0.075	U	0.010
Aroclor 1248	0.64		0.013	0.079	U	0.010	0.075	U	0.010
Aroclor 1254	0.095	U	0.013	0.079	U	0.011	0.075	U	0.010
Aroclor 1260	0.095	U	0.013	0.079	U	0.011	0.075	U	0.010
Aroclor 1262	0.095	U	0.013	0.079	U	0.011	0.075	U	0.010
Aroclor 1268	0.095	U	0.013	0.079	U	0.011	0.075	U	0.010
Total PCBs	0.64		0.013	0.079	U	0.011	0.075	U	0.010

Lab ID:	460-95504-19			460-95504-20			460-95504-21		
Client ID:	8d			8e			15a		
Date Sampled:	05/26/2015			05/26/2015			05/26/2015		
Matrix:	Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A									
Aroclor 1016	0.075	U	0.010	0.075	U	0.010	0.11	U	0.015
Aroclor 1221	0.075	U	0.010	0.075	U	0.010	0.11	U	0.015
Aroclor 1232	0.075	U	0.010	0.075	U	0.010	0.11	U	0.015
Aroclor 1242	0.075	U	0.010	0.075	U	0.010	0.11	U	0.015
Aroclor 1248	0.26		0.010	0.075	U	0.010	0.86		0.015
Aroclor 1254	0.075	U	0.010	0.075	U	0.010	0.11	U	0.016
Aroclor 1260	0.075	U	0.010	0.075	U	0.010	0.11	U	0.016
Aroclor 1262	0.075	U	0.010	0.075	U	0.010	0.11	U	0.016
Aroclor 1268	0.075	U	0.010	0.075	U	0.010	0.11	U	0.016
Total PCBs	0.26		0.010	0.075	U	0.010	0.86		0.016

Lab ID:	460-95504-22			460-95504-23			460-95504-24		
Client ID:	15b			15c			15d		
Date Sampled:	05/26/2015			05/26/2015			05/26/2015		
Matrix:	Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg		
Dilution:	10			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A									
Aroclor 1016	0.76	U	0.10	0.078	U	0.010	0.073	U	0.0097
Aroclor 1221	0.76	U	0.10	0.078	U	0.010	0.073	U	0.0097
Aroclor 1232	0.76	U	0.10	0.078	U	0.010	0.073	U	0.0097
Aroclor 1242	0.76	U	0.10	0.078	U	0.010	0.073	U	0.0097
Aroclor 1248	9.0		0.10	0.28		0.010	0.073	U	0.0097
Aroclor 1254	0.76	U	0.10	0.078	U	0.011	0.073	U	0.010
Aroclor 1260	0.76	U	0.10	0.078	U	0.011	0.073	U	0.010
Aroclor 1262	0.76	U	0.10	0.078	U	0.011	0.073	U	0.010
Aroclor 1268	0.76	U	0.10	0.078	U	0.011	0.073	U	0.010
Total PCBs	9.0		0.10	0.28		0.011	0.073	U	0.010

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 2: PCB Soil, Concrete, and Wood Block Floor Sample Results
50 Center Street
Block 401, Lot 2
Garwood, New Jersey

Lab ID:	460-95504-25			460-95504-26			460-95504-27			460-95504-28			460-95504-29			460-95504-30			460-95504-31			460-95504-32			460-95504-33		
Client ID:	15e			16a			16b			16c			16d			16e			17a			17b			17c		
Date Sampled:	05/26/2015			05/26/2015			05/26/2015			05/26/2015			05/26/2015			05/26/2015			05/27/2015			05/27/2015			05/27/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			100			10			50			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.073	U	0.0097	0.082	U	0.011	7.9	U	1.0	0.75	U	0.10	3.6	U	0.48	0.073	U	0.0097	0.098	U	0.013	0.083	U	0.011	0.077	U	0.010
Aroclor 1221	0.073	U	0.0097	0.082	U	0.011	7.9	U	1.0	0.75	U	0.10	3.6	U	0.48	0.073	U	0.0097	0.098	U	0.013	0.083	U	0.011	0.077	U	0.010
Aroclor 1232	0.073	U	0.0097	0.082	U	0.011	7.9	U	1.0	0.75	U	0.10	3.6	U	0.48	0.073	U	0.0097	0.098	U	0.013	0.083	U	0.011	0.077	U	0.010
Aroclor 1242	0.073	U	0.0097	0.082	U	0.011	7.9	U	1.0	0.75	U	0.10	3.6	U	0.48	0.073	U	0.0097	0.098	U	0.013	0.083	U	0.011	0.077	U	0.010
Aroclor 1248	0.073	U	0.0097	0.14		0.011	100		1.0	8.7		0.10	50		0.48	0.21		0.0097	0.099		0.013	0.047	J	0.011	0.11		0.010
Aroclor 1254	0.073	U	0.010	0.082	U	0.011	7.9	U	1.1	0.75	U	0.10	3.6	U	0.50	0.073	U	0.010	0.098	U	0.013	0.083	U	0.011	0.077	U	0.011
Aroclor 1260	0.073	U	0.010	0.082	U	0.011	7.9	U	1.1	0.75	U	0.10	3.6	U	0.50	0.073	U	0.010	0.098	U	0.013	0.083	U	0.011	0.077	U	0.011
Aroclor 1262	0.073	U	0.010	0.082	U	0.011	7.9	U	1.1	0.75	U	0.10	3.6	U	0.50	0.073	U	0.010	0.098	U	0.013	0.083	U	0.011	0.077	U	0.011
Aroclor 1268	0.073	U	0.010	0.082	U	0.011	7.9	U	1.1	0.75	U	0.10	3.6	U	0.50	0.073	U	0.010	0.098	U	0.013	0.083	U	0.011	0.077	U	0.011
Total PCBs	0.073	U	0.010	0.14		0.011	100		1.1	8.7		0.10	50		0.50	0.21		0.010	0.099		0.013	0.047	J	0.011	0.11		0.011

Lab ID:	460-95504-34			460-95504-35			460-95504-36			460-95504-37			460-95504-38			460-95504-39			460-95504-40			460-95504-41			460-95504-42		
Client ID:	23a			23b			23c			23d			23e			30a			30b			30c			30d		
Date Sampled:	05/27/2015			05/27/2015			05/27/2015			05/27/2015			05/27/2015			05/27/2015			05/27/2015			05/27/2015			05/27/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.089	U	0.012	0.084	U	0.011	0.087	U	0.012	0.076	U	0.010	0.079	U	0.011	0.081	U	0.011	0.081	U	0.011	0.074	U	0.0099	0.075	U	0.010
Aroclor 1221	0.089	U	0.012	0.084	U	0.011	0.087	U	0.012	0.076	U	0.010	0.079	U	0.011	0.081	U	0.011	0.081	U	0.011	0.074	U	0.0099	0.075	U	0.010
Aroclor 1232	0.089	U	0.012	0.084	U	0.011	0.087	U	0.012	0.076	U	0.010	0.079	U	0.011	0.081	U	0.011	0.081	U	0.011	0.074	U	0.0099	0.075	U	0.010
Aroclor 1242	0.089	U	0.012	0.084	U	0.011	0.087	U	0.012	0.076	U	0.010	0.079	U	0.011	0.081	U	0.011	0.081	U	0.011	0.074	U	0.0099	0.075	U	0.010
Aroclor 1248	0.089	U	0.012	0.084	U	0.011	0.19		0.012	0.076	U	0.010	0.079	U	0.011	0.081	U	0.011	0.081	U	0.011	0.074	U	0.0099	0.075	U	0.010
Aroclor 1254	0.089	U	0.012	0.084	U	0.011	0.087	U	0.012	0.076	U	0.010	0.079	U	0.011	0.081	U	0.011	0.081	U	0.011	0.074	U	0.010	0.075	U	0.010
Aroclor 1260	0.089	U	0.012	0.084	U	0.011	0.087	U	0.012	0.076	U	0.010	0.079	U	0.011	0.081	U	0.011	0.081	U	0.011	0.074	U	0.010	0.075	U	0.010
Aroclor 1262	0.089	U	0.012	0.084	U	0.011	0.087	U	0.012	0.076	U	0.010	0.079	U	0.011	0.081	U	0.011	0.081	U	0.011	0.074	U	0.010	0.075	U	0.010
Aroclor 1268	0.089	U	0.012	0.084	U	0.011	0.087	U	0.012	0.076	U	0.010	0.079	U	0.011	0.081	U	0.011	0.081	U	0.011	0.074	U	0.010	0.075	U	0.010
Total PCBs	0.089	U	0.012	0.084	U	0.011	0.19		0.012	0.076	U	0.010	0.079	U	0.011	0.081	U	0.011	0.081	U	0.011	0.074	U	0.010	0.075	U	0.010

Lab ID:	460-95504-43			460-95504-44			460-95504-45			460-95504-46			460-95504-47			460-95504-48			460-95504-49			460-95504-50			460-95504-51		
Client ID:	30e			30f			29a			29b			29c			29d			29e			21a			21b		
Date Sampled:	05/27/2015			05/27/2015			05/27/2015			05/27/2015			05/27/2015			05/27/2015			05/27/2015			05/27/2015			05/27/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.073	U	0.0097	0.078	U	0.010	0.084	U	0.011	0.079	U	0.010	0.078	U	0.010	0.075	U	0.010	0.075	U	0.0099	0.080	U	0.011	0.078	U	0.010
Aroclor 1221	0.073	U	0.0097	0.078	U	0.010	0.084	U	0.011	0.079	U	0.010	0.078	U	0.010	0.075	U	0.010	0.075	U	0.0099	0.080	U	0.011	0.078	U	0.010
Aroclor 1232	0.073	U	0.0097	0.078	U	0.010	0.084	U	0.011	0.079	U	0.010	0.078	U	0.010	0.075	U	0.010	0.075	U	0.0099	0.080	U	0.011	0.078	U	0.010
Aroclor 1242	0.073	U	0.0097	0.078	U	0.010	0.084	U	0.011	0.079	U	0.010	0.078	U	0.010	0.075	U	0.010	0.075	U	0.0099	0.080	U	0.011	0.078	U	0.010
Aroclor 1248	0.073	U	0.0097	0.078	U	0.010	0.084	U	0.011	0.079	U	0.010	0.078	U	0.010	0.061	J	0.010	0.074	J	0.0099	0.080	U	0.011	0.031	J	0.010
Aroclor 1254	0.073	U	0.010	0.078	U	0.011	0.084	U	0.012	0.079	U	0.011	0.078	U	0.011	0.075	U	0.010	0.075	U	0.010	0.080	U	0.011	0.078	U	0.011
Aroclor 1260	0.073	U	0.010	0.078	U	0.011	0.084	U	0.012	0.079	U	0.011	0.078	U	0.011	0.075	U	0.010	0.075	U	0.010	0.080	U	0.011	0.078	U	0.011
Aroclor 1262	0.073	U	0.010	0.078	U	0.011	0.084	U	0.012	0.079	U	0.011	0.078	U	0.011	0.075	U	0.010	0.075	U	0.010	0.080	U	0.011	0.078	U	0.011
Aroclor 1268	0.073	U	0.010	0.078	U	0.011	0.084	U	0.012	0.079	U	0.011	0.078	U	0.011	0.075	U	0.010	0.075	U	0.010	0.080	U	0.011	0.078	U	0.011
Total PCBs	0.073	U	0.010	0.078	U	0.011	0.084	U	0.012	0.079	U	0.011	0.078	U	0.011	0.061	J	0.010	0.074	J	0.010	0.080	U	0.011	0.031	J	0.011

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 2: PCB Soil, Concrete, and Wood Block Floor Sample Results
50 Center Street
Block 401, Lot 2
Garwood, New Jersey

Lab ID:	460-95504-52			460-95504-53			460-95504-54			460-95504-55			460-95504-56			460-95504-57			460-95504-58			460-95630-1			460-95630-2		
Client ID:	21c			21d			21e			22a			22b			22c			22d			28a			28b		
Date Sampled:	05/27/2015			05/27/2015			05/27/2015			05/27/2015			05/27/2015			05/27/2015			05/27/2015			05/28/2015			05/28/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.075	U	0.010	0.080	U	0.011	0.081	U	0.011	0.087	U	0.012	0.074	U	0.0098	0.077	U	0.010	0.076	U	0.010	0.079	U	0.010	0.075	U	0.0099
Aroclor 1221	0.075	U	0.010	0.080	U	0.011	0.081	U	0.011	0.087	U	0.012	0.074	U	0.0098	0.077	U	0.010	0.076	U	0.010	0.079	U	0.010	0.075	U	0.0099
Aroclor 1232	0.075	U	0.010	0.080	U	0.011	0.081	U	0.011	0.087	U	0.012	0.074	U	0.0098	0.077	U	0.010	0.076	U	0.010	0.079	U	0.010	0.075	U	0.0099
Aroclor 1242	0.075	U	0.010	0.080	U	0.011	0.081	U	0.011	0.087	U	0.012	0.074	U	0.0098	0.077	U	0.010	0.076	U	0.010	0.079	U	0.010	0.075	U	0.0099
Aroclor 1248	0.075	U	0.010	0.080	U	0.011	0.081	U	0.011	0.087	U	0.012	0.074	U	0.0098	0.077	U	0.010	0.076	U	0.010	0.11		0.010	0.32		0.0099
Aroclor 1254	0.075	U	0.010	0.080	U	0.011	0.081	U	0.011	0.087	U	0.012	0.074	U	0.010	0.077	U	0.011	0.076	U	0.010	0.079	U	0.011	0.075	U	0.010
Aroclor 1260	0.075	U	0.010	0.080	U	0.011	0.081	U	0.011	0.087	U	0.012	0.074	U	0.010	0.077	U	0.011	0.076	U	0.010	0.079	U	0.011	0.075	U	0.010
Aroclor 1262	0.075	U	0.010	0.080	U	0.011	0.081	U	0.011	0.087	U	0.012	0.074	U	0.010	0.077	U	0.011	0.076	U	0.010	0.079	U	0.011	0.075	U	0.010
Aroclor 1268	0.075	U	0.010	0.080	U	0.011	0.081	U	0.011	0.087	U	0.012	0.074	U	0.010	0.077	U	0.011	0.076	U	0.010	0.079	U	0.011	0.075	U	0.010
Total PCBs	0.075	U	0.010	0.080	U	0.011	0.081	U	0.011	0.087	U	0.012	0.074	U	0.010	0.077	U	0.011	0.076	U	0.010	0.11		0.011	0.32		0.010

Lab ID:	460-95630-3			460-95630-4			460-95630-5			460-95630-6			460-95630-7-DL			460-95630-8			460-95630-9			460-95630-10			460-95630-11		
Client ID:	28c			28d			28e			28f			CC-LD			27a			27b			27c			27d		
Date Sampled:	05/28/2015			05/28/2015			05/28/2015			05/28/2015			05/28/2015			05/28/2015			05/28/2015			05/28/2015			05/28/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			100			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.075	U	0.010	0.072	U	0.0096	0.077	U	0.010	0.077	U	0.010	6.9	U	0.91	0.083	U	0.011	0.081	U	0.011	0.075	U	0.0099	0.075	U	0.010
Aroclor 1221	0.075	U	0.010	0.072	U	0.0096	0.077	U	0.010	0.077	U	0.010	6.9	U	0.91	0.083	U	0.011	0.081	U	0.011	0.075	U	0.0099	0.075	U	0.010
Aroclor 1232	0.075	U	0.010	0.072	U	0.0096	0.077	U	0.010	0.077	U	0.010	6.9	U	0.91	0.083	U	0.011	0.081	U	0.011	0.075	U	0.0099	0.075	U	0.010
Aroclor 1242	0.075	U	0.010	0.072	U	0.0096	0.077	U	0.010	0.077	U	0.010	6.9	U	0.91	0.083	U	0.011	0.081	U	0.011	0.075	U	0.0099	0.075	U	0.010
Aroclor 1248	0.075	U	0.010	0.072	U	0.0096	0.23		0.010	0.077	U	0.010	77	D	0.91	0.37		0.011	0.053	J	0.011	0.22		0.0099	1.2		0.010
Aroclor 1254	0.075	U	0.010	0.072	U	0.0099	0.077	U	0.011	0.077	U	0.011	6.9	U	0.95	0.083	U	0.011	0.081	U	0.011	0.075	U	0.010	0.075	U	0.010
Aroclor 1260	0.075	U	0.010	0.072	U	0.0099	0.077	U	0.011	0.077	U	0.011	6.9	U	0.95	0.083	U	0.011	0.081	U	0.011	0.075	U	0.010	0.075	U	0.010
Aroclor 1262	0.075	U	0.010	0.072	U	0.0099	0.077	U	0.011	0.077	U	0.011	6.9	U	0.95	0.083	U	0.011	0.081	U	0.011	0.075	U	0.010	0.075	U	0.010
Aroclor 1268	0.075	U	0.010	0.072	U	0.0099	0.077	U	0.011	0.077	U	0.011	6.9	U	0.95	0.083	U	0.011	0.081	U	0.011	0.075	U	0.010	0.075	U	0.010
Total PCBs	0.075	U	0.010	0.072	U	0.0099	0.23		0.011	0.077	U	0.011	77	D	0.95	0.37		0.011	0.053	J	0.011	0.22		0.010	1.2		0.010

Lab ID:	460-95630-12			460-95630-13			460-95630-14			460-95630-15			460-95630-16			460-95630-17			460-95630-22-DL			460-95630-23-DL			460-95630-24-DL		
Client ID:	27e			34a			34b			34c			34d			34e			26a			26b			26c		
Date Sampled:	05/28/2015			05/28/2015			05/28/2015			05/28/2015			05/28/2015			05/28/2015			05/28/2015			05/28/2015			05/28/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			50			2			5		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.073	U	0.0097	0.077	U	0.010	0.084	U	0.011	0.075	U	0.010	0.076	U	0.010	0.074	U	0.0098	3.8	U	0.51	0.17	U	0.022	0.38	U	0.050
Aroclor 1221	0.073	U	0.0097	0.077	U	0.010	0.084	U	0.011	0.075	U	0.010	0.076	U	0.010	0.074	U	0.0098	3.8	U	0.51	0.17	U	0.022	0.38	U	0.050
Aroclor 1232	0.073	U	0.0097	0.077	U	0.010	0.084	U	0.011	0.075	U	0.010	0.076	U	0.010	0.074	U	0.0098	3.8	U	0.51	0.17	U	0.022	0.38	U	0.050
Aroclor 1242	0.073	U	0.0097	0.077	U	0.010	0.084	U	0.011	0.075	U	0.010	0.076	U	0.010	0.074	U	0.0098	3.8	U	0.51	0.17	U	0.022	0.38	U	0.050
Aroclor 1248	0.073	U	0.0097	0.077	U	0.010	0.084	U	0.011	0.075	U	0.010	0.076	U	0.010	0.074	U	0.0098	43	D	0.51	2.3	D	0.022	5.4	D	0.050
Aroclor 1254	0.073	U	0.010	0.077	U	0.011	0.084	U	0.011	0.075	U	0.010	0.076	U	0.010	0.074	U	0.010	3.8	U	0.53	0.17	U	0.023	0.38	U	0.052
Aroclor 1260	0.073	U	0.010	0.077	U	0.011	0.084	U	0.011	0.075	U	0.010	0.076	U	0.010	0.074	U	0.010	3.8	U	0.53	0.17	U	0.023	0.38	U	0.052
Aroclor 1262	0.073	U	0.010	0.077	U	0.011	0.084	U	0.011	0.075	U	0.010	0.076	U	0.010	0.074	U	0.010	3.8	U	0.53	0.17	U	0.023	0.38	U	0.052
Aroclor 1268	0.073	U	0.010	0.077	U	0.011	0.084	U	0.011	0.075	U	0.010	0.076	U	0.010	0.074	U	0.010	3.8	U	0.53	0.17	U	0.023	0.38	U	0.052
Total PCBs	0.073	U	0.010	0.077	U	0.011	0.084	U	0.011	0.075	U	0.010	0.076	U	0.010	0.074	U	0.010	43	D	0.53	2.3	D	0.023	5.4	D	0.052

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 2: PCB Soil, Concrete, and Wood Block Floor Sample Results
50 Center Street
Block 401, Lot 2
Garwood, New Jersey

Lab ID:	460-95630-25-DL			460-95630-26-DL			460-95630-27			460-95630-28			460-95630-29			460-95630-30-DL			460-95630-31-DL			460-95630-32-DL			460-95630-33		
Client ID:	26d			26e			26f			33a			33b			33c			33d			33e			25a		
Date Sampled:	05/28/2015			05/28/2015			05/28/2015			05/29/2015			05/29/2015			05/29/2015			05/29/2015			05/29/2015			05/29/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	50			2			1			1			1			2			5			5			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	3.6	U	0.48	0.15	U	0.020	0.077	U	0.010	0.081	U	0.011	0.083	U	0.011	0.15	U	0.020	0.38	U	0.050	0.37	U	0.050	0.077	U	0.010
Aroclor 1221	3.6	U	0.48	0.15	U	0.020	0.077	U	0.010	0.081	U	0.011	0.083	U	0.011	0.15	U	0.020	0.38	U	0.050	0.37	U	0.050	0.077	U	0.010
Aroclor 1232	3.6	U	0.48	0.15	U	0.020	0.077	U	0.010	0.081	U	0.011	0.083	U	0.011	0.15	U	0.020	0.38	U	0.050	0.37	U	0.050	0.077	U	0.010
Aroclor 1242	3.6	U	0.48	0.15	U	0.020	0.077	U	0.010	0.081	U	0.011	0.083	U	0.011	0.15	U	0.020	0.38	U	0.050	0.37	U	0.050	0.077	U	0.010
Aroclor 1248	17	D	0.48	2.0	D	0.020	0.077	U	0.010	1.7		0.011	0.18		0.011	2.3	D	0.020	5.2	D	0.050	5.1	D	0.050	1.1		0.010
Aroclor 1254	3.6	U	0.50	0.15	U	0.020	0.077	U	0.011	0.081	U	0.011	0.083	U	0.011	0.15	U	0.021	0.38	U	0.052	0.37	U	0.051	0.077	U	0.011
Aroclor 1260	3.6	U	0.50	0.15	U	0.020	0.077	U	0.011	0.081	U	0.011	0.083	U	0.011	0.15	U	0.021	0.38	U	0.052	0.37	U	0.051	0.077	U	0.011
Aroclor 1262	3.6	U	0.50	0.15	U	0.020	0.077	U	0.011	0.081	U	0.011	0.083	U	0.011	0.15	U	0.021	0.38	U	0.052	0.37	U	0.051	0.077	U	0.011
Aroclor 1268	3.6	U	0.50	0.15	U	0.020	0.077	U	0.011	0.081	U	0.011	0.083	U	0.011	0.15	U	0.021	0.38	U	0.052	0.37	U	0.051	0.077	U	0.011
Total PCBs	17	D	0.50	2.0	D	0.020	0.077	U	0.011	1.7		0.011	0.18		0.011	2.3	D	0.021	5.2	D	0.052	5.1	D	0.051	1.1		0.011

Lab ID:	460-95630-34-DL			460-95630-35-DL			460-95630-36-DL			460-95630-37			460-95630-38			460-95630-39			460-95630-40			460-95630-42			460-95630-43		
Client ID:	25b			25c			25d			25e			25f			B2Da			B2Db			14a			14b		
Date Sampled:	05/29/2015			05/29/2015			05/29/2015			05/29/2015			05/29/2015			05/29/2015			05/29/2015			05/29/2015			05/29/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	200			10			10			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	15	U	2.0	0.74	U	0.099	0.75	U	0.099	0.073	U	0.0097	0.076	U	0.010	0.074	U	0.0098	0.079	U	0.011	0.079	U	0.010	0.081	U	0.011
Aroclor 1221	15	U	2.0	0.74	U	0.099	0.75	U	0.099	0.073	U	0.0097	0.076	U	0.010	0.074	U	0.0098	0.079	U	0.011	0.079	U	0.010	0.081	U	0.011
Aroclor 1232	15	U	2.0	0.74	U	0.099	0.75	U	0.099	0.073	U	0.0097	0.076	U	0.010	0.074	U	0.0098	0.079	U	0.011	0.079	U	0.010	0.081	U	0.011
Aroclor 1242	15	U	2.0	0.74	U	0.099	0.75	U	0.099	0.073	U	0.0097	0.076	U	0.010	0.074	U	0.0098	0.079	U	0.011	0.079	U	0.010	0.081	U	0.011
Aroclor 1248	160	D	2.0	12	D	0.099	7.8	D	0.099	0.073	U	0.0097	0.076	U	0.010	0.074	U	0.0098	0.079	U	0.011	0.10		0.010	0.081	U	0.011
Aroclor 1254	15	U	2.1	0.74	U	0.10	0.75	U	0.10	0.073	U	0.010	0.076	U	0.010	0.074	U	0.010	0.079	U	0.011	0.079	U	0.011	0.081	U	0.011
Aroclor 1260	15	U	2.1	0.74	U	0.10	0.75	U	0.10	0.073	U	0.010	0.076	U	0.010	0.074	U	0.010	0.079	U	0.011	0.079	U	0.011	0.081	U	0.011
Aroclor 1262	15	U	2.1	0.74	U	0.10	0.75	U	0.10	0.073	U	0.010	0.076	U	0.010	0.074	U	0.010	0.079	U	0.011	0.079	U	0.011	0.081	U	0.011
Aroclor 1268	15	U	2.1	0.74	U	0.10	0.75	U	0.10	0.073	U	0.010	0.076	U	0.010	0.074	U	0.010	0.079	U	0.011	0.079	U	0.011	0.081	U	0.011
Total PCBs	160	D	2.1	12	D	0.10	7.8	D	0.10	0.073	U	0.010	0.076	U	0.010	0.074	U	0.010	0.079	U	0.011	0.10		0.011	0.081	U	0.011

Lab ID:	460-95630-44			460-95630-45			460-95630-46			460-95630-47-DL			460-95809-1			460-95809-2			460-95809-3			460-95809-4			460-95809-5		
Client ID:	14c			14d			14e			14f			RP5a			RP5b			RP6a			RP6b			RP7a		
Date Sampled:	05/29/2015			05/29/2015			05/29/2015			05/29/2015			06/03/2015			06/03/2015			06/03/2015			06/03/2015			06/03/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			200			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.074	U	0.0098	0.074	U	0.0099	0.072	U	0.0096	14	U	1.9	0.087	U	0.012	0.081	U	0.011	0.085	U	0.011	0.081	U	0.011	0.079	U	0.010
Aroclor 1221	0.074	U	0.0098	0.074	U	0.0099	0.072	U	0.0096	14	U	1.9	0.087	U	0.012	0.081	U	0.011	0.085	U	0.011	0.081	U	0.011	0.079	U	0.010
Aroclor 1232	0.074	U	0.0098	0.074	U	0.0099	0.072	U	0.0096	14	U	1.9	0.087	U	0.012	0.081	U	0.011	0.085	U	0.011	0.081	U	0.011	0.079	U	0.010
Aroclor 1242	0.074	U	0.0098	0.074	U	0.0099	0.072	U	0.0096	14	U	1.9	0.087	U	0.012	0.081	U	0.011	0.085	U	0.011	0.081	U	0.011	0.079	U	0.010
Aroclor 1248	0.074	U	0.0098	0.074	U	0.0099	0.072	U	0.0096	180	D	1.9	0.087	U	0.012	0.081	U	0.011	0.085	U	0.011	0.081	U	0.011	0.079	U	0.010
Aroclor 1254	0.074	U	0.010	0.074	U	0.010	0.072	U	0.0099	14	U	2.0	0.087	U	0.012	0.081	U	0.011	0.085	U	0.012	0.081	U	0.011	0.079	U	0.011
Aroclor 1260	0.074	U	0.010	0.074	U	0.010	0.072	U	0.0099	14	U	2.0	0.087	U	0.012	0.081	U	0.011	0.085	U	0.012	0.081	U	0.011	0.079	U	0.011
Aroclor 1262	0.074	U	0.010	0.074	U	0.010	0.072	U	0.0099	14	U	2.0	0.087	U	0.012	0.081	U	0.011	0.085	U	0.012	0.081	U	0.011	0.079	U	0.011
Aroclor 1268	0.074	U	0.010	0.074	U	0.010	0.072	U	0.0099	14	U	2.0	0.087	U	0.012	0.081	U	0.011	0.085	U	0.012	0.081	U	0.011	0.079	U	0.011
Total PCBs	0.074	U	0.010	0.074	U	0.010	0.072	U	0.0099	180	D	2.0	0.087	U	0.012	0.081	U	0.011	0.085	U	0.012	0.081	U	0.011	0.079	U	0.011

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 2: PCB Soil, Concrete, and Wood Block Floor Sample Results
50 Center Street
Block 401, Lot 2
Garwood, New Jersey

Lab ID:	460-95809-6			460-95809-7			460-95809-8			460-95809-10			460-95809-11			460-95809-12			460-95809-13			460-95809-14			460-95809-15		
Client ID:	RP7b			RP8a			RP8b			FM10-1a			FM10-1b			FM10-2a			FM10-2b			FM10-3a			FM10-3b		
Date Sampled:	06/03/2015			06/03/2015			06/03/2015			06/03/2015			06/03/2015			06/03/2015			06/03/2015			06/03/2015			06/03/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.082	U	0.011	0.082	U	0.011	0.078	U	0.010	0.077	U	0.010	0.075	U	0.0099	0.081	U	0.011	0.078	U	0.010	0.079	U	0.011	0.076	U	0.010
Aroclor 1221	0.082	U	0.011	0.082	U	0.011	0.078	U	0.010	0.077	U	0.010	0.075	U	0.0099	0.081	U	0.011	0.078	U	0.010	0.079	U	0.011	0.076	U	0.010
Aroclor 1232	0.082	U	0.011	0.082	U	0.011	0.078	U	0.010	0.077	U	0.010	0.075	U	0.0099	0.081	U	0.011	0.078	U	0.010	0.079	U	0.011	0.076	U	0.010
Aroclor 1242	0.082	U	0.011	0.082	U	0.011	0.078	U	0.010	0.077	U	0.010	0.075	U	0.0099	0.081	U	0.011	0.078	U	0.010	0.079	U	0.011	0.076	U	0.010
Aroclor 1248	0.082	U	0.011	0.082	U	0.011	0.078	U	0.010	0.077	U	0.010	0.075	U	0.0099	0.081	U	0.011	0.078	U	0.010	0.079	U	0.011	0.076	U	0.010
Aroclor 1254	0.082	U	0.011	0.082	U	0.011	0.078	U	0.011	0.077	U	0.011	0.075	U	0.010	0.081	U	0.011	0.078	U	0.011	0.079	U	0.011	0.076	U	0.010
Aroclor 1260	0.082	U	0.011	0.082	U	0.011	0.078	U	0.011	0.077	U	0.011	0.075	U	0.010	0.081	U	0.011	0.078	U	0.011	0.079	U	0.011	0.076	U	0.010
Aroclor 1262	0.082	U	0.011	0.082	U	0.011	0.078	U	0.011	0.077	U	0.011	0.075	U	0.010	0.081	U	0.011	0.078	U	0.011	0.079	U	0.011	0.076	U	0.010
Aroclor 1268	0.082	U	0.011	0.082	U	0.011	0.078	U	0.011	0.077	U	0.011	0.075	U	0.010	0.081	U	0.011	0.078	U	0.011	0.079	U	0.011	0.076	U	0.010
Total PCBs	0.082	U	0.011	0.082	U	0.011	0.078	U	0.011	0.077	U	0.011	0.075	U	0.010	0.081	U	0.011	0.078	U	0.011	0.079	U	0.011	0.076	U	0.010

Lab ID:	460-95809-16			460-95809-17			460-95809-18			460-95809-19			460-95809-20			460-95809-21			460-95809-22			460-95809-23			460-95809-24		
Client ID:	FM10-4a			FM10-4b			FM10-5a			FM10-5b			FM10-6a			FM10-6b			FM10-7a			FM10-7b			BP8a		
Date Sampled:	06/03/2015			06/03/2015			06/03/2015			06/03/2015			06/03/2015			06/03/2015			06/03/2015			06/03/2015			06/03/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.085	U	0.011	0.075	U	0.010	0.083	U	0.011	0.074	U	0.0099	0.077	U	0.010	0.076	U	0.010	0.080	U	0.011	0.073	U	0.0097	0.076	U	0.010
Aroclor 1221	0.085	U	0.011	0.075	U	0.010	0.083	U	0.011	0.074	U	0.0099	0.077	U	0.010	0.076	U	0.010	0.080	U	0.011	0.073	U	0.0097	0.076	U	0.010
Aroclor 1232	0.085	U	0.011	0.075	U	0.010	0.083	U	0.011	0.074	U	0.0099	0.077	U	0.010	0.076	U	0.010	0.080	U	0.011	0.073	U	0.0097	0.076	U	0.010
Aroclor 1242	0.085	U	0.011	0.075	U	0.010	0.083	U	0.011	0.074	U	0.0099	0.077	U	0.010	0.076	U	0.010	0.080	U	0.011	0.073	U	0.0097	0.076	U	0.010
Aroclor 1248	0.085	U	0.011	0.075	U	0.010	1.1		0.011	0.048	J	0.0099	0.077	U	0.010	0.076	U	0.010	0.080	U	0.011	0.073	U	0.0097	0.076	U	0.010
Aroclor 1254	0.085	U	0.012	0.075	U	0.010	0.083	U	0.011	0.074	U	0.010	0.077	U	0.011	0.076	U	0.010	0.080	U	0.011	0.073	U	0.010	0.076	U	0.010
Aroclor 1260	0.085	U	0.012	0.075	U	0.010	0.083	U	0.011	0.074	U	0.010	0.077	U	0.011	0.076	U	0.010	0.080	U	0.011	0.073	U	0.010	0.076	U	0.010
Aroclor 1262	0.085	U	0.012	0.075	U	0.010	0.083	U	0.011	0.074	U	0.010	0.077	U	0.011	0.076	U	0.010	0.080	U	0.011	0.073	U	0.010	0.076	U	0.010
Aroclor 1268	0.085	U	0.012	0.075	U	0.010	0.083	U	0.011	0.074	U	0.010	0.077	U	0.011	0.076	U	0.010	0.080	U	0.011	0.073	U	0.010	0.076	U	0.010
Total PCBs	0.085	U	0.012	0.075	U	0.010	**1.1**		0.011	0.048	J	0.010	0.077	U	0.011	0.076	U	0.010	0.080	U	0.011	0.073	U	0.010	0.076	U	0.010

Lab ID:	460-95809-25			460-95810-2			460-95810-3			460-95810-4			460-95810-5			460-95810-6			460-95812-1			460-95812-2			460-95812-3		
Client ID:	BP8b			FM6-B			FM6-C			AC-2			AC-2B			AC-6			PR3Da			PR3Db			PR3Dc		
Date Sampled:	06/03/2015			06/03/2015			06/03/2015			06/03/2015			06/03/2015			06/03/2015			06/01/2015			06/01/2015			06/01/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			10			5			1			100			25			50		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.077	U	0.010	0.076	U	0.010	0.079	U	0.010	0.81	U	0.11	0.37	U	0.050	0.084	U	0.011	7.2	U	0.96	1.8	U	0.24	3.6	U	0.48
Aroclor 1221	0.077	U	0.010	0.076	U	0.010	0.079	U	0.010	0.81	U	0.11	0.37	U	0.050	0.084	U	0.011	7.2	U	0.96	1.8	U	0.24	3.6	U	0.48
Aroclor 1232	0.077	U	0.010	0.076	U	0.010	0.079	U	0.010	0.81	U	0.11	0.37	U	0.050	0.084	U	0.011	7.2	U	0.96	1.8	U	0.24	3.6	U	0.48
Aroclor 1242	0.077	U	0.010	0.076	U	0.010	0.079	U	0.010	0.81	U	0.11	0.37	U	0.050	0.084	U	0.011	7.2	U	0.96	1.8	U	0.24	3.6	U	0.48
Aroclor 1248	0.077	U	0.010	0.21		0.010	0.33		0.010	8.8		0.11	3.3		0.050	0.084	U	0.011	110		0.96	18		0.24	47		0.48
Aroclor 1254	0.077	U	0.011	0.076	U	0.010	0.079	U	0.011	0.81	U	0.11	0.37	U	0.051	0.084	U	0.012	7.2	U	0.99	1.8	U	0.25	3.6	U	0.50
Aroclor 1260	0.077	U	0.011	0.076	U	0.010	0.079	U	0.011	0.81	U	0.11	0.37	U	0.051	0.084	U	0.012	7.2	U	0.99	1.8	U	0.25	3.6	U	0.50
Aroclor 1262	0.077	U	0.011	0.076	U	0.010	0.079	U	0.011	0.81	U	0.11	0.37	U	0.051	0.084	U	0.012	7.2	U	0.99	1.8	U	0.25	3.6	U	0.50
Aroclor 1268	0.077	U	0.011	0.076	U	0.010	0.079	U	0.011	0.81	U	0.11	0.37	U	0.051	0.084	U	0.012	7.2	U	0.99	1.8	U	0.25	3.6	U	0.50
Total PCBs	0.077	U	0.011	**0.21**		0.010	**0.33**		0.011	**8.8**		0.11	**3.3**		0.051	0.084	U	0.012	**110**		0.99	**18**		0.25	**47**		0.50

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 2: PCB Soil, Concrete, and Wood Block Floor Sample Results
50 Center Street
Block 401, Lot 2
Garwood, New Jersey

Lab ID:	460-95812-4			460-95812-5			460-95812-6			460-95812-7			460-95812-8			460-95812-9			460-95812-10			460-95812-11			460-95812-12		
Client ID:	PR3Dd			13a			13b			13c			13d			13e			20a			20b			20c		
Date Sampled:	06/01/2015			06/01/2015			06/01/2015			06/01/2015			06/01/2015			06/01/2015			06/01/2015			06/01/2015			06/01/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			5			40			5			10			50			20			2			10		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.077	U	0.010	0.51	U	0.067	3.0	U	0.40	0.37	U	0.050	0.74	U	0.098	3.7	U	0.50	1.5	U	0.20	0.15	U	0.020	0.74	U	0.099
Aroclor 1221	0.077	U	0.010	0.51	U	0.067	3.0	U	0.40	0.37	U	0.050	0.74	U	0.098	3.7	U	0.50	1.5	U	0.20	0.15	U	0.020	0.74	U	0.099
Aroclor 1232	0.077	U	0.010	0.51	U	0.067	3.0	U	0.40	0.37	U	0.050	0.74	U	0.098	3.7	U	0.50	1.5	U	0.20	0.15	U	0.020	0.74	U	0.099
Aroclor 1242	0.077	U	0.010	0.51	U	0.067	3.0	U	0.40	0.37	U	0.050	0.74	U	0.098	3.7	U	0.50	1.5	U	0.20	0.15	U	0.020	0.74	U	0.099
Aroclor 1248	1.3		0.010	5.1		0.067	41		0.40	6.2		0.050	11		0.098	69		0.50	24		0.20	2.5		0.020	10		0.099
Aroclor 1254	0.077	U	0.011	0.51	U	0.069	3.0	U	0.41	0.37	U	0.051	0.74	U	0.10	3.7	U	0.51	1.5	U	0.21	0.15	U	0.020	0.74	U	0.10
Aroclor 1260	0.077	U	0.011	2.0		0.069	3.0	U	0.41	0.37	U	0.051	0.74	U	0.10	3.7	U	0.51	1.5	U	0.21	0.15	U	0.020	0.74	U	0.10
Aroclor 1262	0.077	U	0.011	0.51	U	0.069	3.0	U	0.41	0.37	U	0.051	0.74	U	0.10	3.7	U	0.51	1.5	U	0.21	0.15	U	0.020	0.74	U	0.10
Aroclor 1268	0.077	U	0.011	0.51	U	0.069	3.0	U	0.41	0.37	U	0.051	0.74	U	0.10	3.7	U	0.51	1.5	U	0.21	0.15	U	0.020	0.74	U	0.10
Total PCBs	1.3		0.011	6.9		0.069	41		0.41	6.2		0.051	11		0.10	69		0.51	24		0.21	2.5		0.020	10		0.10

Lab ID:	460-95812-13			460-95812-14			460-95812-15			460-95812-16			460-95812-17			460-95812-18			460-95812-19			460-95812-20			460-95812-21		
Client ID:	20d			20e			20f			PR1Da			PR1Db			PR1Dc			PR1Dd			10a			10b		
Date Sampled:	06/01/2015			06/01/2015			06/01/2015			06/02/2015			06/02/2015			06/02/2015			06/02/2015			06/02/2015			06/02/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	50			50			40			250			50			40			1			100			10		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	4.0	U	0.53	3.6	U	0.48	2.8	U	0.38	18	U	2.4	3.7	U	0.49	3.2	U	0.43	0.074	U	0.0098	8.0	U	1.1	0.85	U	0.11
Aroclor 1221	4.0	U	0.53	3.6	U	0.48	2.8	U	0.38	18	U	2.4	3.7	U	0.49	3.2	U	0.43	0.074	U	0.0098	8.0	U	1.1	0.85	U	0.11
Aroclor 1232	4.0	U	0.53	3.6	U	0.48	2.8	U	0.38	18	U	2.4	3.7	U	0.49	3.2	U	0.43	0.074	U	0.0098	8.0	U	1.1	0.85	U	0.11
Aroclor 1242	4.0	U	0.53	3.6	U	0.48	2.8	U	0.38	18	U	2.4	3.7	U	0.49	3.2	U	0.43	0.074	U	0.0098	8.0	U	1.1	0.85	U	0.11
Aroclor 1248	50		0.53	52		0.48	41		0.38	190		2.4	43		0.49	45		0.43	1.5		0.0098	110		1.1	15		0.11
Aroclor 1254	4.0	U	0.55	3.6	U	0.50	2.8	U	0.39	18	U	2.5	3.7	U	0.50	3.2	U	0.44	0.074	U	0.010	8.0	U	1.1	0.85	U	0.12
Aroclor 1260	4.0	U	0.55	3.6	U	0.50	2.8	U	0.39	18	U	2.5	3.7	U	0.50	3.2	U	0.44	0.074	U	0.010	8.0	U	1.1	0.85	U	0.12
Aroclor 1262	4.0	U	0.55	3.6	U	0.50	2.8	U	0.39	18	U	2.5	3.7	U	0.50	3.2	U	0.44	0.074	U	0.010	8.0	U	1.1	0.85	U	0.12
Aroclor 1268	4.0	U	0.55	3.6	U	0.50	2.8	U	0.39	18	U	2.5	3.7	U	0.50	3.2	U	0.44	0.074	U	0.010	8.0	U	1.1	0.85	U	0.12
Total PCBs	50		0.55	52		0.50	41		0.39	190		2.5	43		0.50	45		0.44	1.5		0.010	110		1.1	15		0.12

Lab ID:	460-95812-22			460-95812-23			460-95812-24			460-95812-25			460-95812-26			460-95812-27			460-95812-28			460-95812-29			460-95812-30		
Client ID:	10c			10d			10e			10f			PR5Da			PR5Db			PR5Dc			32Ea			32Eb		
Date Sampled:	06/02/2015			06/02/2015			06/02/2015			06/02/2015			06/02/2015			06/02/2015			06/02/2015			06/02/2015			06/02/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	10			20			20			40			20			50			25			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.85	U	0.11	1.5	U	0.20	1.6	U	0.21	2.9	U	0.39	1.4	U	0.19	3.8	U	0.51	2.2	U	0.30	0.081	U	0.011	0.075	U	0.010
Aroclor 1221	0.85	U	0.11	1.5	U	0.20	1.6	U	0.21	2.9	U	0.39	1.4	U	0.19	3.8	U	0.51	2.2	U	0.30	0.081	U	0.011	0.075	U	0.010
Aroclor 1232	0.85	U	0.11	1.5	U	0.20	1.6	U	0.21	2.9	U	0.39	1.4	U	0.19	3.8	U	0.51	2.2	U	0.30	0.081	U	0.011	0.075	U	0.010
Aroclor 1242	0.85	U	0.11	1.5	U	0.20	1.6	U	0.21	2.9	U	0.39	1.4	U	0.19	3.8	U	0.51	2.2	U	0.30	0.081	U	0.011	0.075	U	0.010
Aroclor 1248	17		0.11	23		0.20	23		0.21	48		0.39	16		0.19	37		0.51	21		0.30	0.081	U	0.011	0.075	U	0.010
Aroclor 1254	0.85	U	0.12	1.5	U	0.20	1.6	U	0.22	2.9	U	0.40	1.4	U	0.20	3.8	U	0.52	2.2	U	0.31	0.081	U	0.011	0.075	U	0.010
Aroclor 1260	0.85	U	0.12	1.5	U	0.20	1.6	U	0.22	2.9	U	0.40	1.4	U	0.20	3.8	U	0.52	2.2	U	0.31	0.081	U	0.011	0.075	U	0.010
Aroclor 1262	0.85	U	0.12	1.5	U	0.20	1.6	U	0.22	2.9	U	0.40	1.4	U	0.20	3.8	U	0.52	2.2	U	0.31	0.081	U	0.011	0.075	U	0.010
Aroclor 1268	0.85	U	0.12	1.5	U	0.20	1.6	U	0.22	2.9	U	0.40	1.4	U	0.20	3.8	U	0.52	2.2	U	0.31	0.081	U	0.011	0.075	U	0.010
Total PCBs	17		0.12	23		0.20	23		0.22	48		0.40	16		0.20	37		0.52	21		0.31	0.081	U	0.011	0.075	U	0.010

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 2: PCB Soil, Concrete, and Wood Block Floor Sample Results
50 Center Street
Block 401, Lot 2
Garwood, New Jersey

Lab ID:	460-95812-31			460-95812-32			460-95812-33			460-95812-34			460-95938-1			460-95938-3			460-95938-5			460-95939-1			460-95939-2		
Client ID:	32Ec			32Ed			32Ee			32Ef			AC-5			AC-7			AC-4			BP5a			BP5b		
Date Sampled:	06/02/2015			06/02/2015			06/02/2015			06/02/2015			06/04/2015			06/04/2015			06/04/2015			06/04/2015			06/04/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.075	U	0.010	0.075	U	0.010	0.073	U	0.0097	0.084	U	0.011	0.082	U	0.011	0.074	U	0.0099	0.089	U	0.012	0.081	U	0.011	0.076	U	0.010
Aroclor 1221	0.075	U	0.010	0.075	U	0.010	0.073	U	0.0097	0.084	U	0.011	0.082	U	0.011	0.074	U	0.0099	0.089	U	0.012	0.081	U	0.011	0.076	U	0.010
Aroclor 1232	0.075	U	0.010	0.075	U	0.010	0.073	U	0.0097	0.084	U	0.011	0.082	U	0.011	0.074	U	0.0099	0.089	U	0.012	0.081	U	0.011	0.076	U	0.010
Aroclor 1242	0.075	U	0.010	0.075	U	0.010	0.073	U	0.0097	0.084	U	0.011	0.082	U	0.011	0.074	U	0.0099	0.089	U	0.012	0.081	U	0.011	0.076	U	0.010
Aroclor 1248	0.11		0.010	0.075	U	0.010	0.073	U	0.0097	0.084	U	0.011	0.082	U	0.011	0.074	U	0.0099	0.089	U	0.012	0.081	U	0.011	0.076	U	0.010
Aroclor 1254	0.075	U	0.010	0.075	U	0.010	0.073	U	0.010	0.084	U	0.012	0.082	U	0.011	0.074	U	0.010	0.089	U	0.012	0.081	U	0.011	0.076	U	0.010
Aroclor 1260	0.075	U	0.010	0.075	U	0.010	0.073	U	0.010	0.084	U	0.012	0.082	U	0.011	0.074	U	0.010	0.089	U	0.012	0.081	U	0.011	0.076	U	0.010
Aroclor 1262	0.075	U	0.010	0.075	U	0.010	0.073	U	0.010	0.084	U	0.012	0.082	U	0.011	0.074	U	0.010	0.089	U	0.012	0.081	U	0.011	0.076	U	0.010
Aroclor 1268	0.075	U	0.010	0.075	U	0.010	0.073	U	0.010	0.084	U	0.012	0.082	U	0.011	0.074	U	0.010	0.089	U	0.012	0.081	U	0.011	0.076	U	0.010
Total PCBs	0.11		0.010	0.075	U	0.010	0.073	U	0.010	0.084	U	0.012	0.082	U	0.011	0.074	U	0.010	0.089	U	0.012	0.081	U	0.011	0.076	U	0.010

Lab ID:	460-95939-3			460-95939-4			460-95939-5			460-95939-6			460-95939-7			460-95939-9			460-95939-11			460-95939-13			460-95939-15		
Client ID:	BP6a			BP6b			BP7a			BP7b			FM6-3a			FM6-2a			FM6-4a			FM6-5a			FM6-1a		
Date Sampled:	06/04/2015			06/04/2015			06/04/2015			06/04/2015			06/04/2015			06/04/2015			06/04/2015			06/04/2015			06/04/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			2		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.077	U	0.010	0.076	U	0.010	0.077	U	0.010	0.080	U	0.011	0.077	U	0.010	0.077	U	0.010	0.075	U	0.0099	0.077	U	0.010	0.16	U	0.021
Aroclor 1221	0.077	U	0.010	0.076	U	0.010	0.077	U	0.010	0.080	U	0.011	0.077	U	0.010	0.077	U	0.010	0.075	U	0.0099	0.077	U	0.010	0.16	U	0.021
Aroclor 1232	0.077	U	0.010	0.076	U	0.010	0.077	U	0.010	0.080	U	0.011	0.077	U	0.010	0.077	U	0.010	0.075	U	0.0099	0.077	U	0.010	0.16	U	0.021
Aroclor 1242	0.077	U	0.010	0.076	U	0.010	0.077	U	0.010	0.080	U	0.011	0.077	U	0.010	0.077	U	0.010	0.075	U	0.0099	0.077	U	0.010	0.16	U	0.021
Aroclor 1248	0.077	U	0.010	0.046	J	0.010	0.077	U	0.010	0.080	U	0.011	0.077	U	0.010	0.056	J	0.010	0.075	U	0.0099	0.077	U	0.010	1.3		0.021
Aroclor 1254	0.077	U	0.011	0.076	U	0.010	0.077	U	0.011	0.080	U	0.011	0.077	U	0.011	0.077	U	0.011	0.075	U	0.010	0.077	U	0.011	0.16	U	0.021
Aroclor 1260	0.077	U	0.011	0.076	U	0.010	0.077	U	0.011	0.080	U	0.011	0.077	U	0.011	0.077	U	0.011	0.075	U	0.010	0.077	U	0.011	0.16	U	0.021
Aroclor 1262	0.077	U	0.011	0.076	U	0.010	0.077	U	0.011	0.080	U	0.011	0.077	U	0.011	0.077	U	0.011	0.075	U	0.010	0.077	U	0.011	0.16	U	0.021
Aroclor 1268	0.077	U	0.011	0.076	U	0.010	0.077	U	0.011	0.080	U	0.011	0.077	U	0.011	0.077	U	0.011	0.075	U	0.010	0.077	U	0.011	0.16	U	0.021
Total PCBs	0.077	U	0.011	0.046	J	0.010	0.077	U	0.011	0.080	U	0.011	0.077	U	0.011	0.056	J	0.011	0.075	U	0.010	0.077	U	0.011	1.3		0.021

Lab ID:	460-95939-17			460-95939-19			460-95939-21			460-95939-22			460-95939-23			460-95939-24			460-95939-25			460-95939-26			460-95939-27		
Client ID:	FM6-7a			FM6-6a			NE-1a			NE-1b			NE-2a			NE-2b			NE-3a			NE-3b			NE-4a		
Date Sampled:	06/04/2015			06/04/2015			06/04/2015			06/04/2015			06/04/2015			06/04/2015			06/04/2015			06/04/2015			06/04/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			2			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.077	U	0.010	0.16	U	0.021	0.079	U	0.010	0.073	U	0.0097	0.076	U	0.010	0.075	U	0.010	0.076	U	0.010	0.076	U	0.010	0.075	U	0.010
Aroclor 1221	0.077	U	0.010	0.16	U	0.021	0.079	U	0.010	0.073	U	0.0097	0.076	U	0.010	0.075	U	0.010	0.076	U	0.010	0.076	U	0.010	0.075	U	0.010
Aroclor 1232	0.077	U	0.010	0.16	U	0.021	0.079	U	0.010	0.073	U	0.0097	0.076	U	0.010	0.075	U	0.010	0.076	U	0.010	0.076	U	0.010	0.075	U	0.010
Aroclor 1242	0.077	U	0.010	0.16	U	0.021	0.079	U	0.010	0.073	U	0.0097	0.076	U	0.010	0.075	U	0.010	0.076	U	0.010	0.076	U	0.010	0.075	U	0.010
Aroclor 1248	0.077	U	0.010	2.1		0.021	0.079	U	0.010	0.073	U	0.0097	0.076	U	0.010	0.075	U	0.010	0.076	U	0.010	0.076	U	0.010	0.075	U	0.010
Aroclor 1254	0.077	U	0.011	0.16	U	0.022	0.079	U	0.011	0.073	U	0.010	0.076	U	0.010	0.075	U	0.010	0.076	U	0.010	0.076	U	0.010	0.075	U	0.010
Aroclor 1260	0.077	U	0.011	0.16	U	0.022	0.079	U	0.011	0.073	U	0.010	0.076	U	0.010	0.075	U	0.010	0.076	U	0.010	0.076	U	0.010	0.075	U	0.010
Aroclor 1262	0.077	U	0.011	0.16	U	0.022	0.079	U	0.011	0.073	U	0.010	0.076	U	0.010	0.075	U	0.010	0.076	U	0.010	0.076	U	0.010	0.075	U	0.010
Aroclor 1268	0.077	U	0.011	0.16	U	0.022	0.079	U	0.011	0.073	U	0.010	0.076	U	0.010	0.075	U	0.010	0.076	U	0.010	0.076	U	0.010	0.075	U	0.010
Total PCBs	0.077	U	0.011	2.1		0.022	0.079	U	0.011	0.073	U	0.010	0.076	U	0.010	0.075	U	0.010	0.076	U	0.010	0.076	U	0.010	0.075	U	0.010

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 2: PCB Soil, Concrete, and Wood Block Floor Sample Results
50 Center Street
Block 401, Lot 2
Garwood, New Jersey

Lab ID:	460-95939-28			460-95961-1			460-95961-2			460-95961-3			460-95961-4			460-95961-5			460-95961-6			460-95961-19			460-95961-21		
Client ID:	**NE-4b**			**P10-1a**			**P10-1b**			**P10-2a**			**P10-2b**			**P10-4a**			**P10-4b**			**AC-1a**			**AC-8a**		
Date Sampled:	**06/04/2015**			**06/04/2015**			**06/04/2015**			**06/04/2015**			**06/04/2015**			**06/04/2015**			**06/04/2015**			**06/05/2015**			**06/05/2015**		
Matrix:	**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**		
Unit:	**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**		
Dilution:	**1**			**1**			**1**			**1**			**1**			**1**			**1**			**1**			**1**		
	Conc.	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**
SOIL BY 8082A																											
Aroclor 1016	0.076	U	0.010	0.078	U	0.010	0.076	U	0.010	0.077	U	0.010	0.080	U	0.011	0.086	U	0.011	0.080	U	0.011	0.075	U	0.010	0.079	U	0.010
Aroclor 1221	0.076	U	0.010	0.078	U	0.010	0.076	U	0.010	0.077	U	0.010	0.080	U	0.011	0.086	U	0.011	0.080	U	0.011	0.075	U	0.010	0.079	U	0.010
Aroclor 1232	0.076	U	0.010	0.078	U	0.010	0.076	U	0.010	0.077	U	0.010	0.080	U	0.011	0.086	U	0.011	0.080	U	0.011	0.075	U	0.010	0.079	U	0.010
Aroclor 1242	0.076	U	0.010	0.078	U	0.010	0.076	U	0.010	0.077	U	0.010	0.080	U	0.011	0.086	U	0.011	0.080	U	0.011	0.075	U	0.010	0.079	U	0.010
Aroclor 1248	0.076	U	0.010	0.078	U	0.010	0.076	U	0.010	0.077	U	0.010	0.080	U	0.011	0.086	U	0.011	0.080	U	0.011	0.077		0.010	0.079	U	0.010
Aroclor 1254	0.076	U	0.010	0.078	U	0.011	0.076	U	0.010	0.077	U	0.011	0.080	U	0.011	0.086	U	0.012	0.080	U	0.011	0.075	U	0.010	0.079	U	0.011
Aroclor 1260	0.076	U	0.010	0.078	U	0.011	0.076	U	0.010	0.077	U	0.011	0.080	U	0.011	0.086	U	0.012	0.080	U	0.011	0.075	U	0.010	0.079	U	0.011
Aroclor 1262	0.076	U	0.010	0.078	U	0.011	0.076	U	0.010	0.077	U	0.011	0.080	U	0.011	0.086	U	0.012	0.080	U	0.011	0.075	U	0.010	0.079	U	0.011
Aroclor 1268	0.076	U	0.010	0.078	U	0.011	0.076	U	0.010	0.077	U	0.011	0.080	U	0.011	0.086	U	0.012	0.080	U	0.011	0.075	U	0.010	0.079	U	0.011
Total PCBs	0.076	U	0.010	0.078	U	0.011	0.076	U	0.010	0.077	U	0.011	0.080	U	0.011	0.086	U	0.012	0.080	U	0.011	0.077		0.010	0.079	U	0.011

Lab ID:	460-95961-23			460-95961-24			460-95961-25			460-95961-26			460-95961-27			460-95961-28			460-96300-1			460-96300-2			460-96300-3		
Client ID:	**315a**			**315b**			**315c**			**315d**			**315e**			**315f**			**AW-1a**			**AW-1b**			**AW-1c**		
Date Sampled:	**06/05/2015**			**06/05/2015**			**06/05/2015**			**06/05/2015**			**06/05/2015**			**06/05/2015**			**06/11/2015**			**06/11/2015**			**06/11/2015**		
Matrix:	**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**		
Unit:	**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**		
Dilution:	**1**			**1**			**1**			**1**			**1**			**1**			**100**			**1**			**1**		
	Conc.	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**
SOIL BY 8082A																											
Aroclor 1016	0.081	U	0.011	0.078	U	0.010	0.084	U	0.011	0.073	U	0.0097	0.076	U	0.010	0.079	U	0.010	7.7	U	1.0	0.075	U	0.010	0.079	U	0.010
Aroclor 1221	0.081	U	0.011	0.078	U	0.010	0.084	U	0.011	0.073	U	0.0097	0.076	U	0.010	0.079	U	0.010	7.7	U	1.0	0.075	U	0.010	0.079	U	0.010
Aroclor 1232	0.081	U	0.011	0.078	U	0.010	0.084	U	0.011	0.073	U	0.0097	0.076	U	0.010	0.079	U	0.010	7.7	U	1.0	0.075	U	0.010	0.079	U	0.010
Aroclor 1242	0.081	U	0.011	0.078	U	0.010	0.084	U	0.011	0.073	U	0.0097	0.076	U	0.010	0.079	U	0.010	7.7	U	1.0	0.075	U	0.010	0.079	U	0.010
Aroclor 1248	0.081	U	0.011	0.078	U	0.010	0.084	U	0.011	0.073	U	0.0097	0.076	U	0.010	0.079	U	0.010	110		1.0	1.2		0.010	180		0.010
Aroclor 1254	0.081	U	0.011	0.078	U	0.011	0.084	U	0.012	0.073	U	0.010	0.076	U	0.010	0.079	U	0.011	7.7	U	1.1	0.075	U	0.010	0.079	U	0.011
Aroclor 1260	0.081	U	0.011	0.078	U	0.011	0.084	U	0.012	0.073	U	0.010	0.076	U	0.010	0.079	U	0.011	7.7	U	1.1	0.075	U	0.010	0.079	U	0.011
Aroclor 1262	0.081	U	0.011	0.078	U	0.011	0.084	U	0.012	0.073	U	0.010	0.076	U	0.010	0.079	U	0.011	7.7	U	1.1	0.075	U	0.010	0.079	U	0.011
Aroclor 1268	0.081	U	0.011	0.078	U	0.011	0.084	U	0.012	0.073	U	0.010	0.076	U	0.010	0.079	U	0.011	7.7	U	1.1	0.075	U	0.010	0.079	U	0.011
Total PCBs	0.081	U	0.011	0.078	U	0.011	0.084	U	0.012	0.073	U	0.010	0.076	U	0.010	0.079	U	0.011	**110**		1.1	**1.2**		0.010	**180**		0.011

Lab ID:	460-96300-4			460-96300-5			460-96300-6			460-96300-7			460-96300-13			460-96300-14			460-96300-15			460-101755-1			460-101755-2		
Client ID:	**AC-12a**			**AC-12b**			**AC-9a**			**AC-9b**			**AC-10a**			**AC-10b**			**AC-11a**			**AW-2a**			**AW-2b**		
Date Sampled:	**06/11/2015**			**06/11/2015**			**06/11/2015**			**06/11/2015**			**06/11/2015**			**06/11/2015**			**06/11/2015**			**09/24/2015**			**09/24/2015**		
Matrix:	**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**			**Soil**		
Unit:	**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**			**mg/kg**		
Dilution:	**1**			**1**			**1**			**1**			**1**			**1**			**1**			**1**			**1**		
	Conc.	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**	**Conc.**	**Qual**	**MDL**
SOIL BY 8082A																											
Aroclor 1016	0.074	U	0.0098	0.077	U	0.010	0.072	U	0.0096	0.078	U	0.010	0.073	U	0.0097	0.081	U	0.011	0.074	U	0.0099	0.079	U	0.011	0.074	U	0.0098
Aroclor 1221	0.074	U	0.0098	0.077	U	0.010	0.072	U	0.0096	0.078	U	0.010	0.073	U	0.0097	0.081	U	0.011	0.074	U	0.0099	0.079	U	0.011	0.074	U	0.0098
Aroclor 1232	0.074	U	0.0098	0.077	U	0.010	0.072	U	0.0096	0.078	U	0.010	0.073	U	0.0097	0.081	U	0.011	0.074	U	0.0099	0.079	U	0.011	0.074	U	0.0098
Aroclor 1242	0.074	U	0.0098	0.077	U	0.010	0.072	U	0.0096	0.078	U	0.010	0.073	U	0.0097	0.081	U	0.011	0.074	U	0.0099	0.079	U	0.011	0.074	U	0.0098
Aroclor 1248	0.046	J	0.0098	0.049	J	0.010	0.030	J	0.0096	0.078	U	0.010	0.041	J	0.0097	0.046	J	0.011	0.074	U	0.0099	0.079	U	0.011	0.074	U	0.0098
Aroclor 1254	0.074	U	0.010	0.077	U	0.011	0.072	U	0.0099	0.078	U	0.011	0.073	U	0.010	0.081	U	0.011	0.074	U	0.010	0.079	U	0.011	0.074	U	0.010
Aroclor 1260	0.074	U	0.010	0.077	U	0.011	0.072	U	0.0099	0.078	U	0.011	0.073	U	0.010	0.081	U	0.011	0.074	U	0.010	0.079	U	0.011	0.074	U	0.010
Aroclor 1262	0.074	U	0.010	0.077	U	0.011	0.072	U	0.0099	0.078	U	0.011	0.073	U	0.010	0.081	U	0.011	0.074	U	0.010	0.079	U	0.011	0.074	U	0.010
Aroclor 1268	0.074	U	0.010	0.077	U	0.011	0.072	U	0.0099	0.078	U	0.011	0.073	U	0.010	0.081	U	0.011	0.074	U	0.010	0.079	U	0.011	0.074	U	0.010
Total PCBs	0.046	J	0.010	0.049	J	0.011	0.030	J	0.0099	0.078	U	0.011	0.041	J	0.010	0.046	J	0.011	0.074	U	0.010	0.079	U	0.011	0.074	U	0.010

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 2: PCB Soil, Concrete, and Wood Block Floor Sample Results
50 Center Street
Block 401, Lot 2
Garwood, New Jersey

Lab ID:	460-101755-3			460-101755-7			460-101755-8			460-101755-9			460-101755-10-DL			460-101755-11-DL			460-101755-12-DL			460-101755-13			460-101755-14		
Client ID:	AW-2c			ABE-2a			ABE-2b			ABE-2c			ABE-3a			ABE-3b			ABE-3c			ABE-4a			ABE-4b		
Date Sampled:	09/24/2015			09/24/2015			09/24/2015			09/24/2015			09/24/2015			09/24/2015			09/24/2015			09/24/2015			09/24/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			20			200			50			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.076	U	0.010	0.084	U	0.011	0.074	U	0.0099	0.073	U	0.0097	1.7	U	0.23	16	U	2.1	3.9	U	0.51	0.079	U	0.011	0.074	U	0.0098
Aroclor 1221	0.076	U	0.010	0.084	U	0.011	0.074	U	0.0099	0.073	U	0.0097	1.7	U	0.23	16	U	2.1	3.9	U	0.51	0.079	U	0.011	0.074	U	0.0098
Aroclor 1232	0.076	U	0.010	0.084	U	0.011	0.074	U	0.0099	0.073	U	0.0097	1.7	U	0.23	16	U	2.1	3.9	U	0.51	0.079	U	0.011	0.074	U	0.0098
Aroclor 1242	0.076	U	0.010	0.084	U	0.011	0.074	U	0.0099	0.073	U	0.0097	1.7	U	0.23	16	U	2.1	3.9	U	0.51	0.079	U	0.011	0.074	U	0.0098
Aroclor 1248	0.076	U	0.010	0.084	U	0.011	0.074	U	0.0099	0.073	U	0.0097	16	D	0.23	140	D	2.1	35	D	0.51	0.079	U	0.011	0.074	U	0.0098
Aroclor 1254	0.076	U	0.010	0.084	U	0.012	0.074	U	0.010	0.073	U	0.010	1.7	U	0.24	16	U	2.2	3.9	U	0.53	0.079	U	0.011	0.074	U	0.010
Aroclor 1260	0.076	U	0.010	0.084	U	0.012	0.074	U	0.010	0.073	U	0.010	1.7	U	0.24	16	U	2.2	3.9	U	0.53	0.079	U	0.011	0.074	U	0.010
Aroclor 1262	0.076	U	0.010	0.084	U	0.012	0.074	U	0.010	0.073	U	0.010	1.7	U	0.24	16	U	2.2	3.9	U	0.53	0.079	U	0.011	0.074	U	0.010
Aroclor 1268	0.076	U	0.010	0.084	U	0.012	0.074	U	0.010	0.073	U	0.010	1.7	U	0.24	16	U	2.2	3.9	U	0.53	0.079	U	0.011	0.074	U	0.010
Total PCBs	0.076	U	0.010	0.084	U	0.012	0.074	U	0.010	0.073	U	0.010	16	D	0.24	140	D	2.2	35	D	0.53	0.079	U	0.011	0.074	U	0.010

Lab ID:	460-101755-15			460-101755-16			460-101755-17			460-101755-18			460-101755-22			460-101755-23			460-101755-24			460-102379-6			460-102379-7		
Client ID:	ABE-4c			ABE-7a			ABE-7b			ABE-7c			ABE-1a			ABE-1b			ABE-1c			Del-1a			Del-1b		
Date Sampled:	09/24/2015			09/24/2015			09/24/2015			09/24/2015			09/25/2015			09/25/2015			09/25/2015			10/06/2015			10/06/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.075	U	0.0099	0.075	U	0.010	0.074	U	0.0099	0.075	U	0.010	0.084	U	0.011	0.075	U	0.010	0.075	U	0.010	0.084	U	0.011	0.081	U	0.011
Aroclor 1221	0.075	U	0.0099	0.075	U	0.010	0.074	U	0.0099	0.075	U	0.010	0.084	U	0.011	0.075	U	0.010	0.075	U	0.010	0.084	U	0.011	0.081	U	0.011
Aroclor 1232	0.075	U	0.0099	0.075	U	0.010	0.074	U	0.0099	0.075	U	0.010	0.084	U	0.011	0.075	U	0.010	0.075	U	0.010	0.084	U	0.011	0.081	U	0.011
Aroclor 1242	0.075	U	0.0099	0.075	U	0.010	0.074	U	0.0099	0.075	U	0.010	0.084	U	0.011	0.075	U	0.010	0.075	U	0.010	0.084	U	0.011	0.081	U	0.011
Aroclor 1248	0.075	U	0.0099	0.075	U	0.010	0.074	U	0.0099	0.075	U	0.010	0.084	U	0.011	0.099		0.010	0.071	J	0.010	0.084	U	0.011	0.081	U	0.011
Aroclor 1254	0.075	U	0.010	0.075	U	0.010	0.074	U	0.010	0.075	U	0.010	0.084	U	0.012	0.075	U	0.010	0.075	U	0.010	0.084	U	0.011	0.081	U	0.011
Aroclor 1260	0.075	U	0.010	0.075	U	0.010	0.074	U	0.010	0.075	U	0.010	0.084	U	0.012	0.075	U	0.010	0.075	U	0.010	0.084	U	0.011	0.081	U	0.011
Aroclor 1262	0.075	U	0.010	0.075	U	0.010	0.074	U	0.010	0.075	U	0.010	0.084	U	0.012	0.075	U	0.010	0.075	U	0.010	0.084	U	0.011	0.081	U	0.011
Aroclor 1268	0.075	U	0.010	0.075	U	0.010	0.074	U	0.010	0.075	U	0.010	0.084	U	0.012	0.075	U	0.010	0.075	U	0.010	0.084	U	0.011	0.081	U	0.011
Total PCBs	0.075	U	0.010	0.075	U	0.010	0.074	U	0.010	0.075	U	0.010	0.084	U	0.012	0.099		0.010	0.071	J	0.010	0.084	U	0.011	0.081	U	0.011

Lab ID:	460-102379-8			460-102379-9			460-102379-10			460-102379-11			460-102379-12			460-102379-13			460-102379-14			460-102379-15			460-102379-16		
Client ID:	Del-1c			Del-1d			Del-1e			Del-1f			Del-2a			Del-2b			Del-2c			Del-2d			Del-2e		
Date Sampled:	10/06/2015			10/06/2015			10/06/2015			10/06/2015			10/06/2015			10/06/2015			10/06/2015			10/06/2015			10/06/2015		
Matrix:	Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil			Soil		
Unit:	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Dilution:	1			1			1			1			1			1			1			1			1		
	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.074	U	0.0099	0.076	U	0.010	0.078	U	0.010	0.075	U	0.010	0.082	U	0.011	0.079	U	0.011	0.074	U	0.0099	0.076	U	0.010	0.078	U	0.010
Aroclor 1221	0.074	U	0.0099	0.076	U	0.010	0.078	U	0.010	0.075	U	0.010	0.082	U	0.011	0.079	U	0.011	0.074	U	0.0099	0.076	U	0.010	0.078	U	0.010
Aroclor 1232	0.074	U	0.0099	0.076	U	0.010	0.078	U	0.010	0.075	U	0.010	0.082	U	0.011	0.079	U	0.011	0.074	U	0.0099	0.076	U	0.010	0.078	U	0.010
Aroclor 1242	0.074	U	0.0099	0.076	U	0.010	0.078	U	0.010	0.075	U	0.010	0.082	U	0.011	0.079	U	0.011	0.074	U	0.0099	0.076	U	0.010	0.078	U	0.010
Aroclor 1248	0.074	U	0.0099	0.076	U	0.010	0.10		0.010	0.075	U	0.010	0.082	U	0.011	0.079	U	0.011	0.074	U	0.0099	0.076	U	0.010	0.078	U	0.010
Aroclor 1254	0.074	U	0.010	0.076	U	0.010	0.078	U	0.011	0.075	U	0.010	0.082	U	0.011	0.079	U	0.011	0.074	U	0.010	0.076	U	0.010	0.078	U	0.011
Aroclor 1260	0.074	U	0.010	0.076	U	0.010	0.078	U	0.011	0.075	U	0.010	0.082	U	0.011	0.079	U	0.011	0.074	U	0.010	0.076	U	0.010	0.078	U	0.011
Aroclor 1262	0.074	U	0.010	0.076	U	0.010	0.078	U	0.011	0.075	U	0.010	0.082	U	0.011	0.079	U	0.011	0.074	U	0.010	0.076	U	0.010	0.078	U	0.011
Aroclor 1268	0.074	U	0.010	0.076	U	0.010	0.078	U	0.011	0.075	U	0.010	0.082	U	0.011	0.079	U	0.011	0.074	U	0.010	0.076	U	0.010	0.078	U	0.011
Total PCBs	0.074	U	0.010	0.076	U	0.010	0.10		0.011	0.075	U	0.010	0.082	U	0.011	0.079	U	0.011	0.074	U	0.010	0.076	U	0.010	0.078	U	0.011

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 2: PCB Soil, Concrete, and Wood Block Floor Sample Results
50 Center Street
Block 401, Lot 2
Garwood, New Jersey

Lab ID:	**460-102379-17**		
Client ID:	**Del-2f**		
Date Sampled:	**10/06/2015**		
Matrix:	**Soil**		
Unit:	**mg/kg**		
Dilution:	**1**		
	Conc.	**Qual**	**MDL**
SOIL BY 8082A			
Aroclor 1016	0.077	U	0.010
Aroclor 1221	0.077	U	0.010
Aroclor 1232	0.077	U	0.010
Aroclor 1242	0.077	U	0.010
Aroclor 1248	0.077	U	0.010
Aroclor 1254	0.077	U	0.011
Aroclor 1260	0.077	U	0.011
Aroclor 1262	0.077	U	0.011
Aroclor 1268	0.077	U	0.011
Total PCBs	0.077	U	0.011

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
U H : Indicates the analyte was analyzed for but not detected.
D : Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
p : The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Table 3: PCB Monitoring Well Groundwater Sample Results
450 and 490 South Avenue and 50 Center Street
Block 401, Lots 1 and 2
Garwood, New Jersey

Lab ID:	460-90674-9			460-90674-11			460-95417-14			460-95417-15			460-99860-1			460-99860-2			460-99860-3			460-99860-5			460-99860-6		
Client ID:	MW-10			MW-5			MW-5			MW-10			C-MW-7D-27.5			C-MW-7D-32.5			C-MW-7			P-MW-7D-31.9			P-MW-7D-26.9		
Date Sampled:	02/19/2015			02/19/2015			05/26/2015			05/26/2015			08/19/2015			08/19/2015			08/19/2015			08/19/2015			08/19/2015		
Matrix:	Water			Water			Water			Water			Water			Water			Water			Water			Water		
Unit:	ug/l			ug/l			ug/l			ug/l			ug/l			ug/l			ug/l			ug/l			ug/l		
Dilution:	1			1			1			1			1			1			1			1			1		
GCSVOA-8082A-SOIL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.40	U	0.26	0.40	U	0.26	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098	0.42	U	0.10	0.42	U	0.10	0.42	U	0.10
Aroclor 1221	0.40	U	0.26	0.40	U	0.26	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098	0.42	U	0.10	0.42	U	0.10	0.42	U	0.10
Aroclor 1232	0.40	U	0.26	0.40	U	0.26	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098	0.42	U	0.10	0.42	U	0.10	0.42	U	0.10
Aroclor 1242	0.40	U	0.26	0.40	U	0.26	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098	0.42	U	0.10	0.42	U	0.10	0.42	U	0.10
Aroclor 1248	0.40	U	0.26	0.40	U	0.26	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098	0.42	U	0.10	0.42	U	0.10	0.42	U	0.10
Aroclor 1254	0.40	U	0.14	0.40	U	0.14	0.40	U	0.084	0.40	U	0.084	0.40	U	0.084	0.40	U	0.084	0.42	U	0.088	0.42	U	0.088	0.42	U	0.088
Aroclor 1260	0.40	U	0.14	0.40	U	0.14	0.40	U	0.084	0.40	U	0.084	0.40	U	0.084	0.40	U	0.084	0.42	U	0.088	0.42	U	0.088	0.42	U	0.088
Aroclor 1262	0.40	U	0.14	0.40	U	0.14	0.40	U	0.084	0.40	U	0.084	0.40	U	0.084	0.40	U	0.084	0.42	U	0.088	0.42	U	0.088	0.42	U	0.088
Aroclor 1268	0.40	U	0.14	0.40	U	0.14	0.40	U	0.084	0.40	U	0.084	0.40	U	0.084	0.40	U	0.084	0.42	U	0.088	0.42	U	0.088	0.42	U	0.088
Total PCBs	0.40	U	0.14	0.40	U	0.14	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098	0.42	U	0.10	0.42	U	0.10	0.42	U	0.10

Lab ID:	460-99860-7			460-99929-1			460-99929-2			460-99929-4			460-102883-2			460-102883-3			460-102883-4			460-102883-5			460-102883-6		
Client ID:	P-MW-7			P-MW-5			P-MW-10			C-MW-6			C-MW-7D_27.5			C-MW-7D_32.5			C-MW-7			C-MW-9_9.2			C-MW-9_13.2		
Date Sampled:	08/19/2015			08/20/2015			08/20/2015			08/20/2015			10/15/2015			10/15/2015			10/15/2015			10/15/2015			10/15/2015		
Matrix:	Water			Water			Water			Water			Water			Water			Water			Water			Water		
Unit:	ug/l			ug/l			ug/l			ug/l			ug/l			ug/l			ug/l			ug/l			ug/l		
Dilution:	1			1			1			10			1			1			1			1			1		
GCSVOA-8082A-SOIL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.42	U	0.10	0.40	U	0.098	0.40	U	0.098	4.1	U	1.0	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098
Aroclor 1221	0.42	U	0.10	0.40	U	0.098	0.40	U	0.098	4.1	U	1.0	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098
Aroclor 1232	0.42	U	0.10	0.40	U	0.098	0.40	U	0.098	4.1	U	1.0	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098
Aroclor 1242	0.42	U	0.10	0.40	U	0.098	0.40	U	0.098	4.1	U	1.0	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098
Aroclor 1248	0.42	U	0.10	1.1		0.098	1.0		0.098	32		1.0	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098
Aroclor 1254	0.42	U	0.088	0.40	U	0.084	0.40	U	0.084	4.1	U	0.86	0.40	U	0.084	0.40	U	0.084	0.40	U	0.084	0.40	U	0.084	0.40	U	0.084
Aroclor 1260	0.42	U	0.088	0.40	U	0.084	0.40	U	0.084	4.1	U	0.86	0.40	U	0.084	0.40	U	0.084	0.40	U	0.084	0.40	U	0.084	0.40	U	0.084
Aroclor 1262	0.42	U	0.088	0.40	U	0.084	0.40	U	0.084	4.1	U	0.86	0.40	U	0.084	0.40	U	0.084	0.40	U	0.084	0.40	U	0.084	0.40	U	0.084
Aroclor 1268	0.42	U	0.088	0.40	U	0.084	0.40	U	0.084	4.1	U	0.86	0.40	U	0.084	0.40	U	0.084	0.40	U	0.084	0.40	U	0.084	0.40	U	0.084
Total PCBs	0.42	U	0.10	1.1		0.098	1.0		0.098	32		1.0	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098

Lab ID:	460-102883-7			460-102883-8			460-102883-9			460-102883-10			460-102942-2			460-102942-3			460-102942-4			460-102942-5			460-102942-6		
Client ID:	C-MW-8_7.5			C-MW-8_12.5			C-MW-6			C-MW-6D			P-MW-7D_26.9			P-MW-7D_31.9			P-MW-7			P-MW-5			P-MW-10		
Date Sampled:	10/15/2015			10/15/2015			10/15/2015			10/15/2015			10/16/2015			10/16/2015			10/16/2015			10/16/2015			10/16/2015		
Matrix:	Water			Water			Water			Water			Water			Water			Water			Water			Water		
Unit:	ug/l			ug/l			ug/l			ug/l			ug/l			ug/l			ug/l			ug/l			ug/l		
Dilution:	1			2			5			1			1			1			1			1			1		
GCSVOA-8082A-SOIL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL	Conc.	Qual	MDL
SOIL BY 8082A																											
Aroclor 1016	0.40	U	0.098	0.80	U	0.20	2.0	U	0.49	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098	0.41	U	0.10	0.41	U	0.10	0.40	U	0.098
Aroclor 1221	0.40	U	0.098	0.80	U	0.20	2.0	U	0.49	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098	0.41	U	0.10	0.41	U	0.10	0.40	U	0.098
Aroclor 1232	0.40	U	0.098	0.80	U	0.20	2.0	U	0.49	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098	0.41	U	0.10	0.41	U	0.10	0.40	U	0.098
Aroclor 1242	0.40	U	0.098	0.80	U	0.20	2.0	U	0.49	0.40	U	0.098	0.40	U	0.098	0.40	U	0.098	0.41	U	0.10	0.41	U	0.10	0.40	U	0.098
Aroclor 1248	4.7		0.098	11		0.20	25		0.49	2.0		0.098	0.40	U	0.098	0.40	U	0.098	0.41	U	0.10	1.3		0.10	1.6		0.098
Aroclor 1254	0.40	U	0.084	0.80	U	0.17	2.0	U	0.42	0.40	U	0.084	0.40	U	0.084	0.40	U	0.084	0.41	U	0.086	0.41	U	0.086	0.40	U	0.084
Aroclor 1260	0.40	U	0.084	0.80	U	0.17	2.0	U	0.42	0.40	U	0.084	0.40	U	0.084	0.40	U	0.084	0.41	U	0.086	0.41	U	0.086	0.40	U	0.084
Aroclor 1262	0.40	U	0.084	0.80	U	0.17	2.0	U	0.42	0.40	U	0.084	0.40	U	0.084	0.40	U	0.084	0.41	U	0.086	0.41	U	0.086	0.40	U	0.084
Aroclor 1268	0.40	U	0.084	0.80	U	0.17	2.0	U	0.42	0.40	U	0.084	0.40	U	0.084	0.40	U	0.084	0.41	U	0.086	0.41	U	0.086	0.40	U	0.084
Total PCBs	4.7		0.098	11		0.20	25		0.49	2.0		0.098	0.40	U	0.098	0.40	U	0.098	0.41	U	0.10	1.3		0.10	1.6		0.098

NA: Not Applicable
U : Indicates the analyte was analyzed for but not detected.
P- Monitoring Well on Petro Parcel (Lot 1)
C- Monitoring Well on Casale Parcel (Lot 2)

Table 4: Summary of All PCB Soil Results and Depths from Lot 2

Sample ID	Depth (ft bgs)	PCBs (mg/kg)
1a	3-3.5	ND
1b	6.5-7	ND
1c	9.5-10	ND
1d	12-12.5	ND
1e	15.5-16	ND
2a	3-3.5	ND
2b	6.5-7	ND
2c	9.5-10	ND
2d	12-12.5	ND
3a	3-3.5	ND
3b	6.5-7	ND
3c	9.5-10	ND
3d	12-12.5	ND
3e	15.5-16	ND
4a	3-3.5	ND
4b	6.5-7	ND
4c	9.5-10	ND
4d	12-12.5	ND
4e	15.5-16	ND
5a	3-3.5	ND
5b	6.5-7	ND
5c	9.5-10	ND
5d	12-12.5	ND
5e	15.5-16	ND
5f	19.5-20	ND
6a	3-3.5	ND
6b	6.5-7	ND
6c	9.5-10	ND
6d	12-12.5	ND
7a	3-3.5	**0.32**
7b	6.5-7	**0.55**
7c	9.5-10	**0.67**
7d	12-12.5	**0.99**
8a	3-3.5	**0.64**
8b	6.5-7	ND
8c	9.5-10	ND
8d	12-12.5	**0.26**
8e	15.5-16	ND
9a	3-3.5	0.063J
9b	6.5-7	ND
9c	9.5-10	ND
9d	12-12.5	ND
9e	15.5-16	0.14
9f	19.5-20	0.026J
10a	3-3.5	**110**
10b	6.5-7	**15**
10c	9.5-10	**17**
10d	12-12.5	**23**
10e	15.5-16	**23**
10f	19.5-20	**48**
11a	3-3.5	0.073J
11b	6.5-7	0.19
11c	9.5-10	0.042J
11d	12-12.5	**0.4**
11e	15.5-16	**0.33**
11f	19.5-20	0.062J
12a	3-3.5	0.18
12b	6.5-7	**0.29**
12c	9.5-10	**0.21**
12d	12-12.5	**0.39**
12e	15.5-16	**0.22**
12f	19.5-20	**0.36**
13a	3-3.5	**6.9**
13b	6.5-7	**41**
13c	9.5-10	**6.2**
13d	12-12.5	**11**
13e	15.5-16	**69**
14a	3-3.5	0.1
14b	6.5-7	ND
14c	9.5-10	ND
14d	12-12.5	ND
14e	15.5-16	ND
14f	19.5-20	**180**
15a	3-3.5	**0.86**
15b	6.5-7	**9**
15c	9.5-10	**0.28**
15d	12-12.5	ND
15e	15.5-16	ND
16a	3-3.5	0.14
16b	6.5-7	**100**
16c	9.5-10	**8.7**
16d	12-12.5	**50**
16e	15.5-16	**0.21**
17a	3-3.5	0.099
17b	6.5-7	0.047J
17c	9.5-10	0.11
18a	3-3.5	ND
18b	6.5-7	ND
18c	9.5-10	**2.6**
18d	12-12.5	**0.21**
18e	15.5-16	ND
18f	19.5-20	ND
19a	3-3.5	0.16
19b	6.5-7	0.12
19c	9.5-10	0.069J
19d	12-12.5	0.12
19e	15.5-16	0.027J
19f	19.5-20	0.081
20a	3-3.5	**24**
20b	6.5-7	**2.5**
20c	9.5-10	**10**
20d	12-12.5	**50**
20e	15.5-16	**52**
20f	19.5-20	**41**
21a	3-3.5	ND
21b	6.5-7	0.031J
21c	9.5-10	ND
21d	12-12.5	ND
21e	15.5-16	ND
22a	3-3.5	ND
22b	6.5-7	ND
22c	9.5-10	ND
22d	12-12.5	ND
23a	3-3.5	ND
23b	6.5-7	ND
23c	9.5-10	0.19
23d	12-12.5	ND
23e	15.5-16	ND
24a	3-3.5	0.088
24b	6.5-7	ND
24c	9.5-10	0.06J
24d	12-12.5	ND
24e	15.5-16	ND
24f	19.5-20	0.12
25a	3-3.5	**1.1**
25b	6.5-7	**160**
25c	9.5-10	**12**
25d	12-12.5	**7.8**
25e	15.5-16	ND
25f	19.5-20	ND
26a	3-3.5	**43**
26b	6.5-7	**2.3**
26c	9.5-10	**5.4**
26d	12-12.5	**17**
26e	15.5-16	**2**
26f	19.5-20	ND
27a	3-3.5	**0.37**
27b	6.5-7	0.053J
27c	9.5-10	**0.22**
27d	12-12.5	**1.2**
27e	15.5-16	ND
28a	3-3.5	0.11
28b	6.5-7	**0.32**
28c	9.5-10	ND
28d	12-12.5	ND
28e	15.5-16	**0.23**
28f	19.5-20	ND
29a	3-3.5	ND
29b	6.5-7	ND
29c	9.5-10	ND
29d	12-12.5	0.061J
29e	15.5-16	0.074J
30a	3-3.5	ND
30b	6.5-7	ND
30c	9.5-10	ND
30d	12-12.5	ND
30e	15.5-16	ND
30f	19.5-20	ND
31a	3-3.5	**0.55**
31b	6.5-7	**740**
31c	9.5-10	**3000**
31d	12-12.5	**180**
31e	15.5-16	**0.63**
31f	19.5-20	0.15
31Sa	3-3.5	ND
31Sb	6.5-7	ND
31Sc	9.5-10	ND
31Sd	12-12.5	ND
31Se	15.5-16	ND
31Sf	19.5-20	ND
32a	3-3.5	0.057J
32b	6.5-7	**0.32**
32c	9.5-10	**0.62**
32d	12-12.5	0.064J
32e	15.5-16	**44**
32Ea	3-3.5	ND
32Eb	6.5-7	ND
32Ec	9.5-10	0.11
32Ed	12-12.5	ND
32Ee	15.5-16	ND
32Ef	19.5-20	ND
32f	19.5-20	0.13
33a	3-3.5	**1.7**
33b	6.5-7	0.18
33c	9.5-10	**2.3**
33d	12-12.5	**5.2**
33e	15.5-16	**5.1**
34a	3-3.5	ND
34b	6.5-7	ND
34c	9.5-10	ND
34d	12-12.5	ND
34e	15.5-16	ND
38a	3-3.5	ND
38b	6.5-7	ND
38c	9.5-10	ND
38d	12-12.5	ND
38e	15.5-16	ND
39a	3-3.5	ND
39b	6.5-7	ND
39c	9.5-10	ND
39d	12-12.5	ND
39e	15.5-16	ND
39f	19.5-20	ND
B1a	3.5-4	0.079
B1b	7.5-8	**1.4**
B1c	9.5-10	0.092
B1d	11.5-12	0.19
B1e	15.5-16	**0.98**
B2a	3.5-4	**11**
B2b	7.5-8	**59**
B2c	9.5-10	**31**
B2d	11.5-12	**19**
B2Da	17.5-18	ND
B2Db	19.5-20	ND
B2e	15.5-16	**32**
B3a	3.5-4	**41**
B3b	7.5-8	**13**
B3c	9.5-10	**24**
B3d	11.5-12	**23**
B3e	15.5-16	**10**
B4a	3.5-4	**4.6**
B4b	7.5-8	ND
B4c	9.5-10	ND
B4d	11.5-12	ND
B4e	15.5-16	**0.41**
B5a	3.5-4	0.11
B5b	7.5-8	**0.61**
B5c	9.5-10	**0.74**
B5d	11.5-12	0.15
B5e	15.5-16	ND
B6a	3.5-4	**5.5**
B6b	7.5-8	**19**
B6c	9.5-10	**30**
B6d	11.5-12	**60**
B6e	15.5-16	**29**
B7a	3.5-4	**1.4**
B7b	7.5-8	**5**
B7c	9.5-10	**1.1**
B7d	11.5-12	**0.87**
B7e	15.5-16	**0.56**
B8a	3.5-4	ND
B8b	7.5-8	**2.9**
B8c	9.5-10	**0.76**
B8d	11.5-12	**3.6**
B8Da	15.5-16	**3.3**
B8Db	17.5-18	0.17
B8e	15.5-16	**1.6**
B9a	3.5-4	ND
B9b	7.5-8	ND
B9c	9.5-10	ND
B9d	11.5-12	ND
B9e	15.5-16	ND
B10a	3.5-4	0.083
B10b	7.5-8	ND
B10c	9.5-10	ND
B10d	11.5-12	ND
B10e	15.5-16	ND
B11a	3.5-4	0.15
B11b	7.5-8	**21**
B11c	9.5-10	**0.95**
B11d	11.5-12	**68**
B11e	15.5-16	0.18
B12a	3.5-4	ND
B12b	7.5-8	0.041
B12c	9.5-10	ND
B12d	11.5-12	ND
B12e	15.5-16	**2.4**
ABE-1a	3-3.5	ND
ABE-1b	6-6.5	ND
ABE-1c	8.5-9	0.071J
ABE-2a	3-3.5	ND
ABE-2b	6-6.5	ND
ABE-2c	8.5-9	ND
ABE-3a	3-3.5	**16**
ABE-3b	6-6.5	**140**
ABE-3c	8.5-9	**35**
ABE-4a	3-3.5	ND
ABE-4b	6-6.5	ND
ABE-4c	8.5-9	ND
ABE-7a	3-3.5	ND
ABE-7b	6-6.5	ND
ABE-7c	8.5-9	ND
AC-10a	3-3.5	0.041J
AC-10b	7.5-8	0.046J
AC-11a	3.5-4	ND

Table 4: Summary of All PCB Soil Results and Depths from Lot 2

Sample ID	Depth (ft bgs)	PCBs (mg/kg)
AC-12a	3.5-4	0.046J
AC-12b	7.5-8	0.049J
AC-1a	3.5-4	0.077
AC-2	3-3.5	8.8
AC-2B	8.5-9	3.3
AC-4	5.5-6	ND
AC-5	4.5-5	ND
AC-6	5.5-6	ND
AC-7	6.5-7	ND
AC-8a	3.5-4	ND
AC-9a	4-4.5	0.030J
AC-9b	7.5-8	ND
AE-1	3.5-4.0	ND
AE-1a	11.5-12.0	ND
AE-2	1.5-2.0	ND
AE-2a	7.5-8.0	ND
AW-1a	3-3.5	110
AW-1b	6.5-7	1.2
AW-1c	9.5-10	180
AW-2a	3-3.5	ND
AW-2b	6-6.5	ND
AW-2c	8.5-9	ND
BP1	7.0-7.5	5.0
BP2	4.5-5.0	ND
BP3	4.5-5.0	ND
BP4	7.5-8.0	ND
BP5a	4.5-5	ND
BP5b	8.5-9	ND
BP6a	4.5-5	ND
BP6b	8.5-9	0.046J
BP7a	4.5-5	ND
BP7b	8.5-9	ND
BP8a	4.5-5	ND
BP8b	8.5-9	ND
C1*	0-0.5	ND
C2*	0-0.5	ND
C3*	0-0.5	0.93
C4*	0-0.5	ND
C5*	0-0.5	7.4
C6*	0-0.5	ND
C7*	0-0.5	0.95
C8*	0-0.5	1.4
C9*	0-0.5	0.12
C10*	0-0.5	0.35
C11*	0-0.5	0.055J
C12*	0-0.5	0.081
CC-LD*	0-0.5	77
CO1	7.5-8.0	ND
CO2	10.0-10.5	ND
CO3	7.5-8.0	ND
CO4	9.5-10.0	ND
CO5	7.0-7.5	ND
CO6	7.5-8.0	ND
Del-1a	3-3.5	ND
Del-1b	6.5-7	ND
Del-1c	9.5-10	ND
Del-1d	12-12.5	ND
Del-1e	15.5-16	0.10
Del-1f	19.5-20	ND
Del-2a	3-3.5	ND
Del-2b	6.5-7	ND
Del-2c	9.5-10	ND
Del-2d	12-12.5	ND
Del-2e	15.5-16	ND
Del-2f	19.5-20	ND
FM1a	5.5-6.0	ND
FM1b	11.0-11.5	ND
FM2a	5.0-5.5	ND
FM2b	11.0-11.5	ND
FM3	3.5-4.0	0.054J
FM3a	9.5-10.0	ND
FM4	3.5-4.0	ND
FM4a	11.5-12.0	0.23
FM5	3.5-4.0	ND
FM5a	9.5-10.0	ND
FM6	1.5-2.0	2.6
FM6-1a	1.5-2	1.3
FM6-2a	1.5-2	0.056J
FM6-3a	1.5-2	ND
FM6-4a	1.5-2	ND
FM6-5a	1.5-2	ND
FM6-6a	1.5-2	2.1
FM6-7a	1.5-2	ND
FM6-B	3-3.5	0.21
FM6-C	6-6.5	0.33
FM7	1.5-2.0	0.057J
FM7a	11.5-12.0	ND
FM8a	6.0-6.5	ND
FM8b	10.0-10.5	ND
FM10-1a	6.5-7	ND
FM10-1b	11.5-12	ND
FM10-2a	6.5-7	ND
FM10-2b	11.5-12	ND
FM10-3a	6.5-7	ND
FM10-3b	11.5-12	ND
FM10-4a	6.5-7	ND
FM10-4b	11.5-12	ND
FM10-5a	6.5-7	1.1
FM10-5b	11.5-12	0.048J
FM10-6a	6.5-7	ND
FM10-6b	11.5-12	ND
FM10-7a	6.5-7	ND
FM10-7b	11.5-12	ND
FM10a	6.5-7	4.4
FM10b	11.5-12	4.3
FM11a	6.0-6.5	ND
FM11b	11.5-12.0	ND
FM12a	6.0-6.5	ND
FM12b	11.5-12.0	ND
FM13a	6-6.5	16
FM13b	9.5-10	28
FM14a	6.0-6.5	ND
FM14b	11.5-12.0	ND
I1	11.5-12.0	0.77
LD1	7.5-8.0	ND
LD2	7.5-8.0	ND
LD3	7.5-8	1900
LD3Da	3-3.5	3000
LD3Db	6.5-7	1100
LD3Dc	9.5-10	660
LD3Dd	12-12.5	1.6
LD3De	15.5-16	0.72
LD3Df	17.5-18	0.34
LD3Dg	19.5-20	0.33
LD3Ea	3-3.5	0.56
LD3Eb	6.5-7	ND
LD3Ec	9.5-10	0.12
LD3Ed	12-12.5	ND
LD3Ee	15.5-16	ND
LD3Ef	17.5-18	0.07J
LD3Eg	19.5-20	0.11
LD3Na	3-3.5	410
LD3Nb	6.5-7	27
LD3Nc	9.5-10	0.11
LD3Nd	12-12.5	120
LD3Ne	15.5-16	0.22
LD3Nf	17.8-18	0.4
LD3Ng	19.5-20	ND
LD3Sa	3-3.5	8.1
LD3Sb	6.5-7	3700
LD3Sc	9.5-10	930
LD3Sd	12-12.5	70
LD3Se	15.5-16	1100
LD3Sf	17.5-18	24
LD3Sg	19.5-20	9.5
NE-1a	3.5-4	ND
NE-1b	7.5-8	ND
NE-2a	3.5-4	ND
NE-2b	7.5-8	ND
NE-3a	3.5-4	ND
NE-3b	7.5-8	ND
NE-4a	3.5-4	ND
NE-4b	7.5-8	ND
OH1	3.0-3.5	ND
OH1a	7.5-8.0	ND
OH2	1.5-2.0	ND
OH2a	4.5-5.0	ND
OV1	3.0-3.5	ND
OV1a	11.5-12.0	ND
OV2	3.5-4.0	ND
OV2a	11.0-11.5	ND
P1	7.5-8.0	ND
P10	6.0-6.5	ND
P10-1a	6-6.5	ND
P10-1b	10-10.5	ND
P10-2a	6-6.5	ND
P10-2b	10-10.5	ND
P10-4a	6-6.5	ND
P10-4b	10-10.5	ND
P11	11.0-11.5	ND
P2	7.5-8.0	ND
P3	7.5-8.0	ND
P4	8.5-9.0	ND
P5	4.5-5.0	ND
P6	7.5-8.0	ND
P7	11.0-11.5	ND
P8	5.0-5.5	ND
P9	6.0-6.5	ND
P9	6.0-6.5	ND
PR1a	3.5-4	0.34
PR1b	11.5-12	6.8
PR1Da	15.5-16	190
PR1Db	17.5-18	43
PR1Dc	19.5-20	45
PR1Dd	23.5-24	1.5
PR2a	5.5-6	15
PR2b	11.5-12	11
PR3a	6-6.5	22
PR3b	11.5-12	6.3
PR3Da	15.5-16	110
PR3Db	17.5-18	18
PR3Dc	19.5-20	47
PR3Dd	23.5-24	1.3
PR4a	6-6.5	0.72
PR4b	11.5-12	ND
PR5a	4-4.5	7.6
PR5b	11.5-12	5.9
PR5Da	15.5-16	16
PR5Db	17.5-18	37
PR5Dc	19.5-20	21
R1	9.5-10.0	ND
R2	9.5-10.0	ND
R3	9.5-10.0	ND
R4	9.5-10.0	ND
RP1	4.5-5.0	ND
RP2	4.5-5.0	ND
RP3	4.5-5.0	ND
RP4	4.5-5.0	ND
RP5a	4.5-5	ND
RP5b	8.5-9	ND
RP6a	4.5-5	ND
RP6b	8.5-9	ND
RP7a	4.5-5	ND
RP7b	8.5-9	ND
RP8a	4.5-5	ND
RP8b	8.5-9	ND
TR1	3.5-4.0	0.51
TR2	9.5-10.0	ND
TR3	6.5-7.0	0.38
TR4	7.5-8.0	0.20
TR5	7.5-8.0	ND
TR6	11.5-12.0	0.17
TR7	7.5-8.0	ND
TR8	4.5-5.0	ND
WB1[2]		ND
WB2[2]		2.1
WB3[2]		1.1

*Concrete Sample

[2]Wood Block Floor Sample (composite)

ATTACHMENT A

Certification

EcolSciences, Inc.
Environmental Management & Regulatory Compliance

CERTIFICATION

We, Edward Russo, Managing Member with 490 South Avenue LLC and re-developer of the former Petro Plastics Site located at 450-490 South Avenue (Block 401, Lot 1), and Kenneth Casale, President of Casale Industries, the owner of the Site located at 50 Center Street (Block 401, Lot 2), in the Borough of Garwood, Union County, New Jersey do hereby certify that all available documents pertaining to sampling plans, sample collection procedures, sample preparation procedures, extraction procedures, and instrumental/chemical analysis procedures used to assess or characterize the PCB contamination at the site are on file at EcolSciences Inc. with an office located at 75 Fleetwood Drive Rockaway, Morris County, New Jersey 07866.

These files are available for review by contacting Peter Hansen, Assistant Vice President at that office during regular business hours at 973-366-9500 or via email at phansen@ecolsciences.com.

Certified By:

Edward Russo

11/25/2015
Date

Kenneth Casale

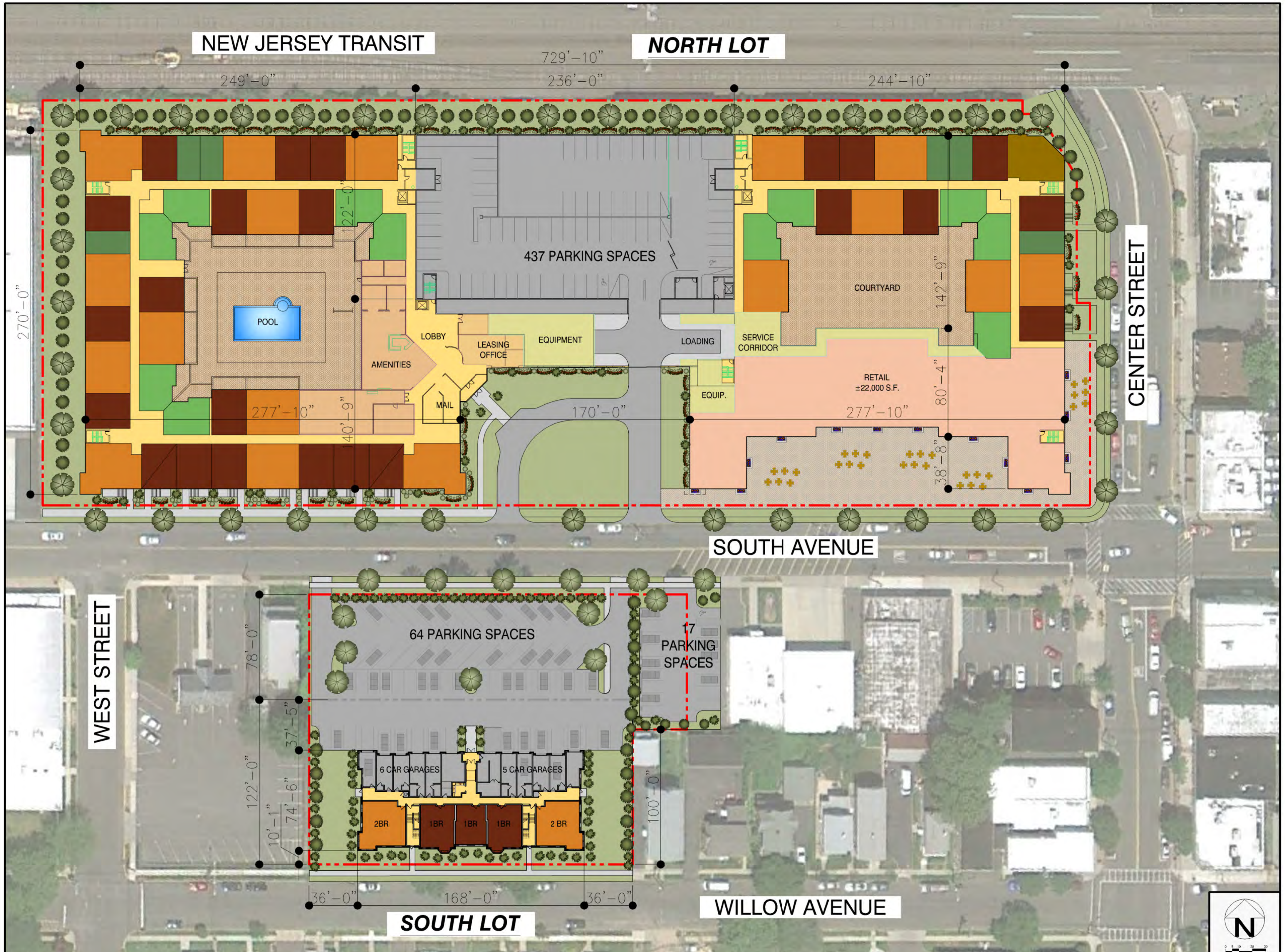
12/1/15
Date

ATTACHMENT B

Current Redevelopment Plan

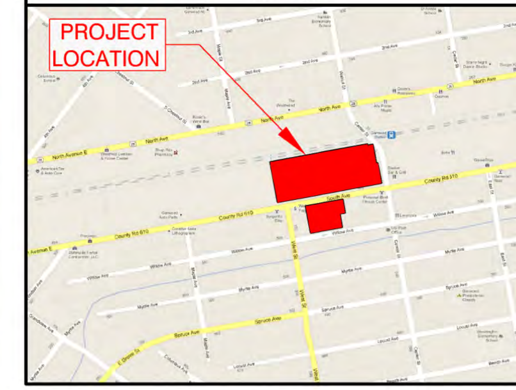
EcolSciences, Inc.

Environmental Management & Regulatory Compliance



LOCATION MAP

N.T.S.



PROJECT DATA

NORTH LOTS		
BLK: 401 LOTS: 1-2,4-5	5.286 AC.	230,265 S.F.
SOUTH LOTS		
BLK: 403 LOTS: 4-6, 19-22	1.194 AC.	52,000 S.F.
TOTAL ALL LOTS	**6.480 AC.**	**282,265 S.F.**

ZONING
NORTH LOT: LI - LIGHT INDUSTRY
SOUTH LOT: GB - GENERAL BUSINESS
RB - RESIDENTIAL "B" (TWO FAMILY)

RETAIL ±22,000 SF

RETAIL PARKING

COVERED (GARAGE)	40 SPACES
SURFACE (SOUTH AVENUE)	27 SPACES
TOTAL	67 SPACES

±22,000 SF/ 67 SPACES= 1 SPACE PER 328 SF

NORTH LOT

STUDIO	24 UNITS	7.4%
1 BEDROOM	200 UNITS	61.5%
2 BEDROOM	101 UNITS	31.1%
	325 UNITS	

PARKING

COVERED (GARAGE)	360 SPACES
SHARED PARKING (ROOF)	77 SPACES
TOTAL GARAGE PARKING	437 SPACES

437 SPACES/ 325 UNITS= 1.34 SPACES/ UNIT

SOUTH LOT

1 BEDROOM	13 UNITS	52.0%
2 BEDROOM	12 UNITS	48.0%
	25 UNITS	

PARKING

GARAGE	11 SPACES
DRIVEWAY	11 SPACES
SURFACE	53 SPACES
TOTAL	75 SPACES

75 SPACES/25 UNITS 3.00 SPACES/UNIT

RESIDENTIAL SUMMARY INCL. SHARED PARKING

NORTH & SOUTH LOT UNIT COUNT	350
NORTH & SOUTH LOT PARKING	512

512 SPACES/350 UNITS= 1.46 SPACES/UNIT

RUSSO DEVELOPMENT

PROPOSED MIXED-USE BUILDING

SOUTH AVENUE

BOROUGH OF GARWOOD, UNION COUNTY, NEW JERSEY

SITE PLAN

A1.1

Date: 5/18/15

PROJECT DATA

BUILDING "A"

UNIT TYPE	GRND. FL.	2ND FL.	3RD FL.	4TH FL.	TOTAL	RATIO
STUDIO	7	6	6	5	24 UNITS	7.9%
1 BEDRM	24	53	55	48	180 UNITS	59.6%
2 BEDRM	14	28	29	27	98 UNITS	32.5%
TOTAL	45	87	90	80	302 UNITS	100%

PARKING

LEVEL	RESIDENTIAL	SHARED	RETAIL	TOTAL
GROUND FLOOR	12	24	73	109
SECOND FLOOR	96	0	0	96
THIRD FLOOR	96	0	0	96
FOURTH FLOOR	96	0	0	96
FIFTH FLOOR	61	0	0	61
ROOF LEVEL	76	0	0	76
TOTAL SPACES	437	24	73	534

RESIDENTIAL PARKING: 1.44 PER UNIT
RESIDENTIAL PARKING: 1.52 PER UNIT (INCL. 24 SHARED SPACES)
RETAIL PARKING: 4 PER 1,000 S.F.

LEGEND

- STUDIO
- 1 BEDROOM UNIT
- 2 BEDROOM UNIT
- CIRCULATION
- LEASING OFFICE
- AMENITIES
- UTILITY/MECHANICAL
- RETAIL

RUSSO

PROPOSED MIXED-USE BUILDING

SOUTH AVENUE

BOROUGH OF GARWOOD, UNION COUNTY, NEW JERSEY

GROUND FLOOR PLAN

A2.1

Date: 10/13/15

ATTACHMENT C

Sanborn Map Report

EcolSciences, Inc.

Environmental Management & Regulatory Compliance

Former Petro Plastics
450 South Avenue
Garwood, NJ 07027

Inquiry Number: 3833484.3
January 17, 2014

Certified Sanborn® Map Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

1/17/14

Site Name:
Former Petro Plastics
450 South Avenue
Garwood, NJ 07027

Client Name:
ECOL Sciences
75 Fleetwood Drive
Rockaway, NJ 07866

EDR Inquiry # 3833484.3

Contact: Jeff Mulligan

EDR® Environmental Data Resources Inc

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by ECOL Sciences were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Site Name:	Former Petro Plastics
Address:	450 South Avenue
City, State, Zip:	Garwood, NJ 07027
Cross Street:	
P.O. #	HW14-020
Project:	Russo Garwood
Certification #	FC86-4D71-8E26

Maps Provided:

1963, 1949, 1928, 1921, 1916, 1909, 1901

Sanborn® Library search results
Certification # FC86-4D71-8E26

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✔ Library of Congress
- ✔ University Publications of America
- ✔ EDR Private Collection

The Sanborn Library LLC Since 1866™

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Sanborn Sheet Thumbnails

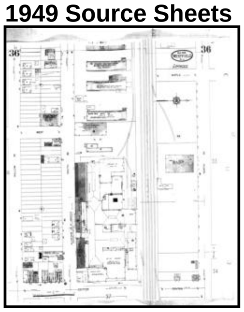
This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

1963 Source Sheets

Volume 1, Sheet 36

Volume 1, Sheet 41

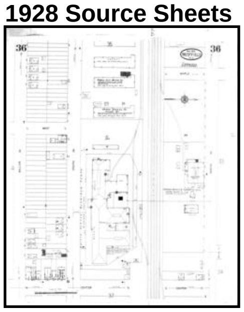
1949 Source Sheets



Volume 1, Sheet 36

Volume 1, Sheet 41

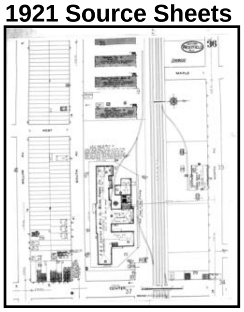
1928 Source Sheets



Volume 1, Sheet 36

Volume 1, Sheet 41

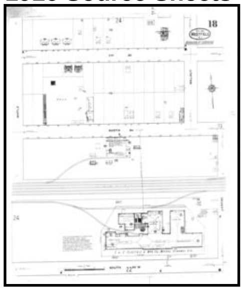
1921 Source Sheets



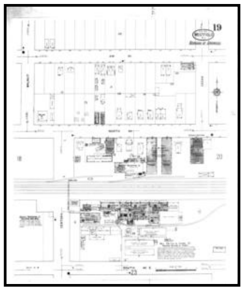
Volume 1, Sheet 36

Volume 1, Sheet 41

1916 Source Sheets



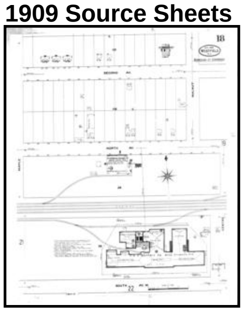
Volume 1, Sheet 18



Volume 1, Sheet 19

Volume 1, Sheet 22

1909 Source Sheets



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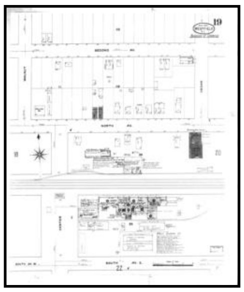
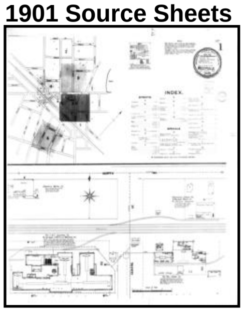


Volume 1, Sheet 19

Volume 1, Sheet 22

1901 Source Sheets



Volume 1, Sheet Keymap/Sheet1

1963 Certified Sanborn Map

Site Name:	Former Petro Plastics
Address:	450 South Avenue
City, ST, ZIP:	Garwood NJ 07027
Client:	ECOL Sciences
EDR Inquiry:	3833484.3
Order Date:	1/17/2014 3:38:00 PM
Certification #	FC86-4D71-8E26

This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.

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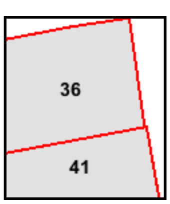

Volume 1, Sheet 36
Volume 1, Sheet 41

N

1949 Certified Sanborn Map

Site Name:	Former Petro Plastics
Address:	450 South Avenue
City, ST, ZIP:	Garwood NJ 07027
Client:	ECOL Sciences
EDR Inquiry:	3833484.3
Order Date:	1/17/2014 3:38:00 PM
Certification #	FC86-4D71-8E26
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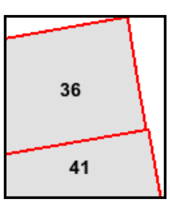

Volume 1, Sheet 36
Volume 1, Sheet 41

1928 Certified Sanborn Map

Certification # FC86-4D71-8E26

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Address:	450 South Avenue
City, ST, ZIP:	Garwood NJ 07027
Client:	ECOL Sciences
EDR Inquiry:	3833484.3
Order Date:	1/17/2014 3:38:00 PM
Certification #	FC86-4D71-8E26
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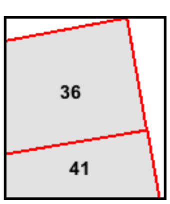

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Volume 1, Sheet 41

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1921 Certified Sanborn Map

Certification # FC86-4D71-8E26

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Address:	450 South Avenue
City, ST, ZIP:	Garwood NJ 07027
Client:	ECOL Sciences
EDR Inquiry:	3833484.3
Order Date:	1/17/2014 3:38:00 PM
Certification #	FC86-4D71-8E26
Copyright:	1921

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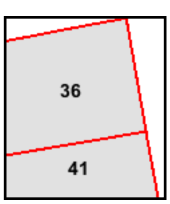

Volume 1, Sheet 36
Volume 1, Sheet 41

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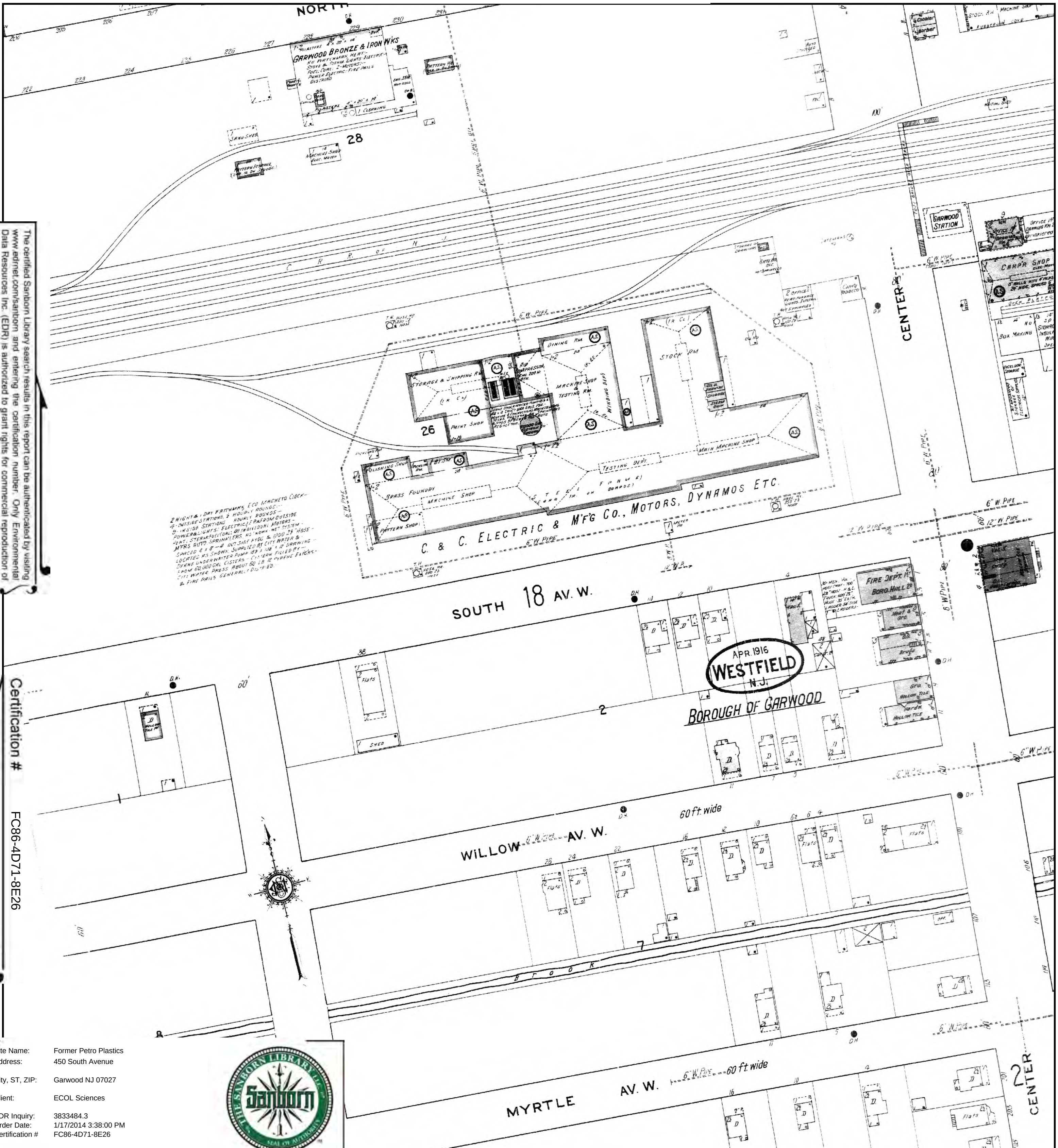

Certification # FC86-4D71-8E26

Site Name:	Former Petro Plastics
Address:	450 South Avenue
City, ST, ZIP:	Garwood NJ 07027
Client:	ECOL Sciences
EDR Inquiry:	3833484.3
Order Date:	1/17/2014 3:38:00 PM
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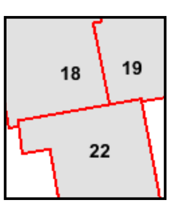

Volume 1, Sheet 18
Volume 1, Sheet 19
Volume 1, Sheet 22

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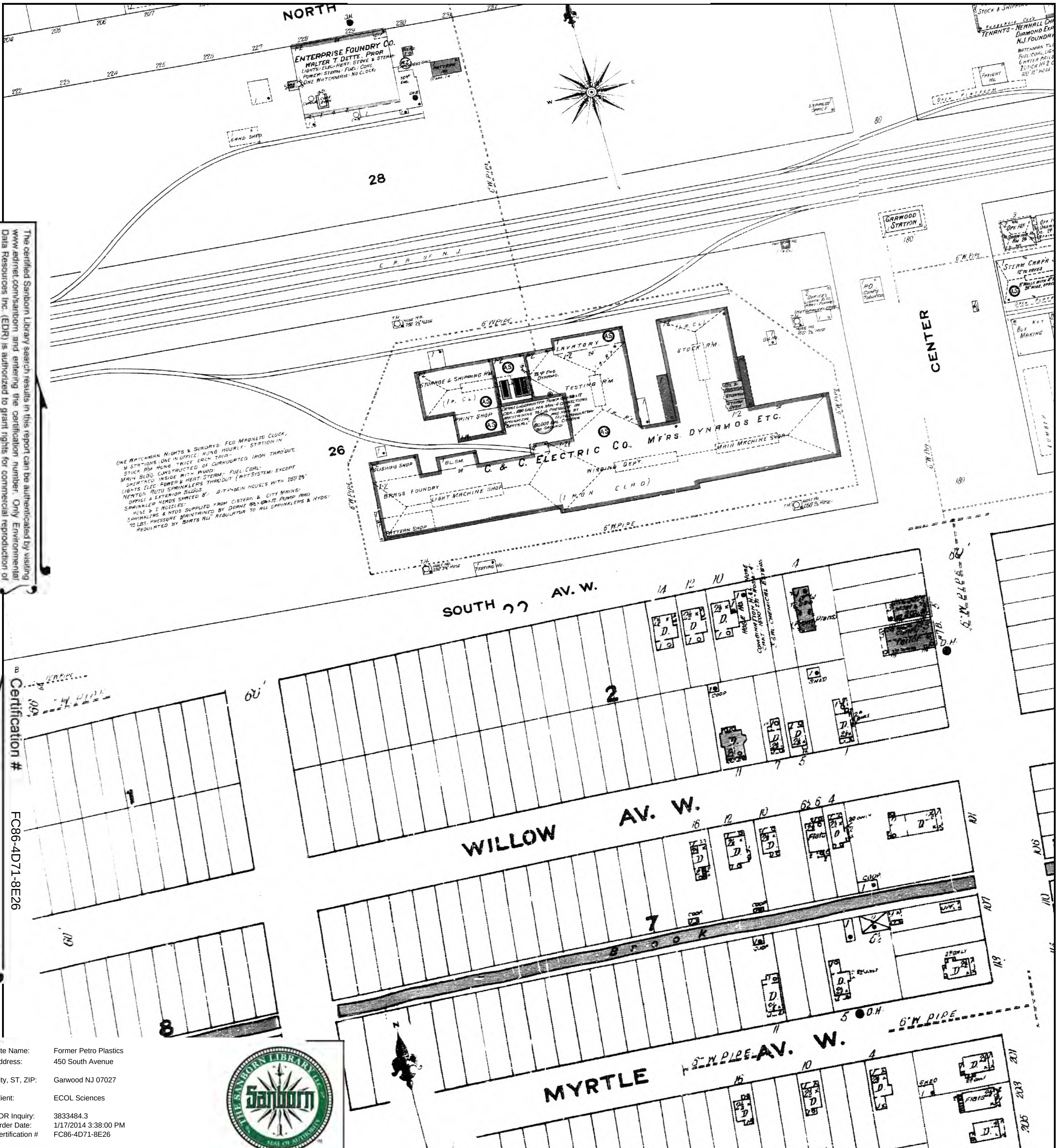

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Site Name:	Former Petro Plastics
Address:	450 South Avenue
City, ST, ZIP:	Garwood NJ 07027
Client:	ECOL Sciences
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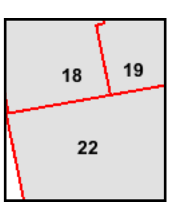

Volume 1, Sheet 18
Volume 1, Sheet 19
Volume 1, Sheet 22

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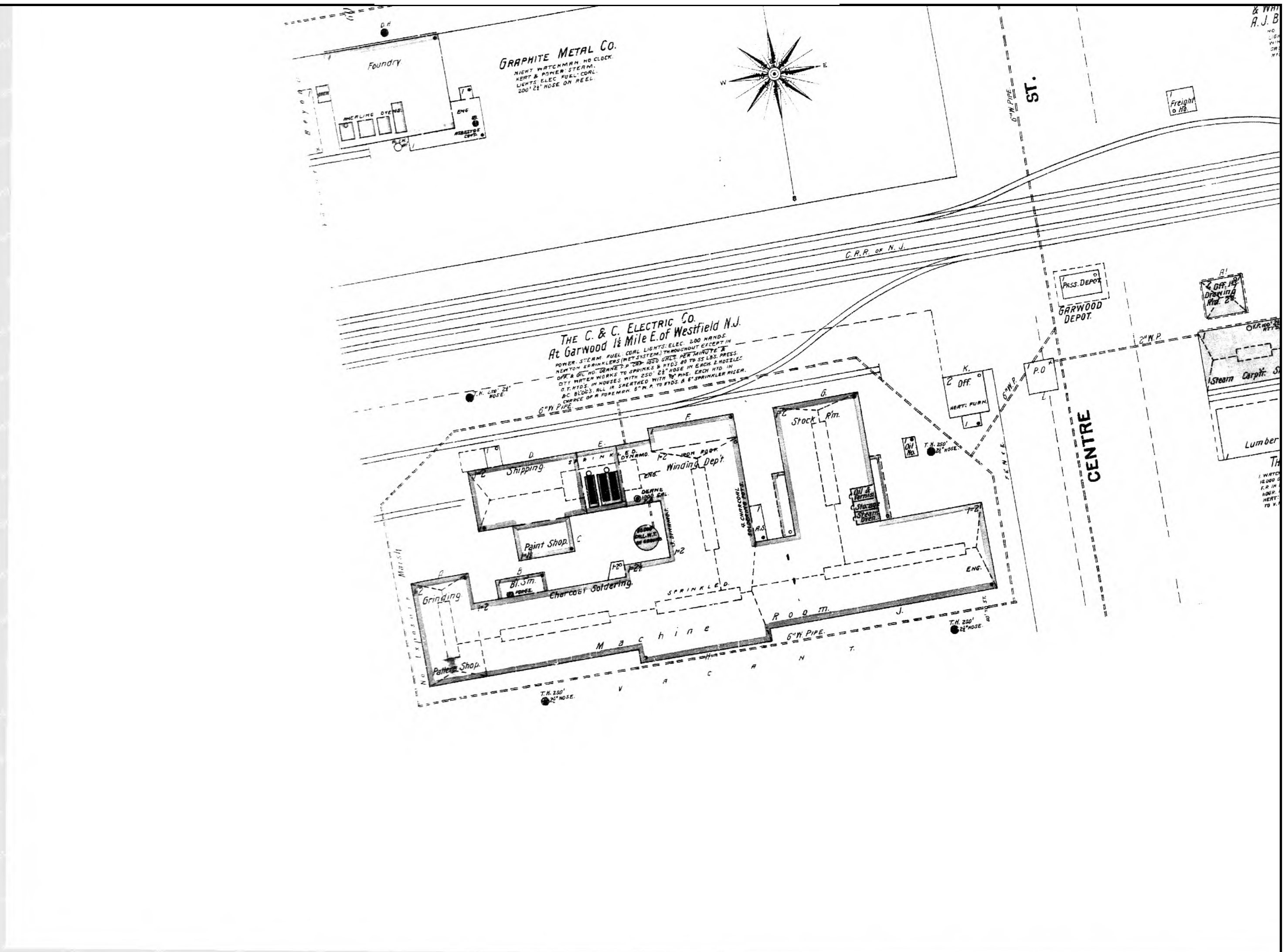

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Client:	ECOL Sciences
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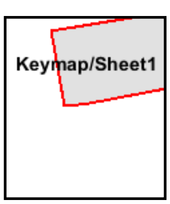

Volume 1, Sheet Keymap/Sheet1

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ATTACHMENT D

Trillium, Inc. Report

EcolSciences, Inc.

Environmental Management & Regulatory Compliance

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FORENSIC ASSESSMENT REPORT

Polychlorinated Biphenyls (PCBs) Found at the Former Petro Plastics Company, Inc., Block 401, Lot 1, Block 403, Lots 4, 21, and 22, Borough of Garwood, Union County, New Jersey and the Property at 50 Center Street, Block 401, Lot 2 and 400 South Avenue, Block 401, Lot 4, Borough of Garwood, Union County, New Jersey

PREPARED FOR:

490 South Avenue, LLC
Carlstadt, New Jersey

PREPARED BY:

James S. Smith, Ph.D., CPC
Trillium, Inc.
28 Graces Drive
Coatesville, PA 19320
(610) 383-7233

November 19, 2015

TRILLIUM INC.

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I. OBJECTIVE

A forensic assessment for the source of the PCBs found at the title properties is the objective of this report. The investigation is to determine, to a reasonable degree of scientific certainty, the explanation for the use of the PCBs observed in the various site media, what entity used the PCBs and released them to the site media, as well as any fate and/or transport of the PCBs at the properties. The result of this work will give the most logical time frame for the use and release of the PCBs to this environment, to a reasonable degree of scientific probability.

II. DOCUMENTS AND DATA REVIEWED

8/12/1995	Consent Decree, Superior Court of Washington for Clark County in the matter of State of Washington Department of Ecology v. Aluminum Company of America, Inc..
3/7/2014	TestAmerica Edison Data Package Job No. 460-72005-2 (278 pages).
3/10/2014	TestAmerica Edison Data Package Job No. 460-72003-1 (140 pages).
3/10/2014	TestAmerica Edison Data Package Job No. 460-72104-1 (151 pages).
3/11/2014	TestAmerica Edison Data Package Job No. 460-71834-1 (666 pages).
3/13/2014	TestAmerica Edison Data Package Job No. 460-72005-1 (743 pages).
3/24/2014	TestAmerica Edison Data Package Job No. 460-71826-1 (267 pages).
3/24/2014	TestAmerica Edison Data Package Job No. 460-71832-1 (815 pages).
3/24/2014	TestAmerica Edison Data Package Job No. 460-71836-1 (531 pages).
3/24/2014	TestAmerica Edison Data Package Job No. 460-71837-1 (673 pages).
3/24/2014	TestAmerica Edison Data Package Job No. 460-71999-1 (585 pages).
3/24/2014	TestAmerica Edison Data Package Job No. 460-72000-1 (796 pages).
3/24/2014	TestAmerica Edison Data Package Job No. 460-72124-1 (402 pages).

3/24/2014	TestAmerica Edison Data Package Job No. 460-72122-1 (793 pages).
3/24/2014	TestAmerica Edison Data Package Job No. 460-72123-1 (799 pages).
3/25/2014	TestAmerica Edison Data Package Job No. 460-71835-1 (810 pages).
3/25/2014	TestAmerica Edison Data Package Job No. 460-72004-1 (400 pages).
3/25/2014	TestAmerica Edison Data Package Job No. 460-72006-1 (560 pages).
4/11/2014	Accutest Data Package Job No. JB63895 (454 pages).
4/15/2014	TestAmerica Edison Data Package Job No. 460-73587-1 (481 pages).
4/21/2014	TestAmerica Edison Data Package Job No. 460-74423-1 (469 pages).
4/21/2014	TestAmerica Edison Data Package Job No. 460-74427-1 (112 pages).
4/23/2014	TestAmerica Edison Data Package Job No. 460-74426-1 (127 pages).
4/24/2014	TestAmerica Edison Data Package Job No. 460-73593-1 (2626 pages).
4/25/2014	TestAmerica Edison Data Package Job No. 460-73773-1 (605 pages).
4/29/2014	TestAmerica Edison Data Package Job No. 460-73658-1 (782 pages).
4/29/2014	TestAmerica Edison Data Package Job No. 460-73666-1 (1099 pages).
4/29/2014	TestAmerica Edison Data Package Job No. 460-73832-1 (732 pages).
4/29/2014	TestAmerica Edison Data Package Job No. 460-74367-1 (169 pages).
4/30/2014	TestAmerica Edison Data Package Job No. 460-73660-1 (1105 pages).
5/7/2014	Ecolsciences, Inc., Preliminary Assessment Report/Site Investigation Report/Remedial Investigation Report, Petro Plastics Company, Inc., Volumes 1 and 2.
1/30/2015	TestAmerica Edison Data Package Job No. 460-89114-1 (1219 pages).
2/4/2015	TestAmerica Edison Data Package Job No. 460-89221-1 (1255 pages).

2/4/2015	TestAmerica Edison Data Package Job No. 460-89362-1, Revision 1 (556 pages).
2/12/2015	TestAmerica Edison Data Package Job No. 460-89049-1 (2201 pages).
2/12/2015	TestAmerica Edison Data Package Job No. 460-89342-1 (1725 pages).
2/24/2015	TestAmerica Edison Data Package Job No. 460-90696-1 (167 pages).
2/25/2015	TestAmerica Edison Data Package Job No. 460-90674-1 (668 pages).
3/2/2015	TestAmerica Edison Data Package Job No. 460-90858-1 (938 pages).
3/6/2015	Chicago Title Insurance Company Title for Russo Acquisitions, LLC, File No. H14-0037 Schedule A with attached historical deeds.
3/10/2015	TestAmerica Edison Data Package Job No. 460-91169-1 (56 pages).
3/12/2015	TestAmerica Edison Data Package Job No. 460-90690-1 (4065 pages).
3/16/2015	TestAmerica Edison Data Package Job No. 460-90741-1 (2190 pages).
3/16/2015	TestAmerica Edison Data Package Job No. 460-90796-1 (2802 pages).
3/16/2015	TestAmerica Edison Data Package Job No. 460-90888-1 (2789 pages).
3/16/2015	TestAmerica Edison Data Package Job No. 460-90931-1 (2136 pages).
4/28/2015	EcolSciences, Inc., Phase II Investigation Report for 50 Center Street and 400 South Avenue, Garwood, New Jersey.
4/30/2015	EcolSciences, Inc., Phase I Environmental Site Assessment/Preliminary Assessment for 50 Center Street; 400, 423 and 435 South Avenue; and 424 and 432 Willow Avenue, Block 401, Lots 2 and 4; Block 403, lots 5, 6, 19, and 20, Borough of Garwood, Union County, New Jersey.
6/2/2015	TestAmerica Edison Data Package Job No. 460-95417-1 (784 pages).
7/2015	EcolSciences, Inc., Supplemental Remedial Investigation Report, Former Petro Plastics Company, Inc.

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References

1. O. Huntzinger, S. Safe, and V. Zitko, The Chemistry of PCBs, CRC Press, 1974.

2. The Merck Index, 11th Edition, compound 9675, page 1535, Merck & Co., Inc., Rahway, New Jersey, 1989.

3. B. K. Brown, "The Use of Plasticizers in Lacquers A Brief Survey," Industrial and Engineering Chemistry, Vol. 17, No. 6, page 568, 1925.

4. Gamrath, H.R. and R.E. Hatton, Tricresyl Phosphate-Chlorinated Biphenyl Functional Fluid Improved by Alkylated Polystyrene, Patent 2,707,176, April 26, 1955.

5. C. Winder and J-C Balouet, "The Toxicity of Commercial Jet Oils," Environmental Research, Vol. 89, Issue 2, pages 146-164, June 2002.

6. Griggs, C. and S.J. Bellrichard, "Characterizing PCB Contamination in Painted Demolition Debris: The 'Painted History' at the Iowa Army Ammunition Plant," US Army Corps of Engineers.

7. "The Aroclor Compounds," by Monsanto (circa 1960).

8. "End Uses for Aroclor Compounds," in Plasticizer Patter by Monsanto's Plasticizer Sales Department, February 1961.

9. Rodriquez, G., "PCBs in Caulk and Paint," presented at the US Army Corps of Engineers Environment, Energy, Security & Sustainability Symposium & Exhibition, June 16, 2010.

10. "Aroclor Plasticizers," Technical Bulletin O/PL-306 by Monsanto.

11. US Army Corps of Engineers Public Works Technical Bulletin 200-1-126, December 2012.

12. Environmental Forensics Contaminant Specific Guide, Robert D. Morrison and Brian L. Murphy, Editors, page 191, Elsevier, 2006.

13. ICL Industrial Products Safety Data Sheet for Lindol, Revision 3, 7/8/2013.

III. FACTS

The C&C Electric Company occupied the property in the first decades of the twentieth century and manufactured dynamos. The site was used by the United States Aluminum Company

(ALCOA) making aluminum castings in 1928. On the 1949 Sanborn map, the southern portion of the industrial building was labeled aluminum castings. ALCOA sold the property to Mr. Segal and Mr. Berger in August 1961.[1] The Segals and the Bergers sold the property to Casale Sheet Metal Co., Inc., on April 12, 1963.[2] With name changes to Casale Industries, the metal fabrication operation continued until 2013.

The PCBs observed at these properties have been a very high percentage of the Aroclor 1248. It is a clear mobile oil with 48% chlorine by weight. The chemical is thermally stable and does not have a fire point until 340°C (644°F). The fluid is heavier than water with a specific gravity of 1.4 at room temperature.[3] Aroclor 1248 was produced by Monsanto. It is chemically stable and resists oxidation. These chemical and physical properties of this particular PCB mixture are excellent for a hydraulic fluid used in systems moving extremely hot metal.

Monsanto produced PCBs for use in the United States and voluntarily restricted sales of all Aroclors to uses in closed electrical systems such as transformers and capacitors in 1971.[4]

A consent decree filed in 1995 in the Superior Court of Washington for Clark County in the matter of State of Washington Department of Ecology v. Aluminum Company of America, Inc., concerned the release of PCBs. ALCOA fabricated aluminum products starting in the late 1940s. In the rod mill, there were PCB hydraulic oils in some of the systems. The PCB found at this plant was Aroclor 1248.[5]

Careful review of the semi-volatile organic compound (SVOC) analyses by gas chromatography-mass spectrometry (GC/MS) by USEPA SW-846 method 8270D shows a direct correlation between locations with Aroclor 1248 and tricresylphosphate (TCP) (see Tables 1, 2, 3, and 4). This chemical, like Aroclor 1248, is an oily, flame resistant liquid and is used in hydraulic

[1] August 11, 1961 Deed attached to the 3/6/2015 Chicago Title Insurance Company Title for Russo Acquisitions, LLC, File No. H14-0037 Schedule A.

[2] April 12, 1963 Deed attached to the 3/6/2015 Chicago Title Insurance Company Title for Russo Acquisitions, LLC, File No. H14-0037 Schedule A.

[3] O. Huntzinger, S. Safe, and V. Zitko, The Chemistry of PCBs, CRC Press, 1974.

[4] O. Huntzinger, S. Safe, and V. Zitko, The Chemistry of PCBs, CRC Press, 1974.

[5] Consent Decree dated 8/12/1995, Section V Statement of Facts, Part C on pages 8 and 9.

systems.[6] TCP has been available since the 1920s.[7] The Monsanto Chemical Company was assigned a patent for the mixture of TCP and PCBs for flame-resistant fluids with improved viscosity characteristics. The example given is hydraulic fluids and is of the utmost importance when pumped at high pressures in close proximity to extremely hot surfaces. The specific gravity of TCP is 1.16 with a fire point of 645°F. Example II in the patent gives a mixture of TCP and Aroclor 1248. This patent was granted April 26, 1955 and it was applied for on January 15, 1951.[8] Evidence of TCP compounds are present in samples obtained from this site.[9]

The mixture of tricresylphosphate can be directly related to ALCOA's operation by the list of "Personal Property at Garwood Plant" in the 1961 sale of the plant by ALCOA to Mr. Segal and Mr. Berger.[10] The list is Exhibit A of this agreement and includes a "Lindol Cooling Tank in Pump House" as a part of the "Magnesium Building."[11] Lindol is a tradename for TCP by ICL Industrial Products.[12] These facts link TCP use to the ALCOA operation at this site.

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[6] The Merck Index, 11th Edition, compound 9675, page 1535, Merck & Co., Inc., Rahway, New Jersey, 1989.

[7] B. K. Brown, "The Use of Plasticizers in Lacquers A Brief Survey," Industrial and Engineering Chemistry, Vol. 17, No. 6, page 568, 1925.

[8] Gamrath, H.R. and R.E. Hatton, Tricresyl Phosphate-Chlorinated Biphenyl Functional Fluid Improved by Alkylated Polystyrene, Patent 2,707,176, April 26, 1955.

[9] A similar chemical, triphenyl phosphate (TPHP), is a suspected endocrine disruptor and is under recent scrutiny (see C&E News, page 19, October 26, 2015). TPHP and/or its breakdown metabolite may be a portion of the tricresyl phosphate found at these facilities.

[10] August 11, 1961 Deed attached to the 3/6/2015 Chicago Title Insurance Company Title for Russo Acquisitions, LLC, File No. H14-0037 Schedule A.

[11] Page 2 of Exhibit A to the August 11, 1961 Deed attached to the 3/6/2015 Chicago Title Insurance Company Title for Russo Acquisitions, LLC, File No. H14-0037 Schedule A.

[12] ICL Industrial Products Safety Data Sheet for Lindol, Revision 3, 7/8/2013.

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TABLE 1
Locations of PCBs at 450 and 490 South Avenue
Aroclor 1248*, excluding concrete chip samples

NE-1 (1260)	13-9
NE-2 (as well as 1254 and 1260)	8/19-12 (1242)
IB-1	8/19-14
5-1 (1242)	8/19-15
5-4	8/19-21
7-14 (1254)	8/19-22
7-15	SE-9
10-11	DE011
10-12	SE-12
11-1 (1242)	SE-13
13-1	SE-16
13-6	SE-18

* unless otherwise noted ( )

TABLE 2
Locations of PCBs at 50 Center Street and 400 South Avenue
Aroclor 1248*

PR-1	B11
PR-2	B12
PR-3	FM-3
PR-4	FM-4
PR-5	FM-6
I1	FM-7
B1	FM-10
B2	FM-13
B3	BP-1
B4	TR-1 (1254)
B5	TR-3
B6	TR-4
B7	TR-6
B8	WP-19
B9 (1254 J)**	WP-20
B10	

* unless otherwise noted ( )
** "J" qualifier means that the measured value is estimated

TABLE 3
Locations of Tricresyl Phosphate* at 450 and 490 South Avenue

16A-1
8/19-13
8/19-14
8/19-15
8/19-19
10-11
10-12
GW-27

* Identification determined by the retention time and SVOC tentatively identified compounds (TICs) from the total ion chromatogram from SVOC analyses and/or gas chromatograms from EPH analyses.

TABLE 4
Locations of Tricresyl Phosphate* at 50 Center Street and 400 South Avenue

WP-1	P-7
WP-2	LD-3
WP-9	TR-1
WP-10	TR-2
WP-12	TR-3
WP-15	TR-4
GW-29	PR-1
GW-30	PR-2
GW-31	PR-3
FM-3	PR-4
FM-4	PR-5
FM-6	I1
FM-7	I2
FM-8	BP-1
FM-10	OH-1
FM-13	OV-2

* Identification determined by the retention time and SVOC tentatively identified compounds (TICs) from the total ion chromatogram from SVOC analyses and/or gas chromatograms from EPH analyses.

Concrete and Wood Chips

PCBs were found on both sites. Eight concrete samples and two wood samples were found to contain low levels of PCBs on the 50 Center Street and 400 South Avenue facility. Most of these samples contained Aroclor 1248 as the only or major contributor to the total PCB concentration (see Table 5). Twenty-one concrete samples were found to have low concentrations of PCBs on the 450 and 490 South Avenue site (see Table 6). Most of the concentrations were less than 1 mg/kg with seven samples containing concentration results greater than 1 mg/kg. The highest concentration value was 4.8 mg/kg for sample C-22.

Because a majority of the Aroclors designated for the concrete samples at 450 and 490 South Avenue are not Aroclor 1248 but Aroclor 1254 and 1260, there is a question as to the source of these PCBs. Prior to 1971, some paints and sealants contained percent quantities of Aroclor 1254 and/or

1260 as a plasticizer in the sealants.[13, 14, 15, 16, 17, 18, 19, 20, 21] This possibility has been forensically considered.

TABLE 5
Locations of PCBs at 50 Center Street and 400 South Avenue
Concrete (C) and Wood Chips (WB)

Location	Aroclor
C-3	1248 and 1262
C-5	1248
C-7	1248 and 1262
C-8	1254
C-9	1248
C-10	1248
C-11	1248
C-12	1254
WB-2	1248
WB-3	1248

[13] Hudock, Marc, "PCBs: The New Lead Paint?," Poster, AEHS 31st Annual International Conference on Soils, Sediments, Water and Energy, October 19-22, 2015, Amherst, MA.

[14] O. Huntzinger, S. Safe, and V. Zitko, The Chemistry of PCBs, CRC Press, 1974.

[15] Griggs, C. and S.J. Bellrichard, "Characterizing PCB Contamination in Painted Demolition Debris: The 'Painted History' at the Iowa Army Ammunition Plant," US Army Corps of Engineers.

[16] "The Aroclor Compounds," by Monsanto (circa 1960).

[17] "End Uses for Aroclor Compounds," in Plasticizer Patter by Monsanto's Plasticizer Sales Department, February 1961.

[18] Rodriquez, G., "PCBs in Caulk and Paint," presented at the US Army Corps of Engineers Environment, Energy, Security & Sustainability Symposium & Exhibition, June 16, 2010.

[19] "Aroclor Plasticizers," Technical Bulletin O/PL-306 by Monsanto.

[20] US Army Corps of Engineers Public Works Technical Bulletin 200-1-126, December 2012.

[21] Environmental Forensics Contaminant Specific Guide, Robert D. Morrison and Brian L. Murphy, Editors, page 191, Elsevier, 2006.

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TABLE 6
Locations of PCBs at 450 and 490 South Avenue
Concrete Chip Samples

Location	Aroclor
C-4	1254
C-5	1254 and 1262
C-6	1254
C-7	1248
C-10	1248
C-11	1254 and 1260
C-12	1254
C-16	1254 and 1260
C-17	1254 and 1260
C-18	1254 and 1260
C-19	1254 and 1260
C-20	1254 and 1260
C-21	1254
C-22	1254 and 1260
C-23	1254 and 1260
C-24	1248 and 1260
C-25	1248 and 1260
C-26	1254
C-27	1254 and 1260
C-28	1254 and 1262
C-30	1248, 1254, and 1260

The source of Aroclor 1248 is the 50 Center Street and 400 South Avenue facility in the southwestern portion of the plant. The majority of the concrete chip samples do contain low concentrations of Aroclor 1248. Dust containing Aroclor 1248 can evaporate the lower boiling PCBs in the Aroclor 1248 mixture and give chromatographic patterns that are similar to Aroclor 1254. Additional evaporation due to a large surface area of the dust or particles will change the PCB chromatographic “fingerprint” to appear similar to Aroclor 1260. Due to the low concentrations observed on the concrete chip sample, it is highly probable that there has been the evaporation of the lower boiling components of Aroclor 1248 giving rise to the identifications of Aroclors 1254 and 1260 in these samples. This is substantiated by the presence of Aroclor 1248 on some of the concrete chip samples.

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The PCBs found on the concrete chip samples are not from a paint or sealant containing PCBs.

IV. CONCLUSION

The PCB used at this property was Aroclor 1248 that was mixed with TCP and used in a hydraulic system moving hot metal by ALCOA. This system or these systems were in the southern portion of the plant building on 50 Center Street and 400 South Avenue. The release of this mixture has moved westward into the Petro Plastics property at 450 and 490 South Avenue. The release of PCBs and TCP occurred in the 1950s time frame under ALCOA's ownership.

The basis for this conclusion is that ALCOA was the owner of the site in the 1950s. ALCOA used Aroclor 1248 at similar manufacturing plants during the same time frame. The use of Aroclor 1248 and TCP is appropriate for a hydraulic system supporting an aluminum casting operation. TCP was used by ALCOA at the Garwood Plant as per their sales agreement documents. Neither Aroclor 1248 nor TCP would be used in the Casale metal fabricating business. Aroclor 1248 was not sold by Monsanto after 1971 except for use in electric devices.

V. SIGNATORY

The preceding report includes opinions that I hold to a reasonable degree of scientific certainty and represents my best professional judgment based on the documents and facts with which I have been presented. I reserve the right to update this report based on additional information that comes to my attention.

______________________________ ______________________________

Date

James S. Smith, Ph.D., CPC
President/Chemist

ATTACHMENT E

Draft Deed Notice

EcolSciences, Inc.

Environmental Management & Regulatory Compliance

APPENDIX B - DRAFT DEED NOTICE

DEED NOTICE

IN ACCORDANCE WITH N.J.S.A. 58:10B-13, THIS DOCUMENT IS TO BE RECORDED IN THE SAME MANNER AS ARE DEEDS AND OTHER INTERESTS IN REAL PROPERTY.

Prepared by: ______________________________________
[Signature]

____
[Print name below signature]

Recorded by: ______________________________________
[Signature, Officer of County Recording Office]

____
[Print name below signature]

DEED NOTICE

This Deed Notice is made as of the _____ day of _____, ____, by 490 South Avenue, LLC (together with his/her/its/their successors and assigns, collectively "Owner").

1. THE PROPERTY. 490 South Avenue, LLC is the owner in fee simple of certain real property designated as Block 401, Lot(s) 1, 2, 4, and 5, on the tax map of the Borough of Garwood, Union County; the New Jersey Department of Environmental Protection Program Interest Number (Preferred ID) for the contaminated site which includes this property is 032470, 437456, and 613620; and the property is more particularly described in Exhibit A, which is attached hereto and made a part hereof (the "Property").

2. REMEDIATION.

i. [*Insert name of the Licensed Site Remediation Professional and LSRP License No. of the LSRP that approved this Deed Notice*] has approved this Deed Notice as an institutional control for the Property, which is part of the remediation of the Property.

ii. N.J.A.C. 7:26C-7 requires the Owner, among other persons, to obtain a soil remedial action permit for the soil remedial action at the Property. That permit will contain the monitoring, maintenance and biennial certification requirements that apply to the Property.

3. SOIL CONTAMINATION. 490 South Avenue, LLC has remediated contaminated soil at the Property, such that soil contamination and PCB Remediation waste remains in certain areas of the Property that contains contaminants in concentrations that do not allow for the unrestricted use of the Property; this soil contamination is described, including the type, concentration and specific location of such contaminants, in Exhibit B, which is attached hereto and made a part hereof. As a result, there is a statutory requirement for this Deed Notice and engineering controls in accordance with N.J.S.A. 58:10B-13.

4. CONSIDERATION. In accordance with the remedial action for the site which included the Property, and in consideration of the terms and conditions of that remedial action, and other good and valuable consideration, Owner has agreed to subject the Property to certain statutory and regulatory requirements that impose restrictions upon the use of the Property, to restrict certain uses of the Property, and to provide notice to subsequent owners, lessees and operators of the restrictions and the monitoring, maintenance, and biennial certification requirements outlined in this Deed Notice and required by law, as set forth herein.

5A. RESTRICTED AREAS. Due to the presence of contamination remaining at concentrations that do not allow for unrestricted use, the Owner has agreed, as part of the remedial action for the Property, to restrict the use of certain parts of the Property (the "Restricted Areas"); a narrative description of these restrictions is provided in Exhibit C, which is attached hereto and made a part hereof. The Owner has also agreed to maintain a list of these restrictions on site for inspection by governmental officials.

5B. RESTRICTED LAND USES. The following statutory land use restrictions apply to the Restricted Areas:

i. The Brownfield and Contaminated Site Remediation Act, N.J.S.A. 58:10B-12.g(10), prohibits the conversion of a contaminated site, remediated to non-residential soil remediation standards that require the maintenance of engineering or institutional controls, to a child care facility, or public, private, or charter school without the Department's prior written approval, unless a presumptive remedy is implemented; and

ii. The Brownfield and Contaminated Site Remediation Act, N.J.S.A. 58:10B-12.g(12), prohibits the conversion of a landfill, with gas venting systems and or leachate collection systems, to a single family residence or a child care facility without the Department's prior written approval.

5C. ENGINEERING CONTROLS. Due to the presence and concentration of these contaminants, the Owner has also agreed, as part of the remedial action for the Property, to the placement of certain engineering controls on the Property; a narrative description of these engineering controls is provided in Exhibit C.]

6A. CHANGE IN OWNERSHIP AND REZONING.

i. The Owner and the subsequent owners and lessees, shall cause all leases, grants, and other written transfers of an interest in the Restricted Areas to contain a provision expressly requiring all holders thereof to take the Property subject to the restrictions contained herein and to comply with all, and not to violate any of the conditions of this Deed Notice. Nothing contained in this Paragraph shall be construed as limiting any obligation of any person to provide any notice required by any law, regulation, or order of any governmental authority.

ii. The Owner and the subsequent owners shall provide written notice to the Department of Environmental Protection on a form provided by the Department and available at www.nj.gov/srp/forms within thirty (30) calendar days after the effective date of any conveyance, grant, gift, or other transfer, in whole or in part, of the owner's interest in the Restricted Area.

iii. The Owner and the subsequent owners shall provide written notice to the Department, on a form available from the Department at www.nj.gov/srp/forms, within thirty (30) calendar days after the owner's petition for or filing of any document initiating a rezoning of the Property to residential.

6B. SUCCESSORS AND ASSIGNS. This Deed Notice shall be binding upon Owner and upon Owner's successors and assigns, and subsequent owners, lessees and operators while each is an owner, lessee, or operator of the Property.

7A. ALTERATIONS, IMPROVEMENTS, AND DISTURBANCES.

i. The Owner and all subsequent owners and lessees shall notify any person, including, without limitation, tenants, employees of tenants, and contractors, intending to conduct invasive work or excavate within the Restricted Areas, of the nature and location of contamination in the Restricted Areas, and, of the precautions necessary to minimize potential human exposure to contaminants.

ii. Except as provided in Paragraph 7B, below, no person shall make, or allow to be made, any alteration, improvement, or disturbance in, to, or about the Property which disturbs any engineering control at the Property without first obtaining a soil remedial action permit modification pursuant to N.J.A.C. 7:26C-7. Nothing herein shall constitute a waiver of the obligation of any person to comply with all applicable laws and regulations including, without limitation, the applicable rules of the Occupational Safety and Health Administration.

iii. Notwithstanding subparagraph 7Aii., above, a soil remedial action permit modification is not required for any alteration, improvement, or disturbance provided that the owner, lessee or operator:

(A) Notifies the Department of Environmental Protection of the activity by calling the DEP Hotline, at 1-877-WARN-DEP or 1-877-927-6337, within twenty-four (24) hours after the beginning of each alteration, improvement, or disturbance;

(B) Restores any disturbance of an engineering control to pre-disturbance conditions within sixty (60) calendar days after the initiation of the alteration, improvement or disturbance;

(C) Ensures that all applicable worker health and safety laws and regulations are followed during the alteration, improvement, or disturbance, and during the restoration;

(D) Ensures that human exposure to contamination in excess of the remediation standards does not occur; and

(E) Describes, in the next biennial certification the nature of the alteration, improvement, or disturbance, the dates and duration of the alteration, improvement, or disturbance, the name of key individuals and their affiliations conducting the alteration, improvement, or disturbance, a description of the notice the Owner gave to those persons prior to the disturbance.

7B. EMERGENCIES. In the event of an emergency which presents, or may present, an unacceptable risk to the public health and safety, or to the environment, or immediate environmental concern, see N.J.S.A. 58:10C-2, any person may temporarily breach an engineering control provided that that person complies with each of the following:

i. Immediately notifies the Department of Environmental Protection of the emergency, by calling the DEP Hotline at 1-877-WARNDEP or 1-877-927-6337;

ii. Hires a Licensed Site Remediation Professional (unless the Restricted Areas includes an unregulated heating oil tank) to respond to the emergency;

iii. Limits both the actual disturbance and the time needed for the disturbance to the minimum reasonably necessary to adequately respond to the emergency;

iv. Implements all measures necessary to limit actual or potential, present or future risk of exposure to humans or the environment to the contamination;

v. Notifies the Department of Environmental Protection when the emergency or immediate environmental concern has ended by calling the DEP Hotline at 1-877-WARNDEP or 1-877-927-6337; and

vi. Restores the engineering control to the pre-emergency conditions as soon as possible, and provides notification to the Department of Environmental Protection within sixty (60) calendar days after completion of the restoration of the engineering control, including: (a) the nature and likely cause of the emergency; (b) the potential discharges of or exposures to contaminants, if any, that may have occurred; (c) the measures that have been taken to mitigate the effects of the emergency on human health and the environment; (d) the measures completed or implemented to restore the engineering control; and (e) the changes to the engineering control or site operation and maintenance plan to prevent reoccurrence of such conditions in the future.

8. TERMINATION OF DEED NOTICE.

i. This Deed Notice may be terminated only upon filing of a Termination of Deed Notice, available at N.J.A.C. 7:26C Appendix C, with the office of the County Clerk of Union County, New Jersey, expressly terminating this Deed Notice.

ii. Within thirty (30) calendar days after the filing of a Termination of Deed Notice, the owner of the property shall apply to the Department for termination of the soil remedial action permit pursuant to N.J.A.C. 7:26C-7.

9. ACCESS. The Owner, and the subsequent owners, lessees and operators agree to allow the Department, its agents and representatives access to the Property to inspect and evaluate the continued protectiveness of the remedial action that includes this Deed Notice and to conduct additional remediation to ensure the protection of the public health and safety and of the environment if the subsequent owners, lessees and operators, during their ownership, tenancy, or operation, and the Owner fail to conduct such remediation pursuant to this Deed Notice as required by law. The Owner, and the subsequent owners and lessees, shall also cause all leases, subleases, grants, and other written transfers of an interest in the Restricted Areas to contain a provision expressly requiring that all holders thereof provide such access to the Department.

10. ENFORCEMENT OF VIOLATIONS.

i. This Deed Notice itself is not intended to create any interest in real estate in favor of the Department of Environmental Protection, nor to create a lien against the Property, but merely is intended to provide notice of certain conditions and restrictions on the Property and to reflect the regulatory and statutory obligations imposed as a conditional remedial action for this site.

ii. The restrictions provided herein may be enforceable solely by the Department against any person who violates this Deed Notice. To enforce violations of this Deed Notice, the Department may initiate one or more enforcement actions pursuant to N.J.S.A. 58:10-23.11, and N.J.S.A. 58:10C, and require additional remediation and assess damages pursuant to N.J.S.A. 58:10-23.11, and N.J.S.A. 58:10C.

11. SEVERABILITY. If any court of competent jurisdiction determines that any provision of this Deed Notice requires modification, such provision shall be deemed to have been modified automatically to conform to such requirements. If a court of competent jurisdiction determines that any provision of this Deed Notice is invalid or unenforceable and the provision is of such a nature that it cannot be modified, the provision shall be deemed deleted from this instrument as though the provision had never been included herein. In either case, the remaining provisions of this Deed Notice shall remain in full force and effect.

12A. EXHIBIT A. Exhibit A includes the following maps of the Property and the vicinity:

i. Exhibit A-1: Vicinity Map - A map that identifies by name the roads, and other important geographical features in the vicinity of the Property (for example, USGS Quad map, Hagstrom County Maps);

ii. Exhibit A-2: Metes and Bounds Description - A tax map of lots and blocks as wells as metes and bounds description of the Property, including reference to tax lot and block numbers for the Property;

iii. Exhibit A-3: Property Map - A scaled map of the Property, scaled at one inch to 200 feet or less, and if more than one map is submitted, the maps shall be presented as overlays, keyed to a base map; and the Property Map shall include diagrams of major surface topographical features such as buildings, roads, and parking lots.

12B. EXHIBIT B. Exhibit B includes the following descriptions of the Restricted Areas:

i. Exhibit B-1: Restricted Area Map - A separate map for each restricted area that includes:

(A) As-built diagrams of each engineering control, including caps, fences, slurry walls, (and, if any) ground water monitoring wells, extent of the ground water classification exception area, pumping and treatment systems that may be required as part of a ground water engineering control in addition to the deed notice

(B) As-built diagrams of any buildings, roads, parking lots and other structures that function as engineering controls; and

(C) Designation of all soil and sediment sample locations within the restricted areas that exceed any soil or sediment standard that are keyed into one of the tables described in the following paragraph.

ii. Exhibit B-2: Restricted Area Data Table - A separate table for each restricted area that includes either (A) or (B) through (F):

(A) PCB remediation waste is present in a 0.45-acre portion of in the southeastern corner of Lot 1 and the southwest corner of Lot 2. In addition, in other portions of the site, PCBs are present at concentrations in excess of 1.0 mg/kg, but below 10 mg/kg. The PCB impacts are the result of historic (pre-1978) discharges.;

(B) Sample location designation from Restricted Area map (Exhibit B-1);

(C) Sample elevation based upon mean sea level;

(D) Name and chemical abstract service registry number of each contaminant with a concentration that exceeds the unrestricted use standard;

(E) The restricted and unrestricted use standards for each contaminant in the table; and

(F) The remaining concentration of each contaminant at each sample location at each elevation.

12C. EXHIBIT C. Exhibit C includes narrative descriptions of the institutional controls and engineering controls as follows:

i. Exhibit C-1: Deed Notice as Institutional Control: Exhibit C-1 includes a narrative description of the restriction and obligations of this Deed Notice that are in addition to those described above, as follows:

(A) Description and estimated size of the Restricted Areas as described above;

(B) Description of the restrictions on the Property by operation of this Deed Notice; and

(C) The objective of the restrictions.

ii. Exhibit C-2: Building Slab: Exhibit C-2 includes a narrative description of the Building Slab as follows:

(A) Description of the engineering control;

(B) The objective of the engineering control; and

(C) How the engineering control is intended to function.

iii. Exhibit C-3: Non Building Concrete Surfaces (i.e. sidewalks or other concrete surfaces): Exhibit C-3 includes a narrative description of the Non Building Concrete Surfaces (i.e. sidewalks or other concrete surfaces) as follows:

(A) Description of the engineering control;

(B) The objective of the engineering control; and

(C) How the engineering control is intended to function.

iv. Exhibit C-4: Driveways and Parking Areas: Exhibit C-4 includes a narrative description of the Driveways and Parking Areas as follows:

(A) Description of the engineering control;

(B) The objective of the engineering control; and

(C) How the engineering control is intended to function.

v. Exhibit C-5: Green Areas: Exhibit C-5 includes a narrative description of the Green Areas as follows:

(A) Description of the engineering control;

(B) The objective of the engineering control; and

(C) How the engineering control is intended to function.

vi. Exhibit C-6: Utility Trenches (PCB Remediation Waste Area): Exhibit C-6 includes a narrative description of the Utility Trenches (PCB Remediation Waste Area) as follows:

(A) Description of the engineering control;

(B) The objective of the engineering control; and

(C) How the engineering control is intended to function.

vii. Exhibit C-7: Utility Trenches (Other than PCB Remediation Waste Area): Exhibit C-7 includes a narrative description of the Utility Trenches (Other than PCB Remediation Waste Area) Areas as follows:

(A) Description of the engineering control;

(B) The objective of the engineering control; and

(C) How the engineering control is intended to function.

13. SIGNATURES. IN WITNESS WHEREOF, Owner has executed this Deed Notice as of the date first written above.

ATTEST: 490 South Avenue, LLC

___________________________ By_________________________

___________________________ ___________________________

[Print name and title] [Signature]

STATE OF NEW JERSEY SS.:
COUNTY OF UNION

I certify that on ________, 20__, [Name of person executing document on behalf of Owner] personally came before me, and this person acknowledged under oath, to my satisfaction, that:

(a) this person is the [secretary/assistant secretary] of 490 South Avenue, LLC, the corporation named in this document;

(b) this person is the attesting witness to the signing of this document by the proper corporate officer who is the [president/vice president] of the corporation;

(c) this document was signed and delivered by the corporation as its voluntary act and was duly authorized;

(d) this person knows the proper seal of the corporation which was affixed to this document; and

(e) this person signed this proof to attest to the truth of these facts.

____
[Signature]

____
[Print name and title of attesting witness]

Signed and sworn before me on ________, 20__

___________________________________, Notary Public

____
[Print name and title]

EXHIBIT A

490 South Avenue, LLC
Block 401, Lots 1, 2, 4, and 5
Borough of Garwood
Union County, State of New Jersey

Exhibit A-1: Vicinity Map (See Attached)

Exhibit A-2: Restricted Area Metes and Bounds Description (N/A – TO BE COMPLETED)

Exhibit A-3: Property Map (N/A – TO BE COMPLETED)

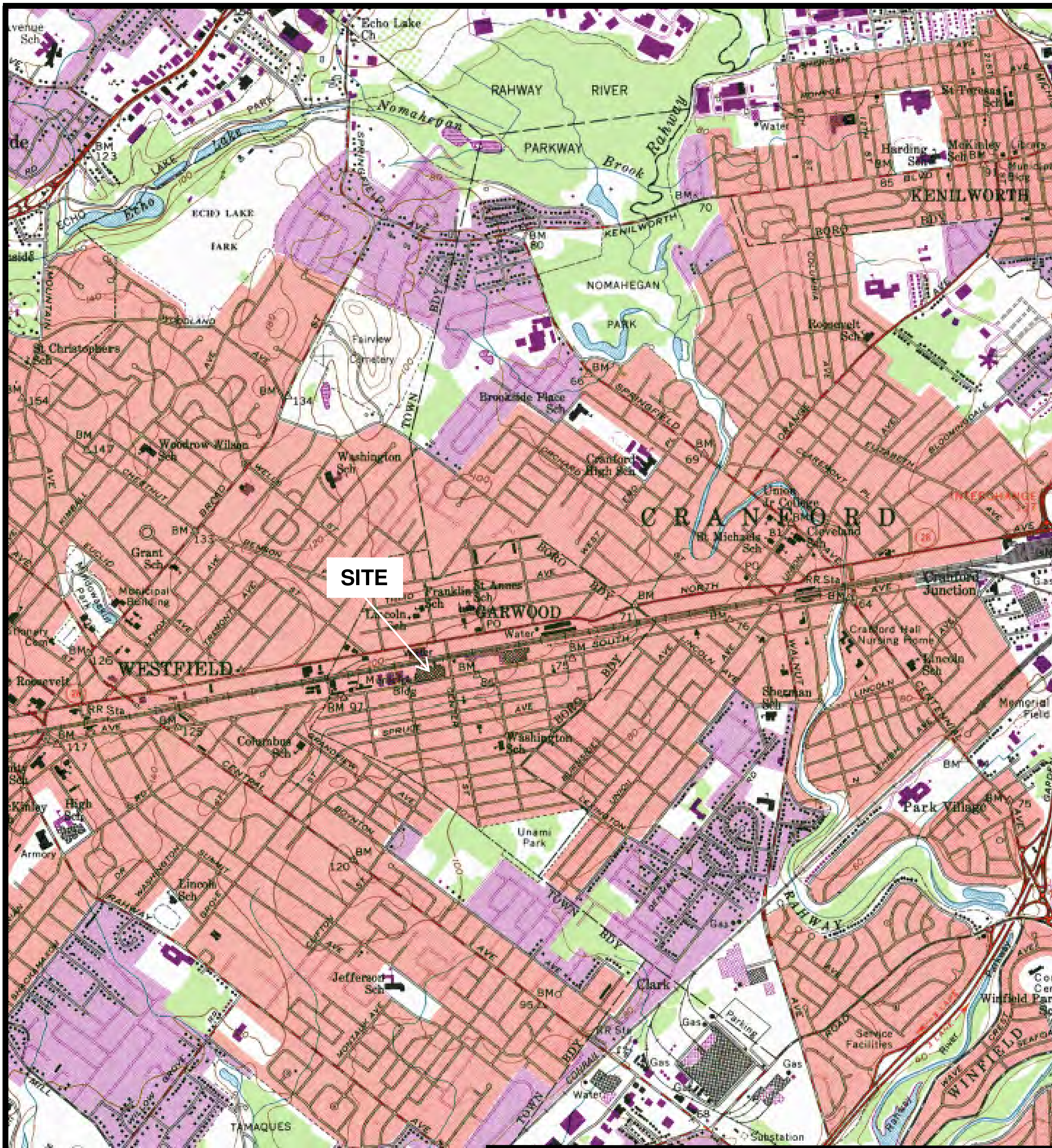


EXHIBIT A-1: REGIONAL SITE LOCATION

400, 450-490 South Avenue and 50 and 70 Center Street
Block 401, Lots 1, 2, 4, and 5
Garwood Borough
Union County, New Jersey

EcolSciences, Inc.
Environmental Management and Regulatory Compliance

DATE: 11-2015
Scale: ~1'=±2000'

EXHIBIT B

490 South Avenue, LLC
Block 401, Lots 1, 2, 4, and 5
Borough of Garwood
Union County, State of New Jersey

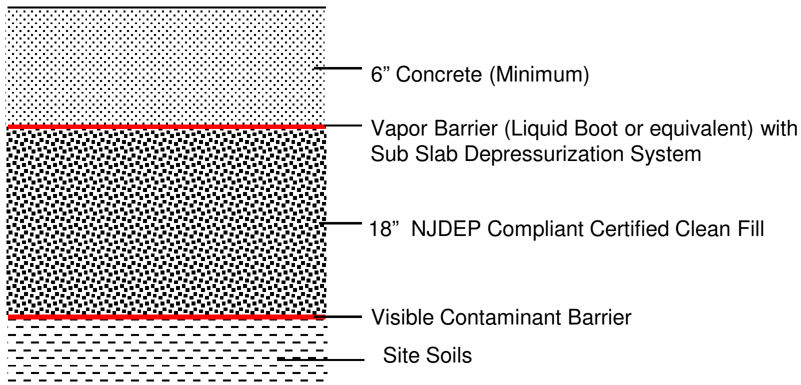
Exhibit B-1A: As Built Diagrams of Engineering Control (NA-TO BE COMPLETED)

Exhibit B-1Ba: Capping Elements (NA-TO BE COMPLETED)

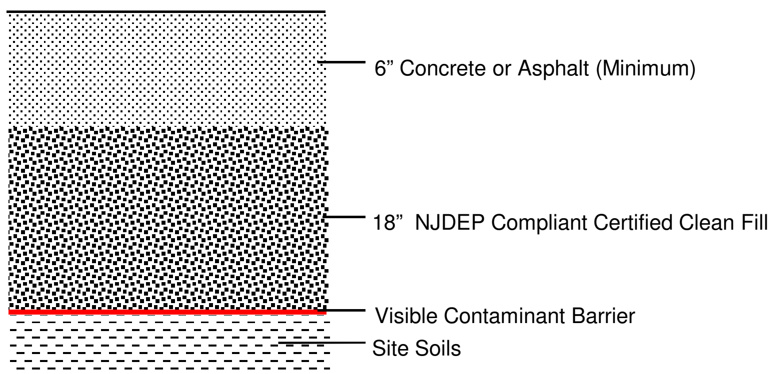
Exhibit B-1Bb: Structural and Pervious Capping Elements Cross Sections (See Attached)

Exhibit B-1C: Soil Sample Location Map (NA-TO BE COMPLETED ON AS BUILT OVERLAY)

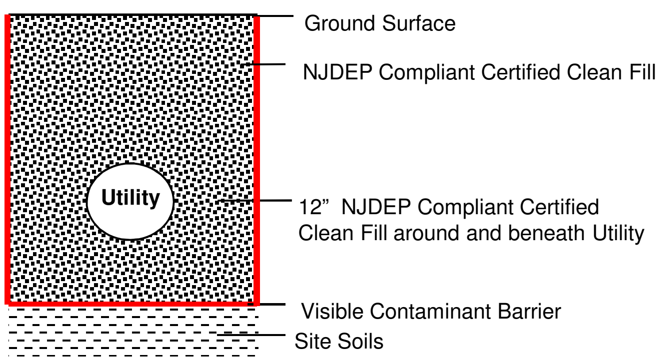
Exhibit B-2: Restricted Area Data Table (See Attached Note: Sample Location Designations are keyed to Figures 4 and 5 of the Risk Based Plan)



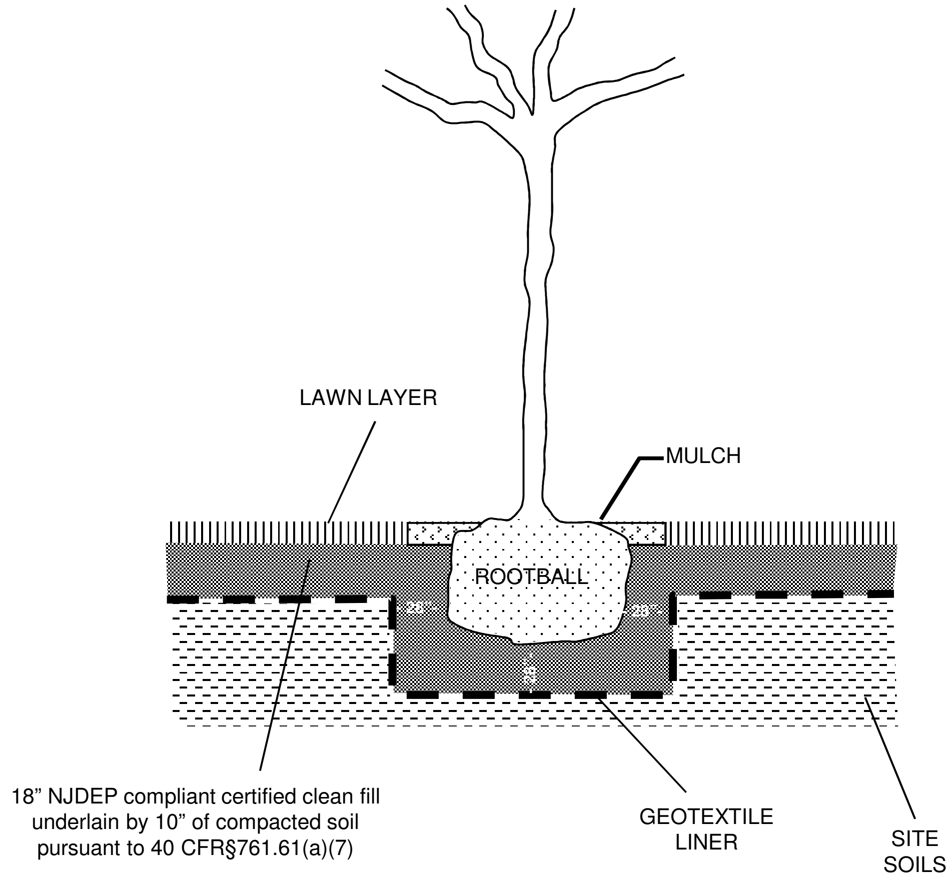
BUILDING FOUNDATION SLAB SECTION DETAIL



NON BUILDING CONCRETE SURFACES, ASPHALT DRIVEWAYS AND PARKING AREAS SECTION DETAIL



Utility Corridors



GREEN AREA SECTION DETAIL

Exhibit B-1B: Cap Cross Sections

400, 450-490 South Avenue and 50 & 70 Center Street
Block 401, Lots 1, 2, 4, and 5
Garwood Borough
Union County, New Jersey

EcolSciences, Inc.
Environmental Management and Regulatory Compliance

DATE: 11-2015

Exhibit B-2 Restricted Area Data Table

Block 401, Lot 2 PCB Exceedances to Remain Beneath the Cap					
Sample ID	Compound	CAS#	Elevation (feet above MSL)		Concentration
			Top	Bottom	mg/kg
FM10a	PCBs	27323-18-8	83.5	83	4.4
FM10b	PCBs	27323-18-8	78.5	78	4.3
B4a	PCBs	27323-18-8	86.5	86	4.6
B4e	PCBs	27323-18-8	74.5	74	0.41
B8b	PCBs	27323-18-8	82.5	82	2.9
B8c	PCBs	27323-18-8	80.5	80	0.76
B8d	PCBs	27323-18-8	78.5	78	3.6
B8e	PCBs	27323-18-8	74.5	74	1.6
B8Da	PCBs	27323-18-8	74.5	74	3.3
7a	PCBs	27323-18-8	87	86.5	0.32
7b	PCBs	27323-18-8	83.5	83	0.55
7c	PCBs	27323-18-8	80.5	80	0.67
7d	PCBs	27323-18-8	78	77.5	0.99
PR1a	PCBs	27323-18-8	86.5	86	0.34
PR1b	PCBs	27323-18-8	78.5	78	6.8
PR1Da	PCBs	27323-18-8	74.5	74	190
PR1Db	PCBs	27323-18-8	72.5	72	43
PR1Dc	PCBs	27323-18-8	70.5	70	45
PR1Dd	PCBs	27323-18-8	66.5	66	1.5
10b	PCBs	27323-18-8	83.5	83	15
10c	PCBs	27323-18-8	80.5	80	17
10d	PCBs	27323-18-8	78	77.5	23
10e	PCBs	27323-18-8	74.5	74	23
10f	PCBs	27323-18-8	70.5	70	48
B3a	PCBs	27323-18-8	86.5	86	41
B3b	PCBs	27323-18-8	82.5	82	13
B3c	PCBs	27323-18-8	80.5	80	24
B3d	PCBs	27323-18-8	78.5	78	23
B3e	PCBs	27323-18-8	74.5	74	10
13a	PCBs	27323-18-8	87	86.5	6.9
13b	PCBs	27323-18-8	83.5	83	41
13c	PCBs	27323-18-8	80.5	80	6.2
13d	PCBs	27323-18-8	78	77.5	11
13e	PCBs	27323-18-8	74.5	74	69
PR2a	PCBs	27323-18-8	84.5	84	15
PR2b	PCBs	27323-18-8	78.5	78	11
PR3a	PCBs	27323-18-8	84	83.5	22
PR3b	PCBs	27323-18-8	78.5	78	6.3
PR3Da	PCBs	27323-18-8	74.5	74	110
PR3Db	PCBs	27323-18-8	72.5	72	18
PR3Dc	PCBs	27323-18-8	70.5	70	47
PR3Dd	PCBs	27323-18-8	66.5	66	1.3
B2a	PCBs	27323-18-8	86.5	86	11
B2b	PCBs	27323-18-8	82.5	82	59
B2c	PCBs	27323-18-8	80.5	80	31
B2d	PCBs	27323-18-8	78.5	78	19
B2e	PCBs	27323-18-8	74.5	74	32
25a	PCBs	27323-18-8	87	86.5	1.1
25b	PCBs	27323-18-8	83.5	83	160
25c	PCBs	27323-18-8	80.5	80	12
25d	PCBs	27323-18-8	78	77.5	7.8
33a	PCBs	27323-18-8	87	86.5	1.7

Exhibit B-2 Restricted Area Data Table

Block 401, Lot 2 PCB Exceedances to Remain Beneath the Cap					
33c	PCBs	27323-18-8	80.5	80	2.3
33d	PCBs	27323-18-8	78	77.5	5.2
33e	PCBs	27323-18-8	74.5	74	5.1
20a	PCBs	27323-18-8	87	86.5	24
20b	PCBs	27323-18-8	83.5	83	2.5
20c	PCBs	27323-18-8	80.5	80	10
20d	PCBs	27323-18-8	78	77.5	50
20e	PCBs	27323-18-8	74.5	74	52
20f	PCBs	27323-18-8	70.5	70	41
B1b	PCBs	27323-18-8	82.5	82	1.4
B1e	PCBs	27323-18-8	74.5	74	0.98
26a	PCBs	27323-18-8	87	86.5	43
26b	PCBs	27323-18-8	83.5	83	2.3
26c	PCBs	27323-18-8	80.5	80	5.4
26d	PCBs	27323-18-8	78	77.5	17
26e	PCBs	27323-18-8	74.5	74	2
PR5a	PCBs	27323-18-8	86	85.5	7.6
PR5b	PCBs	27323-18-8	78.5	78	5.9
PR5Da	PCBs	27323-18-8	74.5	74	16
PR5Db	PCBs	27323-18-8	72.5	72	37
PR5Dc	PCBs	27323-18-8	70.5	70	21
14f	PCBs	27323-18-8	70.5	70	180
27a	PCBs	27323-18-8	87	86.5	0.37
27c	PCBs	27323-18-8	80.5	80	0.22
27d	PCBs	27323-18-8	78	77.5	1.2
B5b	PCBs	27323-18-8	82.5	82	0.61
B5c	PCBs	27323-18-8	80.5	80	0.74
PR4a	PCBs	27323-18-8	84	83.5	0.72
28b	PCBs	27323-18-8	84	83.5	0.32
28e	PCBs	27323-18-8	74.5	74	0.23
B6a	PCBs	27323-18-8	86.5	86	5.5
B6b	PCBs	27323-18-8	82.5	82	19
B6c	PCBs	27323-18-8	80.5	80	30
B6d	PCBs	27323-18-8	78.5	78	60
B6e	PCBs	27323-18-8	74.5	74	29
8a	PCBs	27323-18-8	87	86.5	0.64
8d	PCBs	27323-18-8	78	77.5	0.26
B7a	PCBs	27323-18-8	86.5	86	1.4
B7b	PCBs	27323-18-8	82.5	82	5
B7c	PCBs	27323-18-8	80.5	80	1.1
B7d	PCBs	27323-18-8	78.5	78	0.87
B7e	PCBs	27323-18-8	74.5	74	0.56
AW-1b	PCBs	27323-18-8	83.5	83	1.2
AW-1c	PCBs	27323-18-8	80.5	80	180
15a	PCBs	27323-18-8	87	86.5	0.86
15b	PCBs	27323-18-8	83.5	83	9
15c	PCBs	27323-18-8	80.5	80	0.28
11d	PCBs	27323-18-8	78	77.5	0.4
11e	PCBs	27323-18-8	74.5	74	0.33
16b	PCBs	27323-18-8	83.5	83	100
16c	PCBs	27323-18-8	80.5	80	8.7
16d	PCBs	27323-18-8	78	77.5	50
16e	PCBs	27323-18-8	74.5	74	0.21
B12e	PCBs	27323-18-8	74.5	74	2.4

Exhibit B-2 Restricted Area Data Table

Block 401, Lot 2 PCB Exceedances to Remain Beneath the Cap					
B11b	PCBs	27323-18-8	82.5	82	21
B11c	PCBs	27323-18-8	80.5	80	0.95
B11d	PCBs	27323-18-8	78.5	78	68
B11e	PCBs	27323-18-8	74.5	74	0.18
FM13a	PCBs	27323-18-8	84	83.5	16
FM13b	PCBs	27323-18-8	80.5	80	28
12b	PCBs	27323-18-8	83.5	83	0.29
12c	PCBs	27323-18-8	80.5	80	0.21
12d	PCBs	27323-18-8	78	77.5	0.39
12e	PCBs	27323-18-8	74.5	74	0.22
12f	PCBs	27323-18-8	70.5	70	0.36
31e	PCBs	27323-18-8	74.5	74	0.63
32b	PCBs	27323-18-8	83.5	83	0.32
32c	PCBs	27323-18-8	80.5	80	0.62
32e	PCBs	27323-18-8	74.5	74	44
LD3Sf	PCBs	27323-18-8	72.5	72	24
LD3Sg	PCBs	27323-18-8	70.5	70	9.5
LD3Df	PCBs	27323-18-8	72.5	72	0.34
LD3Dg	PCBs	27323-18-8	70.5	70	0.33
LD3Ea	PCBs	27323-18-8	87	86.5	0.56
18c	PCBs	27323-18-8	80.5	80	2.6
18d	PCBs	27323-18-8	78	77.5	0.21
ABE-3a	PCBs	27323-18-8	87	86.5	16
ABE-3b	PCBs	27323-18-8	83.5	83	140
ABE-3c	PCBs	27323-18-8	81.5	81	35
FM4a	PCBs	27323-18-8	78.5	78	0.23
FM6	PCBs	27323-18-8	88.5	88	2.6
TR1	PCBs	27323-18-8	86.5	86	0.51
TR3	PCBs	27323-18-8	83.5	83	0.38
I1	PCBs	27323-18-8	78.5	78	0.77
BP1	PCBs	27323-18-8	83	82.5	5.0
FM10-5a	PCBs	27323-18-8	83.5	83	1.1
FM6-B	PCBs	27323-18-8	87	86.5	0.21
FM6-C	PCBs	27323-18-8	84	83.5	0.33
AC-2	PCBs	27323-18-8	87	86.5	8.8
AC-2B	PCBs	27323-18-8	81.5	81	3.3
FM6-1a	PCBs	27323-18-8	88.5	88	1.3
FM6-6a	PCBs	27323-18-8	88.5	88	2.1

Exhibit B-2 Restricted Area Data Table

Block 401, Lot 1 PCB Exceedances to Remain Beneath the Cap					
Sample ID	Compound	CAS#	Elevation (feet above MSL)		Concentration
			Top	Bottom	mg/kg
1B-1	PCBs	27323-18-8	89	88.5	0.33
8/19-12	PCBs	27323-18-8	82.5	82	0.32
8/19-14	PCBs	27323-18-8	83.5	83	0.60
8/19-14BS	PCBs	27323-18-8	82.5	82	37
8/19-14FD	PCBs	27323-18-8	78.5	78	0.36
8/19-14M	PCBs	27323-18-8	82	81.5	0.64
8/19-14DP	PCBs	27323-18-8	80	79.5	0.67
8/19-15	PCBs	27323-18-8	78.5	78	0.79
8/19-21D	PCBs	27323-18-8	81	80.5	19
8/19-22D	PCBs	27323-18-8	83.5	83	3.5
10-11M	PCBs	27323-18-8	86	85.5	8.4
10-11D	PCBs	27323-18-8	80.5	80	5.0
10-12D	PCBs	27323-18-8	83	82.5	5.0
10-12-1	PCBs	27323-18-8	83	82.5	47
10-12A2	PCBs	27323-18-8	83	82.5	0.24
10-12D2	PCBs	27323-18-8	83	82.5	6.5
10-12D4	PCBs	27323-18-8	78.5	78	0.70
10-12E3	PCBs	27323-18-8	80.5	80	10
10-12E4	PCBs	27323-18-8	78.5	78	9.1
10-12E-5	PCBs	27323-18-8	76.5	76	0.72
10-12E-6	PCBs	27323-18-8	74.5	74	2.7
10-12F2	PCBs	27323-18-8	83	82.5	71
SE-9B	PCBs	27323-18-8	82.5	82	6.1
SE-9C	PCBs	27323-18-8	79.5	79	9.8
SE-9-D	PCBs	27323-18-8	76.5	76	14
SE-9E	PCBs	27323-18-8	74.5	74	33
SE-11D	PCBs	27323-18-8	76.5	76	0.25
SE-11E	PCBs	27323-18-8	74.5	74	1.1
SE-12B	PCBs	27323-18-8	82.5	82	5.9
SE-12C	PCBs	27323-18-8	79.5	79	1.3
SE-12D	PCBs	27323-18-8	76.5	76	0.74
SE-12E	PCBs	27323-18-8	74.5	74	1
SE-13B	PCBs	27323-18-8	82.5	82	15
SE-13C	PCBs	27323-18-8	79.5	79	2.2
SE-13D	PCBs	27323-18-8	76.5	76	0.25
SE-13E	PCBs	27323-18-8	74.5	74	0.72
SE-16B	PCBs	27323-18-8	82.5	82	1.2
SE-18B	PCBs	27323-18-8	82.5	82	0.36
SE-18D	PCBs	27323-18-8	76.5	76	0.22
13-1	PCBs	27323-18-8	91.4	90.9	6.7
13-6	PCBs	27323-18-8	90.9	90.4	0.75
13-6E1A	PCBs	27323-18-8	90.9	90.4	2.4
13-6S1A	PCBs	27323-18-8	90.9	90.4	1.4
13-6S1B	PCBs	27323-18-8	88.4	87.9	1.7
13-6S2A	PCBs	27323-18-8	90.9	90.4	7.6
13-6S2B	PCBs	27323-18-8	88.4	87.9	2.3
13-9	PCBs	27323-18-8	90.9	90.4	4.8
13-9W1A	PCBs	27323-18-8	90.9	90.4	1.8
13-9E1A	PCBs	27323-18-8	90.9	90.4	1.3
13-9-E2A	PCBs	27323-18-8	90.9	90.4	0.53
13-9S1A	PCBs	27323-18-8	90.9	90.4	0.35
NE-2	PCBs	27323-18-8	86.5	86	3.4

Exhibit C-1

490 South Avenue, LLC
Block 401, Lots 1, 2, 4, and 5
Borough of Garwood
Union County, State of New Jersey

(A) Description and General Size of the Restricted Areas

The restricted area covers the entirety of the approximately 5.67 acre property to the north of South Avenue, due to the presence of polychlorinated biphenyl (PCB) impacted soils at the site. The release of PCBs to the site occurred prior to 1978.

Sampling data generated during the environmental investigations indicate that the Property is underlain by soils which were found to contain PCBs in excess of the NJDEP Residential Direct Contact Soil remediation Standards, Non-Residential Direct Contact Soil Standards, and/or Impact to Groundwater Soil Screening Levels. The data table in Exhibit B-2 presents a summary of sampling data and exceedances identified on the property.

(2) Description of the Restriction on the Property

The engineering controls for the site consist of the concrete building slab, asphalt paved areas, concrete walkways, and capped landscaped ("Green") areas. The concrete building slab consists of a minimum of six inches of concrete over a vapor barrier with sub slab depressurization system underlain by 18 inches of NJDEP compliant certified clean fill over a visible contaminant barrier. The asphalt-paved or non-building concrete areas consist of a minimum of six inches of bituminous surface course or concrete, over 18 inches of NJDEP compliant certified clean fill over a visible contaminant barrier. Pervious landscaped or green areas consist of 18 inches of NJDEP compliant certified clean fill over a ten inch layer of compacted soil pursuant to 40 CFR§761.61(a)(7) over a geotechnical filter fabric. These engineering controls are depicted in Exhibit B-1.

(3) Objective of the Restrictions

The objective of the restrictions is to prevent exposure to contaminated soils and to ensure that the engineering controls remain protective of public health and safety and of the environment and that any access to the restricted area is performed in accordance with applicable law.

B) Description of Monitoring

The property owner will ensure that an appropriately qualified professional will conduct the semi-annual monitoring of the institutional and engineering controls on the property, as required by NJDEP regulations to confirm: (1) that any disturbances of the soil in the Restricted Area did not result in the unacceptable exposure to the soil contamination; (2) whether there have been any land-use changes subsequent to the filing of this Deed Notice or the most recent biennial certification, whichever is more recent; (3) whether the current land use in the Restricted Area is consistent with the restrictions in this Deed Notice; and (4) whether any newly promulgated or modified standards, regulations or laws apply to the site, and if so, the additional sampling that may be necessary, if any, to determine the protectiveness of the controls.

1) Maintenance/Repair Schedule

Semi-annual inspection and monitoring will be implemented to ensure the integrity of the caps. Inspection logs will be maintained at the Property. Annual monitoring will be implemented as part of the routine maintenance at all permeable cover caps at the site and as part of the routine maintenance at all impermeable cover caps at the site. Any breaches in the integrity of the cap or in the stability of the cap (i.e., cracking or deterioration of concrete or asphalt surfaces, soil erosion in the landscaped areas), identified during routine inspections, will be repaired accordingly. General maintenance tasks will include patching any cracked areas in the impervious surfaces, maintaining the filter fabric and clean soil cap and ensuring that a vegetative cover is maintained in the landscaped areas and maintaining the filter fabric and riprap in sloped areas.

2) Cap Disturbance

In the event that the cap is disturbed as a result of utility installation/repair or other below grade work that is necessary, the cap will be restored according to the following procedure:

a. The clean soil capping material and vegetative cover will be removed and staged for re-use as cover material. Pervious liners will be cut to provide access for any utility work or repairs. If the disturbance involves interior work or work in paved exterior areas, the removed flooring or paving materials will be staged for transport and disposal.

b. Underlying contaminated soils will be removed as necessary and staged separately on top of plastic; if work cannot be completed in the same day, the soil pile will be covered with plastic to limit contact with the elements. If required (i.e. if the area to be excavated is within the PCB remediation waste area), the soil will be disposed offsite at USEPA and NJDEP approved facility.

c. Dust control measures will be implemented in the work area by wetting the contaminated soils, as necessary.

d. Upon completion of work, the cap will be restored by returning the staged contaminated soil to the excavation (if appropriate) and compacting the contaminated material. If a pervious liner is cut the pervious liner will be replaced. The disturbed area will be finished with either the staged clean soil/vegetative cover or with new concrete or asphalt depending on the capping material in the disturbed area.

e. Reestablish engineered cap and vegetative cover in disturbed areas.

f. If the generation of surplus contaminated soils cannot be avoided, the surplus material shall be disposed of in accordance with applicable NJDEP and USEPA protocols.

C) Description of the items that will be included in the biennial certification:
The following items will be included in the Biennial Certification:

1) A monitoring report that describes the specific activities discussed above, conducted to support the protectiveness of the remedial action,

2) A statement that land use at the property is consistent with the restrictions in this deed notice; and

3) A statement that the remedial action that includes this deed notice continues to be protective of the public health and safety and of the environment.

The biennial certification must be in the form required by NJDEP at the time of submission.

<u>Exhibit C-2</u>

490 South Avenue, LLC
Block 401, Lots 1, 2, 4, and 5
Borough of Garwood
Union County, State of New Jersey

A) General Description of the Engineering Control

1) <u>Description of the Engineering Control</u>:

<u>Building Slab</u>: Six inch (minimum) concrete building slab underlain by 18 inches of NJDEP compliant certified clean fill with a visible contaminant barrier and a vapor barrier (Liquid Boot or equivalent) with a sub-slab depressurization system.

2) <u>Objective of the Engineering Control</u>:

The objective of the engineering control is to prevent exposure to contaminated soils and to ensure the protection of public health and safety and of the environment, and to further ensure that any access to the restricted areas is performed in accordance with applicable law. Specifically, the objectives of the engineering control are to prevent direct human contact by isolating and containing the contaminated soil; to prevent generation of airborne particulate contamination and public exposure to airborne particulates; and to prevent erosion or off-site migration of contaminated soil due to storm runoff.

3) <u>Intended Function of the Engineering Controls</u>:

The engineering controls are intended to prevent migration of, or human exposure to, the soil contamination beneath the Property.

B) Description of the Operation and Maintenance Necessary to Ensure Compliance

The owner of the Property will contract with an appropriately qualified professional to perform the periodic inspections described in Exhibit C-1, Section B of this Deed Notice in order to ensure that: (1) the engineering controls are of good integrity, operability, and effectiveness; (2) the engineering controls continue as designed and intended to protect the public health and safety, and the environment; (3) any alteration, excavation or disturbance of said engineering controls is timely and appropriately addressed to maintain the integrity of the engineering controls; (4) the engineering controls are being inspected and maintained and their integrity remains so that the remedial action continues to be protective of the public health and safety and the environment; (5) maintenance of records with respect to inspection dates, name of inspector, results of the inspection and condition(s) of the engineering controls; and (6) review of any new standards, regulations, or laws that apply to the Restricted Areas that might necessitate additional sampling in order to evaluate the protectiveness of the remedial action which includes this Deed Notice.

Generally, an appropriately qualified professional will conduct semi-annual inspections of the engineering controls to address items (1), (2), (4) and (6) above. To address item (3) above, any alteration, excavation or disturbance of any engineering control will be carefully monitored by an appropriately qualified professional so that the integrity of the engineering control is maintained. In addition, the NJDEP will be notified within twenty-four (24) hours after the beginning of any such activity. Also, to address item (5) above, engineering control inspection records will be kept by the property owner. Finally, the applicability of any new laws, standards, or regulations to the property will be determined by the property owner.

The methods that are to be employed in disruptions and repairs to the capping elements, including pervious and impervious surfaces, are described in Exhibit C-1, Section B-2.

C) Description of the Items that will be included in the Biennial Certification:

The following items will be included in the Biennial Certification:

1) a monitoring report describing the specific activities conducted to support the protectiveness of the remedial action.

2) a statement that the engineering controls continue to operate as designed; and

3) a statement that the remedial action, including the engineering controls, continues to be protective of the public health and safety and of the environment.

<u>Exhibit C-3</u>

490 South Avenue, LLC
Block 401, Lots 1, 2, 4, and 5
Borough of Garwood
Union County, State of New Jersey

A) General Description of the Engineering Control

1) <u>Description of the Engineering Control</u>:

<u>Non Building Concrete Surfaces (i.e. sidewalks or other concrete surfaces)</u>: Six inch (minimum) concrete building slab underlain by 18 inches of NJDEP compliant certified clean fill with a visible contaminant barrier.

2) <u>Objective of the Engineering Control</u>:

The objective of the engineering control is to prevent exposure to contaminated soils and to ensure the protection of public health and safety and of the environment, and to further ensure that any access to the restricted areas is performed in accordance with applicable law. Specifically, the objectives of the engineering control are to prevent direct human contact by isolating and containing the contaminated soil; to prevent generation of airborne particulate contamination and public exposure to airborne particulates; and to prevent erosion or off-site migration of contaminated soil due to storm runoff.

3) <u>Intended Function of the Engineering Controls</u>:

The engineering controls are intended to prevent migration of, or human exposure to, the soil contamination beneath the Property.

B) Description of the Operation and Maintenance Necessary to Ensure Compliance

The owner of the Property will contract with an appropriately qualified professional to perform the periodic inspections described in Exhibit C-1, Section B of this Deed Notice in order to ensure that: (1) the engineering controls are of good integrity, operability, and effectiveness; (2) the engineering controls continue as designed and intended to protect the public health and safety, and the environment; (3) any alteration, excavation or disturbance of said engineering controls is timely and appropriately addressed to maintain the integrity of the engineering controls; (4) the engineering controls are being inspected and maintained and their integrity remains so that the remedial action continues to be protective of the public health and safety and the environment; (5) maintenance of records with respect to inspection dates, name of inspector, results of the inspection and condition(s) of the engineering controls; and (6) review of any new standards, regulations, or laws that apply to the Restricted Areas that might necessitate additional sampling in order to evaluate the protectiveness of the remedial action which includes this Deed Notice.

Generally, an appropriately qualified professional will conduct semi-annual inspections of the engineering controls to address items (1), (2), (4) and (6) above. To address item (3) above, any alteration, excavation or disturbance of any engineering control will be carefully monitored by an appropriately qualified professional so that the integrity of the engineering control is maintained. In addition, the NJDEP will be notified within twenty-four (24) hours after the beginning of any such activity. Also, to address item (5) above, engineering control inspection records will be kept by the property owner. Finally, the applicability of any new laws, standards, or regulations to the property will be determined by the property owner.

The methods that are to be employed in disruptions and repairs to the capping elements, including pervious and impervious surfaces, are described in Exhibit C-1, Section B-2.

C) Description of the Items that will be included in the Biennial Certification:

The following items will be included in the Biennial Certification:

1) a monitoring report describing the specific activities conducted to support the protectiveness of the remedial action.

2) a statement that the engineering controls continue to operate as designed; and

3) a statement that the remedial action, including the engineering controls, continues to be protective of the public health and safety and of the environment.

Exhibit C-4

490 South Avenue, LLC
Block 401, Lots 1, 2, 4, and 5
Borough of Garwood
Union County, State of New Jersey

A) General Description of the Engineering Control

1) Description of the Engineering Control:

Driveways and Parking Areas: Six inches of concrete or asphalt (minimum) underlain by 18 inches of NJDEP compliant certified clean fill with a visible contaminant barrier.

2) Objective of the Engineering Control:

The objective of the engineering control is to prevent exposure to contaminated soils and to ensure the protection of public health and safety and of the environment, and to further ensure that any access to the restricted areas is performed in accordance with applicable law. Specifically, the objectives of the engineering control are to prevent direct human contact by isolating and containing the contaminated soil; to prevent generation of airborne particulate contamination and public exposure to airborne particulates; and to prevent erosion or off-site migration of contaminated soil due to storm runoff.

3) Intended Function of the Engineering Controls:

The engineering controls are intended to prevent migration of, or human exposure to, the soil contamination beneath the Property.

B) Description of the Operation and Maintenance Necessary to Ensure Compliance

The owner of the Property will contract with an appropriately qualified professional to perform the periodic inspections described in Exhibit C-1, Section B of this Deed Notice in order to ensure that: (1) the engineering controls are of good integrity, operability, and effectiveness; (2) the engineering controls continue as designed and intended to protect the public health and safety, and the environment; (3) any alteration, excavation or disturbance of said engineering controls is timely and appropriately addressed to maintain the integrity of the engineering controls; (4) the engineering controls are being inspected and maintained and their integrity remains so that the remedial action continues to be protective of the public health and safety and the environment; (5) maintenance of records with respect to inspection dates, name of inspector, results of the inspection and condition(s) of the engineering controls; and (6) review of any new standards, regulations, or laws that apply to the Restricted Areas that might necessitate additional sampling in order to evaluate the protectiveness of the remedial action which includes this Deed Notice.

Generally, an appropriately qualified professional will conduct semi-annual inspections of the engineering controls to address items (1), (2), (4) and (6) above. To address item (3) above, any alteration, excavation or disturbance of any engineering control will be carefully monitored by an appropriately qualified professional so that the integrity of the engineering control is maintained. In addition, the NJDEP will be notified within twenty-four (24) hours after the beginning of any such activity. Also, to address item (5) above, engineering control inspection records will be kept by the property owner. Finally, the applicability of any new laws, standards, or regulations to the property will be determined by the property owner.

The methods that are to be employed in disruptions and repairs to the capping elements, including pervious and impervious surfaces, are described in Exhibit C-1, Section B-2.

C) Description of the Items that will be included in the Biennial Certification:

The following items will be included in the Biennial Certification:

1) a monitoring report describing the specific activities conducted to support the protectiveness of the remedial action.

2) a statement that the engineering controls continue to operate as designed; and

3) a statement that the remedial action, including the engineering controls, continues to be protective of the public health and safety and of the environment.

Exhibit C-5

490 South Avenue, LLC
Block 401, Lots 1, 2, 4, and 5
Borough of Garwood
Union County, State of New Jersey

A) General Description of the Engineering Control

1) Description of the Engineering Control:

Green Areas: 18 inches of NJDEP certified compliant clean fill underlain by ten inches of compacted soil pursuant to 40 CFR§761.61(a)7 above a geotextile fabric.

2) Objective of the Engineering Control:

The objective of the engineering control is to prevent exposure to contaminated soils and to ensure the protection of public health and safety and of the environment, and to further ensure that any access to the restricted areas is performed in accordance with applicable law. Specifically, the objectives of the engineering control are to prevent direct human contact by isolating and containing the contaminated soil; to prevent generation of airborne particulate contamination and public exposure to airborne particulates; and to prevent erosion or off-site migration of contaminated soil due to storm runoff.

3) Intended Function of the Engineering Controls:

The engineering controls are intended to prevent migration of, or human exposure to, the soil contamination beneath the Property.

B) Description of the Operation and Maintenance Necessary to Ensure Compliance

The owner of the Property will contract with an appropriately qualified professional to perform the periodic inspections described in Exhibit C-1, Section B of this Deed Notice in order to ensure that: (1) the engineering controls are of good integrity, operability, and effectiveness; (2) the engineering controls continue as designed and intended to protect the public health and safety, and the environment; (3) any alteration, excavation or disturbance of said engineering controls is timely and appropriately addressed to maintain the integrity of the engineering controls; (4) the engineering controls are being inspected and maintained and their integrity remains so that the remedial action continues to be protective of the public health and safety and the environment; (5) maintenance of records with respect to inspection dates, name of inspector, results of the inspection and condition(s) of the engineering controls; and (6) review of any new standards, regulations, or laws that apply to the Restricted Areas that might necessitate additional sampling in order to evaluate the protectiveness of the remedial action which includes this Deed Notice.

Generally, an appropriately qualified professional will conduct semi-annual inspections of the engineering controls to address items (1), (2), (4) and (6) above. To address item (3) above, any alteration, excavation or disturbance of any engineering control will be carefully monitored by an appropriately qualified professional so that the integrity of the engineering control is maintained. In addition, the NJDEP will be notified within twenty-four (24) hours after the beginning of any such activity. Also, to address item (5) above, engineering control inspection records will be kept by the property owner. Finally, the applicability of any new laws, standards, or regulations to the property will be determined by the property owner.

The methods that are to be employed in disruptions and repairs to the capping elements, including pervious and impervious surfaces, are described in Exhibit C-1, Section B-2.

C) Description of the Items that will be included in the Biennial Certification:

The following items will be included in the Biennial Certification:

1) a monitoring report describing the specific activities conducted to support the protectiveness of the remedial action.

2) a statement that the engineering controls continue to operate as designed; and

3) a statement that the remedial action, including the engineering controls, continues to be protective of the public health and safety and of the environment.

Exhibit C-6

490 South Avenue, LLC
Block 401, Lots 1, 2, 4, and 5
Borough of Garwood
Union County, State of New Jersey

A) General Description of the Engineering Control

1) Description of the Engineering Control:

Utility Trenches (PCB Remediation Waste Area): The trench will be lined with a contaminant barrier and backfilled a minimum of 12 inches of NJDEP certified compliant clean fill around and underneath the utility and to the ground surface.

2) Objective of the Engineering Control:

The objective of the engineering control is to prevent exposure to contaminated soils and to ensure the protection of public health and safety and of the environment, and to further ensure that any access to the restricted areas is performed in accordance with applicable law. Specifically, the objectives of the engineering control are to prevent direct human contact by isolating and containing the contaminated soil, to prevent generation of airborne particulate contamination and public exposure to airborne particulates; and to prevent erosion or off-site migration of contaminated soil due to storm runoff.

3) Intended Function of the Engineering Controls:

The engineering controls are intended to prevent migration of, or human exposure to, the soil contamination beneath the Property.

B) Description of the Operation and Maintenance Necessary to Ensure Compliance

The owner of the Property will contract with an appropriately qualified professional to perform the periodic inspections described in Exhibit C-1, Section B of this Deed Notice in order to ensure that: (1) the engineering controls are of good integrity, operability, and effectiveness; (2) the engineering controls continue as designed and intended to protect the public health and safety, and the environment; (3) any alteration, excavation or disturbance of said engineering controls is timely and appropriately addressed to maintain the integrity of the engineering controls; (4) the engineering controls are being inspected and maintained and their integrity remains so that the remedial action continues to be protective of the public health and safety and the environment; (5) maintenance of records with respect to inspection dates, name of inspector, results of the inspection and condition(s) of the engineering controls; and (6) review of any new standards, regulations, or laws that apply to the Restricted Areas that might necessitate additional sampling in order to evaluate the protectiveness of the remedial action which includes this Deed Notice.

Generally, an appropriately qualified professional will conduct yearly inspections of the engineering controls to address items (1), (2), (4) and (6) above. To address item (3) above, any alteration, excavation or disturbance of any engineering control will be carefully monitored by an appropriately qualified professional so that the integrity of the engineering control is maintained. In addition, the NJDEP will be notified within twenty-four (24) hours after the beginning of any such activity. Also, to address item (5) above, engineering control inspection records will be kept by the property owner. Finally, the applicability of any new laws, standards, or regulations to the property will be determined by the property owner.

The methods that are to be employed in disruptions and repairs to the capping elements, including pervious and impervious surfaces, are described in Exhibit C-1, Section B-2.

C) Description of the Items that will be included in the Biennial Certification:

The following items will be included in the Biennial Certification:

1) a monitoring report describing the specific activities conducted to support the protectiveness of the remedial action.

2) a statement that the engineering controls continue to operate as designed; and

3) a statement that the remedial action, including the engineering controls, continues to be protective of the public health and safety and of the environment.

<u>Exhibit C-7</u>

490 South Avenue, LLC
Block 401, Lots 1, 2, 4, and 5
Borough of Garwood
Union County, State of New Jersey

A) General Description of the Engineering Control

1) <u>Description of the Engineering Control</u>:

<u>Utility Trenches (Other than PCB remediation waste area)</u>: The trench backfilled will be filled with a minimum of 12 inches of NJDEP certified compliant clean fill around and underneath the utility and to the ground surface with a visible contaminant boundary marker along the sides and underneath the trench.

2) <u>Objective of the Engineering Control</u>:

The objective of the engineering control is to prevent exposure to contaminated soils and to ensure the protection of public health and safety and of the environment, and to further ensure that any access to the restricted areas is performed in accordance with applicable law. Specifically, the objectives of the engineering control are to prevent direct human contact by isolating and containing the contaminated soil, to prevent generation of airborne particulate contamination and public exposure to airborne particulates; and to prevent erosion or off-site migration of contaminated soil due to storm runoff.

3) <u>Intended Function of the Engineering Controls</u>:

The engineering controls are intended to prevent migration of, or human exposure to, the soil contamination beneath the Property.

B) Description of the Operation and Maintenance Necessary to Ensure Compliance

The owner of the Property will contract with an appropriately qualified professional to perform the periodic inspections described in Exhibit C-1, Section B of this Deed Notice in order to ensure that: (1) the engineering controls are of good integrity, operability, and effectiveness; (2) the engineering controls continue as designed and intended to protect the public health and safety, and the environment; (3) any alteration, excavation or disturbance of said engineering controls is timely and appropriately addressed to maintain the integrity of the engineering controls; (4) the engineering controls are being inspected and maintained and their integrity remains so that the remedial action continues to be protective of the public health and safety and the environment; (5) maintenance of records with respect to inspection dates, name of inspector, results of the inspection and condition(s) of the engineering controls; and (6) review of any new standards, regulations, or laws that apply to the Restricted Areas that might necessitate additional sampling in order to evaluate the protectiveness of the remedial action which includes this Deed Notice.

Generally, an appropriately qualified professional will conduct yearly inspections of the engineering controls to address items (1), (2), (4) and (6) above. To address item (3) above, any alteration, excavation or disturbance of any engineering control will be carefully monitored by an appropriately qualified professional so that the integrity of the engineering control is maintained. In addition, the NJDEP will be notified within twenty-four (24) hours after the beginning of any such activity. Also, to address item (5) above, engineering control inspection records will be kept by the property owner. Finally, the applicability of any new laws, standards, or regulations to the property will be determined by the property owner.

The methods that are to be employed in disruptions and repairs to the capping elements, including pervious and impervious surfaces, are described in Exhibit C-1, Section B-2.

C) Description of the Items that will be included in the Biennial Certification:

The following items will be included in the Biennial Certification:

1) a monitoring report describing the specific activities conducted to support the protectiveness of the remedial action.

2) a statement that the engineering controls continue to operate as designed; and

3) a statement that the remedial action, including the engineering controls, continues to be protective of the public health and safety and of the environment.

ATTACHMENT F

Receptor Evaluations

EcolSciences, Inc.
Environmental Management & Regulatory Compliance

New Jersey Department of Environmental Protection
Site Remediation Program

RECEPTOR EVALUATION (RE) FORM

Date Stamp
(For Department use only)

SECTION A. SITE

Site Name: Casale Industries, Inc.

Program Interest (PI) Number(s): 631620

Case Tracking Number(s) for this submission: E20140065

This form must be attached to the Cover/Certification Form
if not submitted through the RIR Online Service

Indicate the type of submission:

☒ Initial RE Submission

☐ Updated RE Submission
Indicate the reason for submission of an updated RE form
☐ Submission of an Immediate Environmental Concern (IEC) source control report;
☐ Submission of a Remedial Investigation Report;
☐ Submission of a Remedial Action Report;
Check if included in updated RE
☐ The known concentration or extent of contamination in any medium has increased;
☐ A new AOC has been identified;
☐ A new receptor is identified;
☐ A new exposure pathway has been identified.

SECTION B. ON SITE AND SURROUNDING PROPERTY USE

1. Identify any sensitive populations/uses that are currently on-site or surrounding property usage within 200 feet of the site boundary (check all that apply):

	On-site	Off-site
None of the following	☒	☐
Residences or residential property	☐	☒
Public or Private Schools grades K-12	☐	☐
Child care centers	☐	☐
Public parks, playgrounds or other recreation areas	☐	☐
Other sensitive population use(s) Explain ______	☐	☐

If any of the above applies, attach a list of addresses, facility names, type of use, and a map depicting each location relative to the site.

2. Current site uses (check all that apply):
☒ Industrial ☐ Residential ☒ Commercial ☐ Agricultural
☐ School or child care ☐ Government ☐ Park or recreational use
☐ Vacant ☐ Other: ______

3. Planned future site uses and off-site use within 200 ft of site boundary (check all that apply):
☒ Industrial ☒ Residential ☒ Commercial ☐ Agricultural
☐ School or child care ☐ Government ☐ Park or recreational use
☐ Vacant ☐ Other: ______

Provide a map depicting the location of the proposed changes in land use.

SECTION C. DESCRIPTION OF CONTAMINATION

1. Identify if any of the following exist at the site (check all that apply):
   - ☐ Free product [N.J.A.C. 7:26E-1.8] identified is ☐ LNAPL* or ☐ DNAPL**. Date identified: ______
   - ☐ Residual product [N.J.A.C. 7:26E-1.8]
   - ☐ Other high concentration source materials not identified above (e.g., buried drums, containers, unsecured friable asbestos)

     Explain: ______

   * LNAPL – measured thickness of .01 feet or more

   **DNAPL – See US EPA DNAPL Overview

2. Soil Migration Pathway

   Has soil contamination been delineated to the applicable Direct Contact Soil Remediation Standard? .... ☐ Yes ☒ No

   Are all soils either below the applicable Direct Contact Criteria or under an institutional control (i.e. deed notice)? .... ☐ Yes ☒ No

3. If this evaluation is submitted with a technical document that includes contaminant summary information, proceed to Section D. Otherwise attach a brief summary of all currently available data and information to be included in the site investigation or remedial investigation report.

SECTION D. GROUND WATER USE

1. Has the requirement for ground water sampling been triggered? .... ☒ Yes ☐ No ☐ Unknown

   If "No," proceed to Section F. If "Unknown," explain:

   ______

2. Is Ground water contaminated above the Ground Water Remediation Standards [N.J.A.C.7:9C]? .... ☒ Yes ☐ No ☐ Unknown

   Or ☐ Awaiting laboratory data with the expected due date: ______

   If "Yes," provide the date that the laboratory data was available and confirmed contamination above the Ground Water Remediation Standards. Date: 03/01/2015

   If "Unknown," explain: ______

   If "No," or awaiting laboratory data proceed to Section F.

3. Has ground water contamination been delineated to the applicable Remediation Standard? .... ☐ Yes ☒ No

4. Has a well search been completed? .... ☒ Yes ☐ No

   Date of most recent or updated well search: 07/13/2015

   Identify if any of the following conditions exist based on the well search [N.J.A.C.7:26E-1.14(a)] (check all that apply):
   - ☐ Potable wells located within 500 feet from the downgradient edge of the currently known extent of contamination.
   - ☐ Potable well located 250 feet upgradient or 500 feet side gradient of the currently known extent of contamination.
   - ☐ Ground water contamination is located within a Tier 1 wellhead protection area (WHPA).

5. Is a completed Well Search Spreadsheet or historical well search table attached and has an electronic copy of the spreadsheet been submitted to srpgis_wrs@dep.state.nj.us. .... ☒ Yes ☐ No

   If "No," explain: ______

6. Are any private potable or irrigation wells located within ½ mile of the currently known extent of contamination? .... ☐ Yes ☒ No

   If "Yes," was a door to door survey completed? .... ☐ Yes ☐ No

   If survey was not completed explain: ______

7. Has sampling been conducted of ☐ potable well(s) and /or ☐ non-potable use well(s)? .... ☐ Yes ☒ No

   If "No," provide justification then proceed to Section E.

   ______

8 Has contamination been identified in potable well(s) above Ground Water Remediation Standards that is not suspected to be from the site? (If "Yes," provide justification) .... ☐ Yes ☐ No

____

9 Has contamination been identified in potable well(s) that is above the Ground Water Remediation Standards or Federal Drinking Water Standards? .... ☐ Yes ☐ No

Provide date laboratory data was received: ____________________

Or ☐ awaiting laboratory data with the expected due date: ____________________

If "Yes" for potable well contamination **not attributable to background**, follow the IEC Guidance Document at http://www.nj.gov/dep/srp/guidance/index.html#iec for required actions and answer the following:

Has an engineered system response action been completed on all receptors? .... ☐ Yes ☐ No

Provide a brief narrative description:

Date completed: __________________ NJDEP Case Manager: ______________________________

10. Were Non-potable use well(s) sampled and results were above Class II Ground Water Remediation Standards? .... ☐ Yes ☐ No

Provide date laboratory data was received: _______________

Or ☐ awaiting laboratory data with the expected due date: _______________

11. Has the ground water use evaluation been completed? .... ☒ Yes ☐ No

SECTION E. VAPOR INTRUSION (VI)

1. Contaminants present in ground water exceed the Vapor Intrusion Ground Water Screening Levels that trigger a VI evaluation. (see NJDEP Vapor Intrusion Technical Guidance). ... ☒ Yes ☐ No ☐ Unknown

Or ☐ Awaiting laboratory data and the expected due date: __________________

Provide the date that the laboratory data was available and confirmed contamination above the Vapor Intrusion Trigger Levels. Date: 03/01/2015

2. Other existing conditions that trigger a VI evaluation. (see NJDEP Vapor Intrusion Technical Guidance)

☐ Wet basement or sump containing free product or ground water containing volatile organics
☐ Methane generating conditions causing oxygen deficient or explosion concern
☐ Other human or safety concern from the VI pathway (i.e. elemental mercury, unsaturated contamination, elevated soil gas or indoor vapor (explain):

If you answered "No," or awaiting laboratory data to Question 1., *and* did not check any boxes in Question 2, proceed to Section F, "Ecological Receptors", otherwise complete the rest of this section.

3. Has ground water contamination been delineated to the applicable Ground Water Vapor Screening Level? .... ☐ Yes ☒ No

4. Was a site specific screening level, modeling or other alternative approach employed for the VI pathway? .... ☐ Yes ☐ No

5. Identify and locate on a scaled map any buildings/sensitive populations that exist within the following distances from ground water contamination with concentrations above the Vapor Intrusion Ground Water Screening Levels or specific threats (check all that apply):

☒ 30 feet of petroleum free product or dissolved petroleum hydrocarbon contamination in ground water
☐ 100 feet of any non-petroleum free product or any non-petroleum dissolved volatile organic ground water contamination
☐ No buildings exist within the specified distances

6. The vapor intrusion pathway is a concern at or adjacent to the site (if "No," attach justification)................ ☐ Yes ☒ No

7. Has soil gas sampling of the building(s) been conducted? ☐ Yes ☒ No ☐ N/A
If "No," or "N/A," proceed to #10

8. Has indoor air sampling been conducted at the identified building(s)? ☐ Yes ☐ No
If "No," proceed to #10

9 Has indoor air contamination been identified but not suspected to be from the site?
(if "Yes," attach justification) ☐ Yes ☐ No

10. Indoor air results were above the NJDEP's Rapid Action Levels. ☐ Yes ☐ No

Provide the date that the laboratory data was available and confirmed contamination above the Rapid Action Levels. **Date:** ____________

Or ☐ Awaiting laboratory data with the expected due date: ____________

If "Yes" to #10 above, follow the IEC Guidance Document at http://www.nj.gov/dep/srp/guidance/index.html#iec for required actions.

The IEC engineering system response for control was implemented for all identified structures ☐ Yes ☐ No

Date: ____________ NJDEP Case Manager: ____________

11. Indoor air sampling was conducted and results were above the NJDEP's Indoor Air Screening Levels but at or below the Rapid Action Levels ☐ Yes ☐ No

Provide the date that the laboratory data was available. Date: ____________

Or ☐ Awaiting laboratory data with the expected due date: ____________

If "Yes" to #11 above, answer the following:

Has the Vapor Concern (VC) Response Action Form notifying the NJDEP of the exceedances been submitted? ☐ Yes ☐ No
Date: ____________

Has a plan to mitigate and monitor the exposure been submitted? ☐ Yes ☐ No
Date: ____________

Has the Mitigation Response Action Report been submitted? ☐ Yes ☐ No
Date: ____________

12. Has the vapor intrusion investigation been completed? ☐ Yes ☒ No
If "No", is the vapor intrusion investigation stepping out as part of the site investigation or remedial investigation. (If "No," attach justification) ☒ Yes ☐ No

SECTION F. ECOLOGICAL RECEPTORS

1. Has an Ecological Evaluation (EE) has been conducted? [N.J.A.C. 7:26E-1.16] ☒ Yes ☐ No

Date conducted: 07/13/2015

2. Do the results of an EE trigger a remedial investigation of ecological receptors? [N.J.A.C. 7:26E-4.8] ☐ Yes ☒ No

3. Has a remedial investigation of ecological receptors been conducted? ☐ Yes ☒ No

Date conducted: ____________

4. Provide the following information for any surface water body on or within 200 feet of the site:

Surface Water Body Name	Stream Classification	Antidegradation Designation	Trout Production	Trout Maintenance
			☐	☐
			☐	☐
			☐	☐
			☐	☐
			☐	☐
			☐	☐

5. Does the site contain any features regulated by the Land Use Regulation Program (LURP)? (e.g. wetlands, flood hazard area, tidelands, etc.). ☐ Yes ☒ No

   If "Yes," identify the type(s) of features: ______

6. Have any formal LURP jurisdiction letters or approvals been issued for the site? ☐ Yes ☒ No

   If "Yes," what is the LURP Program Interest (PI) number(s) for the site? ______

7. Have any applications for formal LURP jurisdiction letters or approvals been submitted the NJDEP? ☐ Yes ☒ No

   If "Yes," what is the LURP Program Interest (PI) number(s) for the site? ______

8. Is free product or residual product located within 100 feet from an ecological receptor? ☐ Yes ☒ No

9. Available data indicate an impact on: ☐ Ecological receptor(s) ☐ Surface water ☐ Sediment

   If this evaluation is submitted with a technical document that includes contaminant summary information, proceed to Section G. Otherwise attach a description of the type of contamination and provide a schedule and a description of all actions to be taken to mitigate exposure.

Completed forms should be sent to the municipal clerk, designate health department, and:

Bureau of Case Assignment & Initial Notice
Site Remediation Program
NJ Department of Environmental Protection
401-05H
PO Box 420
Trenton, NJ 08625-0420

Supplement to Receptor Evaluation Form for Casale Industries, Inc. PI #631620.

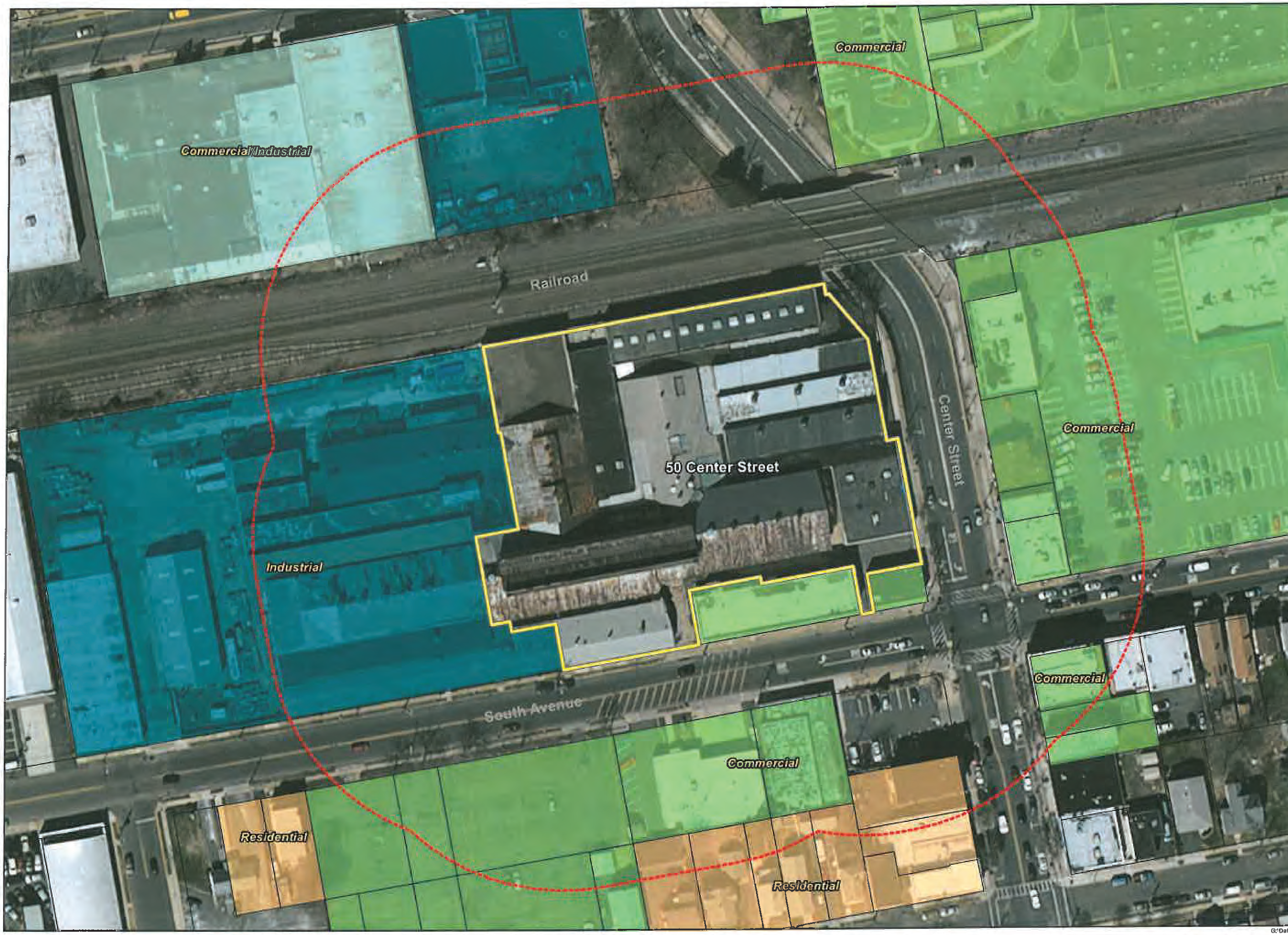
Response to question E6:

The vapor intrusion pathway is currently not a concern at the site as the building is empty and due to be torn down. The groundwater investigation will continue. Other potential vapor concern issues will be addressed if identified.

SITE NAME	Casale Industries, Inc.
SITE STREET ADDRESS	50 Center Street
SITE COUNTY (select)	Union
SITE MUNICIPALITY (select)	Garwood Boro
PROGRAM INTEREST (PI) ID #	
SOURCE COORDINATE X	540377
SOURCE COORDINATE Y	662412
GROUNDWATER FLOW DIRECTION USED (if any)	S
WERE APPLICABLE WELL TYPES FOUND? (Yes/No)	No
IS THIS SUBMISSION AN UPDATE? (Yes/No)	No
AUTHOR (name of company)	Ransom Environmental
AUTHOR STREET ADDRESS (include town and zip code)	2127 Hamilton Avenue
LSRP LICENSE NUMBER OVERSEEING WORK	573788
LSRP NAME OVERSEEING WORK	Kenneth Goldstein
PROFESSIONAL WHO PREPARED SUBMISSION	William Chaykin Jr.
EMAIL CONTACT	william.chaykin@ransomenv.com
PHONE CONTACT	609-584-0090

Permit Nur	Well Use	Potentially Potable	Document	Date (permitted/drille	Physical Address	County	Municipality	Block	Lot	Location Method	Easting (X)	Northing (Y	Distance (f	Depth (ft)	Capacity (gal/min)	
	P200913649	Irrigation	Yes	Permit	11/6/2009	1715 BOYNTON AVENUE	Union	Westfield Town	5712	10	Prop Loc - I	542568	657165	5686	120	10
	P200913649	Irrigation	Yes	Record	12/1/2009	1715 BOYNTON AVENUE	Union	Westfield Town	5712	10	GPS	542563	657165	5684	120	10
	A1407063	Domestic	Yes	Decommissioning	8/1/2014	903 Pennsylvania Avenue	Union	Westfield Town	4601	44	Digital Ima	536030	656256	7536		
	A130079	Non-Public	Yes	Decommissioning	11/6/2013	[redacted]	Union	Garwood Boro	503	5	Digital Ima	542497	662543	2124		
		Domestic	Yes	Decommissioning	10/14/1997	242 ORCHARD ST	Union	Westfield Town	2405	8	GIS Parcel (	533979	663278			
		Domestic	Yes	Decommissioning	4/23/1996	621 VERMONT STREET	Union	Westfield Town	4601	2	GIS Parcel (	536383	657064			
	A1109042	Domestic	Yes	Decommissioning	10/7/2011	921 Pennsylvania Avenue	Union	Westfield Town	4601	41	GPS	536231	656031	7610		
	2500004809	Domestic	Yes	Permit	7/18/1955		Union	Westfield Town			Prop Loc - I	536950	656406		100	10
	2500004756	Domestic	Yes	Permit	7/5/1955		Union	Westfield Town			Prop Loc - I	537944	660456		0	10
	2600001303	Domestic	Yes	Permit	10/10/1955		Union	Cranford Twp			Prop Loc - I	544116	657736		100	10
	2600001303	Domestic	Yes	Record	10/21/1955	15 CLARK STREET	Union	Cranford Twp			Prop Loc - I	544139	659085	5022	150	0
	2600001225	Agric/Hort/Aqua Irrigation	Yes	Permit	7/7/1955		Union	Westfield Town			Prop Loc - I	539008	668553		150	65
	2600001203	Non-Public	Yes	Permit	6/8/1955		Middlesex	Woodbridge Twp			Prop Loc - I	541022	663093		200	20
	2600001105	Domestic	Yes	Permit	1/13/1955		Union	Cranford Twp			Prop Loc - I	542098	664512		100	6
REDACTED	2500002899	Public Community	Yes	Permit	10/9/1953	REDACTED	Union	Westfield Town		REDACTED	Prop Loc - I	0	0		502	350
REDACTED	2500002899	Public Community	Yes	Record	10/10/1953	REDACTED	Union	Westfield Town		REDACTED	Prop Loc - I	0	0		502	350
	2500000392	Domestic	Yes	Permit	1/14/1949		Union	Westfield Town			Prop Loc - I	534393	663789		250	250
	2500000392	Domestic	Yes	Record	2/15/1949	E. BROAD ST (CTY RTE 509) & CENTRAL AVE	Union	Westfield Town			Prop Loc - I	534393	663789		250	0
	2500000266	Domestic	Yes	Permit	8/18/1948		Union	Westfield Town			Prop Loc - I	534395	662372		150	50
	2500000266	Domestic	Yes	Record	11/9/1948	138 CENTRAL AVE	Union	Westfield Town			Prop Loc - I	534395	662372		133	0
	2600000085	Domestic	Yes	Permit	12/29/1948		Union	Springfield Twp			Prop Loc - I	543641	663806		100	6
	2500003766	Domestic	Yes	Permit	8/11/1954		Union	Westfield Town			Prop Loc - I	536469	666423		100	5
	2500003765	Domestic	Yes	Permit	8/11/1954		Union	Westfield Town			Prop Loc - I	537483	659645		100	5
	2500003367	Domestic	Yes	Permit	3/31/1954		Union	Westfield Town			Prop Loc - I	535404	658326		80	15
	2500003040	Domestic	Yes	Permit	10/26/1953		Union	Westfield Town			Prop Loc - I	535392	665106		80	15
	2500002771	Domestic	Yes	Permit	7/21/1953		Union	Westfield Town			Prop Loc - I	535399	661058		80	5
	2500002005	Domestic	Yes	Permit	8/25/1952		Union	Westfield Town			Prop Loc - I	536486	657013		200	8
	2500001035	Domestic	Yes	Record	9/28/1951	NORTH AVE	Union	Westfield Town			Prop Loc - I	534884	661766	5531	205	0
	2500000957	Domestic	Yes	Permit	6/21/1951		Union	Westfield Town			Prop Loc - I	534395	662372		200	50
	2500000957	Domestic	Yes	Record	7/17/1951	QUIMBY STREET	Union	Westfield Town			Prop Loc - I	534395	662372		226	0
	2600000993	Agric/Hort/Aqua Irrigation	Yes	Permit	7/30/1954		Union	Cranford Twp			Prop Loc - I	543635	666437		150	25
	2600000983	Domestic	Yes	Permit	7/20/1954		Union	Cranford Twp			Prop Loc - I	542636	665120		150	50
	2600000893	Domestic	Yes	Permit	4/19/1954		Union	Elizabeth City			Prop Loc - I	539548	667846		120	10
	2600000803	Domestic	Yes	Permit	10/26/1953		Union	Cranford Twp			Prop Loc - I	543632	667854		80	15
	2600000580	Domestic	Yes	Permit	11/5/1952		Union	Clark Twp			Prop Loc - I	545737	657031		500	500
	2600000544	Industrial	Yes	Permit	8/15/1952		Union	Cranford Twp			Prop Loc - I	545722	663811		150	40
	2600000224	Industrial	Yes	Permit	10/17/1950		Union	Cranford Twp			Prop Loc - I	538470	667844		100	12
	2600001415	Domestic	Yes	Permit	5/23/1956		Essex	Millburn Twp			Prop Loc - I	539567	658334		200	18
	2600001369	Domestic	Yes	Permit	3/5/1956		Union	Cranford Twp			Prop Loc - I	538470	667844		100	10
	2600001369	Domestic	Yes	Record	3/21/1956	167 HILLCRET AVENUE	Union	Cranford Twp			Prop Loc - I	543109	660432	3374	100	0
	2500008722	Domestic	Yes	Permit	7/30/1959		Union	Westfield Town			Prop Loc - I	535404	658326		100	10
	2500008722	Domestic	Yes	Record	8/27/1959	621 VERMONT ST.	Union	Westfield Town			Prop Loc - I	535404	658326		121	20
	2500007750	Domestic	Yes	Permit	6/18/1958		Union	Scotch Plains Twp			Prop Loc - I	534402	658324		150	15
	2600001819	Domestic	Yes	Permit	4/10/1958		Union	Cranford Twp			Prop Loc - I	543644	662390		100	8
	2600001819	Domestic	Yes	Record	4/26/1958	131 DENMAN ROAD	Union	Cranford Twp			Prop Loc - I	546192	660439	6141	107	0
	2600001746	Domestic	Yes	Permit	10/30/1957		Union	Cranford Twp			Prop Loc - I	541637	663802		100	8
	2600001682	Industrial	Yes	Permit	7/31/1957		Union	Clark Twp			Prop Loc - I	545737	657031		200	40
	260001666A	Domestic	Yes	Permit	12/2/1957		Union	Cranford Twp			Prop Loc - I	542639	663804		100	7
	2600001664	Domestic	Yes	Permit	7/9/1957		Union	Roselle Park Boro			Prop Loc - I	545719	665126		100	8
	2600002304	Domestic	Yes	Permit	9/6/1960		Union	Cranford Twp			Prop Loc - I	542642	662388		120	10
	2600002304	Domestic	Yes	Record	10/4/1960	171 BALTIMORE AVE.	Union	Cranford Twp			Prop Loc - I	542642	662388		100	12
	2600002818	Industrial	Yes	Decommissioning	12/30/2004	[redacted]	Union	Garwood Boro	35	1	Prop Loc - I	539556	663798			
	2600002818	Industrial	Yes	Permit	5/17/1963		Union	Garwood Boro			Prop Loc - I	539556	663798		200	70
	2600002818	Industrial	Yes	Record	6/21/1963	[redacted]	Union	Garwood Boro			Prop Loc - I	538993	663122	1556	260	70

2600002649	Industrial	Yes	Permit	6/29/1962		Union	Garwood Boro			Prop Loc - I	539559	662381		300	250
2600002649	Industrial	Yes	Record	8/10/1962	[redacted]	Union	Garwood Boro			Prop Loc - I	539559	662381		302	0
2600004265	Industrial	Yes	Permit	4/1/1969		Union	Garwood Boro			Prop Loc - I	540558	663800		200	30
2600004463	Domestic	Yes	Permit	4/28/1972		Union	Cranford Twp			Prop Loc - I	538470	667844		100	65
2600004337	Industrial	Yes	Permit	4/29/1970		Union	Cranford Twp			Prop Loc - I	544643	663809		250	60
2600004337	Industrial	Yes	Record	5/11/1970	22 SOUTH STREET	Union	Cranford Twp			Prop Loc - I	544643	663809		250	0
2600004333	Industrial	Yes	Permit	3/25/1970		Union	Garwood Boro			Prop Loc - I	540561	662383		200	50
2500021915	Domestic	Yes	Permit	3/11/1981		Union	Westfield Town	3345	33	Prop Loc - I	537468	667842		300	15
2600005210	Irrigation	Yes	Record	7/30/1981	1171 E BROAD ST	Union	Westfield Town	2003	26	Prop Loc - I	537955	668517	6568	145	15
2600005028	Domestic	Yes	Permit	3/13/1981		Union	Westfield Town	345	33	Prop Loc - I	544652	659660		150	10
2600010986	Domestic	Yes	Permit	6/18/1987		Union	Westfield Town	776 5 & 6		Prop Loc - I	541640	662386		150	10
2600010986	Domestic	Yes	Record	7/11/1987	VERMONT STREET	Union	Westfield Town	776 5 & 6		Prop Loc - I	541640	662386		200	0
2500044277	Domestic	Yes	Permit	11/4/1993	430 LINDEN AVENUE	Union	Westfield Town	2207	19	Prop Loc - I	534388	666420		250	8
2500044277	Domestic	Yes	Record	11/18/1993	430 LINDEN AVENUE	Union	Westfield Town	2207	19	Prop Loc - I	534388	666420		160	18
2600049415	Industrial	Yes	Permit	11/19/1997	93 NORTH AVE.	Union	Garwood Boro	29	22	Prop Loc - I	542639	663804		350	200
2600049415	Industrial	Yes	Record	11/9/1997	93 NORTH AVE.	Union	Garwood Boro	29	22	Prop Loc - I	542639	663804		325	120
4600052773	Industrial	Yes	Permit	1/4/1999	[redacted]	Union	Garwood Boro	21	4	Prop Loc - I	540561	662383		252	140
4600052773	Industrial	Yes	Record	1/4/1999	[redacted]	Union	Garwood Boro	21	4	Prop Loc - I	540561	662383		252	140
4600052772	Industrial	Yes	Permit	1/4/1999	[redacted]	Union	Garwood Boro	21	4	Prop Loc - I	540561	662383		148	45
4600052772	Industrial	Yes	Record	1/4/1999	[redacted]	Union	Garwood Boro	21	4	Prop Loc - I	540561	662383		148	45
4600000195	Industrial	Yes	Permit	1/1/1935		Union	Garwood Boro			Prop Loc - I	541562	662993		235	300
4600000195	Industrial	Yes	Record	1/2/1935		Union	Garwood Boro			Prop Loc - I	541562	662993		235	300
4600000194	Industrial	Yes	Permit	1/1/1935		Union	Garwood Boro			Prop Loc - I	541562	662993		235	300
4600000194	Industrial	Yes	Record	1/2/1935		Union	Garwood Boro			Prop Loc - I	541562	662993		235	300
4600000193	Industrial	Yes	Permit	1/1/1935		Union	Garwood Boro			Prop Loc - I	541562	662993		194	150
4600000193	Industrial	Yes	Record	1/2/1935		Union	Garwood Boro			Prop Loc - I	541562	662993		194	150
4600000192	Industrial	Yes	Permit	1/1/1935		Union	Garwood Boro			Prop Loc - I	541562	662993		136	150
4600000192	Industrial	Yes	Record	1/2/1935		Union	Garwood Boro			Prop Loc - I	541562	662993		136	150
2600004395	Irrigation Replacement	Yes	Permit	5/18/1971		Union	Roselle Boro			Prop Loc - I	546730	661081		400	350
2600004395	Irrigation Replacement	Yes	Record	5/25/1971	ROSELLE	Union	Roselle Boro			Prop Loc - I	546730	661081		320	0
2500012169	Public Non-Community	Yes	Permit	7/22/1964		Union	Westfield Town			Prop Loc - I	534393	663789		300	70
2500012169	Public Non-Community	Yes	Record	7/24/1964	385 EAST EAST BROAD (CTY RTE 509)	Union	Westfield Town	2403	12	Prop Loc - I	534393	663789		246	0



RANSOM
Consulting Engineers and Scientists

Legend & Notes

- Site Boundary
- 200 Foot Radius
- Commercial
- Commercial/ Industrial
- Industrial
- Residential

Notes

1. Site Plan based on Bing Orthophotography
2. Some features are approximate in location and scale
3. This plan has been prepared for Casale Industries, Inc. All other uses are not authorized unless written permission is obtained from Ransom Consulting, Inc.

Scale & Orientation

0 40 80

1 inch = 80 feet

Prepared For

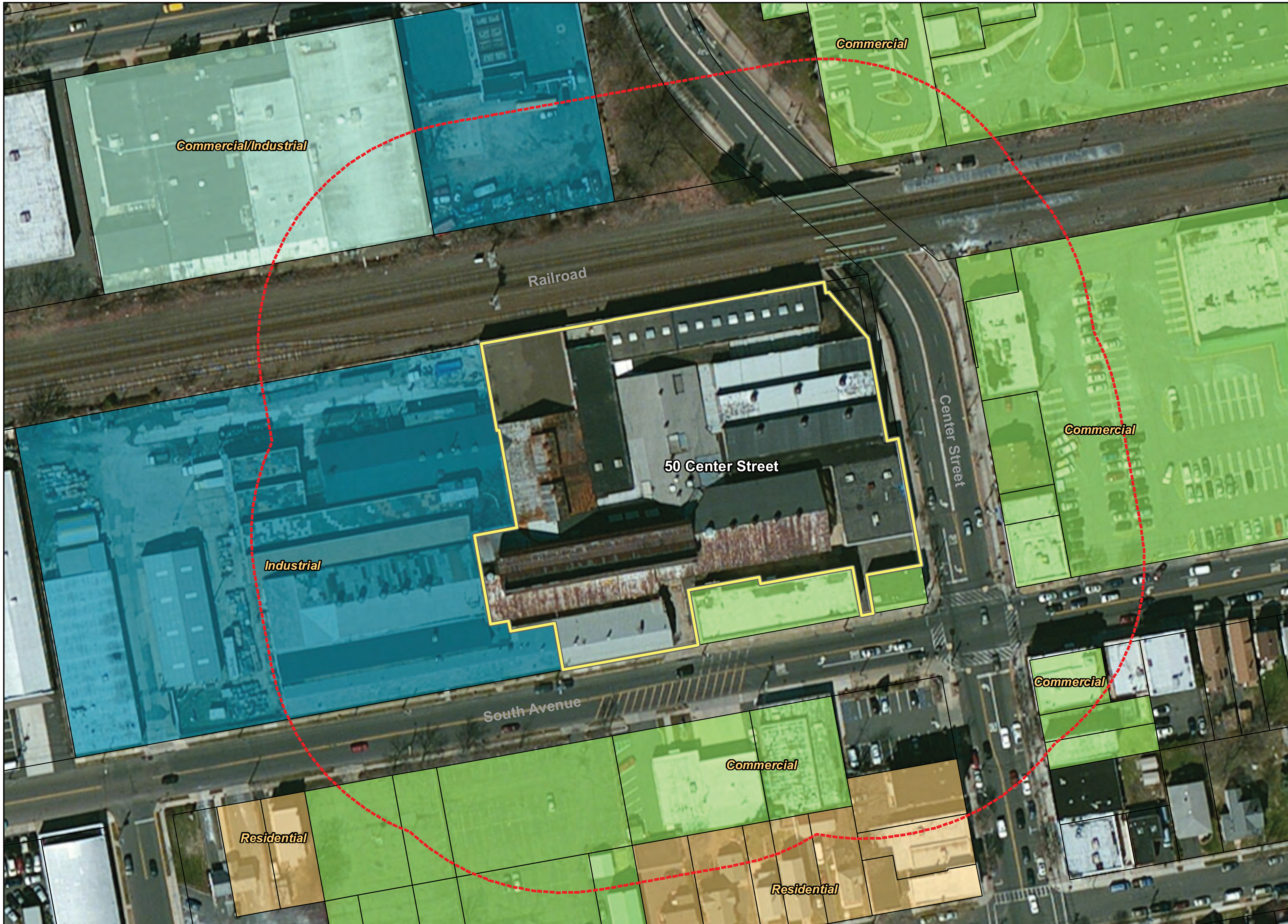
Casale Industries, Inc.
50 Center Street
P.O. Box 98
Garwood, New Jersey

Site Address

Casale Industries, Inc.
50 Center Street
400 South Avenue
Block 401, Lots 2 & 4
Garwood Borough,
Union County, New Jersey

130171 | May 2015

Figure 5
Sensitive Receptor Evaluation Plan



RANSOM Consulting Engineers and Scientists

Legend & Notes

- Site Boundary
- 200 Foot Radius
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Union County, New Jersey

130171 | May 2015

Figure 5
Sensitive Receptor Evaluation Plan

G:\Data\NJ\Project\130171\50_Center_Street\Maps\Figure_6.mxd

3.0 RECEPTOR EVALUATION

In accordance with N.J.A.C. 7:26E-1.12 an initial Receptor Evaluation is being submitted concurrently to the NJDEP with this PA/SI. A copy of the Receptor Evaluation Form and supporting documentation is included in **Appendix A.**

In accordance with N.J.A.C. 7:26E-1.14, a well search was conducted for the Site. The well search spreadsheet is included as an attachment to the Receptor Evaluation Form (copy included in **Appendix A**) and an electronic copy was submitted to the NJDEP (srpgis_wrs@dep.state.nj.us).

Specifically, Ransom conducted an online well search using the NJDEP Data Miner tool. Utilizing this method, Ransom attempted to identify all wells located within a ½ mile of the Site, and all irrigation, industrial wells and wells with water allocation permits located within 1 mile of the Site.

Based on the results of the well search, one public non-community well and three industrial wells were identified within 1 mile of the Site. However, no wells were identified within the focused search area, which is within 250 feet up-gradient or side-gradient of the Site, or within 500 feet down-gradient of the Site, based on the confirmed groundwater flow direction to the north-northeast. Therefore, no further action is warranted with regard to the well search.

In accordance with N.J.A.C. 7:26E-1.16, an Ecological Evaluation (EE) was conducted as part of the initial Receptor Evaluation that is being submitted to the NJDEP concurrently with this PA/SI. A tributary of the Rahway River was identified as the nearest ecologically sensitive natural resource, which is located approximately 500 feet to the south of the Site.

The tributary of the Rahway River is a freshwater, non-trout, saline estuarine (FW2-NT) stream and have a Category 2 antidegradation designation. A sensitive receptor plan is attached to the Receptor Evaluation Form (being submitted concurrently with this report), a copy of which is included as **Figure 5**.

New Jersey Department of Environmental Protection
Site Remediation Program

RECEPTOR EVALUATION (RE) FORM

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: Petro Plastics Co
List all AKAs:
Street Address: 450 South Avenue
Municipality: Garwood (Township, Borough or City)
County: Union Zip Code: 07027
Program Interest (PI) Number(s): 032470 Case Tracking Number(s): 98-07-1556-19
E20140122, 90-03-22-1503

Indicate the type of submission:

☒ Initial RE Submission

☐ Updated RE Submission
Indicate the reason for submission of an updated RE form
☐ Submission of an Immediate Environmental Concern (IEC) source control report;
☐ Submission of a Remedial Investigation Report;
☐ Submission of a Remedial Action Report;
Check if included in updated RE
☐ The known concentration or extent of contamination in any medium has increased;
☐ A new AOC has been identified;
☐ A new receptor is identified;
☐ A new exposure pathway has been identified.

SECTION B. ON SITE AND SURROUNDING PROPERTY USE

1. Identify any sensitive populations/uses that are currently on-site or surrounding property usage within 200 feet of the site boundary (check all that apply):

	On-site	Off-site
None of the following	☒	☐
Residences or residential property	☐	☒
Public or Private Schools grades K-12	☐	☐
Child care centers	☐	☐
Public parks, playgrounds or other recreation areas	☐	☐
Other sensitive population use(s) Explain ______	☐	☐

If any of the above applies, attach a list of addresses, facility names, type of use, and a map depicting each location relative to the site.

2. Current site uses (check all that apply):
☒ Industrial ☐ Residential ☐ Commercial ☐ Agricultural
☐ School or child care ☐ Government ☐ Park or recreational use
☐ Vacant ☐ Other: ______

3. Planned future site uses and off-site use within 200 ft of site boundary (check all that apply):
☒ Industrial ☒ Residential ☒ Commercial ☐ Agricultural
☐ School or child care ☐ Government ☐ Park or recreational use
☒ Vacant ☐ Other: ______
Provide a map depicting the location of the proposed changes in land use.

There are no known proposed changes to the surrounding properties. The subject property will be redeveloped for residential purposes.

SECTION C. DESCRIPTION OF CONTAMINATION

1. Identify if any of the following exist at the site (check all that apply):
   - ☐ Free product [N.J.A.C. 7:26E-1.8] identified is ☐ LNAPL* or ☐ DNAPL**. Date identified: ______
   - ☐ Residual product [N.J.A.C. 7:26E-1.8]
   - ☐ Other high concentration source materials not identified above (e.g., buried drums, containers, unsecured friable asbestos)

     Explain: ______

   * LNAPL – measured thickness of .01 feet or more

   **DNAPL – See US EPA DNAPL Overview
2. Soil Migration Pathway

   Has soil contamination been delineated to the applicable Direct Contact Soil Remediation Standard? .... ☒ Yes ☐ No

   Are all soils either below the applicable Direct Contact Criteria or under an institutional control (i.e. deed notice)? .... ☐ Yes ☒ No
3. If this evaluation is submitted with a technical document that includes contaminant summary information, proceed to Section D. Otherwise attach a brief summary of all currently available data and information to be included in the site investigation or remedial investigation report.

SECTION D. GROUND WATER USE

1. Has the requirement for ground water sampling been triggered?........ ☒ Yes ☐ No ☐ Unknown

   If "No," proceed to Section F. If "Unknown," explain: ______
2. Is Ground water contaminated above the Ground Water Remediation Standards [N.J.A.C.7:9C]?........ ☒ Yes ☐ No ☐ Unknown

   Or ☐ Awaiting laboratory data with the expected due date: ______

   If "Yes," provide the date that the laboratory data was available and confirmed contamination above the Ground Water Remediation Standards. Date: 03/13/2014

   If "Unknown," explain: ______

   If "No," or awaiting laboratory data proceed to Section F.
3. Has ground water contamination been delineated to the applicable Remediation Standard? .... ☒ Yes ☐ No
4. Has a well search been completed? .... ☒ Yes ☐ No

   Date of most recent or updated well search: 04/30/2014

   Identify if any of the following conditions exist based on the well search [N.J.A.C.7:26E-1.14(a)] (check all that apply):
   - ☐ Potable wells located within 500 feet from the downgradient edge of the currently known extent of contamination.
   - ☐ Potable well located 250 feet upgradient or 500 feet side gradient of the currently known extent of contamination.
   - ☐ Ground water contamination is located within a Tier 1 wellhead protection area (WHPA).
5. Is a completed Well Search Spreadsheet or historical well search table attached and has an electronic copy of the spreadsheet been submitted to srpgis_wrs@dep.state.nj.us. .... ☒ Yes ☐ No

   If "No," explain: ______
6. Are any private potable or irrigation wells located within ½ mile of the currently known extent of contamination? .... ☒ Yes ☐ No

   If "Yes," was a door to door survey completed? .... ☒ Yes ☐ No

   If survey was not completed explain: ______
7. Has sampling been conducted of ☐ potable well(s) and /or ☒ non-potable use well(s)?........ ☒ Yes ☐ No

   If "No," provide justification then proceed to Section E.

   Onsite production well sampled - No Exceedances of the GWQS

8 Has contamination been identified in potable well(s) above Ground Water Remediation Standards that is not suspected to be from the site? (If "Yes," provide justification) ☐ Yes ☒ No

9 Has contamination been identified in potable well(s) that is above the Ground Water Remediation Standards or Federal Drinking Water Standards? ☐ Yes ☒ No

Provide date laboratory data was received: ______

Or ☐ awaiting laboratory data with the expected due date: ______

If "Yes" for potable well contamination **not attributable to background**, follow the IEC Guidance Document at http://www.nj.gov/dep/srp/guidance/index.html#iec for required actions and answer the following:

Has an engineered system response action been completed on all receptors? ☐ Yes ☐ No

Provide a brief narrative description:

Date completed: ______ NJDEP Case Manager: ______

10. Were Non-potable use well(s) sampled and results were above Class II Ground Water Remediation Standards? ☐ Yes ☒ No

Provide date laboratory data was received: ______

Or ☐ awaiting laboratory data with the expected due date: ______

11. Has the ground water use evaluation been completed? ☒ Yes ☐ No

SECTION E. VAPOR INTRUSION (VI) See insert below Section H for further clarification regarding VI

1. Contaminants present in ground water exceed the Vapor Intrusion Ground Water Screening Levels that trigger a VI evaluation. (see NJDEP Vapor Intrusion Technical Guidance). ... ☒ Yes ☐ No ☐ Unknown

Or ☐ Awaiting laboratory data and the expected due date: ______

Provide the date that the laboratory data was available and confirmed contamination above the Vapor Intrusion Trigger Levels. Date: 03/13/2014

2. Other existing conditions that trigger a VI evaluation. (see NJDEP Vapor Intrusion Technical Guidance)

☐ Wet basement or sump containing free product or ground water containing volatile organics

☐ Methane generating conditions causing oxygen deficient or explosion concern

☐ Other human or safety concern from the VI pathway (i.e. elemental mercury, unsaturated contamination, elevated soil gas or indoor vapor (explain):

If you answered "No," or awaiting laboratory data to Question 1., *and* did not check any boxes in Question 2, proceed to Section F, "Ecological Receptors", otherwise complete the rest of this section.

3. Has ground water contamination been delineated to the applicable Ground Water Vapor Screening Level? ☒ Yes ☐ No

4. Was a site specific screening level, modeling or other alternative approach employed for the VI pathway? ☐ Yes ☒ No

5. Identify and locate on a scaled map any buildings/sensitive populations that exist within the following distances from ground water contamination with concentrations above the Vapor Intrusion Ground Water Screening Levels or specific threats (check all that apply): See insert below Section H for further clarification regarding VI

☒ 30 feet of petroleum free product or dissolved petroleum hydrocarbon contamination in ground water

☒ 100 feet of any non-petroleum free product or any non-petroleum dissolved volatile organic ground water contamination Chlorinated VOC contamination is due to an offsite source

☐ No buildings exist within the specified distances See Additional information below Section H

6. The vapor intrusion pathway is a concern at or adjacent to the site (if "No," attach justification) ☐ Yes ☒ No*

7. Has soil gas sampling of the building(s) been conducted? ☒ Yes ☐ No ☐ N/A
   If "No," or "N/A," proceed to #10

8. Has indoor air sampling been conducted at the identified building(s)? ☐ Yes ☒ No
   If "No," proceed to #10

9 Has indoor air contamination been identified but not suspected to be from the site?
   (if "Yes," attach justification) ☐ Yes ☐ No

10. Indoor air results were above the NJDEP's Rapid Action Levels. ☐ Yes ☐ No

    Provide the date that the laboratory data was available and confirmed contamination above the Rapid Action Levels. Date: ________

    Or ☐ Awaiting laboratory data with the expected due date: ________

    If "Yes" to #10 above, follow the IEC Guidance Document at http://www.nj.gov/dep/srp/guidance/index.html#iec **for required actions.**

    The IEC engineering system response for control was implemented for all identified structures ☐ Yes ☐ No

    Date: ________ NJDEP Case Manager: ________

11. Indoor air sampling was conducted and results were above the NJDEP's Indoor Air Screening Levels but at or below the Rapid Action Levels ☐ Yes ☐ No

    Provide the date that the laboratory data was available. Date: ________

    Or ☐ Awaiting laboratory data with the expected due date: ________

    If "Yes" to #11 above, answer the following: See insert below Section H for further clarification regarding VI

    Has the Vapor Concern (VC) Response Action Form notifying the NJDEP of the exceedances been submitted? ☐ Yes ☐ No
    Date: ________

    Has a plan to mitigate and monitor the exposure been submitted? ☐ Yes ☐ No
    Date: ________

    Has the Mitigation Response Action Report been submitted? ☐ Yes ☐ No
    Date: ________

    See Additional information below Section H

12. Has the vapor intrusion investigation been completed? ☒ Yes ☐ No
    If "No", is the vapor intrusion investigation stepping out as part of the site investigation or remedial investigation. (If "No," attach justification) ☐ Yes ☐ No

SECTION F. ECOLOGICAL RECEPTORS

1. Has an Ecological Evaluation (EE) has been conducted? [N.J.A.C. 7:26E-1.16] ☒ Yes ☐ No
   Date conducted: 04/30/2014

2. Do the results of an EE trigger a remedial investigation of ecological receptors? [N.J.A.C. 7:26E-4.8] ☐ Yes ☒ No

3. Has a remedial investigation of ecological receptors been conducted? ☐ Yes ☒ No
   Date conducted: ________

4. Provide the following information for any surface water body on or within 200 feet of the site:

Surface Water Body Name	Stream Classification	Antidegradation Designation	Trout Production	Trout Maintenance
Rahway River Tributary (Garwood Brook)	FW2-NT	Category 2	☐	☐
			☐	☐
			☐	☐
			☐	☐
			☐	☐
			☐	☐

5.	Does the site contain any features regulated by the Land Use Regulation Program (LURP)? (e.g. wetlands, flood hazard area, tidelands, etc.). ☐ Yes ☒ No If "Yes," identify the type(s) of features:	
6.	Have any formal LURP jurisdiction letters or approvals been issued for the site? ☐ Yes ☒ No If "Yes," what is the LURP Program Interest (PI) number(s) for the site?	
7.	Have any applications for formal LURP jurisdiction letters or approvals been submitted the NJDEP? ☐ Yes ☒ No If "Yes," what is the LURP Program Interest (PI) number(s) for the site?	
8.	Is free product or residual product located within 100 feet from an ecological receptor? ☐ Yes ☒ No	
9.	Available data indicate an impact on: ☐ Ecological receptor(s) ☐ Surface water ☐ Sediment If this evaluation is submitted with a technical document that includes contaminant summary information, proceed to Section G. Otherwise attach a description of the type of contamination and provide a schedule and a description of all actions to be taken to mitigate exposure.	

SECTION G. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION INFORMATION AND CERTIFICATION

Full Legal Name of the Person Responsible for Conducting the Remediation: 490 South Avenue, LLC

Representative First Name: Edward Representative Last Name: Russo

Title: Managing Member

Phone Number: (201) 487-5657 Ext: Fax: (201) 487-6440

Mailing Address: c/o Russo Acquisitions, LLC, 570 Commerce Boulevard

City/Town: Carlstadt State: New Jersey Zip Code: 07072

Email Address: edrusso@russodevelopment.com

This certification shall be signed by the person responsible for conducting the remediation who is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: Date: 05/06/2014

Name/Title: Edward Russo/Managing Member **No Changes Since Last Submittal** ☐

*Pursuant to a contract to purchase the property from Petro Plastics Co. (Responsible Entity), 490 South Avenue, LLC has agreed to remediate the site (NJDEP PI# 032470, E20140122, 98-07-1556-19, 90-03-2215-03).

SECTION H. LICENSED SITE REMEDIATION PROFESSIONAL INFORMATION AND STATEMENT

LSRP ID Number: 585775

First Name: Peter Last Name: Hansen

Phone Number: (973) 366-9500 Ext: Fax: (973) 366-9593

Mailing Address: 75 Fleetwood Drive, Suite 250

City/Town: Rockaway State: New Jersey Zip Code: 07866

Email Address: PHansen@ecolsciences.com

This statement shall be signed by the LSRP who is submitting this notification in accordance with SRRA Section 16 d. and Section 30 b.2.

I certify that I am a Licensed Site Remediation Professional authorized pursuant to N.J.S.A. 58:10C to conduct business in New Jersey. As the Licensed Site Remediation Professional of record for this remediation, I:

[SELECT ONE OR BOTH OF THE FOLLOWING AS APPLICABLE]:

☐ *directly oversaw and supervised all of the referenced remediation, and\or*

☒ *personally reviewed and accepted all of the referenced remediation presented herein.*

I believe that the information contained herein, and including all attached documents, is true, accurate and complete.

It is my independent professional judgment and opinion that the remediation conducted at this site, as reflected in this submission to the Department, conforms to, and is consistent with, the remediation requirements in N.J.S.A. 58:10C-14.

My conduct and decisions in this matter were made upon the exercise of reasonable care and diligence, and by applying the knowledge and skill ordinarily exercised by licensed site remediation professionals practicing in good standing, in accordance with N.J.S.A. 58:10C-16, in the State of New Jersey at the time I performed these professional services.

I am aware pursuant to N.J.S.A. 58:10C-17 that for purposely, knowingly or recklessly submitting false statement, representation or certification in any document or information submitted to the board or Department, etc., that there are significant civil, administrative and criminal penalties, including license revocation or suspension, fines and being punished by imprisonment for conviction of a crime of the third degree.

LSRP Signature: [signature] Date: 5/7/2014

LSRP Name/Title: Peter A. Hansen/Assistant Vice President **No Changes Since Last Submittal** ☐

Company Name: EcolSciences, Inc.

Completed forms should be sent to the municipal clerk, designate health department, and:

Bureau of Case Assignment & Initial Notice
Site Remediation Program
NJ Department of Environmental Protection
401-05H
PO Box 420
Trenton, NJ 08625-0420

*Sub slab vapor testing within the building identified TCE and other chlorinated compounds above the vapor intrusion screening levels; however, these compounds appear to be associated with an offsite upgradient source. No vapor sampling was conducted in the vicinity of the benzene, toluene, ethylbenzene, xylene, and naphthalene plume that is located beneath the northwestern portion of the building because substances containing these contaminants are used within the building and OSHA regulations apply which would supercede NJDEP vapor screening levels (pursuant to Section 5.3 of the VI guidance a VI investigation is not warranted), the area of the building is well ventilated (loading dock doors are opened and closed routinely throughout the course of the day), and the building will be vacated within 6 months and demolished shortly thereafter for redevelopment. There are no buildings other than the onsite 450 South Avenue building within the critical VI distance for dissolved petroleum compounds in groundwater. Vapor mitigation will be included in the future buildings. Chlorinated VOCs are associated with an offsite upgradient source.

Receptor Evaluation Figure

450 and 490 South Avenue
Block 401, Lot 1 and Block 403, Lots 4, 21, and 22
Borough of Garwood
Union County, New Jersey

EcolSciences, Inc.
Environmental Management & Regulatory Compliance

DATE: 4/14
Scale: ~1"=150'

Potential Receptors within 200 Feet			
Block	**Lot**	**Address**	**Use**
403	3	447 South Avenue	Residential
	16	410 Willow Avenue	Residential
	17	412 Willow Avenue	Residential
	18	414 Willow Avenue	Residential
405	1	439 Willow Avenue	Residential
	2	437 Willow Avenue	Residential
	3	435 Willow Avenue	Residential
	4	433 Willow Avenue	Residential
	5	429 Willow Avenue	Residential
	6	427 Willow Avenue	Residential
	7	425 Willow Avenue	Residential
	8	421 Willow Avenue	Residential
	22	430 Myrtle Avenue	Residential
	23	436 Myrtle Avenue	Residential
	24	440 Myrtle Avenue	Residential
	25	444 Myrtle Avenue	Residential
	26	450 Myrtle Avenue	Residential
	27	208 Center Street	Garwood Brook

SITE NAME	Petro Plastics	Enter no information beyond column B
SITE STREET ADDRESS	450 and 490 South Avenue	
SITE COUNTY (select)	union	
SITE MUNICIPALITY (select)	Garwood Boro	
PROGRAM INTEREST (PI) ID # :	032470	
SOURCE COORDINATE X	540110	
SOURCE COORDINATE Y	662326	
GROUNDWATER FLOW DIRECTION USED (if any)	SW	
WERE APPLICABLE WELL TYPES FOUND? (Yes/No)	Yes	
IS THIS SUBMISSION AN UPDATE? (Yes/No)	No	
AUTHOR (name of company)	EcolSciences, Inc.	
AUTHOR STREET ADDRESS (include town and zip code)	75 Fleetwood Drive, Suite 250, Rockaway, NJ 07866	
LSRP LICENSE NUMBER OVERSEEING WORK	585775	
LSRP NAME OVERSEEING WORK	Peter Hansen	
PROFESSIONAL WHO PREPARED SUBMISSION	Dave Loeffler	
EMAIL CONTACT	Dloeffler@ecolsciences.com	
PHONE CONTACT	9733669500	

Download_Document	Permit_Number	Well_Use	Potentially_Potable	Document	Date (permitted/drilled/sealed)	Physical_Address	County	Municipality	Block	Lot	Location_Method	Easting_X	Northing_Y	Distance_(feet)	Depth (feet)	Capacity (gal/min)	COORD_METHOD	TOP_OPEN_INT	BOT_OPEN_INT	STATIC_LEVEL	STATUS	WELL_SAMPLED?
	P200913649	Irrigation	Yes	Record	12/1/2009	1715 BOYNTON AVENUE	Union	Westfield Town	5712	10	GPS	542563	657165	5714	120	10					Outside Canvass	
	2600001225	Agric/Hort/Aqua Irrigation	Yes	Permit	7/7/1955		Union	Westfield Town			Prop Loc - Hard Copy	539008	668553		150	65					Outside Canvass	
	2600001203	Non-Public	Yes	Permit	6/8/1955		Middlesex	Woodbridge Twp			Prop Loc - Hard Copy	541022	663093		200	20					Outside Canvass	
	2500002899	Public Community	Yes	Record	10/10/1953	REDACTED	Union	Westfield Town		REDACTED	Prop Loc - Hard Copy	0	0		502	350					Outside Canvass	
	2600000993	Agric/Hort/Aqua Irrigation	Yes	Permit	7/30/1954		Union	Cranford Twp			Prop Loc - Hard Copy	543635	666437		150	25					Outside Canvass	
	2600000544	Industrial	Yes	Permit	8/15/1952		Union	Cranford Twp			Prop Loc - Hard Copy	545722	663811		150	40					Outside Canvass	
	2600000224	Industrial	Yes	Permit	10/17/1950		Union	Cranford Twp			Prop Loc - Hard Copy	538470	667844		100	12					Outside Canvass	
	2600001682	Industrial	Yes	Permit	7/31/1957		Union	Clark Twp			Prop Loc - Hard Copy	545737	657031		200	40					Outside Canvass	
	2600002649	Industrial	Yes	Record	8/10/1962	502 SOUTH AVENUE	Union	Garwood Boro			Prop Loc - Hard Copy	539559	662381		302	0					Outside Canvass	
	2600004265	Industrial	Yes	Permit	4/1/1969		Union	Garwood Boro			Prop Loc - Hard Copy	540558	663800		200	30					Outside Canvass	
	2600004005	Industrial	Yes	Permit	9/6/1966		Union	Cranford Twp			Prop Loc - Hard Copy	538493	655701		280	60					Outside Canvass	
	2600004337	Industrial	Yes	Record	5/11/1970	22 SOUTH STREET	Union	Cranford Twp			Prop Loc - Hard Copy	544643	663809		250	0					Outside Canvass	
	2600004333	Industrial	Yes	Permit	3/25/1970		Union	Garwood Boro			Prop Loc - Hard Copy	540561	662383		200	50					Outside Canvass	
	2600005210	Irrigation	Yes	Record	7/30/1981	1171 E BROAD ST	Union	Westfield Town	2003	26	Prop Loc - Dig Image	537955	668517	6556	145	15					Outside Canvass	
	2600049415	Industrial	Yes	Record	11/9/1997	93 NORTH AVE.	Union	Garwood Boro	29	22	Prop Loc - Hard Copy	542639	663804		325	120					Outside Canvass	
	4600052773	Industrial	Yes	Record	1/4/1999	450 SOUTH AVE	Union	Garwood Boro	21	4	Prop Loc - Hard Copy	540561	662383		252	140					Active	3/6/2014
	4600052772	Industrial	Yes	Record	1/4/1999	450 SOUTH AVE	Union	Garwood Boro	21	4	Prop Loc - Hard Copy	540561	662383		148	45					Inactive	
	4600000195	Industrial	Yes	Record	1/2/1935		Union	Garwood Boro			Prop Loc - Hard Copy	541562	662993		235	300					Outside Canvass	
	4600000194	Industrial	Yes	Record	1/2/1935		Union	Garwood Boro			Prop Loc - Hard Copy	541562	662993		235	300					Outside Canvass	
	4600000193	Industrial	Yes	Record	1/2/1935		Union	Garwood Boro			Prop Loc - Hard Copy	541562	662993		194	150					Outside Canvass	
	4600000192	Industrial	Yes	Record	1/2/1935		Union	Garwood Boro			Prop Loc - Hard Copy	541562	662993		136	150					Outside Canvass	
	2600004395	Irrigation Replacement	Yes	Record	5/25/1971	ROSELLE	Union	Roselle Boro			Prop Loc - Hard Copy	546730	661081		320	0					Outside Canvass	
	2600000204	Industrial	Yes	Permit	8/11/1950	RARITAN RD	Union	Clark Twp			Prop Loc - Hard Copy	543658	655711		400	500					Outside Canvass	
	2500012169	Public Non-Community	Yes	Record	7/24/1964	385 EAST EAST BROAD (CTY RTE 509)	Union	Westfield Town	2403	12	Prop Loc - Hard Copy	534393	663789		246	0					Outside Canvass	
	2500004756	Domestic	Yes	Permit	7/5/1955		Union	Westfield Town			Prop Loc - Hard Copy	537944	660456		0	10					Outside Canvass	
	2600001105	Domestic	Yes	Permit	1/13/1955		Union	Cranford Twp			Prop Loc - Hard Copy	542098	664512		100	6					Outside Canvass	
	2600000085	Domestic	Yes	Permit	12/29/1948		Union	Springfield Twp			Prop Loc - Hard Copy	543641	663806		100	6					Outside Canvass	
	2500003765	Domestic	Yes	Permit	8/11/1954		Union	Westfield Town			Prop Loc - Hard Copy	537483	659645		100	5					Outside Canvass	
	2600000983	Domestic	Yes	Permit	7/20/1954		Union	Cranford Twp			Prop Loc - Hard Copy	542636	665120		150	50					Outside Canvass	
	2600001369	Domestic	Yes	Record	3/21/1956	167 HILLCRET AVENUE	Union	Cranford Twp			Prop Loc - Dig Image	543109	660432	3547	100	0					Outside Canvass	
	2600001819	Domestic	Yes	Permit	4/10/1958		Union	Cranford Twp			Prop Loc - Hard Copy	543644	662390		100	8					Outside Canvass	
	2600001746	Domestic	Yes	Permit	10/30/1957		Union	Cranford Twp			Prop Loc - Hard Copy	541637	663802		100	8					Outside Canvass	
	260001666A	Domestic	Yes	Permit	12/2/1957		Union	Cranford Twp			Prop Loc - Hard Copy	542639	663804		100	7					Outside Canvass	
	2600002304	Domestic	Yes	Record	10/4/1960	171 BALTIMORE AVE.	Union	Cranford Twp			Prop Loc - Hard Copy	542642	662388		100	12					Outside Canvass	
	2600010986	Domestic	Yes	Record	7/11/1987	VERMONT STREET	Union	Westfield Town	776	5 & 6	Prop Loc - Hard Copy	541640	662386		200	0					Outside Canvass	

ATTACHMENT G

TestAmerica, Inc. Laboratory QA Manual

EcolSciences, Inc.

Environmental Management & Regulatory Compliance

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Quality Assurance Manual

TestAmerica Edison
777 New Durham Road
Edison, NJ 08817
Phone No. 732-549-3900
Fax No. 732-549-3679

www.testamericainc.com

Facility Distribution No. ELECTRONIC **Distributed To: FACILITY INTRANET**

Title Page:

Quality Assurance Manual
Approval Signatures

	11/29/2013
Laboratory Director – Ann Gladwell	Date
	11/29/2013
Quality Assurance Manager - Carl Armbruster	Date
	11/29/2013
Operations Manager – Mark Acierno	Date

SECTION 2. TABLE OF CONTENTS

LIST OF TABLES

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LIST OF APPENDICES

REFERENCED CORPORATE SOPs AND POLICIES

SOP / Policy Reference	Title
CA-Q-S-001	Solvent and Acid Lot Testing and Approval
CA-Q-S-002	Acceptable Manual Integration Practices
CA-Q-S-004	Method Compliance & Data Authenticity Audits
CA-Q-S-006	Detection Limits
CA-Q-S-008	Management Systems Review
CW-Q-S-001	Corporate Document Control and Archiving
CW-Q-S-002	Writing a Standard Operating Procedure (SOPs)
CW-L-S-002	Internal Investigation of Potential Data Discrepancies and Determination for Data Recall
CA-L-S-002	Subcontracting Procedures
CW-L-P-004	Ethics Policy
CA-L-P-002	Contract Compliance Policy
CW-F-P-002	Authorization Matrix
CW-F-P-004	Procurement and Contracts Policy
CA-C-S-001	Work Sharing Process
CA-T-P-001	Qualified Products List
CW-F-S-007	Controlled Purchases Policy
CW-F-S-018	Vendor Selection
CA-Q-M-002	Corporate Quality Management Plan
CW-E-M-001	Corporate Environmental Health & Safety Manual

REFERENCED LABORATORY SOPs

SOP Reference	Title
ED-GEN-002	Document Control
ED-GEN-003	Control of Non-Conformances and Corrective Action
ED-GEN-022	Training
ED-GEN-024	Record Storage and Retention
ED-GEN-001	Data Management and Handling
ED-GEN-021	Data Review
ED-GEN-007	Subsampling
ED-SPM-001	Sample Receipt, Login, Identification, And Storage
ED-RP-001	Reports Production
ED-GEN-011	Calibration and Use of Pipettes
ED-FLD-008, -009	Groundwater Sampling and Flow Monitoring
ED-FLD-014	Wastewater Sampling
ED-FLD-001 thru -010	Field Analytical Parameters
ED-SPM-006	Acceptance and Handling of Regulated Domestic & Foreign Soils
ED-SPM-007	Disposal of Samples and Associated Laboratory Waste

SECTION 3. INTRODUCTION, SCOPE AND APPLICABILITY

3.1 Introduction and Compliance References

TestAmerica Edison's Quality Assurance Manual (QAM) is a document prepared to define the overall policies, organization objectives and functional responsibilities for achieving TestAmerica's data quality goals. The laboratory maintains a local perspective in its scope of services and client relations and maintains a national perspective in terms of quality.

The QAM has been prepared to assure compliance with The NELAC Institute (TNI) Standard, dated 2009, Volume 1 Modules 2 and 4, and ISO/IEC Guide 17025:2005(E). In addition, the policies and procedures outlined in this manual are compliant with TestAmerica's Corporate Quality Management Plan (CQMP) and the various accreditation and certification programs listed in Appendix 3. The CQMP provides a summary of TestAmerica's quality and data integrity system. It contains requirements and general guidelines under which all TestAmerica facilities shall conduct their operations.

The QAM has been prepared to be consistent with the requirements of the following documents:

- EPA 600/4-88/039, *Methods for the Determination of Organic Compounds in Drinking Water,* EPA, Revised July 1991.
- EPA 600/R-95/131, *Methods for the Determination of Organic Compounds in Drinking Water,* Supplement III, EPA, August 1995.
- EPA 600/4-79-019, *Handbook for Analytical Quality Control in Water and Wastewater Laboratories,* EPA, March 1979.
- *Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846), Third Edition, September 1986, Final Update I, July 1992, Final Update IIA, August 1993, Final Update II, September 1994; Final Update IIB, January 1995; Final Update III, December 1996; Final Update IV, January 2008.*
- Federal Register, 40 CFR Parts 136, 141, 172, 173, 178, 179 and 261.
- *Manual for the Certification of Laboratories Analyzing Drinking Water (EPA 815-R-05-004, January 2005) (DW labs only)*
- *Statement of Work for Inorganics & Organics Analysis, SOM and ISM, current versions, USEPA Contract Laboratory Program Multi-media, Multi-concentration.*
- APHA, *Standard Methods for the Examination of Water and Wastewater,* 18th Edition, 19th, 20th, 21st and on-line Editions.
- Toxic Substances Control Act (TSCA).

3.2 Terms and Definitions

A Quality Assurance Program is a company-wide system designed to ensure that data produced by the laboratory conforms to the standards set by state and/or federal regulations. The program functions at the management level through company goals and management policies, and at the analytical level through Standard Operating Procedures (SOPs) and quality control. The TestAmerica program is designed to minimize systematic error, encourage constructive, documented problem solving, and provide a framework for continuous improvement within the organization.

Refer to Appendix 2 for the Glossary/Acronyms.

3.3 Scope / Fields of Testing

The laboratory analyzes a broad range of environmental and industrial samples every month. Sample matrices vary among drinking water, effluent water, groundwater, hazardous waste, sludge and soils. The Quality Assurance Program contains specific procedures and methods to test samples of differing matrices for chemical, physical and biological parameters. The Program also contains guidelines on maintaining documentation of analytical processes, reviewing results, servicing clients and tracking samples through the laboratory. The technical and service requirements of all analytical requests are thoroughly evaluated before commitments are made to accept the work. Measurements are made using published reference methods or methods developed and validated by the laboratory.

The methods covered by this manual include the most frequently requested methodologies needed to provide analytical services in the United States and its territories. The specific list of test methods used by the laboratory can be found in TestAmerica Edison Work Instruction No. EDS-WI-009 (Analytical Capabilities). The approach of this manual is to define the minimum level of quality assurance and quality control necessary to meet these requirements. All methods performed by the laboratory shall meet these criteria as appropriate. In some instances, quality assurance project plans (QAPPs), project specific data quality objectives (DQOs) or local regulations may require criteria other than those contained in this manual. In these cases, the laboratory will abide by the requested criteria following review and acceptance of the requirements by the Laboratory Director and the Quality Assurance (QA) Manager. In some cases, QAPPs and DQOs may specify less stringent requirements. The Laboratory Director and the QA Manager must determine if it is in the lab's best interest to follow the less stringent requirements.

3.4 Management of the Manual

3.4.1 Review Process

The template on which this manual is based is reviewed annually by Corporate Quality Management Personnel to assure that it remains in compliance with Section 3.1. This manual itself is reviewed every two years by senior laboratory management to assure that it reflects current practices and meets the requirements of the laboratory's clients and regulators as well as the CQMP. Occasionally, the manual may need changes in order to meet new or changing regulations and operations. The QA Manager will review the changes in the normal course of business and incorporate changes into revised sections of the document. All updates will be reviewed by the senior laboratory management staff. The laboratory updates and approves such changes according to our Document Control & Updating procedures (refer to SOP No. ED-GEN-002, Document Control).

SECTION 4. MANAGEMENT REQUIREMENTS

4.1 Overview

TestAmerica Edison is a local operating unit of TestAmerica Laboratories, Inc... The organizational structure, responsibilities and authorities of the corporate staff of TestAmerica Laboratories, Inc. are presented in the CQMP. The laboratory has day-to-day independent operational authority overseen by corporate officers (e.g., President, Chief Executive Officer, and Corporate Quality). The laboratory operational and support staff work under the direction of the Laboratory Director. The organizational structure for both Corporate & TestAmerica Edison is presented in Figure 4-1.

4.2 Roles and Responsibilities

In order for the Quality Assurance Program to function properly, all members of the staff must clearly understand and meet their individual responsibilities as they relate to the quality program. The following descriptions briefly define each role in its relationship to the Quality Assurance Program.

4.2.1 Additional Requirements for Laboratories

The responsibility for quality resides with every employee of the laboratory. All employees have access to the QAM, are trained to this manual, and are responsible for upholding the standards therein. Each person carries out his/her daily tasks in a manner consistent with the goals and in accordance with the procedures in this manual and the laboratory's SOPs. Role descriptions for Corporate personnel are defined in the CQMP. This manual is specific to the operations of TestAmerica's Edison laboratory.

4.2.2 Laboratory Director/Lead Technical Director

TestAmerica Edison's Laboratory Director is responsible for the overall quality, safety, financial, technical, human resource and service performance of the whole laboratory and reports to the

General Manager (GM). The Laboratory Director provides the resources necessary to implement and maintain an effective and comprehensive Quality Assurance and Data Integrity Program.

Specific responsibilities include, but are not limited to:

- Serves as lead technical director for all fields of testing.
- Ensures that all analysts and supervisors have the appropriate education and training to properly carry out the duties assigned to them and ensures that this training has been documented.
- Ensures that personnel are free from any commercial, financial and other undue pressures which might adversely affect the quality of their work.
- Ensures TestAmerica’s human resource policies are adhered to and maintained.
- Ensures that sufficient numbers of qualified personnel are employed to supervise and perform the work of the laboratory.
- Ensures that appropriate corrective actions are taken to address analyses identified as requiring such actions by internal and external performance or procedural audits. Procedures that do not meet the standards set forth in the QAM or laboratory SOPs may be temporarily suspended by the Laboratory Director.
- Monitors standards of performance in quality control and quality assurance.
- Monitors the validity of analyses performed and data generated in the lab to assure reliable data.
- Reviews and approves all SOPs prior to their implementation and ensures all approved SOPs are implemented and adhered to.
- Interfaces with Project Management and Customer Service to forecast receipts, provide quality analytical data to clients and meet on-time delivery dates.
- Ensures that the facility has appropriate Information Technology resources and that they are used effectively to support operational requirements.
- Actively participates in the process of sharing and adopting best practices within TestAmerica. Provides technical assistance to other TestAmerica laboratories as needed to improve productivity and customer service.
- Ensures client specific reporting and quality control requirements are met.
- Captains the management team, consisting of the QA Manager, the Operations Manager, the Project Management Director, the Client Services Manager, the Service Center Manager, the Environmental, Health and Safety Manager and the Support Services Manager as direct reports.

4.2.3 Quality Assurance (QA) Manager

The QA Manager has responsibility and authority to ensure the continuous implementation of the quality system.

The QA Manager reports directly to the Laboratory Director and has access to Corporate QA for advice and resources. This position is able to evaluate data objectively and perform assessments without outside (e.g., managerial) influence. Corporate QA may be used as a resource in dealing with regulatory requirements, certifications and other quality assurance related items. The QA Manager directs the activities of the QA officers to accomplish specific responsibilities, which include, but are not limited to:

- Serves as the focal point for QA/QC in the laboratory.
- Having functions independent from laboratory operations for which he/she has quality assurance oversight.
- Maintaining and updating the QAM.
- Monitoring and evaluating laboratory certifications; scheduling proficiency testing samples.
- Monitoring and communicating regulatory changes that may affect the laboratory to management.
- Training and advising the laboratory staff on quality assurance/quality control procedures that are pertinent to their daily activities.
- Have documented training and/or experience in QA/QC procedures and the laboratory's Quality System.
- Having a general knowledge of the analytical test methods for which data audit/review is performed (and/or having the means of getting this information when needed).
- Arranging for or conducting internal audits on quality systems and the technical operation.
- The laboratory QA Manager will maintain records of all ethics-related training, including the type and proof of attendance.
- Maintain, improve, and evaluate the corrective action database and the corrective and preventive action systems.
- Notifying laboratory management of deficiencies in the quality system and ensuring corrective action is taken. Procedures that do not meet the standards set forth in the QAM or laboratory SOPs shall be investigated following procedures outlined in Section 12 and if deemed necessary may be temporarily suspended during the investigation.
- Objectively monitor standards of performance in quality control and quality assurance without outside (e.g., managerial) influence.
- Coordinating of document control of SOPs, MDLs, control limits, and miscellaneous forms and information.
- Review a percentage of all final data reports for internal consistency. Review of Chain of Custody (COC), correspondence with the analytical request, batch QC status, completeness of any corrective action statements, 5% of calculations, format, holding time, sensibility and completeness of the project file contents.
- Review of external audit reports and data validation requests.
- Follow-up with audits to ensure client QAPP requirements are met.

- Establishment of reporting schedule and preparation of various quality reports for the Laboratory Director, clients and/or Corporate QA.
- Development of suggestions and recommendations to improve quality systems.
- Research of current state and federal requirements and guidelines.
- Captains the QA team to enable communication and to distribute duties and responsibilities.

- Ensuring Communication & monitoring standards of performance to ensure that systems are in place to produce the level of quality as defined in this document.
- Notifying laboratory management of deficiencies in the quality system and ensuring corrective action is taken. Procedures that do not meet the standards set forth in the QAM or laboratory SOPs are temporarily suspended following the procedures outlined in Section 12.
- Evaluation of the thoroughness and effectiveness of training.

4.2.4 Quality Assurance (QA) Specialist

The Quality Assurance (QA) Specialist is responsible for performing data audits, special audits, assisting with external and systems audits, overseeing the maintenance of QC records, certifications, Standard Operating Procedures (SOPs), training records, DOCs, arranging and managing PT samples. Additional responsibilities may include assisting with systematic problems within the laboratory, assisting in reviewing and/or writing of Quality Assurance Project Plans, and technical and QC specifications in contracts and other functions in support of the QA Manager's responsibilities as assigned.

- Assist QA Manager in conducting QA training courses, including ethics training.
- Performs data audits.
- Assist in performing special audits as deemed necessary by data audits, client inquiries, etc.
- Assisting in, conducting and responding to external audits conducted by clients and regulatory agencies.
- Assisting in reviewing and/or writing of Quality Assurance Project Plans, and technical and QC specifications in contracts.
- Maintaining all necessary laboratory certifications.
- Arranging and managing PT samples.
- Reviewing laboratory SOPs. Writing SOPs as needed.
- Maintaining historical indices of all technical records including SOPs, QC records, laboratory data, etc.
- Ensuring maintenance of records archives.
- Assisting in and monitoring laboratory’s method compliance.
- Ensuring maintenance of DOCs for all analysts.
- Ensuring maintenance of training records for all employees.

- Assisting in identification of systematic problems within laboratories.
- Recommends resolutions for ongoing or recurring nonconformance.
- Providing statistical feedback to Departments on error rates, and assisting in identifying systematic improvements to minimize errors.
- Assists in tracking of customer complaints, providing statistical feedback to the laboratory, and assisting in identifying improvements.
- Overseeing and reviewing MDL studies.
- Ensuring control charts are generated; oversees and approves setting of control limits.
- Assists in monitoring new regulations and communicating them to the laboratory.

4.2.5 LAN Analyst

The LAN Analyst reports directly to the Regional Desktop Support Supervisor. Responsibilities include:

- Works with Corporate IT to solve information systems problems and to standardize laboratory IT equipment and processes.
- Monitors and supports office automation so that LAN is operational for internal and external communications.
- Troubleshoots problems throughout laboratory relating to computers, software, telephones and other electronic equipment.
- Responsible for new user setup on network, LIMS, telephone and voice mail.
- Installs or upgrades computers and other equipment.
- Maintains tape backups for multiple computer servers including LIMS.
- Maintains historical files of software, software operating procedures (manuals), software changes/modifications (Change Log) and software version numbers.
- Maintains log of repairs and service performed on LIMS hardware.
- Maintains awareness of any environmental conditions of the facility housing the LIMS that may compromise LIMS raw data and informs management.

4.2.6 Operations Manager

The Operations Manager manages and directs the analytical and reports production sections of the laboratory. He/She reports directly to the Laboratory Director. Specific responsibilities include:

- Maintains awareness of any environmental conditions of the facility housing the LIMS that may compromise LIMS raw data and informs management.
- Continuously evaluates production capacity and improves capacity utilization.
- Continuously evaluates turnaround time and addresses any problems that may hinder meeting the required and committed turnaround time from the various Departments.

- Develops and improves the training of all analysts in cooperation with the Laboratory Director and QA Manager and in compliance with regulatory requirements.
- Works with the Department (Technical) Managers to ensure that scheduled instrument maintenance is completed.
- Is responsible for efficient utilization of supplies.
- Constantly monitors and modifies the processing of samples through the Departments.
- Fully supports the quality system and, if called upon in the absence of the QA Manager, serves as his substitute in the interim.

4.2.7 Environmental, Health and Safety Manager

The Environmental, Health and Safety Manager reports directly to the Laboratory Director. The duties of this position consist of:

- Supervises the Environmental, Health and Safety/Facilities Team.
- Conduct ongoing, necessary safety training and conduct new employee safety orientation.
- Assist in developing and maintaining the Chemical Hygiene/Safety Manual.
- Administer dispersal of all Material Safety Data Sheet (MSDS) information.
- Perform regular chemical hygiene and housekeeping instruction.
- Give instruction on proper labeling and practice.
- Serve as chairman of the laboratory safety committee.
- Provide and train personnel on protective equipment.
- Oversee the inspection and maintenance of general safety equipment – fire extinguishers, safety showers, eyewash fountains, etc. and ensure prompt repairs as needed.
- Supervise and schedule fire drills and emergency evacuation drills.
- Determine what initial and subsequent exposure monitoring, if necessary to determine potential employee exposure to chemicals used in the laboratory.
- When determined necessary, conduct exposure monitoring assessments.
- Determine when a complaint of possible over-exposure is “reasonable” and should be referred for medical consultation.
- Assist in the internal and external coordination of the medical consultation/monitoring program conducted by TestAmerica’s medical consultants.
- Staying current with the hazardous waste regulations.
- Continuing training on hazardous waste issues.
- Reviewing and updating annually the Hazardous Waste Contingency Plan in the Environmental Health & Safety Manual.
- Auditing the staff with regard to compliance with the Hazardous Waste Contingency Plan.

- Contacting the hazardous waste subcontractors for review of procedures and opportunities for minimization of waste.

4.2.8 EH&S/Facilities Coordinator

The EH&S/Facilities Coordinator reports directly to the Environmental, Health and Safety Manager. The duties of this position consist of:

- Monitors laboratory for unsafe conditions or acts to keep lab in compliance with the Chemical Hygiene Plan, EH&S Procedures, and company policies.
- Ensures the proper personal protective equipment is available and personnel are properly trained in its use.
- Assists the Environmental, Health and Safety Manager in the investigation of accidents, incidents, and near misses and identifies and eliminates root cause.
- Conducts monthly facility inspections for compliance with health, safety and environmental regulations and procedures. Completes and forwards monthly inspection report to safety committee and laboratory management for corrective actions.
- Conducts safety equipment checks to ensure proper working order and sufficient inventory.
- Plans and tracks completion of monthly general awareness training sessions and compliance training, including new employee EH&S orientation.
- Coordinates emergency response team to provide prompt medical attention and stabilize emergency situation. After emergency is over, assists in determining appropriate clean up procedures.
- Conducts the monthly EH&S committee meeting.
- Participates in monthly EH&S conference call.
- Reviews and maintains MSDS's for laboratory materials.
- Coordinates the management and disposal of laboratory wastes.
- Assists in the preparation and maintenance of the laboratory Integrated Contingency Plan.
- Monitors air quality in facility, including monitoring fumehoods for proper operation and ventilation.
- Maintains overall building facilities and equipment as well as administers prevention maintenance measures.
- Contacts outside contractors as necessary to repair/maintain items outside the realm of reasonable maintenance.
- Performs miscellaneous errands, buying parts for labs, janitorial supplies.
- Oversees storage facilities, files and outside storage.

4.2.9 Technical Managers (Department Managers)

The Technical Managers (Department Managers) report directly to the Operations Manager. They are accountable for all analyses and analysts under their experienced supervision. The scope of responsibility ranges from the new-hire process and existing technology through the ongoing training and development programs for existing analysts and new instrumentation. Specific responsibilities include, but are not limited to:

- Exercises day-to-day supervision of laboratory operations for the appropriate field of accreditation and reporting of results. Coordinating, writing, and reviewing preparation of all test methods, i. e., SOPs, with regard to quality, integrity, regulatory and optimum and efficient production techniques, and subsequent analyst training and interpretation of the SOPs for implementation and unusual project samples. He/she insures that the SOPs are properly managed and adhered to at the bench. He/she develops standard costing of SOPs to include supplies, labor, overhead, and capacity (design vs. demonstrated versus first-run yield) utilization.
- Reviewing and approving, with input from the QA Manager, proposals from marketing, in accordance with an established procedure for the review of requests and contracts. This procedure addresses the adequate definition of methods to be used for analysis and any limitations, the laboratory's capability and resources, the client's expectations. Differences are resolved before the contract is signed and work begins. A system documenting any significant changes is maintained, as well as pertinent discussions with the client regarding their requirements or the results of the analyses during the performance of the contract. All work subcontracted by the laboratory must be approved by the client. Any deviations from the contract must be disclosed to the client. Once the work has begun, any amendments to the contract must be discussed with the client and so documented.
- Monitoring the validity of the analyses performed and data generated in the laboratory. This activity begins with reviewing and supporting all new business contracts, insuring data quality, analyzing internal and external non-conformances to identify root cause issues and implementing the resulting corrective and preventive actions, facilitating the data review process (training, development, and accountability at the bench), and providing technical and troubleshooting expertise on routine and unusual or complex problems.
- Providing training and development programs to applicable laboratory staff as new hires and, subsequently, on a scheduled basis. Training includes instruction on calculations, instrumentation management to include troubleshooting and preventive maintenance.
- Enhancing efficiency and improving quality through technical advances and improved LIMS utilization. Capital forecasting and instrument life cycle planning for second generation methods and instruments as well as asset inventory management.
- Coordinating sample management from "cradle to grave," insuring that no time is lost in locating samples.
- Ensures that 100% of data review undergoes two documented levels of review. Likewise ensures that all non-conformance issues are properly documented.
- Scheduling all QA/QC-related requirements for compliance, e.g., MDLs, etc..

- Captains Department personnel to communicate quality, technical, personnel, and instrumental issues for a consistent team approach.
- Responsible for the timely and accurate completion of performance evaluation samples and MDLs, for the Department.
- Ensure all logbooks are maintained, current, and properly labeled or archived.
- Report all non-conformance conditions to the QA Manager, Operations Manager, and/or Laboratory Director.
- Ensure that preventive maintenance is performed on instrumentation as detailed in the QA Manual or SOPs. He is responsible for developing and implementing a system for preventive maintenance, troubleshooting, and repairing or arranging for repair of instruments.
- Maintain adequate and valid inventory of reagents, standards, spare parts, and other relevant resources required to perform daily analysis.
- Achieve optimum turnaround time on analyses and compliance with holding times.
- Provide written responses to external and internal audit issues and coordinates audit responses with the QA Manager.

4.2.10 Laboratory Analysts and Technicians

Laboratory analysts and technicians are responsible for conducting analysis and performing all tasks assigned to them by their Department manager or supervisor. The responsibilities of the analysts are listed below:

- Perform analyses by adhering to analytical and quality control protocols prescribed by current SOPs, this QA Manual, and project-specific plans honestly, accurately, timely, safely, and in the most cost-effective manner.
- Document standard and sample preparation, instrument calibration and maintenance, data calculations, sample matrix effects, and any observed non-conformance on worklists, benchsheets, lab notebooks and/or the Non-Conformance Database by means of Non-Conformance Memos (NCMs).
- Report all non-conformance situations, instrument problems, matrix problems and QC failures, which might affect the reliability of the data, to their Department (Technical) Manager, the Laboratory Director, and/or the QA Manager or member of QA staff.
- Perform 100% review of the data generated and document the review in the raw data and on the review checklist prior to entering and submitting for secondary level review.
- Suggest method improvements to the Department (Technical) Manager, the Laboratory Director, and the QA Manager. These improvements, if approved, will be incorporated within the constraints of the consensus reference methods.
- Work cohesively as a team in their Department to achieve the goals of accurate results, optimum turnaround time, cost effectiveness, cleanliness, complete documentation, and personal knowledge of environmental analysis.
- Adhere to all environmental, health and safety protocols and attend safety meetings as required.

- Attend and participate in all staff meetings.

4.2.11 Sample Control Manager

The Sample Control Manager reports to the Laboratory Director. The responsibilities are outlined below:

- Direct the logging of incoming samples into the LIMS.
- Ensure the verification of data entry from login.
- Manages the preparation and shipment of bottle kits to clients.
- Oversees the responsibilities of all Sample Control Technicians.
- Supervises the storage and disposal of all samples.

4.2.12 Client Services Manager

The Customer Service Manager reports to the Laboratory Director and serves as the primary interface between the laboratory and the Sales and Marketing staff. Responsibilities include:

- Laboratory's primary client representative.
- Ensures client complaints are handled professionally, and resolved in a timely manner.
- Compiles and interprets receipts forecast to show near term business trends.
- Manages a minimal list of projects/programs for key client accounts. (Note: sufficient time is needed to manage the PM group and the CSM must not be overwhelmed with project management.)
- Prepares proposals for new business opportunities.
- Compiles and interprets Bid Activity Report.
- Compiles and interprets receipts forecast to show near term business trends.
- Prepares proposals for new business opportunities.
- Provides general sales support to Account Executives for business development activities started in the field.
- Develops and maintains business materials and organized information resource files that include project descriptions, resumes, original proposals, boilerplates, and company qualifications materials.

4.2.13 Director of Project Management

The Director of Project Management reports to the Laboratory Director and serves as the interface between the laboratory's technical Departments and the laboratory's clients. The staff consists of the Project Management team. With the overall goal of total client satisfaction, the functions of this position are outlined below:

- Technical training and growth of the Project Management team.
- Technical liaison for the Project Management team.

- Human resource management of the Project Management team.
- Responsible for ensuring that clients receive the proper sampling supplies, as appropriate.
- Accountable for response to client inquiries concerning sample status.
- Responsible for assistance to clients regarding the resolution of problems concerning COC.
- Ensuring that client specifications, when known, are met by communicating project and quality assurance requirements to the laboratory.
- Notifying the supervisors of incoming projects and sample delivery schedules.
- Accountable to clients for communicating sample progress in daily status meeting with agreed-upon due dates.
- Responsible for discussing with client any project-related problems, resolving service issues, and coordinating technical details with the laboratory staff.
- Responsible for staff familiarization with specific quotes, sample log-in review, and final report completeness.
- Monitor the status of all data package projects in-house to ensure timely and accurate delivery of reports.
- Inform clients of data package-related problems and resolve service issues.
- Coordinate requests for sample containers and other services (data packages).

4.2.14 Project Manager

The Project Managers report directly to the Director of Project Management and serve as liaisons between the laboratory and its clients. The Project Manager's responsibilities include:

- Ensure client specifications are met by communicating project and quality assurance requirements to the laboratory.
- Notify laboratory personnel of incoming projects and sample delivery schedules.
- Monitor the status of all projects in-house to ensure timely delivery of reports.
- Inform clients of project-related problems, resolving service issues and coordinating technical issues with the laboratory staff.
- Accountable for response to client inquiries concerning sample status.
- Responsible for assistance to clients regarding the resolution of problems concerning COC.
- Ensuring that client specifications, when known, are met by communicating project and quality assurance requirements to the laboratory.
- Notifying the supervisors of incoming projects and sample delivery schedules.
- Coordinate client requests for sample containers and other services.
- Schedule sample pick-ups from client offices or project sites and notifying the laboratory staff of incoming samples.
- Coordinate subcontract work.

- Respond to client inquiries concerning sample status.
- Generates final laboratory reports and has signature authority for those reports (as designated and approved by the Laboratory Director).
- Performs final completeness review of data packages prior to release to client.

4.2.15 Project Management Assistant

The Project Management Assistant coordinates and monitors scheduling, timely completion and maintenance of project documentation files and completion of project set up and final report review, invoicing, and EDD's. Assists the Project Manager in servicing the client's needs. Specific responsibilities include:

- Reviews login confirmation reports for accuracy and corrects as needed.
- Generates diskettes for electronic data deliverables (EDD's) for electronic delivery to clients.
- Enters data that was subcontracted to other laboratories.
- Monitors report due dates for timely delivery.
- Assists Project Manager in changing compound lists, TAT, deliverables and other client specific requirements in the LIMs project and/or job database.
- Invoices completed data packages and generates credit or debit invoices to ensure proper payment.

4.2.16 Service Center Manager

The Service Center Manager (SCM) manages the service center and acts as a liaison between the laboratory and the local client base. The SCM is in charge of maintaining the Service Center facility, managing service center couriers, samplers and other personnel, and working with sales to develop, maintain and grow the client base in the area.

- Local area primary client representative for service center location.
- May head project start up meetings to ensure project objectives are successfully met and hands off project detail to assigned Project Manager(s).
- Works with the Quality Assurance Manager and Account Executives (AE) to evaluate and establish project requirements for the service center area.
- Ensures client complaints are handled professionally, and resolved in a timely manner.
- Is in charge of scheduling service center couriers and samplers, preparing bottle orders for delivery, scheduling sample pick ups and shipping samples to the designated laboratory for analysis.
- May manage a minimal list of projects/programs for key client accounts.
- Maintains the facilities at the service center and is responsible for all EH&S policies of TestAmerica at the service center.
- Responsible for all company vehicles that operate out of the service center.
- Provides general sales support to AEs for business development activities started in the field.

- Prepares proposals for new business opportunities.
- Orders supplies (bottles, coolers, etc.) for the service center

4.3 Deputies

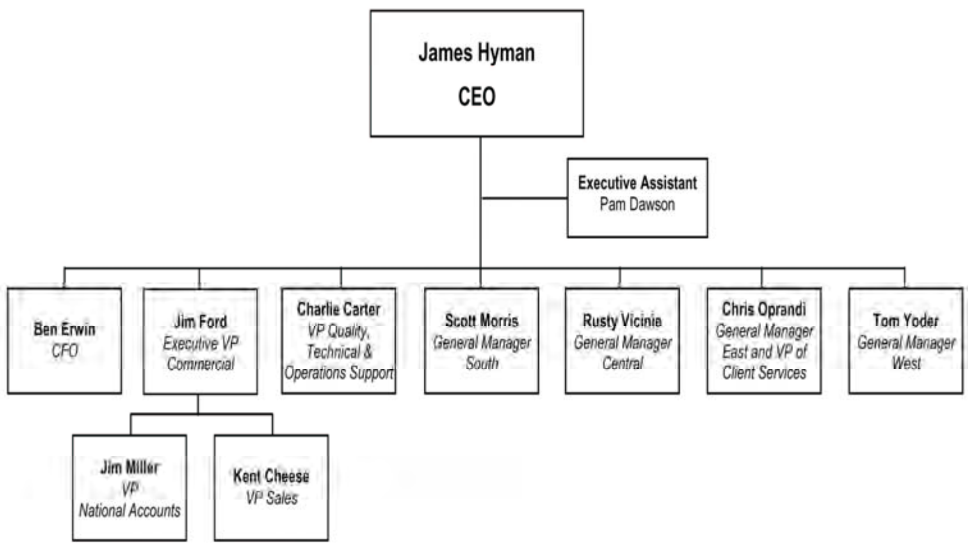
The following table defines who assumes the responsibilities of key personnel in their absence:

Key Personnel	Deputy
Ann Gladwell Laboratory Director	In the event of absence the Laboratory Director's responsibilities are shared by the Laboratory Operations Manager, the Quality Assurance Manager and the Client Services Manager, as appropriate
Carl Armbruster Quality Assurance Manager	Emmylou Digiacomo Quality Assurance Specialist Ann Gladwell Laboratory Director
Department (Technical) Managers	Mark Acierno Laboratory Operations Manager
David Lissy Client Services Manager	Ann Gladwell Laboratory Director
Kenwyn Williams Director of Project Management	Ann Gladwell Laboratory Director
Kene' Kasperek EH&S Manager	Edward Roche EH&S Coordinator
Brian Bordieri Sample Control Manager	Mark Acierno Laboratory Operations Manager
Aidan Scott Kate Harrelson Service Center Managers	Field Services Supervisor

Figure 4-1. Corporate and Laboratory Organization Charts

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Executive Committee



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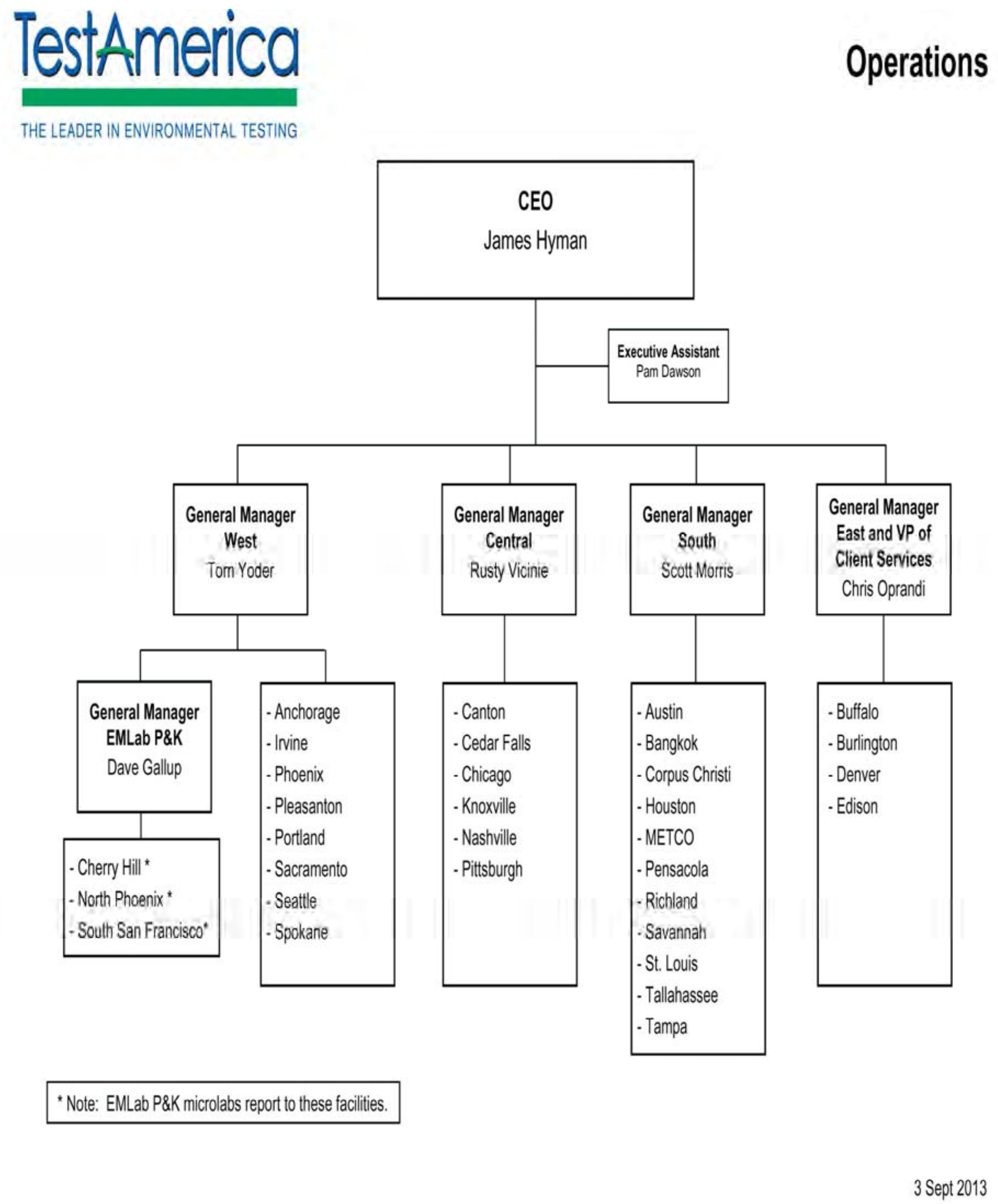
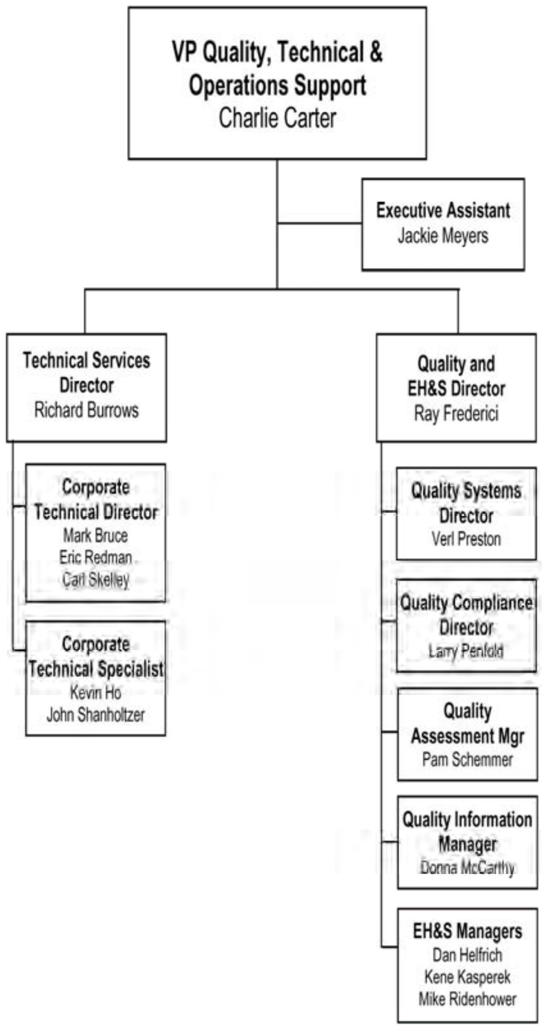

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Operations
CEO
James Hyman
Executive Assistant
Pam Dawson
General Manager
West
Tom Yoder
General Manager
Central
Rusty Vicinie
General Manager
South
Scott Morris
General Manager
East and VP of
Client Services
Chris Oprandi
General Manager
EMLab P&K
Dave Gallup
- Cherry Hill *
- North Phoenix *
- South San Francisco*
- Anchorage
- Irvine
- Phoenix
- Pleasanton
- Portland
- Sacramento
- Seattle
- Spokane
- Canton
- Cedar Falls
- Chicago
- Knoxville
- Nashville
- Pittsburgh
- Austin
- Bangkok
- Corpus Christi
- Houston
- METCO
- Pensacola
- Richland
- Savannah
- St. Louis
- Tallahassee
- Tampa
- Buffalo
- Burlington
- Denver
- Edison
* Note: EMLab P&K microlabs report to these facilities.
3 Sept 2013

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

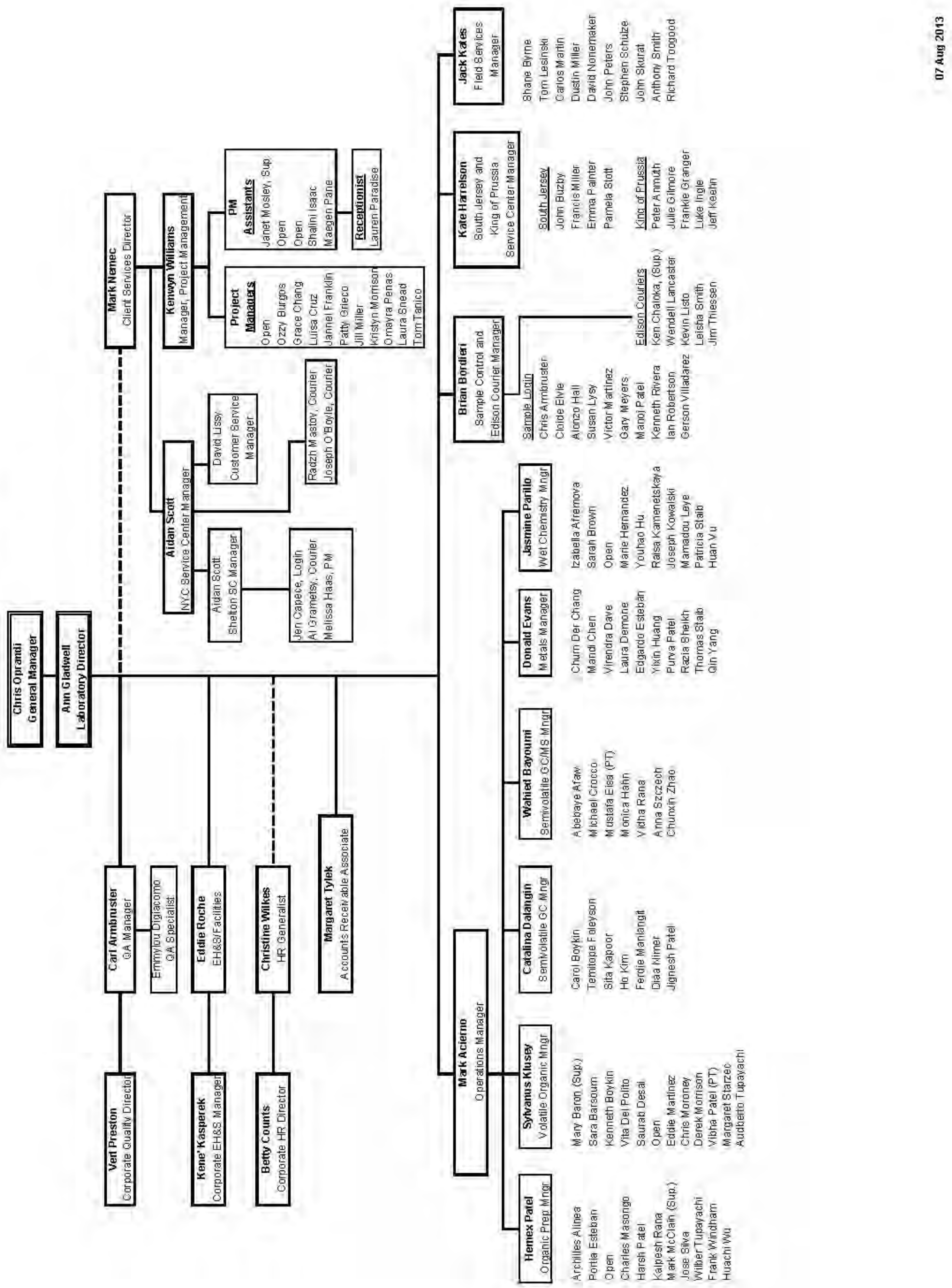
Quality, Technical, EH&S & Operations Support



28 Oct 2013

Note: QA Managers and EH&S Coordinators have direct reporting relationship to both operations leadership and corporate functional leadership.

TestAmerica Edison Organization



SECTION 5. QUALITY SYSTEM

5.1 Quality Policy Statement

It is TestAmerica's Policy to:

- ❖ Provide data of known quality to its clients by adhering to approved methodologies, regulatory requirements and the QA/QC protocols.
- ❖ Effectively manage all aspects of the laboratory and business operations by the highest ethical standards.
- ❖ Continually improve systems and provide support to quality improvement efforts in laboratory, administrative and managerial activities. TestAmerica recognizes that the implementation of a quality assurance program requires management's commitment and support as well as the involvement of the entire staff.
- ❖ Provide clients with the highest level of professionalism and the best service practices in the industry.
- ❖ To comply with the ISO/IEC 17025:2005(E) International Standard, the 2009 TNI Standard and to continually improve the effectiveness of the management system

Every staff member at the laboratory plays an integral part in quality assurance and is held responsible and accountable for the quality of their work. It is, therefore, required that all laboratory personnel are trained and agree to comply with applicable procedures and requirements established by this document.

5.2 Ethics and Data Integrity

TestAmerica is committed to ensuring the integrity of its data and meeting the quality needs of its clients. The elements of TestAmerica's Ethics and Data Integrity Program include:

- An Ethics Policy (Corporate Policy No. CW-L-P-004) and Employee Ethics Statements.
- Ethics and Compliance Officers (ECOs).
- A Training Program.
- Self-governance through disciplinary action for violations.
- A Confidential mechanism for anonymously reporting alleged misconduct and a means for conducting internal investigations of all alleged misconduct. (Corporate SOP No. CW-L-S-002)
- Procedures and guidance for recalling data if necessary (Corporate SOP No. CW-L-S-002).
- Effective external and internal monitoring system that includes procedures for internal audits (Section 15).
- Produce results, which are accurate and include QA/QC information that meets client pre-defined Data Quality Objectives (DQOs).
- Present services in a confidential, honest and forthright manner.

- Provide employees with guidelines and an understanding of the Ethical and Quality Standards of our Industry.
- Operate our facilities in a manner that protects the environment and the health and safety of employees and the public.
- Obey all pertinent federal, state and local laws and regulations and encourage other members of our industry to do the same.
- Educate clients as to the extent and kinds of services available.
- Assert competency only for work for which adequate personnel and equipment are available and for which adequate preparation has been made.
- Promote the status of environmental laboratories, their employees, and the value of services rendered by them.

5.3 Quality System Documentation

The laboratory's Quality System is communicated through a variety of documents.

- Quality Assurance Manual – Each laboratory has a lab-specific quality assurance manual.
- Corporate SOPs and Policies – Corporate SOPs and Policies are developed for use by all relevant laboratories. They are incorporated into the laboratory's normal SOP distribution, training and tracking system. Corporate SOPs may be general or technical.
- Work Instructions – A subset of procedural steps, tasks or forms associated with an operation of a management system (e.g., checklists, preformatted bench sheets, forms).
- Laboratory SOPs – General and Technical
- Laboratory QA/QC Policy Memorandums

5.3.1 Order of Precedence

In the event of a conflict or discrepancy between policies, the order of precedence is as follows:

- Corporate Quality Management Plan (CQMP)
- Corporate SOPs and Policies
- Laboratory QA/QC Policy Memorandum
- Laboratory Quality Assurance Manual (QAM)
- Laboratory SOPs and Policies
- Other (Work Instructions (WI), memos, flow charts, etc.)

Note: The laboratory has the responsibility and authority to operate in compliance with regulatory requirements of the jurisdiction in which the work is performed. Where the CQMP conflicts with those regulatory requirements, the regulatory requirements of the jurisdiction shall hold primacy. The laboratory's QAM shall take precedence over the CQMP in those cases.

5.4 QA/QC Objectives for the Measurement of Data

Quality Assurance (QA) and Quality Control (QC) are activities undertaken to achieve the goal of producing data that accurately characterize the sites or materials that have been sampled. Quality Assurance is generally understood to be more comprehensive than Quality Control. Quality Assurance can be defined as the integrated system of activities that ensures that a product or service meets defined standards.

Quality Control is generally understood to be limited to the analyses of samples and to be synonymous with the term *"analytical quality control"*. QC refers to the routine application of statistically based procedures to evaluate and control the accuracy of results from analytical measurements. The QC program includes procedures for estimating and controlling precision and bias and for determining reporting limits.

Request for Proposals (RFPs) and Quality Assurance Project Plans (QAPP) provide a mechanism for the client and the laboratory to discuss the data quality objectives in order to ensure that analytical services closely correspond to client needs. The client is responsible for developing the QAPP. In order to ensure the ability of the laboratory to meet the Data Quality Objectives (DQOs) specified in the QAPP, clients are advised to allow time for the laboratory to review the QAPP before being finalized. Additionally, the laboratory will provide support to the client for developing the sections of the QAPP that concern laboratory activities.

Historically, laboratories have described their QC objectives in terms of precision, accuracy, representativeness, comparability, completeness, selectivity and sensitivity (PARCCSS).

5.4.1 Precision

The laboratory objective for precision is to meet the performance for precision demonstrated for the methods on similar samples and to meet data quality objectives of the EPA and/or other regulatory programs. Precision is defined as the degree of reproducibility of measurements under a given set of analytical conditions (exclusive of field sampling variability). Precision is documented on the basis of replicate analysis, usually duplicate or matrix spike (MS) duplicate samples.

5.4.2 Accuracy

The laboratory objective for accuracy is to meet the performance for accuracy demonstrated for the methods on similar samples and to meet data quality objectives of the EPA and/or other regulatory programs. Accuracy is defined as the degree of bias in a measurement system. Accuracy may be documented through the use of laboratory control samples (LCS) and/or MS. A statement of accuracy is expressed as an interval of acceptance recovery about the mean recovery.

5.4.3 Representativeness

The laboratory objective for representativeness is to provide data which is representative of the sampled medium. Representativeness is defined as the degree to which data represent a characteristic of a population or set of samples and is a measurement of both analytical and field sampling precision. The representativeness of the analytical data is a function of the procedures used in procuring and processing the samples. The representativeness can be documented by the relative percent difference between separately procured, but otherwise identical samples or sample aliquots.

The representativeness of the data from the sampling sites depends on both the sampling procedures and the analytical procedures. The laboratory may provide guidance to the client regarding proper sampling and handling methods in order to assure the integrity of the samples.

5.4.4 Comparability

The comparability objective is to provide analytical data for which the accuracy, precision, representativeness and reporting limit statistics are similar to these quality indicators generated by other laboratories for similar samples, and data generated by the laboratory over time.

The comparability objective is documented by inter-laboratory studies carried out by regulatory agencies or carried out for specific projects or contracts, by comparison of periodically generated statements of accuracy, precision and reporting limits with those of other laboratories.

5.4.5 Completeness

The completeness objective for data is 90% (or as specified by a particular project), expressed as the ratio of the valid data to the total data over the course of the project. Data will be considered valid if they are adequate for their intended use. Data usability will be defined in a QAPP, project scope or regulatory requirement. Data validation is the process for reviewing data to determine its usability and completeness. If the completeness objective is not met, actions will be taken internally and with the data user to improve performance. This may take the form of an audit to evaluate the methodology and procedures as possible sources for the difficulty or may result in a recommendation to use a different method.

5.4.6 Selectivity

Selectivity is defined as: The capability of a test method or instrument to respond to a target substance or constituent in the presence of non-target substances. Target analytes are separated from non-target constituents and subsequently identified/detected through one or more of the following, depending on the analytical method: extractions (separation), digestions (separation), interelement corrections (separation), use of matrix modifiers (separation), specific retention times (separation and identification), confirmations with different columns or detectors (separation and identification), specific wavelengths (identification), specific mass spectra (identification), specific electrodes (separation and identification), etc..

5.4.7 Sensitivity

Sensitivity refers to the amount of analyte necessary to produce a detector response that can be reliably detected (Method Detection Limit) or quantified (Reporting Limit).

5.5 Criteria for Quality Indicators

The laboratory maintains Quality Control Limits within the Method Limit Group tables in TALS (the laboratory's LIMS) that contains that summarize the precision and accuracy acceptability limits for performed analyses. This summary includes an effective date, is updated each time new limits are generated and are managed by the laboratory's QA Department. Unless otherwise noted, limits within these tables are laboratory generated. Some acceptability limits are derived from US EPA methods when they are required. Where US EPA method limits are not required, the laboratory has developed limits from evaluation of data from similar matrices. Criteria for development of control limits is contained in Section 24.

5.6 Statistical Quality Control

Statistically-derived precision and accuracy limits are required by selected methods (such as SW-846) and certain regulatory programs such as the Ohio Voluntary Action Plan (VAP). The laboratory routinely utilizes statistically-derived limits to evaluate method performance and determine when corrective action is appropriate. The analysts are instructed to use the current limits in the laboratory (dated and approved by the Technical Manager and QA Manager) and entered into the Laboratory Information Management System (LIMS). The Quality Assurance Department maintains an archive of all limits used within the Method Limit Group tables in TALS (LIMS). If a method defines the QC limits, the method limits are used.

If a method requires the generation of historical limits, the lab develops such limits from recent data in the QC database of the LIMS following the guidelines described in Section 24. All calculations and limits are documented and dated when approved and effective. On occasion, a client requests contract-specified limits for a specific project.

Current QC limits are entered and maintained in the LIMS analyte database. As sample results and the related QC are entered into LIMS, the sample QC values are compared with the limits in LIMS to determine if they are within the acceptable range. The analyst then evaluates if the sample needs to be rerun or re-extracted/rerun or if a comment should be added to the report explaining the reason for the QC outlier.

5.6.1 QC Charts

The QA Manager generates QC charts using the TALS Control Chart program. In addition to their use in generating lab specific spike recovery limits and in the evaluation of MDL studies, these charts are used to determine if adjustments need to be made or for corrective actions to methods. All such findings are documented and kept on file in the QA Department.

5.7 Quality System Metrics

In addition to the QC parameters discussed above, the entire Quality System is evaluated on a monthly basis through the use of specific metrics (refer to Section 16). These metrics are used to drive continuous improvement in the laboratory's Quality System.

SECTION 6. DOCUMENT CONTROL

6.1 Overview

The QA Department is responsible for the control of documents used in the laboratory to ensure that approved, up-to-date documents are in circulation and out-of-date (obsolete) documents are archived or destroyed. The following documents, at a minimum, must be controlled:

- Laboratory Quality Assurance Manual
- Laboratory Standard Operating Procedures (SOP)
- Laboratory Policies
- Work Instructions and Forms
- Corporate Policies and Procedures distributed outside the intranet

Corporate Quality posts Corporate Manuals, SOPs, Policies, Work Instructions, White Papers and Training Materials on the company intranet site. These Corporate documents are only considered controlled when they are read on the intranet site. Printed copies are considered uncontrolled unless the laboratory physically distributes them as controlled documents. A detailed description of the procedure for issuing, authorizing, controlling, distributing, and archiving Corporate documents is found in Corporate SOP No. CW-Q-S-001, Corporate Document Control and Archiving. The laboratory's internal document control procedure is defined in SOP No. ED-GEN-002 (Document Control).

The laboratory QA Department also maintains access to various references and document sources integral to the operation of the laboratory. This includes reference methods and regulations. Instrument manuals (hard or electronic copies) are also maintained by the laboratory.

The laboratory maintains control of records for raw analytical data and supporting records such as audit reports and responses, logbooks, standard logs, training files, MDL studies, Proficiency Testing (PT) studies, certifications and related correspondence, and corrective action reports (CARs). Raw analytical data consists of bound logbooks, instrument printouts, any other notes, magnetic media, electronic data and final reports.

6.2 Document Approval and Issue

The pertinent elements of a document control system for each document include a unique document title and number, pagination, the total number of pages of the item or an 'end of document' page, the effective date, revision number and the laboratory's name. The QA personnel are responsible for the maintenance of this system.

Controlled documents are authorized by the QA Department. In order to develop a new document, a Department (Technical) Manager submits an electronic draft to the QA Department for suggestions and approval before use. Upon approval, QA personnel add the identifying version information to the document and retains that document as the official document on file. That document is then provided to all applicable operational units (may include electronic access). Controlled documents are identified as such and records of their distribution are kept by the QA Department. Document control may be achieved by either electronic or hardcopy distribution.

The QA Department maintains a list of the official versions of controlled documents.

Quality System Policies and Procedures will be reviewed at a minimum of every two years and revised as appropriate. Changes to documents occur when a procedural change warrants.

6.3 Procedures for Document Control Policy

For changes to the QA Manual, refer to SOP No. ED-GEN-002 (Document Control) Uncontrolled copies must not be used within the laboratory. Previous revisions and back-up data are stored by the QA Department. Electronic copies are stored on the Public server in the QA folder for the applicable revision.

For changes to SOPs, refer to SOP No. CW-Q-S-002, Writing a Standard Operating Procedure SOP. The SOP identified above also defines the process of changes to SOPs.

Forms, worksheets, work instructions and information are organized by department in the QA office. There is a table of contents. Electronic versions are kept on a hard drive in the QA Department; hard copies are kept in QA files. The procedure for the care of these documents is in SOP ED-GEN-002 (Document Control).

6.4 Obsolete Documents

All invalid or obsolete documents are removed, or otherwise prevented from unintended use. The laboratory has specific procedures as described above to accomplish this. In general, obsolete documents are collected from employees according to distribution lists and are marked obsolete on the cover or destroyed. At least one copy of the obsolete document is archived according to SOP No. ED-GEN-002 (Document Control).

SECTION 7. SERVICE TO THE CLIENT

7.1 Overview

The laboratory has established procedures for the review of work requests and contracts, oral or written. The procedures include evaluation of the laboratory's capability and resources to meet the contract's requirements within the requested time period. All requirements, including the methods to be used, must be adequately defined, documented and understood. For many environmental sampling and analysis programs, testing design is site or program specific and does not necessarily "fit" into a standard laboratory service or product. It is the laboratory's intent to provide both standard and customized environmental laboratory services to our clients.

A thorough review of technical and QC requirements contained in contracts is performed to ensure project success. The appropriateness of requested methods, and the lab's capability to perform them must be established. Projects, proposals and contracts are reviewed for adequately defined requirements and the laboratory's capability to meet those requirements. Alternate test methods that are capable of meeting the clients' requirements may be proposed by the lab. A review of the lab's capability to analyze non-routine analytes is also part of this review process.

All projects, proposals and contracts are reviewed for the client's requirements in terms of compound lists, test methodology requested, sensitivity (detection and reporting levels), accuracy, and precision requirements (% Recovery and RPD). The reviewer ensures that the laboratory's test methods are suitable to achieve these requirements and that the laboratory holds the appropriate certifications and approvals to perform the work. The laboratory and any potential subcontract laboratories must be certified, as required, for all proposed tests.

The laboratory must determine if it has the necessary physical, personnel and information resources to meet the contract, and if the personnel have the expertise needed to perform the testing requested. Each proposal is checked for its impact on the capacity of the laboratory's equipment and personnel. As part of the review, the proposed turnaround time will be checked for feasibility.

Electronic or hard copy deliverable requirements are evaluated against the laboratory's capacity for production of the documentation.

If the laboratory cannot provide all services but intends to subcontract such services, whether to another TestAmerica facility or to an outside firm, this will be documented and discussed with the client prior to contract approval. (Refer to Section 8 for Subcontracting Procedures.)

The laboratory informs the client of the results of the review if it indicates any potential conflict, deficiency, lack of accreditation, or inability of the lab to complete the work satisfactorily. Any discrepancy between the client's requirements and the laboratory's capability to meet those requirements is resolved in writing before acceptance of the contract. It is necessary that the contract be acceptable to both the laboratory and the client. Amendments initiated by the client and/or TestAmerica, are documented in writing.

All contracts, QAPPs, Sampling and Analysis Plans (SAPs), contract amendments, and documented communications become part of the project record.

The same contract review process used for the initial review is repeated when there are amendments to the original contract by the client, and the participating personnel are informed of the changes.

7.2 Review Sequence and Key Personnel

Appropriate personnel will review the work request at each stage of evaluation.

For routine projects and other simple tasks, a review by the Project Manager (PM) is considered adequate. The PM confirms that the laboratory has any required certifications, that it can meet the clients' data quality and reporting requirements and that the lab has the capacity to meet the clients turn around needs. It is recommended that, where there is a sales person assigned to the account, an attempt should be made to contact that sales person to inform them of the incoming samples.

For new, complex or large projects, the proposed contract is given to the Sales Directors, who will decide which lab will receive the work based on the scope of work and other requirements, including certification, testing methodology, and available capacity to perform the work. The contract review process is outlined in TestAmerica's Corporate SOP No. CA-L-P-002**,** Contract Compliance Policy.

This review encompasses all facets of the operation. The scope of work is distributed to the appropriate personnel, as needed based on scope of contract, to evaluate all of the requirements shown above (not necessarily in the order below).

- Legal & Contracts Director
- General Manager
- The Laboratory Project Management Director
- The Laboratory Operations Manager
- Laboratory and/or Corporate Technical Managers / Directors
- Laboratory and/or Corporate Information Technology Managers/Directors
- Account Executives
- Laboratory and/or Corporate Quality
- Laboratory and/or Corporate Environmental Health and Safety Managers/Directors
- The Laboratory Director reviews the formal laboratory quote and makes final acceptance for their facility.

The Sales Director, Legal Contracts Director, Account Executive or Proposal *Coordinator* then submits the final proposal to the client.

In the event that one of the above personnel is not available to review the contract, his or her back-up will fulfill the review requirements.

The Legal & Contracts Director maintains copies of all signed contracts***.*** The applicable Project Manager maintains local copies of signed contracts.

7.3 Documentation

Appropriate records are maintained for every contract or work request. All stages of the contract review process are documented and include records of any significant changes. These records are maintained in the project file by the Project Manager and/or Key Account Executive. The contract will be distributed to and maintained by the appropriate sales/marketing personnel and the Account Executive. A copy of the contract and formal quote will be filed with the laboratory PM and the Laboratory Director.

Records are maintained of pertinent discussions with a client relating to the client's requirements or the results of the work during the period of execution of the contract. The PM keeps a phone log of conversations with the client.

7.3.1 Project-Specific Quality Planning

Communication of contract specific technical and QC criteria is an essential activity in ensuring the success of site specific testing programs. To achieve this goal, the laboratory assigns a PM to each client. It is the PM's responsibility to ensure that project-specific technical and QC requirements are effectively evaluated and communicated to the laboratory personnel before and during the project. QA Department involvement may be needed to assist in the evaluation of custom QC requirements.

PM's are the primary client contact and they ensure resources are available to meet project requirements. Although PM's do not have direct reports or staff in production, they coordinate opportunities and work with laboratory management and supervisory staff to ensure available resources are sufficient to perform work for the client's project. Project management is positioned between the client and laboratory resources.

Prior to work on a new project, the dissemination of project information and/or project opening meetings may occur to discuss schedules and unique aspects of the project. Items to be discussed may include the project technical profile, turnaround times, holding times, methods, analyte lists, reporting limits, deliverables, sample hazards, or other special requirements. The PM introduces new projects to the laboratory staff through project kick-off meetings or to the supervisory staff during production meetings. These meetings provide direction to the laboratory staff in order to maximize production and client satisfaction, while maintaining quality. In addition, project notes may be associated with each sample batch as a reminder upon sample receipt and analytical processing.

During the project, any change that may occur within an active project is agreed upon between the client/regulatory agency and the PM/laboratory. These changes (e.g., use of a non-standard method or modification of a method) and approvals must be documented prior to implementation. Documentation pertains to any document, e.g., letter, e-mail, variance, contract addendum, which has been signed by both parties.

Such changes are also communicated to the laboratory during production meetings. Such changes are updated to the project notes and are introduced to the managers at these meetings. The laboratory staff is then introduced to the modified requirements via the PM or the individual laboratory Department (Technical) Manager. After the modification is implemented into the laboratory process, documentation of the modification is made in the case narrative of the data report(s).

The laboratory strongly encourages client visits to the laboratory and for formal/informal information sharing session with employees in order to effectively communicate ongoing client needs as well as project specific details for customized testing programs.

7.4 Special Services

The laboratory cooperates with clients and their representatives to monitor the laboratory's performance in relation to work performed for the client. It is the laboratory's goal to meet all client requirements in addition to statutory and regulatory requirements. The laboratory has procedures to ensure confidentiality to clients (Section 15 and 25).

The laboratory's standard procedures for reporting data are described in Section 25. Special services are also available and provided upon request. These services include:

- Reasonable access for our clients or their representatives to the relevant areas of the laboratory for the witnessing of tests performed for the client.
- Assist client-specified third party data validators as specified in the client's contract.
- Supplemental information pertaining to the analysis of their samples. Note: An additional charge may apply for additional data/information that was not requested prior to the time of sample analysis or previously agreed upon.

7.5 Client Communication

Project managers are the primary communication link to the clients. They shall inform their clients of any delays in project completion as well as any non-conformances in either sample receipt or sample analysis. Project management will maintain ongoing client communication throughout the entire client project.

Technical Managers are available to discuss any technical questions or concerns that the client may have.

7.6 Reporting

The laboratory works with our clients to produce any special communication reports required by the contract.

7.7 Client Surveys

The laboratory assesses both positive and negative client feedback. The results are used to improve overall laboratory quality and client service. TestAmerica's Sales and Marketing teams periodically develops lab and client specific surveys to assess client satisfaction.

SECTION 8. SUBCONTRACTING OF TESTS

8.1 Overview

For the purpose of this quality manual, the phrase subcontract laboratory refers to a laboratory external to the TestAmerica laboratories. The phrase "work sharing" refers to internal transfers of samples between the TestAmerica laboratories. The term outsourcing refers to the act of subcontracting tests.

When contracting with our clients, the laboratory makes commitments regarding the services to be performed and the data quality for the results to be generated. When the need arises to outsource testing for our clients because project scope, changes in laboratory capabilities, capacity or unforeseen circumstances, we must be assured that the subcontractors or work sharing laboratories understand the requirements and will meet the same commitments we have made to the client. Refer to TestAmerica's Corporate SOP's on Subcontracting Procedures (CA-L-S-002) and the Work Sharing Process (CA-C-S-001).

When outsourcing analytical services, the laboratory will assure, to the extent necessary, that the subcontract or work sharing laboratory maintains a program consistent with the requirements of this document, the requirements specified in TNI/ISO 17025 and/or the client's Quality Assurance Project Plan (QAPP). All QC guidelines specific to the client's analytical program are transmitted to the subcontractor and agreed upon before sending the samples to the subcontract facility. Additionally, work requiring accreditation will be placed with an appropriately accredited laboratory. The laboratory performing the subcontracted work will be identified in the final report, as will non-TNI accredited work where required.

Project Managers (PMs), Customer Service Managers (CSM), or Account Executives (AE) (or others as defined by the lab) for the Export Lab are responsible for obtaining client approval prior to outsourcing any samples. The laboratory will advise the client of a subcontract or work sharing arrangement in writing and when possible approval from the client shall be retained in the project folder.

Note: In addition to the client, some regulating agencies (e.g, USDA) or contracts (e.g, certain USACE projects) may require notification prior to placing such work.

8.2 Qualifying and Monitoring Subcontracators

Whenever a PM, Account Executive (AE) or Customer Service Manager becomes aware of a client requirement or laboratory need where samples must be outsourced to another laboratory, the other laboratory(s) shall be selected based on the following:

- The first priority is to attempt to place the work in a qualified TestAmerica laboratory; Firms specified by the client for the task (Documentation that a subcontractor was designated by the client must be maintained with the project file. This documentation can be as simple as placing a copy of an e-mail from the client in the project folder);
- Firms listed as pre-qualified and currently under a subcontract with TestAmerica: A listing of all approved subcontracting laboratories is available on the TestAmerica intranet site. Supporting documentation is maintained by corporate offices and by the TestAmerica laboratory originally requesting approval of the subcontract lab. Verify necessary accreditation, where applicable, (e.g., on the subcontractors TNI, A2LA accreditation or State Certification).
- Firms identified in accordance with the company's Small Business Subcontracting program as small, women-owned, veteran-owned and/or minority-owned businesses;

- TNI or A2LA accredited laboratories.
- In addition, the firm must hold the appropriate certification to perform the work required.

All TestAmerica laboratories are pre-qualified for work sharing provided they hold the appropriate accreditations, can adhere to the project/program requirements, and the client approved sending samples to that laboratory. The client must provide acknowledgement that the samples can be sent to that facility (an e-mail is sufficient documentation or if acknowledgement is verbal, the date, time, and name of person providing acknowledgement must be documented). The originating laboratory is responsible for communicating all technical, quality, and deliverable requirements as well as other contract needs. (Corporate SOP No. CA-C-S-001, Work Sharing Process).

When the potential sub-contract laboratory has not been previously approved, Account Executives or PMs may nominate a laboratory as a subcontractor based on need. The decision to nominate a laboratory must be approved by the Laboratory Director. The Laboratory Director requests that the QA Manager begin the process of approving the subcontract laboratory as outlined in Corporate SOP No. CA-L-S-002, Subcontracting Procedures. The client must provide acknowledgement that the samples can be sent to that facility (an e-mail is sufficient documentation or if acknowledgement is verbal, the date, time, and name of person providing acknowledgement must be documented).

8.2.1 Once the appropriate accreditation and legal information is received by the laboratory, it is evaluated for acceptability (where applicable) and forwarded to Corporate Contracts for formal contracting with the laboratory. They will add the lab to the approved list on the intranet site and notify the finance group for JD Edwards.

8.2.2 The client will assume responsibility for the quality of the data generated from the use of a subcontractor they have requested the lab to use. The qualified subcontractors on the intranet site are known to meet minimal standards. TestAmerica does not certify laboratories. The subcontractor is on our approved list and can only be recommended to the extent that we would use them.

8.2.3 The status and performance of qualified subcontractors will be monitored periodically by the Corporate Contracts and/or Quality Departments. Any problems identified will be brought to the attention of TestAmerica's Corporate Finance or Corporate Quality personnel.

- Complaints shall be investigated. Documentation of the complaint, investigation and corrective action will be maintained in the subcontractor's file on the intranet site. Complaints are posted using the Vendor Performance Report.
- Information shall be updated on the intranet when new information is received from the subcontracted laboratories.
- Subcontractors in good standing will be retained on the intranet listing. The QA Manager will notify all TestAmerica laboratories, Corporate Quality and Corporate Contracts if any laboratory requires removal from the intranet site. This notification will be posted on the intranet site and e-mailed to all Laboratory Directors, QA Managers and Sales Personnel.

8.3 Oversight and Reporting

The PM must request that the selected subcontractor be presented with a subcontract, if one is not already executed between the laboratory and the subcontractor. The subcontract must include terms which flow down the requirements of our clients, either in the subcontract itself or through the mechanism of work orders relating to individual projects. A standard subcontract and the Lab Subcontractor Vendor Package (posted on the intranet) can be used to accomplish this, and the Legal & Contracts Director can tailor the document or assist with negotiations, if needed. The PM responsible for the project must advise and obtain client consent to the subcontract as appropriate, and provide the scope of work to ensure that the proper requirements are made a part of the subcontract and are made known to the subcontractor.

Prior to sending samples to the subcontracted laboratory, the PM confirms their certification status to determine if it's current and scope-inclusive. The information is documented on a Subcontracted Sample Form (Figure 8-1) and the form is retained in the project folder. For TestAmerica laboratories, certifications can be viewed on the company's TotalAccess Database.

The Sample Control Department is responsible for ensuring compliance with QA requirements and applicable shipping regulations when shipping samples to a subcontracted laboratory.

All subcontracted samples must be accompanied by a TestAmerica Chain of Custody (COC). A copy of the original COC sent by the client must also be included with all samples workshared within TestAmerica. Client CoCs are only forwarded to external subcontractors when samples are shipped directly from the project site to the subcontractor lab. Under routine circumstances, client CoCs are not provided to external subcontractors.

Through communication with the subcontracted laboratory, the PM monitors the status of the subcontracted analyses, facilitates successful execution of the work, and ensures the timeliness and completeness of the analytical report.

Non-TNI accredited work must be identified in the subcontractor's report as appropriate. If TNI accreditation is not required, the report does not need to include this information.

Reports submitted from subcontractor laboratories are not altered and are included in their original form in the final project report. This clearly identifies the data as being produced by a subcontractor facility. If subcontract laboratory data is incorporated into the laboratories EDD (i.e., imported), the report must explicitly indicate which lab produced the data for which methods and samples.

Note: The results submitted by a TestAmerica work sharing laboratory may be transferred electronically and the results reported by the TestAmerica work sharing lab are identified on the final report. The report must explicitly indicate which lab produced the data for which methods and samples. The final report must include a copy of the completed COC for all work sharing reports.

8.4 Contingency Planning

The Laboratory Director may waive the full qualification of a subcontractor process temporarily to meet emergency needs; however, this decision & justification must be documented in the project files, and the ‘Purchase Order Terms And Conditions For Subcontracted Laboratory Services’ must be sent with the samples and Chain-of-Custody. In the event this provision is utilized, the laboratory (e.g., PM) will be required to verify and document the applicable accreditations of the subcontractor. All other quality and accreditation requirements will still be applicable, but the subcontractor need not have signed a subcontract with TestAmerica at this time. The comprehensive approval process must then be initiated within 30 calendar days of subcontracting.

Figure 8-1.

Example - Subcontracted Sample Form

Date/Time: ______________________________

Subcontracted Laboratory Information:

- Subcontractor's Name: ______________________________
- Subcontractor Point of Contact: ______________________________
- Subcontractor's Address: ______________________________
- Subcontractor's Phone: ______________________________
- Analyte/Method: ______________________________
- Certified for State of Origin: ______________________________
- TNI Certified: Yes______________ No______________
- USDA Permit (__Domestic __ Foreign) Yes______________ No______________
- A2LA (or ISO 17025) Certified: Yes______________ No______________
- CLP-like Required: Yes______________ No______________
  (Full doc required)
- Requested Sample Due Date: ______________________________
  (Must be put on COC)

Project Manager: ______________________________

Laboratory Sample # Range: ______________________________
(Only of Subcontracted Samples)

Laboratory Project Number (Billing Control #): ______________________________

All subcontracted samples are to be sent via bonded carrier and Priority Overnight. Please attach tracking number below and maintain these records in the project files.

PM Signature____**Date**____________________________

SECTION 9. PURCHASING SERVICES AND SUPPLIES

9.1 Overview

Evaluation and selection of suppliers and vendors is performed, in part, on the basis of the quality of their products, their ability to meet the demand for their products on a continuous and short term basis, the overall quality of their services, their past history, and competitive pricing. This is achieved through evaluation of objective evidence of quality furnished by the supplier, which can include certificates of analysis, recommendations, and proof of historical compliance with similar programs for other clients. To ensure that quality critical consumables and equipment conform to specified requirements, which may affect quality, all purchases from specific vendors are approved by a member of the supervisory or management staff. Capital expenditures are made in accordance with TestAmerica's Corporate Controlled Purchases Procedure, SOP No. CW-F-S-007.

Contracts will be signed in accordance with TestAmerica's Corporate Authorization Matrix Policy, Policy No. CW-F-P-002. Request for Proposals (RFP's) will be issued where more information is required from the potential vendors than just price. Process details are available in TestAmerica's Corporate Procurement and Contracts Policy (Policy No. CW-F-P-004). RFP's allow TestAmerica to determine if a vendor is capable of meeting requirements such as supplying all of the TestAmerica facilities, meeting required quality standards and adhering to necessary ethical and environmental standards. The RFP process also allows potential vendors to outline any additional capabilities they may offer.

9.2 Glassware

Glassware used for volumetric measurements must be Class A or verified for accuracy according to laboratory procedure. Pyrex (or equivalent) glass should be used where possible. For safety purposes, thick-wall glassware should be used where available.

9.3 Reagents, Standards & Supplies

Purchasing guidelines for equipment and reagents must meet the requirements of the specific method and testing procedures for which they are being purchased. Solvents and acids are pre-tested in accordance with TestAmerica's Corporate SOP on Solvent & Acid Lot Testing & Approval, SOP No. CA-Q-S-001.

9.3.1 Purchasing

Chemical reagents, solvents, glassware, and general supplies are ordered as needed to maintain sufficient quantities on hand. Materials used in the analytical process must be of a known quality. The wide variety of materials and reagents available makes it advisable to specify recommendations for the name, brand, and grade of materials to be used in any determination. This information is contained in the method SOP. The analyst may check the item out of the on-site consignment system that contains items approved for laboratory use.

If an item is not available from the on-site consignment, the analyst must provide the master item number (from the master item list that has been approved by the Technical Director), item description, package size, catalogue page number, and the quantity needed. If an item being ordered is not the exact item requested, approval must be obtained from the Technical Director prior to placing the order. The Department (Technical) Manager or the Laboratory Operations Manager places the order.

9.3.2 Receiving

It is the responsibility of the Facilities Coordinator to receive the shipment. It is the responsibility of the analyst who ordered the materials to document the date materials where received. Once the ordered reagents or materials are received, the analyst compares the information on the label or packaging to the original order to ensure that the purchase meets the quality level specified. Material Safety Data Sheets (MSDSs) are available online through the Company's intranet website. Anyone may review these for relevant information on the safe handling and emergency precautions of on-site chemicals.

9.3.3 Specifications

Methods in use in the laboratory specify the grade of reagent that must be used in the procedure. If the quality of the reagent is not specified, analytical reagent grade will be used. It is the responsibility of the analyst to check the procedure carefully for the suitability of grade of reagent.

Chemicals must not be used past the manufacturer's expiration date and must not be used past the expiration time noted in a method SOP. If expiration dates are not provided, the laboratory may contact the manufacturer to determine an expiration date.

The laboratory assumes a five year expiration date on inorganic dry chemicals and solvents unless noted otherwise by the manufacturer or by the reference source method. Chemicals/solvents should not be used past the manufacturer's or SOPs expiration date unless 'verified' (refer to item 3 listed below).

- An expiration date cannot be extended if the dry chemical/solvent is discolored or appears otherwise physically degraded, the dry chemical/solvent must be discarded.
- Expiration dates can be extended if the dry chemical/solvent is found to be satisfactory based on acceptable performance of quality control samples (Continuing Calibration Verification (CCV), Blanks, Laboratory Control Sample (LCS), etc.).
- If the dry chemical/solvent is used for the preparation of standards, the expiration dates can be extended 6 months if the dry chemical/solvent is compared to an unexpired independent source in performing the method and the performance of the dry chemical/solvent is found to be satisfactory. The comparison must show that the dry chemical/solvent meets CCV limits. The comparison studies are maintained in the analytical Department.

Wherever possible, standards must be traceable to national or international standards of measurement or to national or international reference materials. Records to that effect are available to the user.

Compressed gases in use are checked for pressure and secure positioning daily. The minimum total pressure must be 500 psig or the tank must be replaced. To prevent a tank from going to dryness or introducing potential impurities, the pressure should be closely watched as it decreases to approximately 15% of the original reading, at which point it should be replaced. For example, a standard sized laboratory gas cylinder containing 3,000 psig of gas should be replaced when it drops to approximately 500 psig.. The quality of the gases must meet method or manufacturer specification or be of a grade that does not cause any analytical interference.

Water used in the preparation of standards or reagents must have a specific conductivity of less than 1- µmho/cm (or specific resistivity of greater than 1.0 megaohm-cm) at 25^{o}C. The specific conductivity is checked and recorded daily. If the water's specific conductivity is greater than the specified limit, the Facility Manager and appropriate Technical Managers must be notified immediately in order to notify all Departments, decide on cessation (based on intended use) of activities, and make arrangements for correction.

The laboratory may purchase reagent grade (or other similar quality) water for use in the laboratory. This water must be certified "clean" by the supplier for all target analytes or otherwise verified by the laboratory prior to use. This verification is documented.

Standard lots are verified before first time use if the laboratory switches manufacturers or has historically had a problem with the type of standard.

Purchased bottleware used for sampling must be certified clean and the certificates must be maintained. If uncertified sampling bottleware is purchased, all lots must be verified clean prior to use. This verification must be maintained.

Records of manufacturer's certification and traceability statements are maintained in files or binders in each laboratory section. These records include date of receipt, lot number (when applicable), and expiration date (when applicable). Incorporation of the item into the record indicates that the analyst has compared the new certificate with the previous one for the same purpose and that no difference is noted, unless approved and so documented by the Technical Director or QA Manager.

9.3.4 Storage

Reagent and chemical storage is important from the aspects of both integrity and safety. Light-sensitive reagents may be stored in brown-glass containers. Storage conditions are per the Corporate Environmental Health & Safety Manual (Corp. Doc. No. CW-E-M-001) and method SOPs or manufacturer instructions.

9.4 Purchase of Equipment / Instruments / Software

When a new piece of equipment is needed, either for additional capacity or for replacing inoperable equipment, the analyst or supervisor makes a supply request to the Technical Manager/Laboratory Operations Manager and/or the Laboratory Director. If they agree with the request, the procedures outlined in TestAmerica's Corporate Policy No. CA-T-P-001, Qualified Products List, are followed. A decision is made as to which piece of equipment can best satisfy the requirements. The appropriate written requests are completed and purchasing places the order.

Upon receipt of a new or used piece of equipment, an unique identification name is assigned and provided to the QA Department for inclusion on the laboratory master equipment list. IT must also be notified so that they can synchronize the instrument for back-ups. Its capability is assessed to determine if it is adequate or not for the specific application. For instruments, a calibration curve is generated, followed by MDLs, Demonstration of Capabilities (DOCs), and other relevant criteria (refer to Section 19). For software, its operation must be deemed reliable and evidence of instrument verification must be retained by the IT Department or QA Department. Software certificates supplied by the vendors are filed with the LIMS Administrator. The manufacturer's operation manual is retained at the bench.

9.5 Services

Service to analytical instruments (except analytical balances) is performed on an as needed basis. Routine preventative maintenance is discussed in Section 20. The need for service is determined by analysts and/or Technical Managers. The service providers that perform the services are approved by the Technical Manager and/or the Laboratory Operations Manager.

9.6 Suppliers

TestAmerica selects vendors through a competitive proposal / bid process, strategic business alliances or negotiated vendor partnerships (contracts). This process is defined in the Corporate Finance documents on Vendor Selection (SOP No. CW-F-S-018) and Procurement & Contracts Policy (Policy No. CW-F-P-004). The level of control used in the selection process is dependent on the anticipated spending amount and the potential impact on TestAmerica business. Vendors that provide test and measuring equipment, solvents, standards, certified containers, instrument related service contracts or subcontract laboratory services shall be subject to more rigorous controls than vendors that provide off-the-shelf items of defined quality that meet the end use requirements. The JD Edwards purchasing system includes all suppliers/vendors that have been approved for use.

Evaluation of suppliers is accomplished by ensuring the supplier ships the product or material ordered and that the material is of the appropriate quality. This is documented by signing off on packing slips or other supply receipt documents. The purchasing documents contain the data that adequately describe the services and supplies ordered.

Any issues of vendor performance are to be reported immediately by the laboratory staff to the Corporate Purchasing Group by completing a Vendor Performance Report.

The Corporate Purchasing Group will work through the appropriate channels to gather the information required to clearly identify the problem and will contact the vendor to report the problem and to make any necessary arrangements for exchange, return authorization, credit, etc.
As deemed appropriate, the Vendor Performance Reports will be summarized and reviewed to determine corrective action necessary, or service improvements required by vendors

The laboratory has access to a listing of all approved suppliers of critical consumables, supplies and services. This information is provided through the JD Edwards purchasing system.

9.6.1 New Vendor Procedure

TestAmerica employees who wish to request the addition of a new vendor must complete a J.D. Edwards Vendor Add Request Form.

New vendors are evaluated based upon criteria appropriate to the products or services provided as well as their ability to provide those products and services at a competitive cost. Vendors are also evaluated to determine if there are ethical reasons or potential conflicts of interest with TestAmerica employees that would make it prohibitive to do business with them as well as their financial stability. The QA Department and/or the Technology Director are consulted with vendor and product selection that have an impact on quality.

SECTION 10. COMPLAINTS

10.1 Overview

The laboratory considers an effective client complaint handling processes to be of significant business and strategic value. Listening to and documenting client concerns captures 'client knowledge' that enables our operations to continually improve processes and client satisfaction. An effective client complaint handling process also provides assurance to the data user that the laboratory will stand behind its data, service obligations and products.

A client complaint is any expression of dissatisfaction with any aspect of our business services (e.g., communications, responsiveness, data, reports, invoicing and other functions) expressed by any party, whether received verbally or in written form. Client inquiries, complaints or noted discrepancies are documented, communicated to management, and addressed promptly and thoroughly.

The laboratory has procedures for addressing both external and internal complaints with the goal of providing satisfactory resolution to complaints in a timely and professional manner.

The nature of the complaint is identified, documented and investigated, and an appropriate action is determined and taken. In cases where a client complaint indicates that an established policy or procedure was not followed, the QA Department must evaluate whether a special audit must be conducted to assist in resolving the issue. A written confirmation or letter to the client, outlining the issue and response taken is recommended as part of the overall action taken.

The process of complaint resolution and documentation utilizes the procedures outlined in Section 12 (Corrective Actions) and is documented following the procedures in TestAmerica Edison SOP No. ED-GEN-003 (Control of Non-Conformances and Corrective Action).

10.2 External Complaints

An employee that receives a complaint initiates the complaint resolution process by first documenting the complaint according to TestAmerica Edison SOP No. ED-GEN-003 (Control of Non-Conformances and Corrective Action.

Complaints fall into two categories: correctable and non-correctable. An example of a correctable complaint would be one where a report re-issue would resolve the complaint. An example of a non-correctable complaint would be one where a client complains that their data was repeatedly late. Non-correctable complaints should be reviewed for preventive action measures to reduce the likelihood of future occurrence and mitigation of client impact.

The general steps in the complaint handling process are:

- Receiving and Documenting Complaints
- Complaint Investigation and Service Recovery
- Process Improvement

The laboratory shall inform the initiator of the complaint of the results of the investigation and the corrective action taken, if any.

10.3 Internal Complaints

Internal complaints include, but are not limited to: errors and non-conformances, training issues, internal audit findings, and deviations from methods. Corrective actions may be initiated by any staff member who observes a nonconformance and shall follow the procedures outlined in Section 12. In addition, Corporate Management, Sales and Marketing and IT may initiate a complaint by contacting the laboratory or through the corrective action system described in Section 12.

10.4 Management Review

The number and nature of client complaints is reported by the QA Manager to the laboratory and QA Director in the QA Monthly report. Monitoring and addressing the overall level and nature of client complaints and the effectiveness of the solutions is part of the Annual Management Review (Section 16).

SECTION 11. CONTROL OF NON-CONFORMING WORK

11.1 Overview

When data discrepancies are discovered or deviations and departures from laboratory SOPs, policies and/or client requests have occurred, corrective action is taken immediately. First, the laboratory evaluates the significance of the nonconforming work. Then, a corrective action plan is initiated based on the outcome of the evaluation. If it is determined that the nonconforming work is an isolated incident, the plan could be as simple as adding a qualifier to the final results and/or making a notation in the case narrative. If it is determined that the nonconforming work is a systematic or improper practices issue, the corrective action plan could include a more in depth investigation and a possible suspension of an analytical method. In all cases, the actions taken are documented using the laboratory's corrective action system (refer to Section 12).

Due to the frequently unique nature of environmental samples, sometimes departures from documented policies and procedures are needed. When an analyst encounters such a situation, the problem is presented to the Department (Technical) Manager for resolution. The manager may elect to discuss it with the Lab Director and/or QA Manager or have a representative contact the client to decide on a logical course of action. Once an approach is agreed upon, the analyst documents it using the laboratories corrective action system described in Section 12. This information can then be supplied to the client in the form of a footnote or a case narrative with the report.

Project Management may encounter situations where a client may request that a special procedure be applied to a sample that is not standard lab practice. Based on a technical evaluation, the lab may accept or opt to reject the request based on technical or ethical merit. An example might be the need to report a compound that the lab does not normally report. The lab would not have validated the method for this compound following the procedures in Section 19. The client may request that the compound be reported based only on the calibration. Such a request would need to be approved by the Laboratory Director <u>and</u> QA Manager, documented and included in the project folder. Deviations **must** also be noted on the final report with a statement that the compound is not reported in compliance with TNI (or the analytical method) requirements and the reason. Data being reported to a non-TNI state would need to note the change made to how the method is normally run.

11.2 Responsibilities and Authorities

TestAmerica's Corporate SOP entitled *Internal Investigation of Potential Data Discrepancies and Determination for Data Recall* (SOP No. CW-L-S-002, outlines the general procedures for the reporting and investigation of data discrepancies and alleged incidents of misconduct or violations of TestAmerica's data integrity policies as well as the policies and procedures related to the determination of the potential need to recall data.

Under certain circumstances, the Laboratory Director, the Lab Operations Manager, a Department (Technical) Manager, or a member of the QA team may authorize departures from documented procedures or policies. The departures may be a result of procedural changes due to the nature of the sample; a one-time procedure for a client; QC failures with insufficient sample to reanalyze, etc.. In most cases, the client will be informed of the departure prior to the reporting of the data. Any departures must be well documented using the laboratory's corrective action procedures. This information may also be documented in logbooks and/or data review checklists as appropriate. Any impacted data must be referenced in a case narrative and/or flagged with an appropriate data qualifier.

Any misrepresentation or possible misrepresentation of analytical data discovered by any laboratory staff member must be reported to facility Senior Management within 24-hours. The Senior Management staff is comprised of the Laboratory Director, Laboratory Operations Manager, the QA Manager, and the Department (Technical) Managers The reporting of issues involving alleged violations of the company's Data Integrity or Manual Integration procedures <u>must</u> be conveyed to an Ethics and Compliance Officer (ECO), Director of Quality & Client Advocacy and the laboratory's Quality Director within 24 hours of discovery.

Whether an inaccurate result was reported due to calculation or quantitation errors, data entry errors, improper practices, or failure to follow SOPs, the data must be evaluated to determine the possible effect.

The Laboratory Director, QA Manager, ECOs, Corporate Quality, General Managers and the Quality Directors have the authority and responsibility to halt work, withhold final reports, or suspend an analysis for due cause as well as authorize the resumption of work.

11.3 Evaluation of Significance and Actions Taken

For each nonconforming issue reported, an evaluation of its significance and the level of management involvement needed is made. This includes reviewing its impact on the final data, whether or not it is an isolated or systematic issue, and how it relates to any special client requirements.

TestAmerica's Corporate Data Investigation & Recall Procedure (SOP No. CW-L-S-002) distinguishes between situations when it would be appropriate for laboratory management to make the decision on the need for client notification (written or verbal) and data recall (report revision) and when the decision must be made with the assistance of the ECO's and Corporate Management. Laboratory level decisions are documented and approved using the laboratory's standard nonconformance/corrective action reporting in lieu of the data recall determination form contained in TestAmerica's Corporate SOP No. CW-L-S-002.

11.4 Prevention of NonConforming Work

If it is determined that the nonconforming work could recur, further corrective actions must be made following the laboratory's corrective action system. On a monthly basis, the QA Department evaluates non-conformances to determine if any nonconforming work has been repeated multiple times. If so, the laboratory's corrective action process may be followed.

11.5 Method Suspension / Restriction (Stop Work Procedures)

In some cases, it may be necessary to suspend/restrict the use of a method or target compound which constitutes significant risk and/or liability to the laboratory. Suspension/restriction procedures can be initiated by any of the persons noted in Section 11.2, Paragraph 5.

Prior to suspension/restriction, confidentiality will be respected, and the problem with the required corrective and preventive action will be stated in writing and presented to the Laboratory Director.

The Laboratory Director shall arrange for the appropriate personnel to meet with the QA Manager as needed. This meeting shall be held to confirm that there is a problem, that suspension/restriction of the method is required and will be concluded with a discussion of the steps necessary to bring the method/target or test fully back on line. In some cases, that may not be necessary if all appropriate personnel have already agreed there is a problem and there is agreement on the steps needed to bring the method, target or test fully back on line.

The QA Manager will also initiate a corrective action report as described in Section 12 if one has not already been started. A copy of any meeting notes and agreed upon steps should be faxed or e-mailed by the laboratory to the appropriate General Manager and member of Corporate QA. This fax/e-mail acts as notification of the incident.

After suspension/restriction, the lab will hold all reports to clients pending review. No faxing, mailing or distributing through electronic means may occur. The report must not be posted for viewing on the internet. It is the responsibility of the Laboratory Director to hold all reporting and to notify all relevant laboratory personnel regarding the suspension/restriction (e.g., Project Management, Log-in, etc…). Clients will NOT generally be notified at this time. Analysis may proceed in some instances depending on the non-conformance issue.

Within 72 hours, the QA Manager will determine if compliance is now met and reports can be released, OR determine the plan of action to bring work into compliance, and release work. A team, with all principals involved (Laboratory Director, Laboratory Operations Manager, QA Manager, Department Technical Manager) can devise a start-up plan to cover all steps from client notification through compliance and release of reports. Project Management, and the Directors of Client Services and Sales and Marketing must be notified if clients must be notified or if the suspension/restriction affects the laboratory's ability to accept work. The QA Manager must approve start-up or elimination of any restrictions after all corrective action is complete. This approval is given by final signature on the completed corrective action report.

SECTION 12. CORRECTIVE ACTION

12.1 Overview

A major component of TestAmerica's Quality Assurance (QA) Program is the problem investigation and feedback mechanism designed to keep the laboratory staff informed on quality related issues and to provide insight to problem resolution. When nonconforming work or departures from policies and procedures in the quality system or technical operations are identified, the corrective action procedure provides a systematic approach to assess the issues, restore the laboratory's system integrity, and prevent reoccurrence. Corrective actions are documented using Data Inquiry, Client Complaint and Corrective Action Report Form (CAR) (TestAmerica Edison Work Instruction No. EDS-WI-012) (refer to Figure 12-1).

12.2 General

Problems within the quality system or within analytical operations may be discovered in a variety of ways, such as QC sample failures, internal or external audits, proficiency testing (PT) performance, client complaints, staff observation, etc..

The purpose of a corrective action system is to:

- Identify non-conformance events and assign responsibility(s) for investigating.
- Resolve non-conformance events and assign responsibility for any required corrective action.
- Identify systematic problems before they become serious.
- Identify and track client complaints and provide resolution.

12.2.1 **Non-Conformance Report (NCR)** – The CAR form is used to document the following types of corrective actions:

- Deviations from an established procedure or SOP
- QC outside of limits (non-matrix related)
- Isolated reporting / calculation errors
- Client complaints
- Discrepancies in materials / goods received vs. manufacturer packing slips.

12.2.2 **Corrective Action Report (CAR)** – The CAR form is also used to document the following types of corrective actions:

- Questionable trends that are found in the review of NCRs.
- Issues found while reviewing NCRs that warrant further investigation.
- Internal and external audit findings
- Failed or unacceptable PT results.
- Corrective actions that cross multiple Departments in the laboratory.
- Systematic reporting / calculation errors
- Client complaints
- Data recall investigations
- Identified poor process or method performance trends
- Excessive revised reports

This will provide background documentation to enable root cause analysis and preventive action.

12.3 Closed Loop Corrective Action Process

Any employee in the company can initiate a corrective action. There are four main components to a closed-loop corrective action process once an issue has been identified: Cause Analysis, Selection and Implementation of Corrective Actions (both short and long term), Monitoring of the Corrective Actions, and Follow-up.

12.3.1 Cause Analysis

- Upon discovery of a non-conformance event, the event must be defined and documented. An CAR must be initiated, someone is assigned to investigate the issue and the event is investigated for cause. Table 12-1 provides some general guidelines on determining responsibility for assessment.
- The cause analysis step is the key to the process as a long term corrective action cannot be determined until the cause is determined.
- If the cause is not readily obvious, the Department (Technical) Manager, Laboratory Director, Laboratory Operations Manager, or QA Manager (or QA designee) is consulted.

12.3.2 Selection and Implementation of Corrective Actions

- Where corrective action is needed, the laboratory shall identify potential corrective actions. The action(s) most likely to eliminate the problem and prevent recurrence are selected and implemented. Responsibility for implementation is assigned.
- Corrective actions shall be to a degree appropriate to the magnitude of the problem identified through the cause analysis.
- Whatever corrective action is determined to be appropriate, the laboratory shall document and implement the changes. The CAR is used for this documentation.

12.3.3 Root Cause Analysis

Root Cause Analysis is a class of problem solving (investigative) methods aimed at identifying the basic or causal factor(s) that underlie variation in performance or the occurrence of a significant failure. The root cause may be buried under seemingly innocuous events, many steps preceding the perceived failure. At first glance, the immediate response is typically directed at a symptom and not the cause. Typically, root cause analysis would be best with three or more incidents to triangulate a weakness.

Systematically analyze and document the Root Causes of the more significant problems that are reported. Identify, track, and implement the corrective actions required to reduce the likelihood of recurrence of significant incidents. Trend the Root Cause data from these incidents to identify Root Causes that, when corrected, can lead to dramatic improvements in performance by eliminating entire classes of problems.

Identify the one event associated with problem and ask why this event occurred. Brainstorm the root causes of failures; for example, by asking why events occurred or conditions existed; and then why the cause occurred 5 consecutive times until you get to the root cause. For each of these sub events or causes, ask why it occurred. Repeat the process for the other events associated with the incident.

Root cause analysis does not mean the investigation is over. Look at technique, or other systems outside the normal indicators. Often creative thinking will find root causes that ordinarily would be missed, and continue to plague the laboratory or operation.

12.3.4 Monitoring of the Corrective Actions

- The Department (Technical) Manager/Supervisor and QA Manager are responsible to ensure that the corrective action taken was effective.
- Ineffective actions are documented and re-evaluated until acceptable resolution is achieved. Department (Technical) Managers are accountable to the Laboratory Director to ensure final acceptable resolution is achieved and documented appropriately.
- Each CAR is entered into an Excel spreadsheet for tracking purposes and a monthly summary of all corrective actions is printed out for review to aid in ensuring that the corrective actions have taken effect.
- The QA Manager reviews monthly CARs for trends. Highlights are included in the QA monthly report (refer to Section 16). If a significant trend develops that adversely affects quality, an audit of the area is performed and corrective action implemented.

- Any out-of-control situations that are not addressed acceptably at the laboratory level may be reported to the Corporate Quality Director by the QA Manager, indicating the nature of the out-of-control situation and problems encountered in solving the situation.

12.3.5 Follow-up Audits

- Follow-up audits may be initiated by the QA Manager and shall be performed as soon as possible when the identification of a nonconformance casts doubt on the laboratory's compliance with its own policies and procedures, or on its compliance with state or federal requirements.
- These audits often follow the implementation of the corrective actions to verify effectiveness. An additional audit would only be necessary when a critical issue or risk to business is discovered.

(Also refer to Section 15.1.4, Special Audits.)

12.4 Technical Corrective Actions

In addition to providing acceptance criteria and specific protocols for technical corrective actions in the method SOPs, the laboratory has general procedures to be followed to determine when departures from the documented policies and procedures and quality control have occurred (refer to Section 11). The documentation of these procedures is through the use of an CAR.

Table 12-1 includes examples of general technical corrective actions. For specific criteria and corrective actions, refer to the analytical methods or specific method SOPs. The laboratory may also maintain Work Instructions on these items that are available upon request.

Table 12-1 provides some general guidelines for identifying the individual(s) responsible for assessing each QC type and initiating corrective action. The table also provides general guidance on how a data set should be treated if associated QC measurements are unacceptable. Specific procedures are included in Method SOPs, Work Instructions, QAM Sections 19 and 20. All corrective actions are reviewed monthly, at a minimum, by the QA Manager and highlights are included in the QA monthly report.

To the extent possible, samples shall be reported only if all quality control measures are acceptable. If the deficiency does not impair the usability of the results, data will be reported with an appropriate data qualifier and/or the deficiency will be noted in the case narrative. Where sample results may be impaired, the Project Manager is notified and appropriate corrective action (e.g., reanalysis) is taken and documented**.**

12.5 Basic Corrections

When mistakes occur in records, each mistake shall be crossed-out, [not obliterated (e.g. no white-out)], and the correct value entered alongside. All such corrections shall be initialed (or signed) and dated by the person making the correction. In the case of records stored electronically, the original "uncorrected" file must be maintained intact and a second "corrected" file is created.

This same process applies to adding additional information to a record. All additions made later than the initial must also be initialed (or signed) and dated.

When corrections are due to reasons other than obvious transcription errors, the reason for the corrections (or additions) shall also be documented.

Figure 12-1.
Example - Corrective Action Report

TestAmerica Edison

Data Inquiry Request Form / Corrective Action Form

Date Initiated: ______
Date Needed: ______
Client: ______
Contact: ______
Project:

Job #: ______
Analyses: ______
Lab :

Deliverable / Report Type

PDF/EDD ____	**Full** ____
Bound ____	**Reduced** ____
Unbound ____	**ResQA** ____
CD	**Other**

Send Response to:
Name: ______
Address: ______
Phone: ______
FAX: ______
Email: ______
Send Via: FAX Mail UPS Email Courier

1. Type of Non-Conformance:

____ Missing Sample/Analysis
____ Wrong Sample Identification
____ Missing Pages
____ Results in Question
____ Holdtime Violation
____ Calibration in Question
____ Insufficient Data for Validation
____ Explanation of Analysis
____ EDD
____ OTHER

2. Explanation of Details:

Initiator Signature:		**Date:**	

3. Required Actions:

√ if needed	Department	Actions Required:	Initials: (Actions Completed)	Date: (Actions Completed)
	PM			
	LOGIN			
	VOAGC/MS			
	BNAMS			
	PEST/BNAGC			
	METALS			
	WETCHEM			
	SUBWORK			
	IT			
	ORG PREP			
	RP			

4. Final Approval of Data Inquiry Actions Taken:

Intiator Signature:		**Date:**	

5. LAB ERROR YES ___ NO ___ (IF YES, PLEASE COMPLETE SECTIONS 5 - 7) **CORRECTIVE ACTION ID#:**

6. Quality Assurance Review and Assignment of Further Action: *(to be completed by QA Manager - use page 2 if needed)*
Recommended Corrective Action:

7. Final Resolution of Corrective Action: *(to be completed by Dept. Supervisor - use page 2 if needed)*

Supervisor Signature:		**Date:**	

8. Quality Assurance Final Approval *(QA Manager or designee use only):*

QA Signature:		**Date:**	

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Table 12-1. Example – General Corrective Action Procedures

QC Activity ***(Individual Responsible for Initiation/Assessment)***	**Acceptance Criteria**	**Recommended Corrective Action**
Initial Instrument Blank *(Analyst)*	- Instrument response < MDL.	- Prepare another blank. - If same response, determine cause of contamination: reagents, environment, instrument equipment failure, etc..
Initial Calibration Standards *(Analyst, Department Technical Manager)*	- Correlation coefficient > 0.99 or standard concentration value. - % Recovery within acceptance range. - See details in Method SOP.	- Reanalyze standards. - If still unacceptable, remake standards and recalibrate instrument.
Independent Calibration Verification (Second Source) *(Analyst, Department Technical Manager))*	- % Recovery within control limits.	- Remake and reanalyze standard. - If still unacceptable, then remake calibration standards or use new primary standards and recalibrate instrument.
Continuing Calibration Standards *(Analyst, Data Reviewer)*	% Recovery within control limits.	- Reanalyze standard. - If still unacceptable, then recalibrate and rerun affected samples.
Matrix Spike / Matrix Spike Duplicate (MS/MSD) *(Analyst, Data Reviewer)*	- % Recovery within limits documented in TALS and/or Work Instructions	- If the acceptance criteria for duplicates or matrix spikes are not met because of matrix interferences, the acceptance of the analytical batch is determined by the validity of the LCS. - If the LCS is within acceptable limits the batch is acceptable. - The results of the duplicates, matrix spikes and the LCS are reported with the data set. - For matrix spike or duplicate results outside criteria the data for that sample shall be reported with qualifiers.

QC Activity ***(Individual Responsible for Initiation/Assessment)***	**Acceptance Criteria**	**Recommended Corrective Action**
Laboratory Control Sample (LCS) *(Analyst, Data Reviewer)*	- % Recovery within limits specified in TALS and/or Work Instructions	- Batch must be re-prepared and re-analyzed. This includes any allowable marginal exceedance. When not using marginal exceedances, the following exceptions apply: 1) when the acceptance criteria for the positive control are exceeded high (i.e., high bias) and there are associated samples that are non-detects, then those non-detects may be reported with data qualifying codes; 2) when the acceptance criteria for the positive control are exceeded low (i.e., low bias), those sample results may be reported if they exceed a maximum regulatory limit/decision level with data qualifying codes. **Note:** If there is insufficient sample or the holding time cannot be met, contact client and report with flags.
Surrogates *(Analyst, Data Reviewer)*	- % Recovery within limits of method or within three standard deviations of the historical mean.	- Individual sample must be repeated. Place comment in LIMS. - Surrogate results outside criteria shall be reported with qualifiers.
Method Blank (MB) *(Analyst, Data Reviewer)*	< Reporting Limit [1]	- Reanalyze blank. - If still positive, determine source of contamination. If necessary, reprocess (i.e. digest or extract) entire sample batch. Report blank results. - Qualify the result(s) if the concentration of a targeted analyte in the MB is at or above the reporting limit AND is > 1/10 of the amount measured in the sample.
Proficiency Testing (PT) Samples *(QA Manager, Department Technical Manager)*	- Criteria supplied by PT Supplier.	- Any failures or warnings must be investigated for cause. Failures may result in the need to repeat a PT sample to show the problem is corrected.
Internal / External Audits *(QA Manager, Department Technical Manager)*	- Defined in Quality System documentation such as SOPs, QAM, etc..	- Non-conformances must be investigated through CAR system and necessary corrections must be made.

QC Activity ***(Individual Responsible for Initiation/Assessment)***	**Acceptance Criteria**	**Recommended Corrective Action**
Reporting / Calculation Errors (Depends on issue – possible individuals include: Analysts, Data Reviewers, Project Managers, Department Technical Manager, QA Manager, Corporate QA, Corporate Management)	- SOP CW-L-S-002, Internal Investigation of Potential Data Discrepancies and Determination for Data Recall.	- Corrective action is determined by type of error. Follow the procedures in SOP CW-L-S-002 or the Corrective Action SOP (ED-GEN-003).
Client Complaints *(Project Managers, Lab Director Operations Manager, Sales and Marketing)*	-	- Corrective action is determined by the type of complaint. For example, a complaint regarding an incorrect address on a report will result in the report being corrected and then follow-up must be performed on the reasons the address was incorrect (e.g., database needs to be updated).
QA Monthly Report (Refer to Section 16 for an example) (QA Manager, Lab Director, Operations Manager, Department Technical Managers)	- QAM, SOPs.	- Corrective action is determined by the type of issue. For example, CARs for the month are reviewed and possible trends are investigated.
Health and Safety Violation (Safety Officer, Lab Director, Operations Manager, Department Technical Manager)	- Environmental Health and Safety (EHS) Manual.	- Non-conformance is investigated and corrected through CAR system.

Note:
1. Except as noted below for certain compounds, the method blank should be below the detection limit Concentrations up to five times the reporting limit will be allowed for the ubiquitous laboratory and reagent contaminants: methylene chloride, toluene, acetone, 2-butanone and phthalates **provided** they appear in similar levels in the reagent blank and samples. This allowance presumes that the detection limit is significantly below any regulatory limit to which the data are to be compared and that blank subtraction will not occur. For benzene and ethylene dibromide (EDB) and other analytes for which regulatory limits are extremely close to the detection limit, the method blank must be below the method detection limit

SECTION 13. PREVENTIVE ACTION / IMPROVEMENT

13.1 Overview

The laboratory's preventive action programs improve, or eliminate potential causes of nonconforming product and/or nonconformance to the quality system. This preventive action process is a proactive and continuous process of improvement activities that can be initiated through feedback from clients, employees, business providers, and affiliates. The QA Department has the overall responsibility to ensure that the preventive action process is in place, and that relevant information on actions is submitted for management review.

Dedicating resources to an effective preventive action system emphasizes the laboratory's commitment to its Quality Program. It is beneficial to identify and address negative trends before they develop into complaints, problems and corrective actions. Additionally, customer service and client satisfaction can be improved through continuous improvements to laboratory systems.

Opportunities for improvement may be discovered during management reviews, the monthly QA Metrics Report, evaluation of internal or external audits, results & evaluation of proficiency testing (PT) performance, data analysis & review processing operations, client complaints, staff observation, etc..

The monthly Management Systems Metrics Report shows performance indicators in all areas of the laboratory and quality system. These areas include revised reports, corrective actions, audit findings, internal auditing and data authenticity audits, client complaints, PT samples, holding time violations, SOPs, ethics training, etc.. These metrics are used in evaluating the management and quality system performance on an ongoing basis and provide a tool for identifying areas for improvement.

The laboratory's corrective action process is integral to implementation of preventive actions. A critical piece of the corrective action process is the implementation of actions to prevent further occurrence of a non-compliance event. Historical review of corrective action provides a valuable mechanism for identifying preventive action opportunities.

13.1.1 The following elements are part of a preventive action system:

- Identification of an opportunity for preventive action.
- Process for the preventive action.
- Define the measurements of the effectiveness of the process once undertaken.
- Execution of the preventive action.
- Evaluation of the plan using the defined measurements.
- Verification of the effectiveness of the preventive action.

- Close-Out by documenting any permanent changes to the Quality System as a result of the Preventive Action. Documentation of Preventive Action is incorporated into the monthly QA reports, corrective action process and management review.

13.1.2 Any Preventive Actions undertaken or attempted shall be taken into account during the annual Management Systems Review (Section 16). A highly detailed report is not required; however, a summary of successes and failures within the preventive action program is sufficient to provide management with a measurement for evaluation.

13.2 Management of Change

The Management of Change process is designed to manage significant events and changes that occur within the laboratory. Through these various tracking indicators, the potential risks inherent with a new event or change are identified and evaluated. The risks are minimized or eliminated through pre-planning and the development of preventive measures. The types of indicators monitored under this collective system include:

- SOP Tracking
  Current Revisions w/ Effective Dates
  Required Biennial Revisions w/ Due Date

- Proficiency Testing (PT) Sample Tracking
  Pass / Fail – most current 2 out of 3 studies.

- Instrument / Equipment List
  Current / Location

- Accreditations
  New / Expiring

- Method Capabilities
  Current Listing by program (e.g., Potable Water, Soils, etc.)

- Key Personnel
  Technical Managers, Department Supervisors, etc..

These items are maintained on TestAmerica's Intranet (Proposal Library) or on our internal database (TotalAccess) which uploads to our company internet site.

SECTION 14. CONTROL OF RECORDS

The laboratory maintains a records management system appropriate to its needs and that complies with applicable standards or regulations as required. The system produces unequivocal, accurate records that document all laboratory activities. The laboratory retains all original observations, calculations and derived data, calibration records and a copy of the analytical report for a minimum of five years after it has been issued.

14.1 Overview

The laboratory has established procedures for identification, collection, indexing, access, filing, storage, maintenance and disposal of quality and technical records. A record index is listed in Table 14-1. Quality records are maintained by the QA Department in a database, which is backed up as part of the regular laboratory backup. Records are of two types; either electronic or hard copy paper formats depending on whether the record is computer or hand generated (some records may be in both formats). Technical records are maintained by Laboratory Operations under the direction of the Laboratory Operations Manager.

Table 14-1. Record Index[1]

	Record Types [1]:	Retention Time:
Technical Records	- Raw Data - Logbooks[2] - Standards - Certificates - Analytical Records - MDLs/IDLs/DOCs - Lab Reports	5 Years from analytical report issue*
Official Documents	- Quality Assurance Manual (QAM) - Work Instructions - Policies - SOPs - Policy Memorandums - Manuals	5 Years from document retirement date*
QA Records	- Internal & External Audits/Responses - Certifications - Corrective/Preventive Actions - Management Reviews - Method & Software Validation / Verification Data - Data Investigation	5 Years from archival* **Data Investigation:** 5 years or the life of the affected raw data storage whichever is greater (beyond 5 years if ongoing project or pending investigation)
Project Records	- Sample Receipt & COC Documentation - Contracts and Amendments - Correspondence - QAPP - SAP - Telephone Logbooks - Lab Reports	5 Years from analytical report issue*
Administrative Records	Finance and Accounting	10 years
	EH&S Manual, Permits,	7 years
	Disposal Records	Indefinitely
	Employee Handbook	Indefinitely
	Personnel files, Employee Signature & Initials, Administrative Training Records (e.g., Ethics)	Refer to HR Manual
	Administrative Policies Technical Training Records	7 years

[1] Record Types encompass hardcopy and electronic records.
[2] Examples of Logbook types: Maintenance, Instrument Run, Preparation (standard and samples), Standard and Reagent Receipt, Archiving, Balance Calibration, Temperature (hardcopy or electronic records).
* Exceptions listed in Table 14-2.

14.1.1 All records are stored and retained in such a way that they are secure and readily retrievable at the laboratory facility or an offsite location that provides a suitable environment to prevent damage or deterioration and to prevent loss**.** All records shall be protected against fire, theft, loss, environmental deterioration, and vermin. In the case of electronic records, electronic or magnetic sources, storage media are protected from deterioration caused by magnetic fields and/or electronic deterioration.

Access to the data is limited to laboratory and company employees. Records archived off-site are stored in a secure location where a record is maintained of any entry into the storage facility. Whether on-site or off-site storage is used, logs are maintained in each storage box to note removal and return of records. Records are maintained for a minimum of five years unless otherwise specified by a client or regulatory requirement.

For raw data and project records, record retention shall be calculated from the date the project report is issued. For other records, such as Controlled Documents, QA, or Administrative Records, the retention time is calculated from the date the record is formally retired. Records related to the programs listed in Table 14-2 have lengthier retention requirements and are subject to the requirements in Section 14.1.3.

14.1.2 <u>Programs with Longer Retention Requirements</u>

Some regulatory programs have longer record retention requirements than the standard record retention time. These are detailed in Table 14-2 with their retention requirements. In these cases, the longer retention requirement is enacted. If special instructions exist such that client data cannot be destroyed prior to notification of the client, the container or box containing that data is marked as to who to contact for authorization prior to destroying the data.

Table 14-2. Example: Special Record Retention Requirements

Program	[1]Retention Requirement
Drinking Water – All States	5 years (project records) 10 years - Radiochemistry (project records)
Drinking Water Lead and Copper Rule	12 years (project records)
NY Potable Water NYCRR Part 55-2	10 years

[1]Note: Extended retention requirements must be noted with the archive documents or addressed in facility-specific records retention procedures.

14.1.3 The laboratory has procedures to protect and back-up records stored electronically and to prevent unauthorized access to or amendment of these records. All analytical data is maintained as hard copy or in a secure readable electronic format. For analytical reports that are maintained as copies in PDF format, refer to Section 19.14.1 for more information. For additional details please refer to refer to TestAmerica Edison SOP No. ED-GEN-024 (Record Storage and Retention).

14.1.4 The record keeping system allows for historical reconstruction of all laboratory activities that produced the analytical data, as well as rapid recovery of historical data The history of the sample from when the laboratory took possession of the samples must be readily understood through the documentation. This shall include inter-laboratory transfers of samples and/or extracts.

- The records include the identity of personnel involved in sampling, sample receipt, preparation, or testing. All analytical work contains the initials (at least) of the personnel involved. The laboratory's copy of the chain of custody is stored in the laboratory's hard copy project file (in addition to the scanned copy included in the analytical report PDF). The chain of custody would indicate the name of the sampler. If any sampling notes are provided with a work order, they are kept in the project file as well. For additional details please refer to refer to TestAmerica Edison SOP No. ED-GEN-024 (Record Storage and Retention).

- All information relating to the laboratory facilities equipment, analytical test methods, and related laboratory activities, such as sample receipt, sample preparation, or data verification are documented.

- The record keeping system facilitates the retrieval of all working files and archived records for inspection and verification purposes (e.g., set format for naming electronic files, set format for what is included with a given analytical data set. Reference TestAmerica Edison SOP No. ED-GEN-024 (Record Storage and Retention).

- Instrument data is stored sequentially by instrument. A given day's analyses are maintained in the order of the analysis. Run logs are maintained for each instrument or method; a copy of each day's run long or instrument sequence is stored with the data to aid in re-constructing an analytical sequence. Where an analysis is performed without an instrument, bound logbooks or bench sheets are used to record and file data. Standard and reagent information is recorded in logbooks or entered into the LIMS for each method as required.

- Changes to hardcopy records shall follow the procedures outlined in Section 12 and 19. Changes to electronic records in LIMS or instrument data are recorded in audit trails.

- The reason for a signature or initials on a document is clearly indicated in the records such as "sampled by," "prepared by," "reviewed by", or "analyzed by".

- All generated data except those that are generated by automated data collection systems, are recorded directly, promptly and legibly in permanent dark ink.

- Hard copy data may be scanned into PDF format for record storage as long as the scanning process can be verified in order to ensure that no data is lost and the data files and storage media must be tested to verify the laboratory's ability to retrieve the information prior to the destruction of the hard copy that was scanned.

- Also refer to Section 19.14.1 'Computer and Electronic Data Related Requirements'**.**

14.2 Technical and Analytical Records

14.2.1 The laboratory retains records of original observations, derived data and sufficient information to establish an audit trail, calibration records, staff records and a copy of each analytical report issued, for a minimum of five years unless otherwise specified by a client or regulatory requirement. The records for each analysis shall contain sufficient information to enable the analysis to be repeated under conditions as close as possible to the original. The records shall include the identity of laboratory personnel responsible for the sampling, performance of each analysis and reviewing results.

14.2.2 Observations, data and calculations are recorded real-time and are identifiable to the specific task.

14.2.3 Changes to hardcopy records shall follow the procedures outlined in Section 12 and 19. Changes to electronic records in LIMS or instrument data are recorded in audit trails.

The essential information to be associated with analysis, such as strip charts, tabular printouts, computer data files, analytical notebooks, and run logs, include:

- laboratory sample ID code**;**
- Date of analysis; Time of Analysis is also required if the holding time is seventy-two (72) hours or less, or when time critical steps are included in the analysis (e.g., drying times, incubations, etc.); instrumental analyses have the date and time of analysis recorded as part of their general operations. Where a time critical step exists in an analysis, location for such a time is included as part of the documentation in a specific logbook or on a benchsheet.
- Instrumentation identification and instrument operating conditions/parameters. Operating conditions/parameters are typically recorded in instrument maintenance logs where available.
- analysis type**;**
- all manual calculations and manual integrations**;**
- analyst's or operator's initials/signature**;**
- sample preparation including cleanup, separation protocols, incubation periods or subculture, ID codes, volumes, weights, instrument printouts, meter readings, calculations, reagents**;**
- test results**;**
- standard and reagent origin, receipt, preparation, and use**;**
- calibration criteria, frequency and acceptance criteria**;**
- data and statistical calculations, review, confirmation, interpretation, assessment and reporting conventions**;**
- quality control protocols and assessment**;**
- electronic data security, software documentation and verification, software and hardware audits, backups, and records of any changes to automated data entries; and
- Method performance criteria including expected quality control requirements. These are indicated both in the LIMS and on specific analytical report formats**.**

14.3 <u>Laboratory Support Activities</u>

In addition to documenting all the above-mentioned activities, the following are retained QA records and project records (previous discussions in this section relate where and how these data are stored):

- all original raw data, whether hard copy or electronic, for calibrations, samples and quality control measures, including analysts' work sheets and data output records (chromatograms, strip charts, and other instrument response readout records)**;**
- a written description or reference to the specific test method used which includes a description of the specific computational steps used to translate parametric observations into a reportable analytical value**;**
- copies of final reports**;**

- archived SOPs**;**
- correspondence relating to laboratory activities for a specific project**;**
- all corrective action reports, audits and audit responses**;**
- proficiency test results and raw data; and
- results of data review, verification, and crosschecking procedures

14.3.1 Sample Handling Records

Records of all procedures to which a sample is subjected while in the possession of the laboratory are maintained. These include but are not limited to records pertaining to:

- sample preservation including appropriateness of sample container and compliance with holding time requirement;
- sample identification, receipt, acceptance or rejection and login;
- sample storage and tracking including shipping receipts, sample transmittal / COC forms; and
- procedures for the receipt and retention of samples, including all provisions necessary to protect the integrity of samples.

14.4 Administrative Records

The laboratory also maintains the administrative records in either electronic or hard copy form. Refer to Table 14-1.

14.5 Records Management, Storage and Disposal

All records (including those pertaining to test equipment), certificates and reports are safely stored, held secure and in confidence to the client. Certification related records are available upon request.

All information necessary for the historical reconstruction of data is maintained by the laboratory. Records that are stored only on electronic media must be supported by the hardware and software necessary for their retrieval.

Records that are stored or generated by computers or personal computers have hard copy, write-protected backup copies, or an electronic audit trail controlling access**.**

The laboratory has a record management system (a.k.a., document control) for control of laboratory notebooks, instrument logbooks, standards logbooks, and records for data reduction, validation, storage and reporting. Laboratory notebooks are issued on a per analysis basis, and are numbered sequentially. All data are recorded sequentially within a series of sequential notebooks. Bench sheets are filed sequentially. Standards are primarily maintained in the LIMS (this electronic record may be augmented by a logbook record. Records are considered archived when noted as such in the records management system (a.k.a., document control.)

14.5.1 Transfer of Ownership

In the event that the laboratory transfers ownership or goes out of business, the laboratory shall ensure that the records are maintained or transferred according to client's instructions. Upon ownership transfer, record retention requirements shall be addressed in the ownership transfer agreement and the responsibility for maintaining archives is clearly established. In addition, in cases of bankruptcy, appropriate regulatory and state legal requirements concerning laboratory records must be followed. In the event of the closure of the laboratory, all records will revert to the control of the corporate headquarters. Should the entire company cease to exist, as much notice as possible will be given to clients and the accrediting bodies who have worked with the laboratory during the previous 5 years of such action.

14.5.2 Records Disposal

Records are removed from the archive and destroyed after 5 years unless otherwise specified by a client or regulatory requirement. On a project specific or program basis, clients may need to be notified prior to record destruction. Records are destroyed in a manner that ensures their confidentiality such as shredding, mutilation or incineration. (Refer to Tables 14-1 and 14-2).

Electronic copies of records must be destroyed by erasure or physically damaging off-line storage media so no records can be read.

If a third party records management company is hired to dispose of records, a "Certificate of Destruction" is required.

SECTION 15. AUDITS

15.1 Internal Audits

Internal audits are performed to verify that laboratory operations comply with the requirements of the lab's quality system and with the external quality programs under which the laboratory operates. Audits are planned and organized by the QA staff. Personnel conducting the audits should be independent of the area being evaluated. Auditors will have sufficient authority, access to work areas, and organizational freedom necessary to observe all activities affecting quality and to report the assessments to laboratory management and, when requested, to corporate management.

Audits are conducted and documented as described in the TestAmerica Corporate SOP on performing Internal Auditing, SOP No. CA-Q-S-004. The types and frequency of routine internal audits are described in Table 15-1. Special or ad hoc assessments may be conducted as needed under the direction of the QA staff.

Table 15-1. Types of Internal Audits and Frequency

Description	Performed by	Frequency
Quality Systems Audits	QA Department , QA approved designee, or Corporate QA	All areas of the laboratory annually
Method Audits	Joint responsibility: a) QA Manager or designee b) Technical Manager or Designee (Refer to CA-Q-S-004)	Methods Audits Frequency: 50% of methods annually
Special	QA Department or Designee	Surveillance or spot checks performed as needed, e.g., to confirm corrective actions from other audits.
Performance Testing	Analysts with QA oversight	Two successful per year for each TNI field of testing or as dictated by regulatory requirements

15.1.1 Annual Quality Systems Audit

An annual quality systems audit is required to ensure compliance to analytical methods and SOPs, TestAmerica's Data Integrity and Ethics Policies, TNI quality systems, client and state requirements, and the effectiveness of the internal controls of the analytical process, including but not limited to data review, quality controls, preventive action and corrective action. The completeness of earlier corrective actions is assessed for effectiveness & sustainability. The audit is divided into sections for each operating or support area of the lab, and each section is comprehensive for a given area. The area audits may be performed on a rotating schedule throughout the year to ensure adequate coverage of all areas. This schedule may change as situations in the laboratory warrant.

15.1.2 QA Technical Audits

QA technical audits are based on client projects, associated sample delivery groups, and the methods performed. Reported results are compared to raw data to verify the authenticity of results. The validity of calibrations and QC results are compared to data qualifiers, footnotes, and case narratives. Documentation is assessed by examining run logs and records of manual integrations. Manual calculations are checked. Where possible, electronic audit miner programs (e.g., MintMiner and Chrom AuditMiner) are used to identify unusual manipulations of the data deserving closer scrutiny. QA technical audits will include all methods within a two-year period.

15.1.3 SOP Method Compliance

Compliance of all SOPs with the source methods and compliance of the operational groups with the SOPs will be assessed by the Department Manager (i.e., Technical Manager) or qualified designee at least every two years. It is also recommended that the work of each newly hired analyst is assessed within 3 months of working independently, (e.g., completion of method

IDOC). In addition, as analysts add methods to their capabilities, (new IDOC) reviews of the analyst work products will be performed within 3 months of completing the documented training.

15.1.4 Special Audits

Special audits are conducted on an as needed basis, generally as a follow up to specific issues such as client complaints, corrective actions, PT results, data audits, system audits, validation comments, regulatory audits or suspected ethical improprieties. Special audits are focused on a specific issue, and report format, distribution, and timeframes are designed to address the nature of the issue.

15.1.5 Performance Testing

The laboratory participates semi-annually in performance audits conducted through the analysis of PT samples provided by a third party. The laboratory generally participates in the following types of PT studies: Drinking Water, Non-potable Water, Soil and Hazardous Waste.

It is TestAmerica's policy that PT samples be treated as typical samples in the production process. Furthermore, where PT samples present special or unique problems, in the regular production process they may need to be treated differently, as would any special or unique request submitted by any client. The QA Manager must be consulted and in agreement with any decisions made to treat a PT sample differently due to some special circumstance.

Written responses to unacceptable PT results are required. In some cases it may be necessary for blind QC samples to be submitted to the laboratory to show a return to control.

15.2 External Audits

External audits are performed when certifying agencies or clients conduct on-site inspections or submit performance testing samples for analysis. It is TestAmerica's policy to cooperate fully with regulatory authorities and clients. The laboratory makes every effort to provide the auditors with access to personnel, documentation, and assistance. Laboratory supervisors are responsible for providing corrective actions to the QA Manager who coordinates the response for any deficiencies discovered during an external audit. Audit responses are due in the time allotted by the client or agency performing the audit. When requested, a copy of the audit report and the labs corrective action plan will be forwarded to Corporate Quality.

The laboratory cooperates with clients and their representatives to monitor the laboratory's performance in relation to work performed for the client. The client may only view data and systems related directly to the client's work. All efforts are made to keep other client information confidential.

15.2.1 Confidential Business Information (CBI) Considerations

During on-site audits, auditors may come into possession of information claimed as business confidential. A business confidentiality claim is defined as "a claim or allegation that business information is entitled to confidential treatment for reasons of business confidentiality or a request for a determination that such information is entitled to such treatment." When information is claimed as business confidential, the laboratory must place on (or attach to) the information at the time it is submitted to the auditor, a cover sheet, stamped or typed legend or other suitable form of notice, employing language such as “trade secret”, “proprietary” or “company confidential”. Confidential portions of documents otherwise non-confidential must be clearly identified. CBI may be purged of references to client identity by the responsible laboratory official at the time of removal from the laboratory. However, sample identifiers may not be obscured from the information. Additional information regarding CBI can be found in within the 2009 TNI standards.

15.3 Audit Findings

Audit findings are documented using the corrective action process and database. The laboratory’s corrective action responses for both types of audits may include action plans that could not be completed within a predefined timeframe. In these instances, a completion date must be set and agreed to by operations management and the QA Manager.

Developing and implementing corrective actions to findings is the responsibility of the Department (i.e., Technical) Manager where the finding originated. Findings that are not corrected by specified due dates are reported monthly to management in the QA monthly report. When requested, a copy of the audit report and the labs corrective action plan will be forwarded to Corporate Quality.

If any audit finding casts doubt on the effectiveness of the operations or on the correctness or validity of the laboratory’s test results, the laboratory shall take timely corrective action, and shall notify clients in writing if the investigations show that the laboratory results have been affected. Once corrective action is implemented, a follow-up audit is scheduled to ensure that the problem has been corrected.

Clients must be notified promptly in writing, of any event such as the identification of defective measuring or test equipment that casts doubt on the validity of results given in any test report or amendment to a test report. The investigation must begin within 24-hours of discovery of the problem and all efforts are made to notify the client within two weeks after the completion of the investigation.

SECTION 16. MANAGEMENT REVIEWS

16.1 Quality Assurance Report

A comprehensive QA Report shall be prepared each month by the laboratory’s QA Department and forwarded to the Laboratory Director, their Quality Director as well as the General Manager. All aspects of the QA system are reviewed to evaluate the suitability of policies and procedures. During the course of the year, the Laboratory Director, General Manager or Corporate QA may request that additional information be added to the report.

On a monthly basis, Corporate QA compiles information from all the monthly laboratory reports. The Corporate Quality Directors prepare a report that includes a compilation of all metrics and notable information and concerns regarding the QA programs within the laboratories. The report also includes a listing of new regulations that may potentially impact the laboratories. This report is presented to the Senior Management Team and General Managers.

16.2 Annual Management Review

The senior lab management team (Laboratory Director, QA Manager) conducts a review annually of its quality systems and LIMS to ensure its continuing suitability and effectiveness in meeting client and regulatory requirements and to introduce any necessary changes or improvements. It will also provide a platform for defining goals, objectives and action items that feed into the laboratory planning system. Corporate Operations and Corporate QA personnel may be included in this meeting at the discretion of the Laboratory Director. The LIMS review consists of examining any audits, complaints or concerns that have been raised through the year that are related to the LIMS. The laboratory will summarize any critical findings that can not be solved by the lab and report them to Corporate IT.

This management systems review (Corporate SOP No. CA-Q-S-008 & Work Instruction No. CA-Q-WI-020) uses information generated during the preceding year to assess the “big picture” by ensuring that routine actions taken and reviewed on a monthly basis are not components of larger systematic concerns. The monthly review should keep the quality systems current and effective, therefore, the annual review is a formal senior management process to review specific existing documentation. Significant issues from the following documentation are compiled or summarized by the QA Manager prior to the review meeting:

- Matters arising from the previous annual review.
- Prior Monthly QA Reports issues.
- Laboratory QA Metrics.
- Review of report reissue requests.
- Review of client feedback and complaints.
- Issues arising from any prior management or staff meetings.
- Minutes from prior senior lab management meetings. Issues that may be raised from these meetings include:
    - Adequacy of staff, equipment and facility resources.
    - Adequacy of policies and procedures.
    - Future plans for resources and testing capability and capacity.
- The annual internal double blind PT program sample performance (if performed),
- Compliance to the Ethics Policy and Data Integrity Plan. Including any evidence/incidents of inappropriate actions or vulnerabilities related to data Integrity.

A report is generated by the QA Manager and management. The report is distributed to the appropriate General Manager and the Quality Director. The report includes, but is not limited to:

- The date of the review and the names and titles of participants.
- A reference to the existing data quality related documents and topics that were reviewed.
- Quality system or operational changes or improvements that will be made as a result of the review [e.g., an implementation schedule including assigned responsibilities for the changes (Action Table)].

Changes to the quality systems requiring update to the laboratory QA Manual shall be included in the next revision of the QA Manual.

16.3 Potential Integrity Related Managerial Reviews

Potential integrity issues (data or business related) must be handled and reviewed in a confidential manner until such time as a follow-up evaluation, full investigation, or other appropriate actions have been completed and issues clarified. TestAmerica's Corporate Data Investigation/Recall SOP shall be followed (SOP No. CW-L-S-002) . All investigations that result in finding of inappropriate activity are documented and include any disciplinary actions involved, corrective actions taken, and all appropriate notifications of clients.

TestAmerica's CEO, VP of Quality, Technical & Operations, General Managers and Quality Directors receive a monthly report from the Corporate Quality Director summarizing any current data integrity or data recall investigations. The General Manager's are also made aware of progress on these issues for their specific labs.

SECTION 17. PERSONNEL

17.1 Overview

The laboratory's management believes that its highly qualified and professional staff is the single most important aspect in assuring a high level of data quality and service. The staff consists of professionals and support personnel as outlined in the organization chart in Figure 4-1.

All personnel must demonstrate competence in the areas where they have responsibility. Any staff that is undergoing training shall have appropriate supervision until they have demonstrated their ability to perform their job function on their own. Staff shall be qualified for their tasks based on appropriate education, training, experience and/or demonstrated skills as required.

The laboratory employs sufficient personnel with the necessary education, training, technical knowledge and experience for their assigned responsibilities.

All personnel are responsible for complying with all QA/QC requirements that pertain to the laboratory and their area of responsibility. Each staff member must have a combination of experience and education to adequately demonstrate a specific knowledge of their particular area of responsibility. Technical staff must also have a general knowledge of lab operations, test methods, QA/QC procedures and records management.

Laboratory management is responsible for formulating goals for lab staff with respect to education, training and skills and ensuring that the laboratory has a policy and procedures for identifying training needs and providing training of personnel. The training shall be relevant to the present and anticipated responsibilities of the lab staff.

The laboratory only uses personnel that are employed by or under contract to, the laboratory. Contracted personnel, when used, must meet competency standards of the laboratory and work in accordance to the laboratory's quality system.

17.2 Education and Experience Requirements for Technical Personnel

The laboratory makes every effort to hire analytical staffs that possess a college degree (AA, BA, BS) in an applied science with some chemistry in the curriculum. Exceptions can be made based upon the individual's experience and ability to learn. Selection of qualified candidates for laboratory employment begins with documentation of minimum education, training, and experience prerequisites needed to perform the prescribed task. Minimum education and training requirements for TestAmerica employees are outlined in job descriptions and are generally summarized for analytical staff in the table below.

The laboratory maintains job descriptions for all personnel who manage, perform or verify work affecting the quality of the environmental testing the laboratory performs. Job Descriptions are located on the TestAmerica intranet site's Human Resources web-page (Also see Section 4 for position descriptions/responsibilities).

Experience and specialized training are occasionally accepted in lieu of a college degree (basic lab skills such as using a balance, colony counting, aseptic or quantitation techniques, etc., are also considered).

As a general rule for analytical staff:

Specialty	Education	Experience
Extractions, Digestions, some electrode methods (pH, DO, Redox, etc.), or Titrimetric and Gravimetric Analyses	H.S. Diploma	On the job training (OJT)
GFAA, CVAA, FLAA, Single component or short list Chromatography (e.g., Fuels, BTEX-GC, IC	A college degree in an applied science or 2 years of college and at least 1 year of college chemistry	Or 2 years prior analytical experience is required
ICP, ICPMS, Long List or complex chromatography (e.g., Pesticides, PCB, Herbicides, HPLC, etc.), GCMS	A college degree in an applied science or 2 years of college chemistry	or 5 years of prior analytical experience
Spectra Interpretation	A college degree in an applied science or 2 years of college chemistry	And 2 years relevant experience Or 5 years of prior analytical experience

Specialty	Education	Experience
Department Managers (i.e,Technical Managers) - **General**	Bachelors Degree in an applied science or engineering with 24 semester hours in chemistry An advanced (MS, PhD.) degree may substitute for one year of experience	And 2 years experience in environmental analysis of representative analytes for which they will oversee
Department Managers (i.e,Technical Managers)– **Wet Chem** only (no advanced instrumentation)	Associates degree in an applied science or engineering or 2 years of college with 16 semester hours in chemistry	And 2 years relevant experience

When an analyst does not meet these requirements, they can perform a task under the direct supervision of a qualified analyst, peer reviewer or Department (i.e., Technical) Manager, and are considered an analyst in training. The person supervising an analyst in training is accountable for the quality of the analytical data and must review and approve data and associated corrective actions.

17.3 Training

The laboratory is committed to furthering the professional and technical development of employees at all levels.

Orientation to the laboratory's policies and procedures, in-house method training, and employee attendance at outside training courses and conferences all contribute toward employee proficiency. Below are examples of various areas of required employee training:

Required Training	Time Frame	Employee Type
Environmental Health & Safety	Prior to lab work	All
Ethics – New Hires	1 week of hire	All
Ethics – Comprehensive	90 days of hire	All
Data Integrity	30 days of hire	Technical and PMs
Quality Assurance	90 days of hire	All
Ethics – Comprehensive Refresher	Annually	All
Initial Demonstration of Capability (DOC)	Prior to unsupervised method performance	Technical

The laboratory maintains records of relevant authorization/competence, education, professional qualifications, training, skills and experience of technical personnel (including contracted personnel) as well as the date that approval/authorization was given. These records are kept on file at the laboratory. Also refer to "Demonstration of Capability" in Section 19.

The training of technical staff is kept up to date by:

- Each employee must have documentation in their training file that they have read, understood and agreed to follow the most recent version of the laboratory QA Manual and SOPs in their area of responsibility. This documentation is updated as SOPs are updated.
- Documentation from any training courses or workshops on specific equipment, analytical techniques or other relevant topics are maintained in their training file.
- Documentation of proficiency (refer to Section 19).
- An Ethics Agreement signed by each staff member (renewed each year) and evidence of annual ethics training.
- A Confidentiality Agreement signed by each staff member signed at the time of employment.
- Human Resources maintains documentation and attestation forms on employment status & records; benefit programs; timekeeping/payroll; and employee conduct (e.g., ethics violations). This information is maintained in the employee's secured personnel file.

Further details of the laboratory's training program are described in the Laboratory Training SOP (TestAmerica Edison SOP No. ED-GEN-022).

17.4 Data Integrity and Ethics Training Program

Establishing and maintaining a high ethical standard is an important element of a Quality System. Ethics and data integrity training is integral to the success of TestAmerica and is provided for each employee at TestAmerica. It is a formal part of the initial employee orientation within 1 week of hire followed by technical data integrity training within 30 days, comprehensive training within 90 days, and an annual refresher for all employees. Senior management at each facility performs the ethics training for their staff.

In order to ensure that all personnel understand the importance TestAmerica places on maintaining high ethical standards at all times; TestAmerica has established a Corporate Ethics Policy (Policy No. CW-L-P-004) and an Ethics Statement. All initial and annual training is documented by signature on the signed Ethics Statement demonstrating that the employee has participated in the training and understands their obligations related to ethical behavior and data integrity.

Violations of this Ethics Policy will not be tolerated. Employees who violate this policy will be subject to disciplinary actions up to and including termination. Criminal violations may also be referred to the Government for prosecution. In addition, such actions could jeopardize TestAmerica's ability to do work on Government contracts, and for that reason, TestAmerica has a Zero Tolerance approach to such violations.
Employees are trained as to the legal and environmental repercussions that result from data misrepresentation. Key topics covered in the presentation include:

- Organizational mission and its relationship to the critical need for honesty and full disclosure in all analytical reporting.
- Ethics Policy
- How and when to report ethical/data integrity issues. Confidential reporting.
- Record keeping.
- Discussion regarding data integrity procedures.
- Specific examples of breaches of ethical behavior (e.g. peak shaving, altering data or computer clocks, improper macros, etc., accepting/offering kickbacks, illegal accounting practices, unfair competition/collusion)
- Internal monitoring. Investigations and data recalls.
- Consequences for infractions including potential for immediate termination, debarment, or criminal prosecution.
- Importance of proper written narration / data qualification by the analyst and project manager with respect to those cases where the data may still be usable but are in one sense or another partially deficient.

Additionally, a data integrity hotline (1-800-736-9407) is maintained by TestAmerica and administered by the Corporate Quality Department.

SECTION 18. ACCOMMODATIONS AND ENVIRONMENTAL CONDITIONS

18.1 Overview

The laboratory is a 42,000 ft^2 secure laboratory facility with controlled access and designed to accommodate an efficient workflow and to provide a safe and comfortable work environment for employees. All visitors sign in and are escorted by laboratory personnel. Access is controlled by various measures.

The laboratory is equipped with structural safety features. Each employee is familiar with the location, use, and capabilities of general and specialized safety features associated with their workplace. The laboratory provides and requires the use of protective equipment including safety glasses, protective clothing, gloves, etc., OSHA and other regulatory agency guidelines regarding required amounts of bench and fume hood space, lighting, ventilation (temperature and humidity controlled), access, and safety equipment are met or exceeded.

Traffic flow through sample preparation and analysis areas is minimized to reduce the likelihood of contamination. Adequate floor space and bench top area is provided to allow unencumbered sample preparation and analysis space. Sufficient space is also provided for storage of reagents and media, glassware, and portable equipment. Ample space is also provided for refrigerated sample storage before analysis and archival storage of samples after analysis. Laboratory HVAC and deionized water systems are designed to minimize potential trace contaminants.

The laboratory is separated into specific areas for sample receiving, sample preparation, volatile organic sample analysis, non-volatile organic sample analysis, inorganic sample analysis, and administrative functions.

18.2 Environment

Laboratory accommodation, test areas, energy sources, lighting are adequate to facilitate proper performance of tests. The facility is equipped with heating, ventilation, and air conditioning (HVAC) systems appropriate to the needs of environmental testing performed at this laboratory.

The environment in which these activities are undertaken does not invalidate the results or adversely affect the required accuracy of any measurements.

The laboratory provides for the effective monitoring, control and recording of environmental conditions that may affect the results of environmental tests as required by the relevant specifications, methods, and procedures. Such environmental conditions include humidity and temperature levels in the laboratory (when appropriate).

When any of the method or regulatory required environmental conditions change to a point where they may adversely affect test results, analytical testing will be discontinued until the environmental conditions are returned to the required levels.

Environmental conditions of the facility housing the computer network and LIMS are regulated to protect against raw data loss.

18.3 Work Areas

There is effective separation between neighboring areas when the activities therein are incompatible with each other. Examples include:

- Volatile organic chemical handling areas, including sample preparation and waste disposal, and volatile organic chemical analysis areas.

Access to and use of all areas affecting the quality of analytical testing is defined and controlled by secure access to the laboratory building as described below in the Building Security section.

Adequate measures are taken to ensure good housekeeping in the laboratory and to ensure that any contamination does not adversely affect data quality. These measures include regular cleaning to control dirt and dust within the laboratory. Work areas are available to ensure an unencumbered work area. Work areas include:

- Access and entryways to the laboratory.
- Sample receipt areas.
- Sample storage areas.
- Chemical and waste storage areas.
- Data handling and storage areas.
- Sample processing areas.
- Sample analysis areas.

18.4 Floor Plan

A floor plan can be found in Appendix 1.

18.5 Building Security

Building keys are distributed to employees as necessary.

Visitors to the laboratory sign in and out in a visitor's logbook. A visitor is defined as any person who visits the laboratory who is not an employee of the laboratory. In addition to signing into the laboratory, the Environmental, Health and Safety Manual contains requirements for visitors and vendors. There are specific safety forms that must be reviewed and signed. Visitors (with the exception of company employees) are escorted by laboratory personnel at all times, or the location of the visitor is noted in the visitor's logbook.

SECTION 19. TEST METHODS AND METHOD VALIDATION

19.1 Overview

The laboratory uses methods that are appropriate to meet our clients' requirements and that are within the scope of the laboratory's capabilities. These include sampling, handling, transport, storage and preparation of samples, and, where appropriate, an estimation of the measurement of uncertainty as well as statistical techniques for analysis of environmental data.

Instructions are available in the laboratory for the operation of equipment as well as for the handling and preparation of samples. All instructions, Standard Operating Procedures (SOPs), reference methods and manuals relevant to the working of the laboratory are readily available to all staff. Deviations from published methods are documented (with justification) in the laboratory's approved SOPs. SOPs are submitted to clients for review at their request. Significant deviations from published methods require client approval and regulatory approval where applicable.

19.2 Standard Operating Procedures (SOPS)

The laboratory maintains SOPs that accurately reflect all phases of the laboratory such as assessing data integrity, corrective actions, handling customer complaints as well as all analytical methods and sampling procedures. The method SOPs are derived from the most recently promulgated/approved, published methods and are specifically adapted to the laboratory facility. Modifications or clarifications to published methods are clearly noted in the SOPs. All SOPs are controlled in the laboratory.

- All SOPs contain a revision number, effective date, and appropriate approval signatures. Controlled copies are available to all staff.
- Procedures for writing an SOP are incorporated by reference to TestAmerica's Corporate SOP entitled 'Writing a Standard Operating Procedure', No. CW-Q-S-002.
- SOPs are reviewed at a minimum of every 2 years (annually for Drinking Water and DoD SOPs), and where necessary, revised to ensure continuing suitability and compliance with applicable requirements.

19.3 Laboratory Methods Manual

For each test method, the laboratory shall have available the published referenced method as well as the laboratory developed SOP.

Note: If more stringent standards or requirements are included in a mandated test method or regulation than those specified in this manual, the laboratory shall demonstrate that such requirements are met. If it is not clear which requirements are more stringent, the standard from the method or regulation is to be followed. Any exceptions or deviations from the referenced methods or regulations are noted in the specific analytical SOP.

The laboratory maintains an SOP Index for both technical and non-technical SOPs. Technical SOPs are maintained to describe a specific test method. Non-technical SOPs are maintained to describe functions and processes not related to a specific test method.

19.4 Selection of Methods

Since numerous methods and analytical techniques are available, continued communication between the client and laboratory is imperative to assure the correct methods are utilized. Once client methodology requirements are established, this and other pertinent information is summarized by the Project Manager. These mechanisms ensure that the proper analytical methods are applied when the samples arrive for log-in. For non-routine analytical services (e.g., special matrices, non-routine compound lists), the method of choice is selected based on client needs and available technology. The methods selected should be capable of measuring the specific parameter of interest, in the concentration range of interest, and with the required precision and accuracy.

19.4.1 Sources of Methods

Routine analytical services are performed using standard EPA-approved methodology. In some cases, modification of standard approved methods may be necessary to provide accurate analyses of particularly complex matrices. When the use of specific methods for sample analysis is mandated through project or regulatory requirements, only those methods shall be used.

When clients do not specify the method to be used or methods are not required, the methods used will be clearly validated and documented in an SOP and available to clients and/or the end user of the data.

The analytical methods used by the laboratory are those currently accepted and approved by the U. S. EPA and the state or territory from which the samples were collected. Reference methods include:

- *Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act, and Appendix A-C; 40 CFR Part 136, USEPA Office of Water. Revised as of July 1, 1995, Appendix A to Part 136 - Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater (EPA 600 Series)*
- *Methods for Chemical Analysis of Water and Wastes, EPA 600 (4-79-020), 1983.*

- *Methods for the Determination of Inorganic Substances in Environmental Samples, EPA-600/R-93/100, August 1993.*
- *Methods for the Determination of Metals in Environmental Samples, EPA/600/4-91/010, June 1991. Supplement I: EPA-600/R-94/111, May 1994.*
- *Methods for the Determination of Organic Compounds in Drinking Water, EPA-600/4-88-039, December 1988, Revised, July 1991, Supplement I, EPA-600-4-90-020, July 1990, Supplement II, EPA-600/R-92-129, August 1992. Supplement III EPA/600/R-95/131 - August 1995 (EPA 500 Series) (EPA 500 Series methods)*
- *Technical Notes on Drinking Water Methods, EPA-600/R94-173, October 1994*
- *Statement of Work for Inorganics & Organics Analysis, SOM and ISM, current versions, USEPA Contract Laboratory Program Multi-media, Multi-concentration.*
- *Standard Methods for the Examination of Water and Wastewater, 18th/19th /20th/ on-line edition; Eaton, A.D. Clesceri, L.S. Greenberg, A.E. Eds; American Water Works Association, Water Pollution Control Federation, American Public Health Association: Washington, D.C.*
- *Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846), Third Edition, September 1986, Final Update I, July 1992, Final Update IIA, August 1993, Final Update II, September 1994; Final Update IIB, January 1995; Final Update III, December 1996; Final Update IV, January 2008.*
- *Annual Book of ASTM Standards, American Society for Testing & Materials (ASTM), Philadelphia, PA.*
- *National Status and Trends Program, National Oceanographic and Atmospheric Administration, Volume I-IV, 1985-1994.*
- *Manual for the Certification of Laboratories Analyzing Drinking Water (EPA 815-R-05-004, January 2005)*
- *Code of Federal Regulations (CFR) 40, Parts 136, 141, 172, 173, 178, 179 and 261*

The laboratory reviews updated versions to all the aforementioned references for adaptation based upon capabilities, instrumentation, etc., and implements them as appropriate. As such, the laboratory strives to perform only the latest versions of each approved method as regulations allow or require.

Other reference procedures for non-routine analyses may include methods established by specific states (e.g., Underground Storage Tank methods), ASTM or equipment manufacturers. Sample type, source, and the governing regulatory agency requiring the analysis will determine the method utilized.

The laboratory shall inform the client when a method proposed by the client may be inappropriate or out of date. After the client has been informed, and they wish to proceed contrary to the laboratory's recommendation, it will be documented.

19.4.2 Demonstration of Capability

Before the laboratory may institute a new method and begin reporting results, the laboratory shall confirm that it can properly operate the method. In general, this demonstration does not test the performance of the method in real world samples, but in an applicable and available clean matrix sample. If the method is for the testing of analytes that are not conducive to spiking, demonstration of capability may be performed on quality control samples.

A demonstration of capability (reference TestAmerica Edison Training SOP No. ED-GEN-022) is performed whenever there is a change in instrument type (e.g., new instrumentation), method or personnel (e.g., analyst hasn't performed the test within the last 12 months).

The initial demonstration of capability must be thoroughly documented and approved by the Department Manager (i.e., Technical Manager) and QA Manager prior to independently analyzing client samples. All associated documentation must be retained in accordance with the laboratories archiving procedures.

The laboratory must have an approved SOP, demonstrate satisfactory performance, and conduct an MDL study (when applicable). There may be other requirements as stated within the published method or regulations (i.e., retention time window study).

Note: In some instances, a situation may arise where a client requests that an unusual analyte be reported using a method where this analyte is not normally reported. If the analyte is being reported for regulatory purposes, the method must meet all procedures outlined within this QA Manual (SOP, MDL, and Demonstration of Capability). If the client states that the information is not for regulatory purposes, the result may be reported as long as the following criteria are met:

- The instrument is calibrated for the analyte to be reported using the criteria for the method and ICV/CCV criteria are met (unless an ICV/CCV is not required by the method or criteria are per project DQOs).
- The laboratory's nominal or default reporting limit (RL) is equal to the quantitation limit (QL), must be at or above the lowest non-zero standard in the calibration curve and must be reliably determined. Project RLs are client specified reporting levels which may be higher than the QL. Results reported below the QL must be qualified as estimated values. Also see Section 19.6.1.3, Relationship of Limit of Detection (LOD) to Quantitation Limit (QL).
- The client request is documented and the lab informs the client of its procedure for working with unusual compounds. The final report must be footnoted: *Reporting Limit based on the low standard of the calibration curve.*

19.4.3 <u>Initial Demonstration of Capability (IDOC) Procedures</u>

19.4.3.1 The spiking standard used must be prepared independently from those used in instrument calibration.

19.4.3.2 The analyte(s) shall be diluted in a volume of clean matrix sufficient to prepare four aliquots at the concentration specified by a method or the laboratory SOP.

19.4.3.3 At least four aliquots shall be prepared (including any applicable clean-up procedures) and analyzed according to the test method (either concurrently or over a period of days).

19.4.3.4 Using all of the results, calculate the mean recovery in the appropriate reporting units and the standard deviations for each parameter of interest.

19.4.3.5 When it is not possible to determine the mean and standard deviations, such as for presence, absence and logarithmic values, the laboratory will assess performance against criteria described in the Method SOP.

19.4.3.6 Compare the information obtained above to the corresponding acceptance criteria for precision and accuracy in the test method (if applicable) or in laboratory generated acceptance criteria (LCS or interim criteria) if there is no mandatory criteria established. If any one of the parameters do not meet the acceptance criteria, the performance is unacceptable for that parameter.

19.4.3.7 When one or more of the tested parameters fail at least one of the acceptance criteria, the analyst must proceed according to either option listed below:

- Locate and correct the source of the problem and repeat the test for all parameters of interest beginning with 19.4.3.3 above.
- Beginning with 19.4.3.3 above, repeat the test for all parameters that failed to meet criteria. Repeated failure, however, will confirm a general problem with the measurement system. If this occurs, locate and correct the source of the problem and repeat the test for all compounds of interest beginning with 19.4.3.1 above.

Note: Results of successive LCS analyses can be used to fulfill the DOC requirement.

A certification statement (refer to Figure 19-1 as an example) shall be used to document the completion of each initial demonstration of capability. A copy of the certification is archived in the analyst's training folder.

Methods on line prior to the effective date of this Section shall be updated to the procedures outlined above as new analysts perform their demonstration of capability. A copy of the new record will replace that which was used for documentation in the past. At a minimum, the precision and accuracy of four mid-level laboratory control samples must have been compared to the laboratory's quality control acceptance limits.

19.5 Laboratory Developed Methods and Non-Standard Methods

Any new method developed by the laboratory must be fully defined in an SOP and validated by qualified personnel with adequate resources to perform the method. Method specifications and the relation to client requirements must be clearly conveyed to the client if the method is a non-standard method (not a published or routinely accepted method). The client must also be in agreement to the use of the non-standard method.

19.6 Validation of Methods

Validation is the confirmation by examination and the provision of objective evidence that the particular requirements for a specific intended use are fulfilled.
All non-standard methods, laboratory designed/developed methods, standard methods used outside of their scope, and major modifications to published methods must be validated to confirm they are fit for their intended use. The validation will be as extensive as necessary to meet the needs of the given application. The results are documented with the validation procedure used and contain a statement as to the fitness for use.

19.6.1 Method Validation and Verification Activities for All New Methods

While method validation can take various courses, the following activities can be required as part of method validation. Method validation records are designated QC records and are archived accordingly.

19.6.1.1 Determination of Method Selectivity

Method selectivity is the demonstrated ability to discriminate the analyte(s) of interest from other compounds in the specific matrix or matrices from other analytes or interference. In some cases to achieve the required selectivity for an analyte, a confirmation analysis is required as part of the method.

19.6.1.2 Determination of Method Sensitivity

Sensitivity can be both estimated and demonstrated. Whether a study is required to estimate sensitivity depends on the level of method development required when applying a particular measurement system to a specific set of samples. Where estimations and/or demonstrations of sensitivity are required by regulation or client agreement, such as the procedure in 40 CFR Part 136 Appendix B, under the Clean Water Act, these shall be followed.

19.6.1.3 Relationship of Limit of Detection (LOD) to the Quantitation Limit (QL)

An important characteristic of expression of sensitivity is the difference in the LOD and the QL. The LOD is the minimum level at which the presence of an analyte can be reliably concluded. The QL is the minimum concentration of analyte that can be quantitatively determined with acceptable precision and bias. For most instrumental measurement systems, there is a region where semi-quantitative data is generated around the LOD (both above and below the estimated MDL or LOD) and below the QL. In this region, detection of an analyte may be confirmed but quantification of the analyte is unreliable within the accuracy and precision guidelines of the measurement system. When an analyte is detected below the QL, and the presence of the analyte is confirmed by meeting the qualitative identification criteria for the analyte, the analyte can be reliably reported, but the amount of the analyte can only be estimated. If data is to be reported in this region, it must be done so with a qualification that denotes the semi-quantitative nature of the result.

19.6.1.4 Determination of Interferences

A determination that the method is free from interferences in a blank matrix is performed.

19.6.1.5 Determination of Range

Where appropriate to the method, the quantitation range is determined by comparison of the response of an analyte in a curve to established or targeted criteria. Generally the upper quantitation limit is defined by highest acceptable calibration concentration. The lower quantitation limit or QL cannot be lower than the lowest non-zero calibration level, and can be constrained by required levels of bias and precision.

19.6.1.6 Determination of Accuracy and Precision

Accuracy and precision studies are generally performed using replicate analyses, with a resulting percent recovery and measure of reproducibility (standard deviation, relative standard deviation) calculated and measured against a set of target criteria.

19.6.1.7 Documentation of Method

The method is formally documented in an SOP. If the method is a minor modification of a standard laboratory method that is already documented in an SOP, an SOP Attachment describing the specific differences in the new method is acceptable in place of a separate SOP.

19.6.1.8 Continued Demonstration of Method Performance

Continued demonstration of Method Performance is addressed in the SOP. Continued demonstration of method performance is generally accomplished by batch specific QC samples such as LCS, method blanks or PT samples.

19.7 Method Detection Limits (MDL) / Limits of Detection (LOD)

Method detection limits (MDL) are initially determined in accordance with 40 CFR Part 136, Appendix B or alternatively by other technically acceptable practices that have been accepted by regulators. MDL is also sometimes referred to as Limit of Detection (LOD). The MDL theoretically represents the concentration level for each analyte within a method at which the Analyst is 99% confident that the true value is not zero. The MDL is determined for each analyte initially during the method validation process and updated as required in the analytical methods, whenever there is a significant change in the procedure or equipment, or based on project specific requirements. Generally, the analyst prepares at least seven replicates of solution spiked at one to five times the estimated method detection limit (most often at the lowest standard in the calibration curve) into the applicable matrix with all the analytes of interest. Each of these aliquots is extracted (including any applicable clean-up procedures) and analyzed in the same manner as the samples. Where possible, the seven replicates should be analyzed over 2-4 days to provide a more realistic MDL. [To allow for some flexibility, this low level standard may be analyzed every batch or every week or some other frequency rather than doing the study all at once. In addition, a larger number of data points may be used if the appropriate t-value multiplier is used]

Refer to the Corporate SOP No. CA-Q-S-006 for details on the laboratory's MDL process.

19.8 Instrument Detection Limits (IDL)

The IDL is sometimes used to assess the reasonableness of the MDLs or in some cases required by the analytical method or program requirements. IDLs are most used in metals analyses but may be useful in demonstration of instrument performance in other areas.

IDLs are calculated to determine an instrument's sensitivity independent of any preparation method. IDLs are calculated either using 7 replicate spike analyses, like MDL but without sample preparation, or by the analysis of 10 instrument blanks and calculating 3 x the absolute value of the standard deviation.

If IDL is > than the MDL, it may be used as the reported MDL.

19.9 Verification of Detection and Reporting Limits

Once an MDL is established, it must be verified, on each instrument, by analyzing a quality control sample (prepared as a sample) at no more than 3 times the calculated MDL for single analyte analyses (e.g. most wet chemistry methods, Atomic Absorption, etc.) and no more than 4 times the calculated MDL for multiple analyte methods (e.g. GC, GCMS, ICP, etc.). The analytes must be qualitatively identified. This verification does not apply to methods that are not readily spiked (e.g. pH, turbidity, etc.) or where the lab does not report to the MDL. If the MDL does not verify, then the lab will not report to the MDL, or redevelop their MDL or use the level where qualitative identification is established. MDLs must be verified at least annually.

When the laboratory establishes a quantitation limit, it must be initially verified by the analysis of a low level standard or QC sample at 1-2 times the reporting limit and annually thereafter. The annual requirement is waived for methods that have an annually verified MDL. The laboratory will comply with any regulatory requirements.

19.10 Retention Time Windows

Most organic analyses and some inorganic analyses use chromatography techniques for qualitative and quantitative determinations. For every chromatography analysis or as specific in the reference method, each analyte will have a specific time of elution from the column to the detector. This is known as the analyte's retention time. The variance in the expected time of elution is defined as the retention time window. As the key to analyte identification in chromatography, retention time windows must be established on every column for every analyte used for that method. These records are kept with the files associated with an instrument for later quantitation of the analytes. Complete details are available in the laboratory SOPs.

19.11 Evaluation of Selectivity

The laboratory evaluates selectivity by following the checks within the applicable analytical methods, which include mass spectral tuning, second column confirmation, ICP interelement interference checks, chromatography retention time windows, sample blanks, spectrochemical, atomic absorption or fluorescence profiles, co-precipitation evaluations and specific electrode response factors.

19.12 Estimation of Uncertainty of Measurement

19.12.1 Uncertainty is "a parameter associated with the result of a measurement, that characterizes the dispersion of the values that could reasonably be attributed to the measurand" (as defined by the International Vocabulary of Basic and General Terms in Metrology, ISO Geneva, 1993, ISBN 92-67-10175-1). Knowledge of the uncertainty of a measurement provides additional confidence in a result's validity. Its value accounts for all the factors which could possibly affect the result, such as adequacy of analyte definition, sampling, matrix effects and interferences, climatic conditions, variances in weights, volumes, and standards, analytical procedure, and random variation. Some national accreditation organizations require the use of an "expanded uncertainty": the range within which the value of the measurand is believed to lie within at least a 95% confidence level with the coverage factor k=2.

19.12.2 Uncertainty is not error. Error is a single value, the difference between the true result and the measured result. On environmental samples, the true result is never known. The measurement is the sum of the unknown true value and the unknown error. Unknown error is a combination of systematic error, or bias, and random error. Bias varies predictably, constantly, and independently from the number of measurements. Random error is unpredictable, assumed to be Gaussian in distribution, and reducible by increasing the number of measurements.

19.12.3 The minimum uncertainty associated with results generated by the laboratory can be determined by using the Laboratory Control Sample (LCS) accuracy range for a given analyte. The LCS limits are used to assess the performance of the measurement system since they take into consideration all of the laboratory variables associated with a given test over time (except for variability associated with the sampling and the variability due to matrix effects). The percent recovery of the LCS is compared either to the method-required LCS accuracy limits or to the statistical, historical, in-house LCS accuracy limits.

19.12.4 To calculate the uncertainty for the specific result reported, multiply the result by the decimal of the lower end of the LCS range percent value for the lower end of the uncertainty range, and multiply the result by the decimal of the upper end of the LCS range percent value for the upper end of the uncertainty range. These calculated values represent a 99% confidence level with a coverage factor of k=3. As an example, for a reported result of 1.0 mg/l with an LCS recovery range of 50 to 150%, the estimated uncertainty in the result would be 1.0 +/- 0.5 mg/l.

19.12.5 In the case where a well recognized test method specifies limits to the values of major sources of uncertainty of measurement (e.g., 524.2, 525, etc.) and specifies the form of presentation of calculated results, no further discussion of uncertainty is required.

19.13 Sample Reanalysis Guidelines

Because there is a certain level of uncertainty with any analytical measurement, a sample re-preparation (where appropriate) and subsequent analysis (hereafter referred to as 'reanalysis') may result in either a higher or lower value from an initial sample analysis. There are also variables that may be present (e.g., sample homogeneity, analyte precipitation over time, etc.) that may affect the results of a reanalysis. Based on the above comments, the laboratory will reanalyze samples at a client's request with the following caveats. Note: Client specific Contractual Terms & Conditions for reanalysis protocols may supersede the following items.

- Homogenous samples: If a reanalysis agrees with the original result to within the RPD limits for MS/MSD or Duplicate analyses, or within $\pm$ 1 reporting limit for samples $\leq$ 5x the reporting limit, the original analysis will be reported. At the client's request, both results may be reported on the same report but not on two separate reports.

- If the reanalysis does not agree (as defined above) with the original result, then the laboratory will investigate the discrepancy and reanalyze the sample a third time for confirmation if sufficient sample is available.

- Any potential charges related to reanalysis are discussed in the contract terms and conditions or discussed at the time of the request. The client will typically be charged for reanalysis unless it is determined that the lab was in error.

- Due to the potential for increased variability, reanalysis may not be applicable to Non-homogenous, Encore, and Sodium Bisulfate preserved samples. See the Laboratory Director if unsure.

19.14 Control of Data

The laboratory has policies and procedures in place to ensure the authenticity, integrity, and accuracy of the analytical data generated by the laboratory.

19.14.1 Computer and Electronic Data Related Requirements

The three basic objectives of our computer security procedures and policies are shown below. More detail is outlined in the TestAmerica Corporate IT SOPs and in TestAmerica Edison SOPs No. ED-GEN-001 (Data Management and Handling Procedures) and ED-GEN-002 (Document Control). The laboratory is currently running the TALS LIMS which is a, custom in-house developed LIMS system that has been highly customized to meet the needs of the laboratory. It is referred to as LIMS for the remainder of this section. The LIMS utilizes Microsoft SQL Server which is an industry standard relational database platform. It is referred to as Database for the remainder of this section.

19.14.1.1 **Maintain the Database Integrity:** Assurance that data is reliable and accurate through data verification (review) procedures, password-protecting access, anti-virus protection, data change requirements, as well as an internal LIMS permissions procedure.

- LIMS Database Integrity is achieved through data input validation, internal user controls, and data change requirements.
- Spreadsheets and other software developed in-house must be verified with documentation through hand calculations prior to use. Cells containing calculations must be lock-protected and controlled.
- Instrument hardware and software adjustments are safeguarded through maintenance logs, audit trails and controlled access.

19.14.1.2 **Ensure Information Availability:** Protection against loss of information or service is ensured through scheduled back-ups, stable file server network architecture, secure storage of media, line filter, Uninterruptible Power Supply (UPS), and maintaining older versions of software as revisions are implemented.

19.14.1.3 **Maintain Confidentiality:** Ensure data confidentiality through physical access controls such as password protection or website access approval when electronically transmitting data.

19.14.2 Data Reduction

The complexity of the data reduction depends on the analytical method and the number of discrete operations involved (e.g., extractions, dilutions, instrument readings and concentrations). The analyst calculates the final results from the raw data or uses appropriate computer programs to assist in the calculation of final reportable values.

For manual data entry, e.g., Wet Chemistry, the data is reduced by the analyst and then verified by the Department (Technical) Manager or alternate analyst prior to updating the data in LIMS. The spreadsheets, or any other type of applicable documents, are signed by both the analyst and alternate reviewer to confirm the accuracy of the manual entry(s).

Manual integration of peaks will be documented and reviewed and the raw data will be flagged in accordance with the TestAmerica Corporate SOP No. CA-Q-S-002, *Acceptable Manual Integration Practices*.

Analytical results are reduced to appropriate concentration units specified by the analytical method, taking into account factors such as dilution, sample weight or volume, etc. Blank correction will be applied only when required by the method or per manufacturer's indication; otherwise, it should not be performed. Calculations are independently verified by appropriate laboratory staff. Calculations and data reduction steps for various methods are summarized in the respective analytical SOPs or program requirements.

19.14.2.1 All raw data must be retained in the worklist folder, computer file (if appropriate), and/or runlog. All criteria pertinent to the method must be recorded. The documentation is recorded at the time observations or calculations are made and must be signed or initialed/dated (month/day/year). It must be easily identifiable who performed which tasks if multiple people were involved.

19.14.2.2 In general, concentration results are reported in milligrams per liter (mg/l) or micrograms per liter (µg/l) for liquids and milligrams per kilogram (mg/kg) or micrograms per kilogram (µg/kg) for solids. For values greater than 10,000 mg/l, results can be reported in percent, i.e., 10,000 mg/l = 1**%.** Units are defined in each lab SOP.

19.14.2.3 In reporting, the analyst or the instrument output records the raw data result using values of known certainty plus one uncertain digit. If final calculations are performed external to LIMS, the results should be entered in LIMS with at least three significant figures. In general, results are reported to 2 significant figures on the final report.

19.14.2.4 For those methods that do not have an instrument printout or an instrumental output compatible with the LIMS System, the raw results and dilution factors are entered directly into LIMS by the analyst, and the software calculates the final result for the analytical report. LIMS has a defined significant figure criterion for each analyte.

19.14.2.5 The laboratory strives to import data directly from instruments or calculation spreadsheets to ensure that the reported data are free from transcription and calculation errors. For those analyses with an instrumental output compatible with the LIMS, the raw results and dilution factors are transferred into LIMS electronically after reviewing the quantitation report, and removing unrequested or poor spectrally-matched compounds. The analyst prints a copy of what has been entered to check for errors. This printout and the instrument's printout of calibrations, concentrations, retention times, chromatograms, and mass spectra, if applicable, are retained with the data file. The data file is stored in a monthly folder on the instrument computer; periodically, this file is transferred to the server and, eventually, to a tape file.

19.14.3 Logbook / Worksheet Use Guidelines

Logbooks and worksheets are filled out 'real time' and have enough information on them to trace the events of the applicable analysis/task. (e.g. calibrations, standards, analyst, sample ID, date, time on short holding time tests, temperatures when applicable, calculations are traceable, etc.)

- Corrections are made following the procedures outlined in Section 12.
- Logbooks are controlled by the QA Department. A record is maintained of all logbooks in the lab.
- Unused portions of pages must be "Z"'d out, signed and dated.
- Worksheets are created with the approval of the Department Managers/QA Manager at the facility. The QA Manager controls all worksheets following the procedures in Section 6.

19.14.4 Review / Verification Procedures

Review procedures are out lined in several SOPs (including but not limited to, TestAmerica Edison SOP Nos. ED-GEN-021: Data Review, ED-SPM-001:Login, and ED-RP-001:Reports Production) to ensure that reported data are free from calculation and transcription errors, that QC parameters have been reviewed and evaluated before data is reported. The general review concepts are discussed below, more specific information can be found in the SOPs.

19.14.4.1 The data review process at the laboratory starts at the Sample Control level. Sample Control personnel review chain-of-custody forms and input the sample information and required analyses into a computer LIMS. The Sample Control Supervisor reviews the transaction of the chain-of-custody forms and the inputted information. The Project Managers perform final review of the chain-of-custody forms and inputted information.

19.14.4.2 The next level of data review occurs with the Analysts. As results are generated, analysts review their work to ensure that the results generated meet QC requirements and relevant EPA methodologies. The Analysts transfer the data into the LIMS and add data qualifiers if applicable. To ensure data compliance, a different analyst or Department (Technical) Manager/Supervisor performs a second level of review. Second level review is accomplished by checking reported results against raw data and evaluating the results for accuracy. During the second level review, blank runs, QA/QC check results, initial and continuing calibration results, laboratory control samples, sample data, qualifiers and spike information are evaluated. Where calibration is not required on a daily basis, secondary review of the initial calibration results may be conducted at the time of calibration. Approximately 15% of all sample data from manual methods and from automated methods, all GC/MS spectra and all manual integrations are reviewed. Manual integrations are also electronically reviewed utilizing auditing software to help ensure compliance to ethics and manual integration policies. Issues that deem further review include the following:

- QC data are outside the specified control limits for accuracy and precision
- Reviewed sample data does not match with reported results
- Unusual detection limit changes are observed
- Samples having unusually high results
- Samples exceeding a known regulatory limit
- Raw data indicating some type of contamination or poor technique
- Inconsistent peak integration
- Transcription errors
- Results outside of calibration range

19.14.4.3 Unacceptable analytical results may require reanalysis of the samples. Any problems are brought to the attention of the Laboratory Director, Project Manager, Quality Assurance Manager, Technical Manager, or Supervisor for further investigation. Corrective action is initiated whenever necessary.

19.14.4.4 The results are then entered or directly transferred into the computer database and a hard copy (or .pdf) is printed for the client.

19.14.4.5 As a final review prior to the release of the report, the Project Manager reviews the results for appropriateness and completeness. This review and approval ensures that client requirements have been met and that the final report has been properly completed. The process includes, but is not limited to, verifying that chemical relationships are evaluated, COC is followed, cover letters/ narratives are present, flags are appropriate, and project specific requirements are met.

19.14.4.6 Any project that requires a data package is subject to a tertiary data review for transcription errors and acceptable quality control requirements. The Project Manager then signs the final report. The accounting personnel also check the report for any clerical or invoicing errors. When complete, the report is sent out to the client.

19.14.5 Manual Integrations

Computerized data systems provide the analyst with the ability to re-integrate raw instrument data in order to optimize the interpretation of the data. Though manual integration of data is an invaluable tool for resolving variations in instrument performance and some sample matrix problems, when used improperly, this technique would make unacceptable data appear to meet quality control acceptance limits. Improper re-integrations lead to legally indefensible data, a poor reputation, or possible laboratory decertification. Because guidelines for re-integration of data are not provided in the methods and most methods were written prior to widespread implementation of computerized data systems, the laboratory trains all analytical staff on proper manual integration techniques using TestAmerica's Corporate SOP (CA-Q-S-002).

19.14.5.1 The analyst must adjust baseline or the area of a peak in some situations, for example when two compounds are not adequately resolved or when a peak shoulder needs to be separated from the peak of interest. The analyst must use professional judgment and common sense to determine when manual integrating is required. Analysts are encouraged to ask for assistance from a senior analyst or manager when in doubt.

19.14.5.2 Analysts shall not increase or decrease peak areas for the sole purpose of achieving acceptable QC recoveries that would have otherwise been unacceptable. The intentional recording or reporting of incorrect information (or the intentional omission of correct information) is against company principals and policy and is grounds for immediate termination.

19.14.5.3 Client samples, performance evaluation samples, and quality control samples are all treated equally when determining whether or not a peak area or baseline should be manually adjusted.

19.14.5.4 All manual integrations receive a second level review. Manual integrations must be indicated on an expanded scale "after" chromatograms such that the integration performed can be easily evaluated during data review. Expanded scale "before" chromatograms are also required for all manual integrations on QC parameters (calibrations, calibration verifications, laboratory control samples, internal standards, surrogates, etc.) unless the laboratory has another documented corporate approved procedure in place that can demonstrate an active process for detection and deterrence of improper integration practices.

Figure 19-1. Example - Demonstration of Capability Documentation

DEMONSTRATION OF CAPABILITIY (DOC)

Laboratory Name:____
Laboratory Address:____
Method:___________________________________ Matrix:____________________________
Date:__________________ Analyst(s):____
Source of Analyte(s):____

Analytical Results

Analyst	Conc. (Units)	Rep 1	Rep 2	Rep 3	Rep 4	Avg. % Recovery	% RSD
__________	__________	_____	_____	_____	_____	______________	_______

% RSD = Percent relative standard deviation = standard deviation divided by average % Recovery

Raw data reference: _______________________________

Certification Statement:

We, the undersigned, certify that:
1. The cited test method has met Demonstration of Capability requirements.
2. The test method was performed by the analyst(s) identified on this certification.
3. A copy of the test method and the laboratory-specific SOPs are available for all personnel on site.
4. The data associated with the method demonstration of capability are true, accurate, complete, and self-explanatory.
5. All raw data necessary to reconstruct and validate these analyses have been retained at the facility, and the associated information is well organized and available for review.
6.

_____________________________________ __________
Analyst Signature Date

_____________________________________ __________
Technical Director Signature Date

_____________________________________ __________
Quality Assurance Coordinator Signature Date

SECTION 20. EQUIPMENT and CALIBRATIONS

20.1 Overview

The laboratory purchases the most technically advanced analytical instrumentation for sample analyses. Instrumentation is purchased on the basis of accuracy, dependability, efficiency and sensitivity. Each laboratory is furnished with all items of sampling, preparation, analytical testing and measurement equipment necessary to correctly perform the tests for which the laboratory has capabilities. Each piece of equipment is capable of achieving the required accuracy and complies with specifications relevant to the method being performed. Before being placed into use, the equipment (including sampling equipment) is calibrated and checked to establish that it meets its intended specification. The calibration routines for analytical instruments establish the range of quantitation. Calibration procedures are specified in laboratory SOPs. A list of laboratory instrumentation is presented in Table 20-1. The most current list of laboratory instrumentation can be found in TestAmerica Edison Work Instruction No. ED-WI-002 (Equipment Inventory).

Equipment is only operated by authorized and trained personnel. Manufacturers instructions for equipment use are readily accessible to all appropriate laboratory personnel.

20.2 Preventive Maintenance

The laboratory follows a well-defined maintenance program to ensure proper equipment operation and to prevent the failure of laboratory equipment or instrumentation during use. This program of preventive maintenance helps to avoid delays due to instrument failure.

Routine preventive maintenance procedures and frequency, such as cleaning and replacements, should be performed according to the procedures outlined in the manufacturer's manual. Qualified personnel must also perform maintenance when there is evidence of degradation of peak resolution, a shift in the calibration curve, loss of sensitivity, or failure to continually meet one of the quality control criteria.

Table 20-2 lists examples of scheduled routine maintenance. It is the responsibility of each Technical Manager to ensure that instrument maintenance logs are kept for all equipment in his/her Department. Preventative maintenance procedures may also be outlined in analytical SOPs or instrument manuals. (Note: for some equipment, the log used to monitor performance is also the maintenance log. Multiple pieces of equipment may share the same log as long as it is clear as to which instrument is associated with an entry.)

Instrument maintenance logs are controlled and are used to document instrument problems, instrument repair and maintenance activities. Maintenance logs shall be kept for all major pieces of equipment. Instrument maintenance logs may also be used to specify instrument parameters.

- Documentation must include all major maintenance activities such as contracted preventive maintenance and service and in-house activities such as the replacement of electrical components, lamps, tubing, valves, columns, detectors, cleaning and adjustments.
- Each entry in the instrument log includes the Analyst's initials, the date, a detailed description of the problem (or maintenance needed/scheduled), a detailed explanation of the solution or maintenance performed, and a verification that the equipment is functioning properly (state

what was used to determine a return to control. e.g. CCV run on *'date'* was acceptable, or instrument recalibrated on 'date' with acceptable verification, etc.) must also be documented in the instrument records.

- When maintenance or repair is performed by an outside agency, service receipts detailing the service performed can be affixed into the logbooks adjacent to pages describing the maintenance performed. This stapled in page must be signed across the page entered and the logbook so that it is clear that a page is missing if only half a signature is found in the logbook.

If an instrument requires repair (subjected to overloading or mishandling, gives suspect results, or otherwise has shown to be defective or outside of specified limits) it shall be taken out of operation and tagged as out-of-service or otherwise isolated until such a time as the repairs have been made and the instrument can be demonstrated as operational by calibration and/or verification or other test to demonstrate acceptable performance. The laboratory shall examine the effect of this defect on previous analyses.

In the event of equipment malfunction that cannot be resolved, service shall be obtained from the instrument vendor manufacturer, or qualified service technician, if such a service can be tendered. If on-site service is unavailable, arrangements shall be made to have the instrument shipped back to the manufacturer for repair. Back up instruments, which have been approved, for the analysis shall perform the analysis normally carried out by the malfunctioning instrument. If the back up is not available and the analysis cannot be carried out within the needed timeframe, the samples shall be subcontracted.

If an instrument is sent out for service or transferred to another facility, it must be recalibrated and verified (including new initial MDL study) prior to return to lab operations.

20.3 Support Equipment

This section applies to all devices that may not be the actual test instrument, but are necessary to support laboratory operations. These include but are not limited to: balances, ovens, refrigerators, freezers, incubators, water baths, field sampling devices, temperature measuring devices, thermal/pressure sample preparation devices and volumetric dispensing devices if quantitative results are dependent on their accuracy, as in standard preparation and dispensing or dilution into a specified volume. All raw data records associated with the support equipment are retained to document instrument performance.

20.3.1 Weights and Balances

The accuracy of the balances used in the laboratory is checked every working day, before use. All balances are placed on stable counter tops.

Each balance is checked prior to initial serviceable use with at least two certified ASTM type 1 weights spanning its range of use (weights that have been calibrated to ASTM type 1 weights may also be used for daily verification). ASTM type 1 weights used only for calibration of other weights (and no other purpose) are inspected for corrosion, damage or nicks at least annually and if no damage is observed, they are calibrated at least every 5 years by an outside calibration laboratory. Any weights (including ASTM Type 1) used for daily balance checks or other purposes are recalibrated/recertified annually to NIST standards (this may be done internally if laboratory maintains “calibration only” ASTM type 1 weights).

All balances are serviced annually by a qualified service representative, who supplies the laboratory with a certificate that identifies traceability of the calibration to the NIST standards.

All of this information is recorded in logs, and the recalibration/recertification certificates are kept on file.

20.3.2 pH, Conductivity, and Turbidity Meters

The pH meters used in the laboratory are accurate to $\pm$ 0.1 pH units, and have a scale readability of at least 0.05 pH units. The meters automatically compensate for the temperature, and are calibrated with at least two working range buffer solutions before each use.

Conductivity meters are also calibrated before each use with a known standard to demonstrate the meters do not exceed an error of 1% or one umhos/cm.

Turbidity meters are also calibrated before each use. All of this information is documented in logs.

Consult pH and Conductivity, and Turbidity SOPs for further information.

20.3.3 Thermometers

All thermometers are calibrated on an annual basis with a NIST-traceable thermometer at temperatures bracketing the range of use. IR thermometers, digital probes and thermocouples are calibrated quarterly. IR Thermometers should be calibrated over the full range of use, including ambient, iced (4 degrees C) and frozen (0 to -5 degrees C), per the Drinking Water Manual.

The mercury NIST thermometer is recalibrated every five years (unless thermometer has been exposed to temperature extremes or apparent separation of internal liquid) by an approved outside service and the provided certificate of traceability is kept on file. The NIST thermometer(s) have increments of 1 degree (0.5 degree or less increments are required for drinking water microbiological laboratories), and have ranges applicable to method and certification requirements. The NIST traceable thermometer is used for no other purpose than to calibrate other thermometers.

All of this information is documented in logbooks. Monitoring method-specific temperatures, including incubators, heating blocks, water baths, and ovens, is documented in method-specific logbooks. More information on this subject can be found in the laboratory SOP No. ED-GEN-014 (Thermometer Calibration***).***

20.3.4 Refrigerators/Freezer Units, Waterbaths, Ovens and Incubators

The temperatures of all refrigerator units and freezers used for sample and standard storage are monitored each working day.

Ovens, waterbaths and incubators are monitored on days of use.

All of this equipment has a unique identification number, and is assigned a unique thermometer for monitoring.

Sample storage refrigerator temperatures are kept between > 0ºC and $\leq$ 6 ºC.

Specific temperature settings/ranges for other refrigerators, ovens waterbaths, and incubators can be found in method specific SOPs.

All of this information is documented in Daily Temperature Logbooks and method-specific logbooks.

20.3.5 Autopipettors, Dilutors, and Syringes

Mechanical volumetric dispensing devices including burettes (except Class A Glassware) are given unique identification numbers and the delivery volumes are verified gravimetrically, at a minimum, on a quarterly basis.

For those dispensers that are not used for analytical measurements, a label is / can be applied to the device stating that it is not calibrated. Any device not regularly verified can not be used for any quantitative measurements. Refer to TestAmerica Edison SOP No. ED-GEN-011 (Calibration and Use of Lab Pipettes).

Micro-syringes are purchased from Hamilton Company. Each syringe is traceable to NIST. The laboratory keeps on file an “Accuracy and Precision Statement of Conformance” from Hamilton attesting established accuracy.

20.3.6 Autoclaves

The laboratory utilizes autoclaves in the sample preparation step for certain mercury analysis procedures. These autoclaves have direct reading temperature and pressure gauges. These gauges are checked for accuracy on an annual basis.

20.3.7 Field Sampling Devices (Isco Auto Samplers)

Each Auto Sampler (ISCO) is assigned a unique identification number in order to keep track of the calibration. This number is also recorded on the sampling documentation.

The Auto Sampler is calibrated as needed based on manufacturers recommendations.

20.4 Instrument Calibrations

Calibration of analytical instrumentation is essential to the production of quality data. Strict calibration procedures are followed for each method. These procedures are designed to determine and document the method detection limits, the working range of the analytical instrumentation and any fluctuations that may occur from day to day.

Sufficient raw data records are retained to allow an outside party to reconstruct all facets of the initial calibration. Records contain, but are not limited to, the following: calibration date, method, instrument, analyst(s) initials or signatures, analysis date, analytes, concentration, response, type of calibration (Avg RF, curve, or other calculations that may be used to reduce instrument responses to concentration.)

Sample results must be quantitated from the initial calibration and may not be quantitated from any continuing instrument calibration verification unless otherwise required by regulation, method or program.

If the initial calibration results are outside of the acceptance criteria, corrective action is performed and any affected samples are reanalyzed if possible. If the reanalysis is not possible, any data associated with an unacceptable initial calibration will be reported with appropriate data qualifiers (refer to Section 12).

Note: Instruments are calibrated initially and as needed after that and at least annually.

20.4.1 Calibration Standards

Calibration standards are prepared using the procedures indicated in the Reagents and Standards section of the determinative method SOP. If a reference method does not specify the number of calibration standards, a minimum of 3 calibration points (exception being ICP and ICP/MS methods) will be used.

Standards for instrument calibration are obtained from a variety of sources. All standards are traceable to national or international standards of measurement, or to national or international standard reference materials.

The lowest concentration calibration standard that is analyzed during an initial calibration must be at or below the stated reporting limit for the method based on the final volume of extract (or sample).

The other concentrations define the working range of the instrument/method or correspond to the expected range of concentrations found in actual samples that are also within the working range of the instrument/method. Results of samples not bracketed by initial instrument calibration standards (within calibration range to at least the same number of significant figures used to report the data) must be reported as having less certainty, e.g., defined qualifiers or flags (additional information may be included in the case narrative). The exception to these rules is ICP methods or other methods where the referenced method does not specify two or more standards.

All initial calibrations are verified with a standard obtained from a second source and traceable to a national standard, when available (or vendor certified different lot if a second source is not available). For unique situations, such as air analysis where no other source or lot is available, a standard made by a different analyst at a different time or a different preparation would be considered a second source. This verification occurs immediately after the calibration curve has been analyzed, and before the analysis of any samples.

20.4.1.1 Calibration Verification

The calibration relationship established during the initial calibration must be verified initially and at least daily as specified in the laboratory method SOPs in accordance with the referenced analytical methods and in the 2009 TNI Standard. The process of calibration verification applies to both external standard and internal standard calibration techniques, as well as to linear and non-linear calibration models. Initial calibration verification is with a standard source secondary (second source standard) to the calibration standards, but continuing calibration verifications may use the same source standards as the calibration curve.

Note: The process of calibration verification referred to here is fundamentally different from the approach called "calibration" in some methods. As described in those methods, the calibration factors or response factors calculated during calibration are used to update the calibration factors or response factors used for sample quantitation. This approach, while employed in other EPA programs, amounts to a daily single-point calibration.

All target analytes and surrogates, including those reported as non-detects, must be included in periodic calibration verifications for purposes of retention time confirmation and to demonstrate that calibration verification criteria are being met, i.e., RPD, per 2009 TNI Std. EL-V1M4 Sec. 1.7.2.

All samples must be bracketed by periodic analyses of standards that meet the QC acceptance criteria (e.g., calibration and retention time). The frequency is found in the determinative methods or SOPs.

Note: If an internal standard calibration is being used (basically GCMS) then bracketing standards are not required, only daily verifications are needed. The results from these verification standards must meet the calibration verification criteria and the retention time criteria (if applicable).

Generally, the initial calibrations must be verified at the beginning of each 12-hour analytical shift during which samples are analyzed. (Some methods may specify more or less frequent verifications). The 12-hour analytical shift begins with the injection of the calibration verification standard (or the MS tuning standard in MS methods). The shift ends after the completion of the analysis of the last sample, QC, or standard that can be injected within 12 hours of the beginning of the shift.

A continuing instrument calibration verification (CCV) must be repeated at the beginning and, for methods that have quantitation by external calibration models, at the end of each analytical batch. Some methods have more frequent CCV requirements see specific SOPs. Most Inorganic methods require the CCV to be analyzed after ever 10 samples or injections, including matrix or batch QC samples.

Note: If an internal standard calibration is being used (basically GCMS) then bracketing standards are not required, only daily verifications are needed. The results from these verification standards must meet the calibration verification criteria and the retention time criteria (if applicable).

If the results of a CCV are outside the established acceptance criteria and analysis of a second consecutive (and immediate) CCV fails to produce results within acceptance criteria, corrective action shall be performed. Once corrective actions have been completed & documented, the laboratory shall demonstrate acceptable instrument / method performance by analyzing two consecutive CCVs, or a new initial instrument calibration shall be performed.

Sample analyses and reporting of data may not occur or continue until the analytical system is calibrated or calibration verified. However, data associated with an unacceptable calibration verification may be fully useable under the following special conditions:

a). when the acceptance criteria for the CCV are exceeded high (i.e., high bias) and the associated samples within the batch are non-detects, then those non-detects may be reported with a footnote or case narrative explaining the high bias. Otherwise the samples affected by the unacceptable CCV shall be re-analyzed after a new calibration curve has been established, evaluated and accepted; or

b). when the acceptance criteria for the CCV are exceeded low (i.e., low bias), those sample results may be reported if they exceed a maximum regulatory limit/decision level. Otherwise the samples affected by the unacceptable CCV shall be re-analyzed after a new calibration curve has been established, evaluated and accepted.

Samples reported by the 2 conditions identified above will be appropriately flagged.

20.4.1.2 <u>Verification of Linear and Non-Linear Calibrations</u>

Calibration verification for calibrations involves the calculation of the percent drift or the percent difference of the instrument response between the initial calibration and each subsequent analysis of the verification standard. (These calculations are available in the laboratory method SOPs. Verification standards are evaluated based on the % Difference from the average CF or RF of the initial calibration or based on % Drift or % Recovery if a linear or quadratic curve is used.

Regardless of whether a linear or non-linear calibration model is used, if initial verification criterion is not met, then no sample analyses may take place until the calibration has been verified or a new initial calibration is performed that meets the specifications listed in the method SOPs. If the calibration cannot be verified after the analysis of a single verification standard, then adjust the instrument operating conditions and/or perform instrument maintenance, and analyze another aliquot of the verification standard. If the calibration cannot be verified with the second standard, then a new initial calibration is performed.

- When the acceptance criteria for the calibration verification are exceeded high, i.e., high bias, and there are associated samples that are non-detects, then those non-detects may be reported. Otherwise, the samples affected by the unacceptable calibration verification shall be reanalyzed after a new calibration curve has been established, evaluated and acepted.

- When the acceptance criteria for the calibration verification are exceeded low, i.e., low bias, those sample results may be reported if they exceed a maximum regulatory limit/decision level. Otherwise, the samples affected by the unacceptable verification shall be reanalyzed after a new calibration curve has been established, evaluated and accepted. Alternatively, a reporting limit standard may be analyzed to demonstrate that the laboratory can still support non-detects at their reporting limit.

20.5 Tentatively Identified Compounds (TICs) – GC/MS Analysis

For samples containing components not associated with the calibration standards, a library search may be made for the purpose of tentative identification. The necessity to perform this type of identification will be determined by the purpose of the analyses being conducted. Data system library search routines should not use normalization routines that would misrepresent the library or unknown spectra when compared to each other.

Note: If the TIC compound is not part of the client target analyte list but is calibrated by the laboratory and is both qualitatively and/or quantitatively identifiable, it should not be reported as a TIC. If the compound is reported on the same form as true TICs, it should be qualified and/or narrated that the reported compound is qualitatively and quantitatively (if verification in control) reported compared to a known standard that is in control (where applicable).

For example, the RCRA permit or waste delisting requirements may require the reporting of non-target analytes. Only after visual comparison of sample spectra with the nearest library searches may the analyst assign a tentative identification.

20.6 GC/MS Tuning

Prior to any GCMS analytical sequence, including calibration, the instrument parameters for the tune and subsequent sample analyses within that sequence must be set.

Prior to tuning/auto-tuning the mass spec, the parameters may be adjusted within the specifications set by the manufacturer or the analytical method. These generally don't need any adjustment but it may be required based on the current instrument performance. If the tune verification does not pass it may be necessary to clean the source or perform additional maintenance. Any maintenance is documented in the maintenance log.

Table 20-1. Example: Instrumentation List

Instrument Type	Manufacturer	Model	Purchase Date	Install Date	Autosampler	Method Performed
METALS ICP	Thermo Jarrell Ash (4) S/N: ICP-20073407	ICAP 6500 Duo View	2007	Feb 09	Yes	6010B, 200.7, CLP
ICP	Thermo Jarrell Ash (5) S/N: IC5D20121709	ICAP 6500 Duo View	2012	2012	Yes	6010B, 200.7, CLP
ICP-MS ICPMS1 Heat Exchanger Autosampler	Agilent Technologies 7500ce S/N JP51201560 PolyScience Agilent TechnologiesG1879B S/N G57335 Cetac S/N 120536A520	G3272A 3370 ASX520	2006	May06	Yes	6020, 200.8
ICP-MS ICPMS2 Heat Exchanger Autosampler	Agilent Technologies 7500ce S/N JP82802644 Agilent Technologies G1879B S/N 108500855 Cetac ASX-500 S/N US0808108A520	G3272B 3370 G3286A	2010	June 2010	Yes	6020, 200.8
Mercury Analyzer	Leeman Labs (3) S/N HA-3010	Hydra AA	2003	Jan04	Yes	**OUT OF SERVICE (off site for repairs, 7/11/13)**
	Leeman Labs (5) S/N HA-8016	Hydra AA	2004	Jun04	Yes	7471A, 7470, 245.1 CLP
	Leeman Labs (4) S/N 2008 112-00064-1	Hydra AA	2013	June 2013	Yes	**OUT OF SERVICE (off site for repairs, 7/11/13)**
Hotblock 1	Environmental Express Limited S/N 2772CEC1378	SC154	2003	2003	No	3050B, CLP
Hotblock 2	Environmental Express Limited S/N 2391CEC1273	SC154	2004	2004	No	3050B, CLP
Hotblock 3	Environmental Express Limited S/N 4298CEC2048	SC150	2004	2004	No	200.7, 3010A, 200.8, CLP
Hotblock 4	Environmental Express Limited S/N 4507CEC2115	SC150	2006	2006	No	200.7, 3010A, 200.8, CLP
Hotblock 5	Environmental Express Limited S/N 4667CEC2183	SC150	2006	2006	No	200.7, 3010A, 200.8, CLP
Hotblock 6	Environmental Express Limited S/N 4667CEC2183	SC150	2006	2006	No	200.7, 3010A, 200.8, CLP
Hotblock 7	Environmental Express Limited S/N 2772CDC1378	SC150	2006	2006	No	200.7, 3010A, 200.8, CLP
Balance # 35	Acculab 18255989		2005	2005	No	3050B, CLP

Instrument Type	Manufacturer	Model	Purchase Date	Install Date	Autosampler	Method Performed
Balance # 33	Ohaus F0461200521139		2001	2001	No	7471A
GC/MS Semivolatiles (BNAMS2/GC) GC MS Tower Tray Controller	Hewlett-Packard S/N 2618A07933 S/N 3234A04110 S/N 2704A08901 S/N 2718A08680 S/N 2607A02892	5971 7673A	1986	1986	Yes	**OUT OF SERVICE**
(BNAMS4/GC) GC MS Tower Tray Controller	Hewlett-Packard S/N 3108A34490 S/N 3114A02077 S/N 2546A02861 S/N 2942A20598 S/N 2803A11211	 5971A 7673A	1986	1986	Yes	8270C, 625, CLP
(BNAMS5/GC) GC MS Tower Tray Controller	Agilent Technologies S/N CN10726100 S/N US35120328 S/N CN72441261 S/N CN40427800 S/N CN40427800	 5890II 5975C 7890A	2007	2007	Yes	8270C, 625, CLP
(BNAMS6/GC) GC MS Tower Tray Controller	Hewlett-Packard S/N 3336A54722 S/N 3234A04274 S/N 2843A13155 S/N 2933A11253 S/N 3018A21811	 7890 5971 7673	1990	1990	Yes	8270C, 625, CLP
(BNAMS9/GC) GC MS Tower Tray Controller	Agilent Technologies S/N CN10349071 S/N US35120328 S/N CN35134357 S/N CN40427800 S/N CN40427800	 5890II 5973 7683	2004	2004	Yes	8270C, 625, CLP
(BNAMS10/GC) GC MS Tower Tray Controller	Agilent Technologies S/N CN10403063 S/N US35120373 S/N CN40334758 S/N CN40327770 S/N CN40327770	 6890A 5973 7683	2004	2004	Yes	8270C, 625, CLP
(BNAMS11/GC) GC MS Tower Tray Controller	Agilent Technologies S/N CN10727109 S/N US71236621 S/N CN35134357 S/N CN72441255	 7890A 5975C	2007	2007	Yes	8270C, 625, CLP

Instrument Type	Manufacturer	Model	Purchase Date	Install Date	Autosampler	Method Performed
(BNAMS12/GC) GC MS Tower Tray Controller	Agilent Technologies S/N CN10531011 S/N US52420834 S/N CN61732705 S/N CN50932320	 6890A 5975C	Unknown (xfr from CT lab)	2012	Yes	Pending Performance Evaluation: 8270, 625, CLP
(BNAMS13/GC) GC MS Tower Tray Controller	Agilent Technologies S/N CN10529024 S/N US52430481 S/N CN53427241 S/N CN1739524	 6890A 5975C	Unknown (xfr from CT lab)	2012	Yes	Pending Performance Evaluation: 8270, 625, CLP
(BNAMS14/GC) GC MS Tower Tray Controller	Agilent Technologies S/N CN10402079 S/N US35110172 S/N CN34433497 S/N CN40327583	 6890A 5973	Unknown (xfr from KOP lab)	2012	Yes	Pending Performance Evaluation: 8270, 625, CLP
BNAGC2 GC Tower 1 Tower 2 Tray Controller	Hewlett-Packard S/N 3336A55994 S/N 3004A20530 S/N 3613A21129 S/N 3021A21938 S/N 3244A30371	 5890 II 7673	1986	1986	Yes	**OUT OF SERVICE**
BNAGC8 GC Tower 1 Tray Controller	Hewlett-Packard S/N 3121A35833 S/N 2704805765 S/N 3131A25914 S/N 2921A03449	 5890 7673A	1986	1986	Yes	Screen
Manifold Gases	 Western Enterprise 28452	 Innovator HBAC2-5-4	10/29/04	11/1/04	No	

Instrument Type	Manufacturer	Model	Purchase Date	Install Date	Autosampler	Method Performed
GC/MS Volatiles					Yes	8260, 624, CLP, 524.2
	Agilent	5975	Feb06	Jul06		
VOAMS1	S/N US60532504					
	Agilent	6890N	Feb06	Jul06		
GC	S/N CN10606023					
	OI	4551A	Feb06	Jul06		
Autosampler	S/N D60345B194					
	OI	4660	Feb06	Jul06		
Concentrator	S/N D608466853					
	OI	SAM	Feb06	Jul06		
Spiker	S/N E610475713					
VOAMS2	Hewlett-Packard	5975C	2008	2008	Yes	8260, 624, CLP,
	S/N US80838709					
GC	Hewlett-Packard	7890A	2008	2008		
	S/N CN10813013					
Autosampler	OI	4552	2008	2008		
	S/N 14608					
Concentrator	OI	Eclipse 4660	2008	2008		
	S/N D607466340P					
VOAMS3	Agilent	5973inert	Feb04	Aug04	Yes	8260B, 624, CLP, 524.2
	S/N US35120382					
GC	Agilent	6890N	Feb04	Aug04		
	S/N CN10406105					
Autosampler	EST	Centurion	Jun04	Aug04		
	S/N CENT140051304					
Concentrator A	EST	Encon	May04	Aug04		
	S/N 367060704					
Concentrator B	EST	Encon	May04	Aug04		
	S/N 368060704					
VOAMS4	Hewlett-Packard	5975C	2008	2008	Yes	8260, 624, CLP,
	S/N US80838712					
GC	Hewlett-Packard	7890A	2008	2008		
	S/N CN10813014					
Autosampler 1	Archon	Archon	2008	2008		
	S/N 15264					
	OI					
Concentrator	S/N D809466076	4660	2008	2008		
VOAMS5	Agilent	5973	2005	2012	Yes	8260, 624
	S/N US44621422					
GC	Agilent	6890	2005	2012		
	S/N US01058019					
Autosampler	Archon	8100	2005	2012		
	S/N 14400					
Concentrator	EST	Encon	2005	2012		
	S/N 425042704					

Instrument Type	Manufacturer	Model	Purchase Date	Install Date	Autosampler	Method Performed
VOAMS6	Agilent VOAMS6 S/N US35120322	5973inert	Feb04	Apr04	Yes	624, 524.2, CLP
GC	Agilent S/N CN10406076	6890N	Feb04	Apr04		
Autosampler	OI S/N D54645B461	4551A	Nov05	Dec05		
Concentrator	OI S/N D548466579	4660	Nov05	Dec05		
Spiker	OI S/N C425475656	SAM	Jun04	Jul04		
VOAMS7	Agilent S/N US43110514	5973inert	Oct 04	Nov 04	Yes	624, 524.2,8260 CLP
GC	Agilent S/N CN10437064	6890N	Oct 04	May 06		
Autosampler	Teledyne Tekmar S/N US08121007	Solatek	Tekmar swap	May 08		
Concentrator	Teledyne Tekmar S/N US08007007	Stratum	Tekmar swap	May 08		
VOAMS8	Agilent S/N US91411758	5973	Unknown (KOP acquisition)	March 2013	Yes	8260B, 624, 524.2
GC	Agilent S/N US00028879	6890	" "	March 2013		
Autosampler	Archon S/N 14352	Archon	" "	March 2013		
Concentrator	Tekmar-Dohrmann S/N USS02247018	3100 OEL	" "	March 2013		
VOAMS9	Agilent S/N US44610847	5973	2005	2012	Yes	624, 524.2,8260 CLP
GC	Agilent S/N CN10517107	6890	2005	2012		
Autosampler	OI S/N15266	4552	2005	2012		
Concentrator	OI S/N D548466579P	4660	2005	2012		
VOAMS10	Hewlett-Packard S/N US10461695	5973	Unknown (KOP acquisition)	March 2013	Yes	8260B, 624, 524.2
GC	Hewlett-Packard S/N CN10419047	6890	" "	March 2013		
Autosampler	Aquatek 70 S/N 94312017	70	" "	March 2013		
Concentrator	Tekmar S/NUS02249002	14-3100	" "	March 2013		

Instrument Type	Manufacturer	Model	Purchase Date	Install Date	Autosampler	Method Performed
VOAMS11	Agilent S/N US30965664	5973N	Jun03	Jul03	Yes	8260B, 62, CLP, 524.2
GC	Agilent S/N CN10324011	6890N	Jun03	Jul03		
Autosampler	EST Archon S/N 13970	5100A	Jun03	Jul03		
Concentrator	EST S/N 279061703	Encon	Jun03	Jul03		
VOAMS12	Agilent S/N US43110519	5973inert	Oct04	Nov04	Yes	8260, 624, CLP, 524.2
GC	Agilent S/N CN10439051	6890N	Oct04	Jun05		
Autosampler	EST S/N 14448	Archon 5100A	May05	Jun05		
Concentrator	EST S/N 430051605	Encon	May05	Jun05		
Turbo Pump Upgrade	Agilent S/N 56115832	Performance	Jun05	Jun05		
VOAMS13	Agilent S/N US43110517	5973inert	Oct04	Nov04	Yes	8260, 624, CLP, 524.2
GC	Agilent S/N CN10439052	6890N	Oct04	Jun05		
Autosampler	EST S/N 14449	Archon 5100A	May05	Jun05		
Concentrator	EST S/N 431051605	Encon	May05	Jun05		
Turbo Pump Upgrade	Agilent S/N 56069171	Performance	Jun05	Jun05		

Instrument Type	Manufacturer	Model	Purchase Date	Install Date	Autosampler	Method Performed
Balance #22	Mettler 2115517886	PB1501	1997	1997	No	8260, 8015 GRO
Balance #50	Ohaus 1125573353	Explorer Pro	2006	2006	No	8260, 8015 GRO
Balance #32	Denver Instruments 126008			2011	No	8260, 8015 GRO
Oven Drying	Fisher Isotemp Oven 502N0045	13-246-516G	2/15/2005	3/3/2005	N0	
Oven Drying	Baxter 199012	DX-31	2000	2000	No	
GC Volatiles					Yes	8015B (GRO)
GC1	Agilent S/N US10610006	6890N	Mar06	May06		
Autosampler	Archon S/N 14491	8100	2005	2013		
Concentrator	EST S/N 356042604	Encon	2004	2013		
SCREEN 5/6 GC	Hewlett-Packard S/N 2921A23492	5890II	1993	1993	Yes	Screening/3810
Autosampler 1	Tekmar S/N US04156005	7050	Jun04	Jul04		
Headspace 1	Tekmar S/N US04156003	7000	Jun04	Jul04		
Autosampler 2	Tekmar S/N US04148014	7050	Jun04	Jul04		
Headspace 2	Tekmar S/N US04163001	7000	Jun04	Jul04		
GC3	Hewlett-Packard S/N 3310A49242	5890II	1996	1996	Yes	8015B (GRO)
PID	OI S/N 91-I107	4430	1996	1996		
Autosampler	Dynatech Archon S/N 11780-795	5100	1996	1996		
Concnetrator	OI S/N J437460274	4560	1996	1996		

Instrument Type	Manufacturer	Model	Purchase Date	Install Date	Autosampler	Method Performed
SCREEN 1/2 GC	Hewlett-Packard	5890 II	1989	1989	Yes	**OUT OF SERVICE**
	S/N 2950A29246					
Autosampler 1	Tekmar	7050	1989	1989		
	S/N 91025014					
Headspace 1	Tekmar	7000	1989	1989		
	S/N 91163066					
Autosampler 2	Tekmar	7050	1989	1989		
	S/N 91168012					
Headspace 2	Tekmar	7000	1989	1989		
	S/N 90255003					
SCREEN 3/4 GC	Hewlett-Packard	5890	1998	1998	Yes	Screening/3810
	S/N 2908A21857					
Autosampler 1	Tekmar	7050	1998	1998		
	S/N 91346013					
Headspace 1	Tekmar	7000	1998	1998		
	S/N 91339015					
Autosampler 2	Tekmar	7050	1998	1998		
	S/N 90256011					
Headspace 2	Tekmar	7000	1998	1998		
	S/N 91025010					
H-Nu PID	H-nu Systems	PI101	1989	1989	No	Headspace Screening
	S/N 801023					
Hood					No	
Ductless Fume	Air Science					
	P41007	PurAir15	Oct04	Nov04		
GC Semivolatiles	Agilent Technologies		2003	2005	Yes	NJDEP-OQA-QAM-025
BNAGC1	S/N US10248079	6890N				
GC Network	S/N CN24428026	G2613A				
Injector Module	S/N CN24322270	G2614A				
Tray						
	Agilent Technologies		2010	2012 (transferred from KOP lab)	Yes	8015B DRO/NJDEP EPH/ QAM-025
BNAGC2	S/N US00005410	6890N				
GC Network	S/N CN759A2046	7683B				
Injector Module	S/N CN82949935	7683				
Tray						
BNAGC 3	Agilent Technologies		Unkown (No. Canton)	2010 (transferred from Houma, LA)	Yes	8015B DRO/Fingerprints QAM-025
GC Network	S/N US10202132	6890N				
Tower	S/N US00210996	7683				
Tray	S/N US92005328	G2614A				
BNAGC4	Agilent Technologies		Feb06	Apr06	Yes	NJDEP EPH/ CT ETPH
GC Network	S/N US10610005	6890N				
Injector Module 1	S/N CN43820808	G2913A				
Injector Module 2	S/N CN43820804	G2914A				
Tray	S/N CN43830663	G2614A				

Instrument Type	Manufacturer	Model	Purchase Date	Install Date	Autosampler	Method Performed
Ion chromatograph Pump #1 IC Detector IC Interface Separation Center IC Compact Interface Liquid Handling Unit Filtration Sample Processor	Metrohm Peak, Inc. S/N 1818011003121 S/N 1818001003195 S/N 1830002003151 S/N 827303166820 S/N 1771011009124 S/N 827302166833 S/N 827306118788	 818 819 830 820 771 833 788	Transferred from TestAmerica Watertown April 2012	April 2012	Yes	Anions by 300.0
Pest/PCB GC1 GC Mainframe Injector Module Controller Tray	 Hewlett-Packard S/N 2612A07669 S/N CN22321930 S/N CN00005085 S/N US72101578	 5890A G1513A G1512A 18596C	1992	1992	Yes	8081, CLP
GC3 Series II GC Injector Module Controller Tray	Hewlett-Packard S/N 3223A42873 S/N 3228A31372 S/N 3049A23890 S/N 3202A27453	 5890A 18593B 18594B 18596B	1992	1992	Yes	Herbicides
GC4 Series II Plus GC Injector Module Controller Tray	Hewlett-Packard S/N 336A54563 S/N 3013A22344 S/N 3227A29129 S/N 3624A42191	 5890A 18593B 18594B 18596B	1997	1997	Yes	8081
GC5 GC Network Injector Module Tray	Agilent Technologies S/N US10226033 S/N CN22025340 S/N CN21420543	 6890N G2613A G2614A	2002	2002	Yes	8081
GC6 GC Mainframe Injector Module Controller Tray	Hewlett-Packard S/N 2950A26642 S/N CN13420438 S/N CN00004777 S/N US20407961	 5890A G1513A G1512A 18596C	1998	1998	Yes	608
GC7 GC Mainframe Injector Module Controller Tray	Hewlett-Packard S/N 3029A29927 S/N C11144007141 S/N 626059 S/N C11154103504	 5890A 18593A 18594A 18596A	1998	1998	Yes	8082
GC8 GC Plus Injector Module Controller Tray	Agilent Technologies S/N US00004463 S/N CN15221154 S/N 3631A05939 S/N 3050A23572	 6890 G1513A G1512A 18596C	2000	2000	Yes	8082

Instrument Type	Manufacturer	Model	Purchase Date	Install Date	Autosampler	Method Performed
GC9 GC Plus Injector Module Controller Tray	Agilent Technologies S/N US00043694 S/N CN13420437 S/N CN00004150 S/N US13807350	 6890 G1513A G1512A 18596C	2001	2001	Yes	8082
GC11 GC Plus Injector Module Controller Tray	Agilent Technologies S/N US00008746 S/N US64600228 S/N US72202100 S/N US22408138	 6890 G2513A G2512A 18596C	2003	2003	Yes	CLP
GCx GC Plus	Agilent Technologies S/N US00024529	6890			No	**OUT OF SERVICE** (dual ECD) Transfer from another TestAmerica lab.
GCxx GC Plus Injector Module Controller	Agilent Technologies S/N 3140A38803 CN13420438	 5890A 6890			Yes	**OUT OF SERVICE** (dual ECD) Transfer from another TestAmerica lab.
WET CHEMISTRY						
Spectrophotometer	HACH S/N 1205122	DR2800	2007	2007	No	365.2, 7196A, 353.2, 410.4
Spectrophotometer	HACH S/N 1204684	DR2800	2007	2007	No	365.2, 7196A, 353.2, 410.4
Spectrophotometer	HACH S/N 11204422	DR2800	2007	2013	No	7196A, USGS
UV-Vis Spectrophotometer	Thermo S/N 2D5J13001	Genesys 10	Transfer from another TestAmerica Lab	Transfer from another TestAmerica Lab	No	**OUT OF SERVICE (WAREHOUSE)**
Turbidimeter	HF Scientific S/N 200604033	Micro 100	2006	2006	No	180.1, SM 2130B
Turbidimeter	HACH S/N 12050C028810	HACH 2100N	2012	2012	No	180.1, SM 2130B
Ion Selective Meter	Orion S/N 006825	720A	1994	1994	No	350.1+ .2, 340.2, 150.1
Ion Selective Meter	Orion S/N 092904	720A+	2007	2007	No	350.1+ .2, 340.2, 150.1
pH Meter	Orion S/N 010005	320	2002	2002	No	Cr6+
pH Meter	Orion S/N 009986	320	2002	2002	No	350.1/4500 NH3 H
pH Meter	Orion 320 S/N 016995	320	2002	2002	No	TCLP (1311)
pH meter	Orion 320 S/N 017414	320		2009	No	4500-H B
pH meter	Orion S/N L00764	Star logR	2012	2012	No	Cr6+
pH meter	VWR S/N 02896	8025	2012	2012	No	Lachat distillation
Oven	VWR S/N 0402001	1320	2001	2001	No	2540C
Oven	VWR	1300U	2001	2001	No	2540C
Oven	VWR	1305U	2001	2001	No	2540B

Instrument Type	Manufacturer	Model	Purchase Date	Install Date	Autosampler	Method Performed
Oven	Fisher	230G	1997	1997	No	2540B, 2540D
Oven	Fisher	4216080	2012	2012	No	**Backup oven no designated test yet 10/18/12**
Oven	Fisher	4214960	2012	2012	No	2540D
Oven (Muffle Furnace)	Fisher S/N 901N002	550-14	2002	2002	No	160.4
Oven drying	VWR	1320	2001	2001	No	
Balance #27	A&D 12315883	HR-200	2005	2005	No	Gen. chem.
Balance #29	A&D 12315872	HR-200	2005	2005	No	160.1, 160.2
Balance #26	Sartorius 3503054	1712MP8	2003	2003	No	**OUT OF SERVICE (Warehouse)**
Balance #51	Ohaus 7125010794	Scout Pro	2006	2006	No	**OUT OF SERVICE (Warehouse)**
Balance #100	Mettler 122423439		2006	2006	No	Lloyd Kahn (TOC)
Balance # 13	Sartorius/ 50709085			2012	No	Gen chem
Balance #200	Denver Instruments/095010	P602	Unknown (xfr from CT lab)	2012	No	Gen Chem
Balance #901	Ohaus 1119201018	AP2500	Unknown (xfr from CT lab)	2012	No	**OUT OF SERVICE (Warehouse)**
Balance #900	Ohaus 2220	GA110	Unknown (xfr from CT lab)	2012	No	1664 Lab
Balance #902	Mettler ENR 4788007004	PE3600	Unknown (xfr from KOP lab)	2013	No	**pH, eH, Reactive CN,S**
Water Bath	Precision S/N 9302-112	50	1995	1995	No	7196A
Water Bath	Precision S/N 9305-024	50	1995	1995	No	7196A
Water System (Log-in)	Millipore S/N 07348-C		1990	1990	No	
Water System (Extr. room)	Barnstead S/N 1191020210415	D11911	1995	1995	No	
FTIR	Perkin Elmer S/N 139038	1600	1991	1991	No	418.1
Printer	Epson S/N 61P107612	FX-870	2003	2003	No	418.1
Fixed IR	Buck Scientific S/N 1026	404	2004	2004	No	418.1
COD reactor	HACH S/N 980300017418	45600	2007	2007	No	410.4, 5220D
COD reactor	HACH S/N 900402268	45600	2007	2007	No	410.4, 5220D
COD reactor	HACH S/N 1202323	DRB 200	2007	2007	No	410.4, 5220D
COD reactor	HACH S/N 1209887	DRB 200	2007	2007	No	410.4, 5220D
Auto-analyzer (Lachat #1)	Lachat S/N A83000-1476	QUICKEM 8000	1997	1997	Yes	335.3, 420.2, 353.2, 351.2, 350.1+ .2
Auto-analyzer (Lachat #2)	Lachat S/N 8300-1658	8000 Series	2000	2000	Yes	335.3, 350.1+ .2
Auto-analyzer (Lachat #3)	Lachat S/N 120700001443	8500 Series #2	2012	2012	Yes	335.4, 9012A/B
Xyz autosampler Reagent Pump	S/N 051258a260 S/N 312217-1	RP-150 Series	2012	2012	Yes	335.4,9012A/B

Instrument Type	Manufacturer	Model	Purchase Date	Install Date	Autosampler	Method Performed
TOC Soil Analyzer (2)	Thermo Electron Corp. S/N 20034945	Flash EA 1112 Series	2004	2004	Yes	Lloyd Kahn's method
Printer	Epson S/N 41NE28676	LQ570	1997	1997	No	415.1
TOC Analyzer	Shimadzu S/N H51104335164	TOC-VCSH	2006	2006	Yes	Lloyd Kahn's method, 415.1, 9060, 5310B
Autosampler	Shimadzu S/N H52104301656SA	ASI-V	2006	2006	Yes	415.1, 5310B, 9060
TOC Analyzer 3	Shimadzu S/N H54204900389AE	TOC-L	2012	2012	Yes	5310B, 9060
Autosampler	Shimadzu S/N H5711490033SA	SAI-L	2012	2012	Yes	5310B, 9060
Solid Sample Module	Shimadzu S/N H52504300040NK	SSM-500A	2006	2006	Yes	**OUT OF SERVICE (WAREHOUSE)**
BOD Meter	YSI S/N 97S0534AE	5000	1998	1998	No	405.1
Incubator	GCA Precision Scientific		1998	1998	No	405.1
Hot Plate	Fischer Scientific S/N 103N0071		2001	2001	No	365.2
Hot Plate	Corning S/N 370301092774	PC-400	2007	2007	No	1311
Hot Plate	Fischer Scientific S/N 390502148495	PC-420	2007	2007	No	Lloyd Khan Method
Hot Plate	Fischer Scientific S/N 220897070707	PC-620	2007	2007	No	351.2
Conductivity Meter	Fischer Scientific S/N AB 81209007	Accumetab30	2002	2002	No	120.1, 9050A
Vortex mixer	Thermolyne S/N 632000855604	M63215	2002	2002	No	351.2
Dishwasher	Miele Professional S/N 208479	G7783CD	2003	2003	No	Glassware
Easy-Dist Distillation	Westco S/N 1095		2003	2003	No	350.1+ .2, 420.2, 9066
Easy-Dist Distillation	Westco S/N J097		2003	2003	No	335.3, 9012A & B
Easy-Dist Distillation	Westco S/N 1063		2007	2007	No	**OUT OF SERVICE (WAREHOUSE)**
Easy-Dist Distillation	Westco S/N 1110		2007	2007	No	353.3, 420.2, 9066
Lachat CN Hotblocks 1,2 & 3	S/N 120700002154 S/N 120700002155 S/N 120700002156		2012	2012	No	335.4, 9012A/B
Discreet Analyzer (Kone #1)	Konelab S/N S2019177	20	2003	2003	Yes	Automated Wet Chem
Dell Computer	Dell S/N 246175		2003	2003	No	Automated Wet Chem (Konelab)
BOD Aerator	Thomas Scientific S/N 1187	DOA-P104d-AA	1998	1998	No	405.1
BOD Plus Assay Liquid Handler DO meter YSI 52	Mantech Assoc., Inc. S/N 27OC3XB215 S/N O3C0812 AM	 221 & 222 52CE	2003	2003	Yes	405.1
PC-Titration Plus Autotitrator Interface Titra-Rinse 1 Titra-Rinse 2 Buret Module 1 Buret Module 2 Titration Module	Mantech Assoc., Inc S/N MS-0H4-373 S/N MS-0G4-198 S/N MS-0G4-200 S/N MS-0H4-627 S/N MS-0H4-625 S/N MS-0B5-657	 PC-1000-102/4 PC-1000-408 PC-1000-408 PC-1104-00 PC-1104-00 PC-1300-475	2004	2004	Yes	310.1, 2320B – Alkalinity 2320B – Carbonate, Bicarbonate 4500 CO2D – Carbon Dioxide 130.2, 2340C – Hardness

Instrument Type	Manufacturer	Model	Purchase Date	Install Date	Autosampler	Method Performed
Ion Chromatograph (IC #1) Pump #1 Pump #2 Conduct. Detector Injector & Oven 2-Ch Interface Liq. Handling #1 Liq. Handling #2 Dil. Autosampler	Metrohm Peak, Inc. S/N 04187 S/N 04197 S/N 03181 S/N 04147 S/N 04184 S/N 04154 S/N 04118 S/N 03198	 818 818 819 820 830 833 833 838	May05	May05	Yes	7199
Ion chromatograph (IC #2) Pump #1 Pump #2 UV-VIS Detector IC Interface Separation Center Sample Processor	Metrohm Peak, Inc. SS4818011006190 SS1818011003192 SS1153001010101 SS1830002003180 SS1820023003168 SS1838001009171	 818 818 1010 (Bischoff) 830 820 838	Feb 2010	Feb 2010	Yes	7199
Filter pump	Emerson S/N SA55-NXGTB 4142		1997		No	Sample Filtering
Filter pump	Emerson S/N G8ECX	SA55JXgtd-4144	2002	2002	No	Sample Filtering
Redox meter	VWR S/N 001149	8005	1997	1997	No	SM2580
TCLP Extraction Lab						
Peristaltic Pump	PC-Titrate Model # PC-1000-40	MS-OF3-568	2004	2004	No	1311 ZHE
TCLP Extraction Apparatus/Timer included	Assoc. Design and Mfg. Co. S/N 1320	3740-4 BRE	Jul06	Sep06	No	1311 TCLP, 1311 ZHE, 1312 SPLP, ASTM Leachate
TCLP Extraction1 Apparatus/Timer included	Assoc. Design and Mfg. Co. S/N 1352	3740-12 BRE	1997	1997	No	1311 TCLP, 1311 ZHE, 1312 SPLP, ASTM Leachate
TCLP Extraction2 Apparatus/Timer included	Assoc. Design and Mfg. Co. S/N 1053	3740-12 BRE	1997	1997	No	1311 TCLP, 1311 ZHE, 1312 SPLP, ASTM Leachate
TCLP Extraction3 Apparatus/Timer included	Assoc. Design and Mfg. Co. S/N 1249	3740-12 BRE	1997	1997	No	1311 TCLP, 1311 ZHE, 1312 SPLP, ASTM Leachate
TCLP Extraction4 Apparatus/Timer included	Environmental Express Limited S/N 3384-12-473	LE 1002	May05	May05	No	1311 TCLP, 1311 ZHE, 1312 SPLP, ASTM Leachate
TCLP Extraction5 Apparatus/Timer included	Environmental Express Limited S/N 3384-12-472	LE 1002	May05	May05	No	1311 TCLP, 1311 ZHE, 1312 SPLP, ASTM Leachate
TCLP Extraction6 Apparatus/Timer included	Assoc. Design and Mfg. Co. S/N 2125	3740-12 BREII	Jul06	Sep06	No	1311 TCLP, 1311 ZHE, 1312 SPLP, ASTM Leachate
TCLP Extraction7 Apparatus/Timer included	Assoc. Design and Mfg. Co. S/N 2126	3740-12 BREII	Jul06	Sep06	No	1311 TCLP, 1311 ZHE, 1312 SPLP, ASTM Leachate
SAMPLE LOGIN						
Balance #104	Denver Instruments S/N 126006		2009	2009	No	% Solids

Instrument Type	Manufacturer	Model	Purchase Date	Install Date	Autosampler	Method Performed
Isotemp Oven 1	Fisher S/N 410B01117	637G	Mar05	Mar05	No	%Solids
Isotemp Oven 2	Fisher S/N 505N0063	637G	Jun05	Jun05	No	%Solids
ORGANIC EXTRACTIONS						
N-EVAP #1	Organomation S/N 51004	N-EVAP 112	2004	2004	No	600/8000/CLP
N-EVAP #2	Organomation S/N 10253	N-EVAP 112	1990	1990	No	600/8000/CLP
Water Bath #1	Fisher Scientific S/N 605021280	15-491	2005	2005	No	600/8000/CLP
Water Bath #2	Fisher Scientific S/N (204272)	15-491	2007	2007	No	600/8000/CLP
Sonicator (Controller)	Sonic & Material, Inc. S/N 58783	VC750	Intercompany asset transfer	2012	No	8000/CLP
Sonicator Horn	Sonic & Material, Inc. S/N 33107206	CV33	Intercompany asset transfer	2012	No	8000/CLP
Sonicator #0 (Controller)	Tekmar SN 19606F (Asset # 36339)	TM600-2				**OUT OF SERVICE (WAREHOUSE)**
Sonicator #1 (Controller)	Sonic & Material, Inc. S/N 38701H (Asset #36362)	VCX 500	2006	2006	No	**OUT OF SERVICE (WAREHOUSE)**
Sonicator #2 (Controller)	Sonic & Material, Inc. S/N 38710H (Asset #36361)	VCX 500	2006	2006	No	**OUT OF SERVICE (WAREHOUSE)**
Sonicator Horn #3	Tekmar S/N 29281	CV17	1990	1990	No	**OUT OF SERVICE (WAREHOUSE)**
Sonicator Horn #4	Tekmar S/N illegible	CV17	1990	1990	No	**OUT OF SERVICE (WAREHOUSE)**
Sonicator #5 (Controller)	Sonic & Material, Inc. S/N 41748 M+ (Asset # 36363)	VCX 500	2004	2004	No	**OUT OF SERVICE (WAREHOUSE)**
Sonicator #6 (Controller)	Sonic & Material, Inc. S/N 41755 M+(Asset # 36364)	VCX 500	2004	2004	No	**OUT OF SERVICE (WAREHOUSE)**
Sonicator Horn # 7	Sonic & Material, Inc. S/N 3353027	CV33				**OUT OF SERVICE (WAREHOUSE)**
Sonicator Horn # 8	Sonic & Material, Inc. S/N 3353028	CV33				**OUT OF SERVICE (WAREHOUSE)**
Sonicator Horn # 9	Sonic & Material, Inc. S/N 3342405	CV33				**OUT OF SERVICE (WAREHOUSE)**
Sonicator Horn # 10	Sonic & Material, Inc. S/N 3342408	CV33				**OUT OF SERVICE (WAREHOUSE)**
Muffle Furnace #1	Thermolyne S/N 40800875	F6010	1990	1990	No	600/8000/CLP
Muffle Furnace #2	Thermolyne S/N illegible	F6028C	1990	1990	No	**OUT OF SERVICE (WAREHOUSE)**

Instrument Type	Manufacturer	Model	Purchase Date	Install Date	Autosampler	Method Performed
Large Muffle Furnace	Wilt Industries S/N 041213	210	2001	2001	No	600/8000/CLP
Dishwasher #1	Miele Professional S/N 53075564	G7783CD	2003	2003	No	608/8000/CLP
Dishwasher #2	Miele Professional S/N 53075571	G7783CD	2003	2003	No	608/8000/CLP
Vacuum Pump #1	Emerson electric MLD S/N UNL231171	5KH36KN90HX	1990	1990	No	600/8000/CLP
Vortex	Scientific Industries S/N 2-318564	6560	1995	1995	No	600/8000/CLP
Electric Mixer	Barnstead/Thermolyne S/N 125404091646		1995	1995	No	600/8000/CLP
Mini Hotplate/Stir	VWR Scientific S/N 33918-604	220	1995	1995	No	600/8000/CLP
Centrifuge #1	Sigma S/N 78646	2-5	2001	2001	No	600/8000/CLP
Centrifuge #2	Sigma S/N 78647	2-5	2001	2001	No	**OUT OF SERVICE (WAREHOUSE)**
Centrifuge #3	Sigma S/N 80226	2-5	2001	2001	No	**OUT OF SERVICE (WAREHOUSE)**
Balance # 60	Denver Instr S/N 115003			2012	No	600/8000/CLP
Balance #28	A&D S/N 12315879	HR-200	2005	2005	No	600/8000/CLP
Balance #30	A&D S/N 12315880	HR-200	2005	2005	No	600/8000/CLP
Soxtherm 1 Controller Chiller	OI Analytical S/N 4012358 S/N 4012351 S/N 10200022	Type 07-5101	2002	2002	No	**OUT OF SERVICE (WAREHOUSE)**
Soxtherm 2 Controller Chiller	OI Analytical S/N 4010018 S/N 4010088 S/N 10200022	Type 07-5101	2002	2002	No	**OUT OF SERVICE (WAREHOUSE)**
Soxtherm 3 Controller Chiller	OI Analytical S/N 4012359 S/N 4002805 S/N 10365037	Type 07-5101	2002	2002	No	3541
Soxtherm 4 Controller Chiller	OI Analytical S/N 492023 S/N 4022012 S/N 101365037	Type 07-5101	2002	2002	No	3541

Instrument Type	Manufacturer	Model	Purchase Date	Install Date	Autosampler	Method Performed
Soxtherm 5 Controller Chiller	Gerhardt S/N 4031668 S/N 4051753 S/N 107344070 (Thermo)	SOX 416	2007	2007	No	3541
Soxtherm 6 Controller Chiller	Gerhardt S/N 4073033 S/N 4051753 S/N 107344070 (Thermo)	SOX 416	2007	2007	No	3541
Soxtherm 7 Controller Chiller	Gerhardt S/N 4073030 S/N 4051753 S/N 107344069 (Thermo)	SOX 416	2007	2007	No	3541
Soxtherm 8 Controller Chiller	Gerhardt S/N 4073031 S/N 4051753 S/N 107344069 (Thermo)	SOX 416	2007	2007	No	3541
Soxtherm 9 Controller Chiller	OI Analytical S/N 4012357 S/N 4012354 S/N 101361126	Type 07-5101	2003	2003	No	**OUT OF SERVICE (WAREHOUSE)**
Soxtherm10 Controller Chiller	OI Analytical S/N 4010016 S/N 4012353 S/N 101361126	Type 07-5101	2003	2003	No	**OUT OF SERVICE (WAREHOUSE)**
Soxtherm11 Controller Chiller	OI Analytical S/N 4012356 S/N 480017 S/N 102002024	Type 07-5101	2005	2005	No	3541
Soxtherm12 Controller Chiller	OI Analytical S/N 4033530 S/N 401812 S/N 102002024	Type 07-5101	2005	2005	No	3541
Soxtherm13 Controller Chiller	Gerhardt S/N 4031667 S/N 4051747 S/N 101361121	SOX416 1177PD	2006	2006	No	3541
Soxtherm 14	Gerhardt S/N 4031666 S/N 4051747 S/N 101361121	SOX416	2006	2006	No	3541

Instrument Type	Manufacturer	Model	Purchase Date	Install Date	Autosampler	Method Performed
Soxtherm 15	Gerhardt S/N 4051583 S/N 4051747 S/N 10650017 (VWR)	SOX416	2006	2006	No	3541
Soxtherm 16	Gerhardt S/N 4051582 S/N 4051747 S/N 10650017 (VWR)	SOX416	2006	2006	No	3541
Soxtherm	OI Analytical S/N ????	Type 07-5101	???	???	No	**OUT OF SERVICE (WAREHOUSE)**
Soxtherm	OI Analytical S/N ????	Type 07-5101	???	???	No	**OUT OF SERVICE (WAREHOUSE)**
Soxtherm	OI Analytical S/N ????	Type 07-5101	???	???	No	**OUT OF SERVICE (WAREHOUSE)**
Soxtherm	OI Analytical S/N ????	Type 07-5101	???	???	No	**OUT OF SERVICE (WAREHOUSE)**
Microwave Extraction System	MARS Xpress 230/60 S/N MD5095	907501	Transfer from Knoxville 2012	2012	No	SW3546
Microwave Extraction System	MARS Xpress 230/60 S/N MD1952	907501	2009	2009	No	SW3546
Wrist Action Shaker 1	Burrell S/N	75	2003	2003	No	8151
Wrist Action Shaker 2	Labline S/N 12910443	3589	2003	2003	No	**OUT OF SERVICE (WAREHOUSE)**
Rotator 1	AP & R Machine & Tool S/N 222307		2003	2003	No	600/8000/CLP
Rotator 2	AP & R Machine & Tool S/N 222306		2003	2003	No	600/8000/CLP
Rotator 3	AP & R Machine & Tool S/N 222305		2003	2003	No	600/8000/CLP
Rotator 4	AP & R Machine & Tool S/N 222304		2003	2003	No	600/8000/CLP
Rotator 5	AP & R Machine & Tool S/N 222303		2003	2003	No	600/8000/CLP
Rotator 6	AP & R Machine & Tool S/N 222302		2003	2003	No	600/8000/CLP
FIELD SERVICES pH/Temp meter	Thermo Orion 15035	250A+	2000	2000	No	pH, Temperature
Conductivity meter	HACH 21000005660	Sension 5	2002	2002	No	Conductivity
DO meter	HACH 0200001321	Sension 6	2002	2002	No	Dissolved Oxygen
DO meter	HACH 001200002352	Sension 6	2000	2000	No	Dissolved Oxygen

Instrument Type	Manufacturer	Model	Purchase Date	Install Date	Autosampler	Method Performed
Turbidity meter	La Motte 0119-0997	2020	1998	1998	No	Turbidity
Turbidity meter	La Motte 3897-5102	2020	2002	2002	No	Turbidity
Turbidity meter	LaMotte 3649-3802	2020	2002	2002	No	Turbidity
pH/ORP meter	Cole Parmer 643409	05669-20			No	pH, Oxidation reduction
pH/ORP meter	HACH 31100003358	Sension 1	2005	2005	No	pH, Oxidation reduction
Cond./Salinity/ TDS meter	HACH 30500006215	Sension 5			No	Conductivity, Salinity, TDS
pH/ ORP meter	HACH 050400020239	Sension 1	2005	2005	No	pH, Oxidation reduction
pH/ ORP meter	HACH 050400022762	Sension 1	2005	2005	No	pH, Oxidation reduction
Cond./Salinity/ TDS meter	HACH 050300013668	Sension 5	2005	2005	No	Conductivity, Salinity, TDS
Cond./Salinity/ TDS meter	YSI 93L12159	33			No	Conductivity, Salinity, TDS
Turbidity meter	LaMotte ME 10036	2020e	2005	2005	No	Turbidity
Turbidity meter	LaMotte ME 10117	2020e	2005	2005	No	Turbidity
Cond./Salinity/ TDS meter	HACH 050506C50148	Sension 5	2005	2005	No	Conductivity, Salinity, TDS
DO meter	HACH 050500C60212	Sension 6	2005	2005	No	Dissolved oxygen
DO meter	HACH 050500C60066	Sension 6	2005	2005	No	Dissolved oxygen
pH/ ORP meter	HACH 050600C10445	Sension 1	2005	2005	No	pH, Oxidation reduction
pH/ ORP meter	HACH 4030004162	Sension 1	2005	2005	No	pH, Oxidation reduction
DO meter	Hach 040800001267		2006	2006	No	Dissolved Oxygen
Conductivity meter	Hach 050100002708		2006	2006	No	Conductivity
DO meter	Hach 040700001191		2006	2006	No	Dissolved Oxygen
pH/ mV meter	Hach 040200003831		2006	2006	No	pH, mV
Conductivity meter	Hach 050100002707		2006	2006	No	Conductivity
DO meter	Hach 030500007618		2006	2006	No	Dissolved Oxygen
pH/ mV	Hach 041200004666		2006	2006	No	pH, mV
Turbidity meter	LaMotte 4969-1604		2006	2006	No	Turbidity
Turbidity meter	LaMotte 4943-1604		2006	2006	No	Turbidity
Turbidity meter	LaMotte 1909-2900		2006	2006	No	Turbidity
pH/mV meter	Hach 041200002902		2006	2006	No	pH, mV
pH/mV meter E-019	Hach 41200002933	Sension 1	2006	2006	No	pH, mV
Conductivity meter E-027	Hach 050500C50193	Sension 5	2006	2006	No	Conductivity

Instrument Type	Manufacturer	Model	Purchase Date	Install Date	Autosampler	Method Performed
pH meter E-028	Hach 040800010007	Sension 1	2006	2006	No	pH meter
pH/mV meter M-039	Hach 0804C410063	Sension 1				pH/ORP
pH/mV meter M-034	Hach 06070C710134	Sension 1	Oct06	Oct06	No	pH/ORP
Conductivity meter M-028	Hach 050500C50288	Sension 5	Aug05	Aug05	No	Conductivity
DO meter M-032	Hach 05070C360249	Sension 6	Nov06	Nov06	No	DO
pH/mV meter M-036	Hach 07080C710259	Sension 1	Oct07	Oct07	No	pH/ORP
pH/mV meter M-030	Hach 050600C10468	Sension 1	Aug05	Aug05	No	pH/ORP
pH/mV meter M-037	Hach 08020c110145	Sension 1	Mar08	Mar08	No	pH/ORP
DO meter E-030	Hach 07120C260018	Sension 6	2008	2008	No	DO
pH E-031	Thermo Orion 018168	Model 230			No	pH
pH/ORP E-029	Hach 07070C610178	Sension1	2008	2008	No	pH/ORP
DO E-032	YSI 01F0708AA	55/25 FT			No	DO
pH E-033	Thermo Orion 017788	Model 230A			No	pH
pH E-034	Thermo Orion 017630	Model 230A			No	pH
Chlorine meter CL-007	Hach 040200011290	Pocket Colorimeter II	2006	2006	No	330.5, SM 18th 4500 Cl G
Chlorine meter CL-002	Hach 020100174404	Pocket Colorimeter	2006	2006	No	330.5, SM 18th 4500 Cl G
Chlorine meter CL-003	Hach 040200011345	Pocket Colorimeter II	2006	2006	No	330.5, SM 18th 4500 Cl G
Chlorine meter CL-004	Hach 961200102549	Pocket Colorimeter	2006	2006	No	330.5, SM 18th 4500 Cl G
Chlorine meter CL-006	Hach 030400034505	Pocket Colorimeter	2005			
Chlorine meter CL-005	Hach 020100174252	Pocket Colorimeter	2006			
Chlorine meter CL-008	Hach 4796-4900	Colorimeter 1200				
Colorimeter M-040	Hach 041050031426	48450-60 DR/850			No	
Water level meter	Solonist S/N 37993		Jan05	Feb05	No	
Water level meter	Solonist S/N 37995		Jan05	Feb05	No	
Water level meter	Solonist S/N 42807		Jan06	Jan06	No	
Water level meter	Fisher				No	
PID meter	RAE Systems S/N 110-010953	PGM-7600	May05	May05	No	
PID meter	RAE Systems S/N 110-010984	Mini RAE 2000	May05	May05	No	
PID meter	RAE Systems S/N 110-01094	Mini Rae 2000	May05	May05	No	
PID meter	RAE Systems S/N 103958	Plus Classic	Jan05	Jan05	No	
PID meter	PE Photovac S/N DQGD302	2020			No	

Instrument Type	Manufacturer	Model	Purchase Date	Install Date	Autosampler	Method Performed
Comp sampler	ISCO S/N 205C01376	603704001- 3700	May05	May05	Yes	
Comp sampler	ISCO S/N 205C01380	603704001- 3700	May05	May05	Yes	
Comp sampler	ISCO S/N 204G00984	3700			Yes	
Comp sampler	ISCO S/N 05248-001	2700			Yes	
Comp sampler	ISCO	2700			Yes	
Comp sampler	ISCO	2700			Yes	
Comp sampler	ISCO	2700			Yes	
Submersible pump	Grundfos S/N 05141-8349	MP1 / 1A106003	May05	May05	No	
Submersible pump	Grundfos S/N 05141-8361	MP1 / 1A106003	May05	May05	No	
Submersible pump	Grundfos S/N 0621-0014	A1A106003P1	Jul06	Jul06	No	
Submersible pump	Grundfos S/N 06029591				No	
Submersible pump	Grundfos S/N 98490294				No	
Submersible pump	Grundfos				No	
Submersible pump	Grundfos				No	
Submersible pump	Grundfos				No	
Submersible pump	Proactive S/N 1371	SS Monsoon	July06	Jul06	No	
Pump control box	Grundfos S/N H0412210120	91126028	May05	May05	No	
Pump control box	Grundfos S/N H0412210120	91126028	May05	May05	No	
Pump control box	Grundfos S/N P1940304254		May05	May05	No	
Pump control box	Grundfos S/N 203831		May05	May05	No	
Pump control box	Grundfos S/N H0303130012		May05	May05	No	
Pump control box	Grundfos S/N 9517		May05	May05	No	
Pump control box	Grundfos		May05	May05	No	
Pump control box	ProActive	Low-flow with power booster	Jul06	Jul06	No	
Trash pump	North Star S/N E06	10633	2007	2007	No	
Generator	Honda S/N EB-3000C	EZGP-1145763	May05	May05	No	
Generator	Honda S/N EB-3000C	EZGP-1151238	Jun05	Jun05	No	
Generator	Honda S/N EZGL1002930	EB-3000C	2005	2005	No	
Generator	Honda				No	
Generator	Honda				No	
Control Pack	QED S/N MP15-1300	MP-15	May05	May05	No	

Instrument Type	Manufacturer	Model	Purchase Date	Install Date	Autosampler	Method Performed
Control Pack	QED S/N MP15-1297	MP-15	May05	May05	No	
Control Pack	QED S/N MP15-1298	MP-15	May05	May05	No	
Control Pack	QED S/N MP15-1299	MP-15	May05	May05	No	
Control Pack	QED	MP-15	May05	May05	No	
Control Pack	QED	MP-15	May05	May05	No	
Control Pack	QED	MP-15	May05	May05	No	
Control Pack	QED	MP-15	May05	May05	No	
Control Pack	QED	MP-15	May05	May05	No	
Bladder Pump	QED S/N 10993	MP-SPK-4P	May05	May05	No	
Bladder Pump	QED S/N 10997	MP-SPK-4P	May05	May05	No	
Bladder Pump	QED S/N 10995	MP-SPK-4P	May05	May05	No	
Bladder Pump	QED S/N 10996	MP-SPK-4P	May05	May05	No	
Bladder Pump	QED S/N 11191	MP-SPK-4P	May05	May05	No	
Bladder Pump	QED S/N 11192	MP-SPK-4P	May05	May05	No	
Bladder Pump	QED 11512	MP-SPK-4P	May05	May05	No	
Bladder Pump	QED 10948	MP-SPK-4P	May05	May05	No	
Bladder Pump	QED 10949	MP-SPK-4P	May05	May05	No	
Bladder Pump	QED	MP-SPK-4P	May05	May05	No	
Bladder Pump	QED	MP-SPK-4P			No	
Bladder Pump	QED	MP-SPK-4P			No	
Peristaltic Pump	Solonist S/N 002562	410			No	
Peristaltic Pump	Solonist S/N 002071	410			No	
Peristaltic Pump	Solonist S/N 001979	410			No	
Peristaltic Pump	Solonist S/N 002642	410			No	
Peristaltic Pump	ISCO	Accuwell 150 portable pump			No	
Peristaltic Pump	ISCO	Accuwell 150 portable pump			No	
Peristaltic Pump	ISCO	Accuwell 150 portable pump			No	
Peristaltic Pump	ISCO	Accuwell 150 portable pump			No	
Peristaltic Pump	ISCO	Accuwell 150 portable pump			No	
Peristaltic Pump	ISCO	Accuwell 150 portable pump			No	
Centrifugal Pump	Teel S/N 3021	2P110B			No	

Instrument Type	Manufacturer	Model	Purchase Date	Install Date	Autosampler	Method Performed
Centrifugal Pump	Teel S/N 0036	2P110B			No	
Centrifugal Pump	Teel S/N 0034	2P110B			No	
Centrifugal Pump	Teel S/N 1962	2P110B			No	
Centrifugal Pump	Teel	2P110B			No	
Compressor	Coleman / Honda S/N D02812339	CT5090412	Jun05	Jun05	No	
Compressor	Honda/Campbell Hausfeld S/N VT697203AJ				No	
Multi-probe meter YSI-1	YSI S/N 06F1362AC	556 MPS	Jul06	Jul06	No	
GPS	Ashtech 10564	110454-01			No	
Oil/Water Interface probe	Testwell					
Oil/Water Interface probe	Testwell					
Oil/Water interface Probe	Solonist 122-008699-1	122	Sept07	Sept07	No	
Oil/Water interface probe	Solonist S/N 122 007364-1		Aug06	Aug06	No	

Table 21-2. Example: Schedule of Routine Maintenance

Instrument	Procedure	Frequency
Leeman Mercury Analyzer	Check tubing for wear Fill rinse tank with 10% HCl Change dryer tube Fill reductant bottle with 10% Stannous Chloride	Daily Daily As needed Daily
ICP	Check pump tubing Check liquid argon supply Check fluid level in waste container Check filters Clean or replace filters Check torch Check sample spray chamber for debris Clean and align nebulizer Check entrance slit for debris Change printer ribbon Replace pump tubing	Daily Daily Daily Weekly As required Daily Monthly Monthly Monthly As required As required
ICP MS	Change pump tubing Clean torch Check / clean nebulizer Clean cones Check air filters Check multiplier voltages & do cross calibration Replace sample uptake tubing Check rotary pump oil Check oil mist filters Check chiller water level	Weekly or As required Weekly or As required Weekly or As required Weekly or As required Weekly or As required Weekly or As required Weekly or As required Weekly or As required Monthly Monthly
UV-Vis Spectrophotometer	Clean ambient flow cell Precision check/alignment of flow cell Wavelength verification check	As required As required Semi-annually
Auto Analyzers	Clean sampler Check all tubing Clean inside of colorimeter Clean pump well and pump rollers Clean wash fluid receptacle Oil rollers/chains/side rails Clean optics and cells	Daily Daily Daily Quarterly Weekly Weekly Quarterly
Gas Chromatograph/Mass Spectrometer (GC/MS)	Ion gauge tube degassing Pump oil-level check Pump oil changing Analyzer bake-out Analyzer cleaning Resolution adjustment COMPUTER SYSTEM AND PRINTER: Air filter cleaning Change data system air filter Printer head carriage lubrication Paper sprocket cleaning Drive belt lubrication	As required Monthly Annually As required As required As required As required As required As required As required As required

Table 21-2. Example: Schedule of Routine Maintenance

Instrument	Procedure	Frequency
Gas Chromatograph	Compare standard response to previous day or since last initial calibration Check carrier gas flow rate in column Check temp. of detector, inlet, column oven Septum replacement Glass wool replacement Check system for gas leaks with SNOOP Check for loose/frayed wires and insulation Bake injector/column Change/remove sections of guard column Replace connectors/liners Change/replace column(s)	Daily Daily via use of known compound retention Daily As required As required W/cylinder change as required Monthly As Required As Required As Required As Required
Electron Capture Detector (ECD)	Detector wipe test (Ni-63) Detector cleaning	Semi-annually As required
Flame Ionization Detector (FID)	Detector cleaning	As required
Photoionization Detector (PID)	Change O-rings Clean lamp window	As required As required
HPLC	Change guard columns Change lamps Change pump seals Replace tubing Change fuses in power supply Filter all samples Change autosampler rotor/stator	As required As required Semi-annually or as required As required As required Daily As required
Balances	Class “S” traceable weight check Clean pan and check if level Field service	Daily, when used Daily At least Annually
Conductivity Meter	0.01M KCl calibration Conductivity cell cleaning	Daily As required
Turbidimeter	Check light bulb	Daily, when used
Deionized/Distilled Water	Daily conductivity check Check deionizer light Monitor for VOA’s System cleaning Replace cartridge & large mixed bed resins	Daily Daily Daily As required As required
Drying Ovens	Temperature monitoring Temperature adjustments	Daily As required
Refrigerators/ Freezers	Temperature monitoring Temperature adjustment Defrosting/cleaning	Daily As required As required
Vacuum Pumps/ Air Compressor	Drained Belts checked Lubricated	Weekly Monthly Semi-annually
pH/Specific Ion Meter	Calibration/check slope Clean electrode	Daily As required

Table 21-2. Example: Schedule of Routine Maintenance

Instrument	Procedure	Frequency
BOD Incubator	Temperature monitoring Coil and incubator cleaning	Daily Monthly
Centrifuge	Check brushes and bearings	Every 6 months or as needed
Water baths	Temperature monitoring Water replaced	Daily Monthly or as needed

SECTION 21. MEASUREMENT TRACEABILITY

21.1 Overview

Traceability of measurements shall be assured using a system of documentation, calibration, and analysis of reference standards. Laboratory equipment that are peripheral to analysis and whose calibration is not necessarily documented in a test method analysis or by analysis of a reference standard shall be subject to ongoing certifications of accuracy. At a minimum, these must include procedures for checking specifications of ancillary equipment: balances, thermometers, temperature, Deionized (DI) and Reverse Osmosis (RO) water systems, automatic pipettes and other volumetric measuring devices. (Refer to Section 20.3). With the exception of Class A Glassware and glass microliter syringes, quarterly accuracy checks are performed for all mechanical volumetric devices. Wherever possible, subsidiary or peripheral equipment is checked against standard equipment or standards that are traceable to national or international standards. Class A Glassware and glass microliter syringes should be routinely inspected for chips, acid etching or deformity (e.g., bent needle). If the Class A glassware or syringe is suspect, the accuracy of the glassware will be assessed prior to use.

21.2 NIST-Traceable Weights and Thermometers

Reference standards of measurement shall be used for calibration only and for no other purpose, unless it can be shown that their performance as reference standards would not be invalidated.

For NIST-traceable weights and thermometers, the laboratory requires that all calibrations be conducted by a calibration laboratory accredited by A2LA, NVLAP (National Voluntary Laboratory Accreditation Program), or another accreditation organization that is a signatory to a MRA (Mutual Recognition Arrangement) of one of more of the following cooperations – ILAC (International Laboratory Accreditation Cooperation) or APLAC (Asia-Pacific Laboratory Accreditation Cooperation). A calibration certificate and scope of accreditation is kept on file at the laboratory.

21.3 Reference Standards / Materials

Reference standards/materials, where commercially available, are traceable to certified reference materials. Commercially prepared standard materials are purchased from vendors accredited by A2LA or NVLAP with an accompanying Certificate of Analysis that documents the standard purity. If a standard cannot be purchased from a vendor that supplies a Certificate of Analysis, the purity of the standard is documented by analysis. The receipt of all reference standards must be documented. Reference standards are labeled with a unique Standard Identification Number and expiration date. All documentation received with the reference standard is retained as a QC record and references the Standard Identification Number.

All reference, primary and working standards/materials, whether commercially purchased or laboratory prepared, must be checked regularly to ensure that the variability of the standard or material from the ‘true’ value does not exceed method requirements. The accuracy of calibration standards is checked by comparison with a standard from a second source. In cases where a second standard manufacturer is not available, a vendor certified different lot is acceptable for use as a second source. For unique situations, such as air analysis where no other source or lot is available, a standard made by a different analyst would be considered a second source.

The appropriate Quality Control (QC) criteria for specific standards are defined in laboratory SOPs. In most cases, the analysis of an Initial Calibration Verification (ICV) or LCS (where there is no sample preparation) is used as the second source confirmation. These checks are generally performed as an integral part of the analysis method (e.g. calibration checks, laboratory control samples).

All standards and materials must be stored and handled according to method or manufacturer's requirements in order to prevent contamination or deterioration. Refer to the Corporate Environmental Health & Safety Manual or laboratory SOPs. For safety requirements, please refer to method SOPs and the laboratory Environmental Health and Safety Manual.

Standards and reference materials shall not be used after their expiration dates unless their reliability is verified by the laboratory and their use is approved by the Quality Assurance Manager. The laboratory must have documented contingency procedures for re-verifying expired standards.

21.4 Documentation and Labeling of Standards, Reagents, and Reference Materials

Reagents must be at a minimum the purity required in the test method. The date of reagent receipt and the expiration date are documented. The lots for most of the common solvents and acids are tested for acceptability prior to company wide purchase. [Refer to TestAmerica's Corporate SOP (CA-Q-S-001), Solvent and Acid Lot Testing and Approval.]

All manufacturer or vendor supplied Certificate of Analysis or Purity must be retained, stored appropriately, and readily available for use and inspection. These records are maintained in the applicable analytical Departments. Records must be kept of the date of receipt and date of expiration of standards, reagents and reference materials. In addition, records of preparation of laboratory standards, reagents, and reference materials must be retained, stored appropriately, and be readily available for use and inspection. For detailed information on documentation and labeling, please refer to method specific SOPs.

Commercial materials purchased for preparation of calibration solutions, spike solutions, etc.., are usually accompanied with an assay certificate or the purity is noted on the label. If the assay purity is 96% or better, the weight provided by the vendor may be used without correction. If the assay purity is less than 96% a correction will be made to concentrations applied to solutions prepared from the stock commercial material.

21.4.1 All standards, reagents, and reference materials must be labeled in an unambiguous manner. Standards are logged into the laboratory's LIMS system, and are assigned a unique identification number. The following information is typically recorded in the electronic database within the LIMS.

- Standard ID
- Description of Standard
- Department
- Preparer's name
- Final volume and number of vials prepared
- Solvent type and lot number

- Preparation Date
- Expiration Date
- Standard source type (stock or daughter)
- Standard type (spike, surrogate, other)
- Parent standard ID (if applicable)
- Parent Standard Analyte Concentration (if applicable)
- Parent Standard Amount used (if applicable)
- Component Analytes
- Final concentration of each analyte
- Comment box (text field)

Records are maintained (either electronically or hard-copy) for standard and reference material preparation. These records show the traceability to purchased stocks or neat compounds. These records also include method of preparation, date of preparation, expiration date and preparer's name or initials. Preparation procedures are provided in the Method SOPs.

21.4.2 All standards, reagents, and reference materials must be clearly labeled with a minimum of the following information:

- Expiration Date (include prep date for reagents)
- Standard ID (***Specify from LIMS or logbook***)
- Special Health/Safety warnings if applicable

Records must also be maintained of the date of receipt for commercially purchased items or date of preparation for laboratory prepared items. Special Health/Safety warnings must also be available to the analyst. This information is maintained by the facility Environmental Health and Safety Coordinator.

21.4.3 In addition, the following information may be helpful:

- Date opened (for multi-use containers, if applicable)
- Description of standard (if different from manufacturer's label or if standard was prepared in the laboratory)
- Recommended Storage Conditions
- Concentration (if applicable)
- Initials of analyst preparing standard or opening container

All containers of prepared reagents must include an expiration date and an ID number to trace back to preparation.

Procedures for preparation of reagents can be found in the Method SOPs.

Standard ID numbers must be traceable through associated logbooks, worksheets and raw data.

All reagents and standards must be stored in accordance to the following priority: 1) with the manufacturer's recommendations; 2) with requirements in the specific analytical methods as specified in the laboratory SOP.

SECTION 22. SAMPLING

22.1 Overview

The laboratory provides the following sampling and field services. Sampling procedures are described in the following SOPs as applicable:

- Groundwater Sampling (TestAmerica Edison SOP #s ED-FLD-008 and ED-FLD-009)
- Wastewater Sampling (TestAmerica Edison SOP # ED-FLD-014)
- Potable Sampling
- Waste Sampling
- Soil and Sediment Sampling
- Flow Monitoring (TestAmerica Edison SOP #s ED-FLD-008 and ED-FLD-009)
- Field Parameter Analysis (TestAmerica Edison SOPs ED-FLD-001 thru ED-FLD-007, ED-FLD-010)
- Cleaning and Decontamination of Field Equipment (see individual SOPs listed above and TestAmerica Edison SOP# ED-GEN-013)

22.2 Sampling Containers

The laboratory offers clean sampling containers for use by clients. These containers are obtained from reputable container manufacturers and meet EPA specifications as required. Any certificates of cleanliness that are provided by the supplier are maintained at the laboratory.

22.2.1 Preservatives

Upon request, preservatives are provided to the client in pre-cleaned sampling containers. In some cases containers may be purchased pre-preserved from the container supplier. Whether prepared by the laboratory or bought pre-preserved, the grades of the preservatives are at a minimum:

- Hydrochloric Acid – Reagent ACS (Certified VOA Free) or equivalent
- Methanol – Purge and Trap grade
- Nitric Acid – Instra-Analyzed or equivalent
- Sodium Bisulfate – ACS Grade or equivalent
- Sodium Hydroxide – Instra-Analyzed or equivalent
- Sulfuric Acid – Instra-Analyzed or equivalent
- Sodium Thiosulfate – ACS Grade or equivalent

22.3 Definition of Holding Time

The date and time of sampling documented on the COC form establishes the day and time zero. As a general rule, when the maximum allowable holding time is expressed in “days” (e.g., 14 days, 28 days), the holding time is based on calendar day measured. Holding times expressed in “hours” (e.g., 6 hours, 24 hours, etc.) are measured from date and time zero. The first day of holding time ends twenty-four hours after sampling. Holding times for analysis include any necessary reanalysis. However, there are some programs that determine holding time compliance based on the date and specific time of analysis compared to the time of sampling regardless of how long the holding time is.

22.4 Sampling Containers, Preservation Requirements, Holding Times

The preservation and holding time criteria specified in the laboratory SOPs are derived from the source documents for the methods. If method required holding times or preservation requirements are not met, the reports will be qualified using a flag, footnote or case narrative. As soon as possible or “ASAP” is an EPA designation for tests for which rapid analysis is advised, but for which neither EPA nor the laboratory have a basis for a holding time.

22.5 Sample Aliquots / Subsampling

Taking a representative sub-sample from a container is necessary to ensure that the analytical results are representative of the sample collected in the field. The size of the sample container, the quantity of sample fitted within the container, and the homogeneity of the sample need consideration when sub-sampling for sample preparation. It is the laboratory’s responsibility to take a representative subsample or aliquot of the sample provided for analysis.

Analysts should handle each sample as if it is potentially dangerous. At a minimum, safety glasses, gloves, and lab coats must be worn when preparing aliquots for analysis.

Guidelines on taking sample aliquots & subsampling are located SOP No. ED-GEN-007 (Subsampling).

SECTION 23. HANDLING OF SAMPLES

Sample management procedures at the laboratory ensure that sample integrity and custody are maintained and documented from sampling/receipt through disposal.

23.1 Chain of Custody (COC)

The COC form is the written documented history of any sample and is initiated when bottles are sent to the field, or at the time of sampling. This form is completed by the sampling personnel and accompanies the samples to the laboratory where it is received and stored under the laboratory’s custody. The purpose of the COC form is to provide a legal written record of the handling of samples from the time of collection until they are received at the laboratory. It also serves as the primary written request for analyses from the client to the laboratory. The COC form acts as a purchase order for analytical services when no other contractual agreement is in effect. An example of a COC form may be found in Figure 23-1.

23.1.1 Field Documentation

The information the sampler needs to provide at the time of sampling on the container label is:

- Sample identification

- Date and time
- Preservative

During the sampling process, the COC form is completed and must be legible (see Figure 23-1). This form includes information such as:

- Client name, address, phone number and fax number (if available)
- Project name and/or number
- The sample identification
- Date, time and location of sampling
- Sample collectors name
- The matrix description
- The container description
- The total number of each type of container
- Preservatives used
- Analysis requested
- Requested turnaround time (TAT)
- Any special instructions
- Purchase Order number or billing information (e.g. quote number) if available
- The date and time that each person received or relinquished the sample(s), including their signed name.

When the sampling personnel deliver the samples directly to TestAmerica personnel, The samples are stored in a cooler with ice, as applicable, and remain solely in the possession of the client's field technician until the samples are delivered to the laboratory personnel. The sample collector must assure that each container is in his/her physical possession or in his/her view at all times, or stored in such a place and manner to preclude tampering. The field technician relinquishes the samples in writing on the COC form to the sample control personnel at the laboratory or to a TestAmerica courier. When sampling personnel deliver the samples through a common carrier (Fed-Ex, UPS), the CoC relinquished date/time is completed by the field personnel and samples are released to the carrier. Samples are only considered to be received by lab when personnel at the fixed laboratory facility have physical contact with the samples.

Note: Independent couriers are not required to sign the COC form. The COC is usually kept in the sealed sample cooler. The receipt from the courier is stored in log-in by date; it lists all receipts each date.

23.1.2 <u>Legal / Evidentiary Chain-of-Custody</u>

The laboratory may, upon special request, adhere to legal/evidentiary chain of custody requirements. If TestAmerica agrees to such procedures the samples are identified for legal/evidentiary purposes on the COC, login will complete the custody seal retain the shipping record with the COC, and initiate an internal COC for laboratory use by analysts and a sample disposal record.

23.2 Sample Receipt

Samples are received at the laboratory by designated sample receiving personnel and a unique laboratory project identification number is assigned. Each sample container shall be assigned a unique sample identification number that is cross-referenced to the client identification number such that traceability of test samples is unambiguous and documented. Each sample container is affixed with a durable sample identification label. Sample acceptance, receipt, tracking and storage procedures are summarized in the following sections.

23.2.1 Laboratory Receipt

When samples arrive at the laboratory, sample receiving personnel inspect the coolers and samples. The integrity of each sample must be determined by comparing sample labels or tags with the COC and by visual checks of the container for possible damage. Any non-conformance, irregularity, or compromised sample receipt must be documented via the Sample Receipt application within TALS (the laboratory LIMS) and brought to the immediate attention of the appropriate Project Manager who will, in turn, contact the client. The COC, shipping documents, documentation of any non-conformance, irregularity, or compromised sample receipt, record of client contact, and resulting instructions become part of the project record.

23.2.1.1 Unique Sample Identification

All samples that are processed through the laboratory receive a unique sample identification to ensure that there can be no confusion regarding the identity of such samples at anytime. This system includes identification for all samples, subsamples and subsequent extracts and/or digestates.

The laboratory assigns a unique identification (e.g., Sample ID) code to each sample container received at the laboratory. This Primary ID is made up of the following information (consisting of 4 components):

Example: 460 - 9608 - A - 1

Location ID (3-digit # for your lab) | Login ID | Container Occurrence | Sample Number

The above example states that TestAmerica Edison Laboratory (Location 460). Login ID is 9608 (unique to a particular client/job occurrence). The container code indicates it is the first container ("A") of Sample #1.

If the primary container goes through a prep step that creates a "new" container, then the new container is considered secondary and gets another ID. An example of this being a client sample in a 1-Liter amber bottle is sent through a Liquid/Liquid Extraction and an extraction vial is created from this step. The vial would be a SECONDARY container. The secondary ID has 5 components.

Example: 460 - 9608 - A - 1 - **A** ← **Secondary Container Occurrence**

Example: 460-9608-A-1-A, would indicate the PRIMARY container listed above that went through a step that created the 1st occurrence of a Secondary container.

With this system, a client sample can literally be tracked throughout the laboratory in every step from receipt to disposal.

23.3 Sample Acceptance Policy

The laboratory has a written sample acceptance policy (Figure 23-2) that clearly outlines the circumstances under which samples shall be accepted or rejected. These include:

- a COC filled out completely;
- samples must be properly labeled;
- proper sample containers with adequate volume for the analysis (Sampling Guide) and necessary QC;
- samples must be preserved according to the requirements of the requested analytical method (Sampling Guide);
- sample holding times must be adhered to (Sampling Guide);
- all samples submitted for water/solid Volatile Organic analyses must have a Trip Blank submitted at the same time;
- the project manager will be notified if any sample is received in damaged condition.

Data from samples which do not meet these criteria are flagged and the nature of the variation from policy is defined.

23.3.1 After inspecting the samples, the sample receiving personnel sign and date the COC form, make any necessary notes of the samples' conditions and store them in appropriate refrigerators or storage locations.

23.3.2 Any deviations from these checks that question the suitability of the sample for analysis, or incomplete documentation as to the tests required will be resolved by consultation with the client. If the sample acceptance policy criteria are not met, the laboratory shall either:

- Retain all correspondence and/or records of communications with the client regarding the disposition of rejected samples, or

- Fully document any decision to proceed with sample analysis that does not meet sample acceptance criteria.

Once sample acceptance is verified, the samples are logged into the LIMS according SOP No. ED-SPM-001.

23.4 Sample Storage

In order to avoid deterioration, contamination or damage to a sample during storage and handling, from the time of receipt until all analyses are complete, samples are stored in refrigerators, freezers or protected locations suitable for the sample matrix. Sample containers designated for metals only analysis are stored un-refrigerated. In addition, samples to be analyzed for volatile organic parameters are stored in separate refrigerators designated for volatile organic parameters only. Samples are never to be stored with reagents, standards or materials that may create contamination.

To ensure the integrity of the samples during storage, refrigerator blanks are maintained in the volatile sample refrigerators and analyzed every two weeks.

Analysts and technicians retrieve the sample container allocated to their analysis from the designated refrigerator and place them on carts, analyze the sample, and return the remaining sample or empty container to the refrigerator from which it originally came. All unused portions of samples, including empty sample containers, are returned to the secure sample control area. All samples are kept in the refrigerators for 30 days after delivery of the final report to the client, which meets or exceeds most sample holding times. After 30 days the samples are disposed of or, upon client request moved to an sample archive area where they are stored for an additional time period agreed upon with the client or dictated by the applicable analytical program (ex. USEPA CLP).

Access to the laboratory is controlled such that sample storage need not be locked at all times unless a project specifically demands it. Samples are accessible to laboratory personnel only. Visitors to the laboratory are prohibited from entering the refrigerator and laboratory areas unless accompanied by an employee of TestAmerica.

23.5 Hazardous Samples and Foreign Soils

To minimize exposure to personnel and to avoid potential accidents, hazardous and foreign soil samples are stored in an isolated area designated for hazardous waste only.

Procedures for the handling and storage of hazardous samples is addressed in the TestAmerica Corporate Safety Manual (TestAmercia Document No. CW-E-M-001) and in TestAmerica Edison SOP No. ED-SPM-001 (Sample Receipt, Login, Identification, And Storage).

Procedures for the acceptance and handling of USDA regulated domestic and foreign soils are detailed in TestAmerica SOP No. ED-SPM-006 (Procedure for Acceptance and Handling of Regulated Domestic and Foreign Soil).

23.6 Sample Shipping

In the event that the laboratory needs to ship samples, the samples are placed in a cooler with enough ice to ensure the samples remain just above freezing and at or below 6.0°C during transit. The samples are carefully surrounded by packing material to avoid breakage (yet maintain appropriate temperature). A trip blank is enclosed for those samples requiring water/solid volatile organic analyses. The chain-of-custody form is signed by the sample control technician and attached to the shipping paperwork. Samples are generally shipped overnight express or hand-delivered by a TestAmerica courier to maintain sample integrity. All personnel involved with shipping and receiving samples must be trained to maintain the proper chain-of-custody documentation and to keep the samples intact and on ice. The Environmental, Health and Safety Manual contains additional shipping requirements.

Note: If a client does not request trip blank analysis on the COC or other paperwork, the laboratory will not analyze the trip blanks that were supplied. However, in the interest of good client service, the laboratory will advise the client at the time of sample receipt that it was noted that they did not request analysis of the trip blank; and that the laboratory is providing the notification to verify that they are not inadvertently omitting a key part of regulatory compliance testing.

23.7 Sample Disposal

Samples should be retained for a minimum of 30 days after the project report is sent, however, provisions may be made for earlier disposal of samples once the holding time is exceeded. Some samples are required to be held for longer periods based on regulatory or client requirements (e.g., 60 days after project report is sent). The laboratory must follow the longer sample retention requirements where required by regulation or client agreement. Several possibilities for sample disposal exist: the sample may be consumed completely during analysis, the sample may be returned to the customer or location of sampling for disposal, or the sample may be disposed of in accordance with the laboratory's waste disposal procedures, TestAmerica Edison SOP No. ED-SPM-007 (Disposal of Samples and Associated Laboratory Waste). All procedures in the laboratory Environmental, Health and Safety Manual are followed during disposal. Samples are normally maintained in the laboratory no longer than 2 months from receipt unless otherwise requested. Unused portions of samples found or suspected to be hazardous according to state or federal guidelines may be returned to the client upon completion of the analytical work.

If a sample is part of a known litigation, the affected legal authority, sample data user, and/or submitter of the sample must participate in the decision about the sample's disposal. All documentation and correspondence concerning the disposal decision process must be kept on file. Pertinent information includes the date of disposal, nature of disposal (such as sample depletion, hazardous waste facility disposal, return to client), names of individuals who conducted the arrangements and physically completed the task. The laboratory will remove or deface sample labels prior to disposal unless this is accomplished through the disposal method (e.g., samples are incinerated).

Figure 23-1. Chain of Custody (COC)

Chain of Custody Record

TAL-4124 (1007)

Temperature on Receipt ______

Drinking Water? Yes ☐ No ☐

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client	Project Manager	Date	Chain of Custody Number 053963
Address	Telephone Number (Area Code)/Fax Number	Lab Number	Page ______ of ______
City / State / Zip Code	Site Contact / Lab Contact	Analysis (Attach list if more space is needed)	
Project Name and Location (State)	Carrier/Waybill Number		Special Instructions/ Conditions of Receipt
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Analysis	Special Instructions/ Conditions of Receipt

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ______ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other ______

QC Requirements (Specify)

1. Relinquished By	Date	Time	1. Received By	Date	Time
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Figure 23-2. Example: Sample Acceptance Policy

All incoming work will be evaluated against the criteria listed below. Where applicable, data from any samples that do not meet the criteria listed below will be noted on the laboratory report defining the nature and substance of the variation. In addition the client will be notified either by telephone, fax or e-mail ASAP after the receipt of the samples.

1) Samples must arrive with labels intact with a Chain of Custody filled out completely. The following information must be recorded.
   - Client name, address, phone number and fax number (if available)
   - Project name and/or number
   - The sample identification
   - Date, time and location of sampling
   - The collectors name
   - The matrix description
   - The container description
   - The total number of each type of container
   - Preservatives used
   - Analysis requested
   - Requested turnaround time (TAT)
   - Any special instructions
   - Purchase Order number or billing information (e.g. quote number) if available
   - The date and time that each person received or relinquished the sample(s), including their signed name.
   - The date and time of receipt must be recorded between the last person to relinquish the samples and the person who receives the samples in the lab, and they must be exactly the same.
   - Information must be legible

2) Samples must be properly labeled.
   - Use durable labels (labels provided by TestAmerica are preferred)
   - Include a unique identification number
   - Include sampling date and time & sampler ID
   - Include preservative used.
   - Use indelible ink
   - Information must be legible

3) Proper sample containers with adequate volume for the analysis and necessary QC are required for each analysis requested.

4) Samples must be preserved according to the requirements of the requested analytical method.

5) Most analytical methods require chilling samples to 4^{o} C (other than water samples for metals analysis). For these methods, the criteria are met if the samples are chilled to below 6^{o} C and above freezing (0^{o}C). For methods with other temperature criteria (e.g. some bacteriological methods require $\leq$ 10 ^{o}C), the samples must arrive within $\pm$ 2^{o} C of the required temperature or within the method specified range. **Note:** Samples that are hand delivered to the laboratory immediately after collection may not have had time to cool sufficiently. In this case the samples will be considered acceptable as long as there is evidence that the chilling process has begun (arrival on ice).

5i.) Samples that are delivered to the laboratory on the same day they are collected may not meet the requirements of Section 5. In these cases, the samples shall be considered acceptable if the samples were received on ice.

5ii.) If sample analysis is begun within fifteen (15) minutes of collection, thermal preservation is not required.

5iii.) Thermal preservation is not required in the field if the laboratory receives and refrigerates the sample within fifteen (15) minutes of collection.

- Chemical preservation (pH) will be verified prior to analysis and documented, either in sample control or at the analyst's level. The project manager will be notified immediately if there is a discrepancy. If analyses will still be performed, all affected results will be flagged to indicate improper preservation.

- **For Volatile Organic analyses in drinking water (Methods 502.2 or 524.2**). Residual chlorine must be neutralized prior to preservation. If there is prior knowledge that the samples are not chlorinated, state it on the COC and use the VOA vials pre-preserved with HCl. The following are other options for a sampler and laboratory where the presence of chlorine is not known:

    - 1. Test for residual chlorine in the field prior to sampling.
        - If no chlorine is present, the samples are to be preserved using HCl as usual.
        - If chlorine is present, add either ascorbic acid or sodium thiosulfate prior to adding HCl.

    - 2. Use VOA vials pre-preserved with sodium thiosulfate or ascorbic acid and add HCl after filling the VOA vial with the sample.

- **FOR WATER SAMPLES TESTED FOR CYANIDE (by Standard Methods or EPA 335)**
    - In the Field: Samples are to be tested for Sulfide using lead acetate paper prior to the addition of Sodium Hydroxide (NaOH). If sulfide is present, the sample must be treated with Cadmium Chloride and filtered prior to the addition of NaOH.

        - If the sulfide test and treatment is not performed in the field, the lab will test the samples for sulfide using lead acetate paper at the time of receipt and if sulfide is present in the sample, the client will be notified and given the option of retaking the sample and treating in the field per the method requirements or the laboratory can analyze the samples as delivered and qualify the results in the final report.

    - It is the responsibility of the client to notify the laboratory if thiosulfate, sulfite, or thiocyanate are known or suspected to be present in the sample. This notification may be on the chain of custody. The samples may need to be subcontracted to a laboratory that performs a UV digestion. If the lab does not perform the UV digestion on samples that contain these compounds, the results must be qualified in the final report.

- The laboratory must test the sample for oxidizing agents (e.g. Chlorine) prior to analysis and treat according to the methods prior to distillation. (ascorbic acid or sodium arsenite are the preferred choice).

6) Sample Holding Times
   - TestAmerica will make every effort to analyze samples within the regulatory holding time. Samples must be received in the laboratory with enough time to perform the sample analysis. Except for short holding time samples (< 48hr HT) sample must be received with at least 48 hrs (2 working days) remaining on the holding time for us to ensure analysis.

   - Analyses that are designated as “field” analyses (Odor, pH, Dissolved Oxygen, Disinfectant Residual; a.k.a. Residual Chlorine, and Redox Potential) should be analyzed ASAP by the field sampler prior to delivering to the lab (within 15 minutes). However, if the analyses are to be performed in the laboratory, TestAmerica will make every effort to analyze the samples within 24 hours from receipt of the samples in the testing laboratory. Samples for “field” analyses received after 4:00 pm on Friday or on the weekend will be analyzed no later than the next business day after receipt (i.e., Monday, unless Monday is a holiday). Samples will remain refrigerated and sealed until the time of analysis. The actual times of all “field” sample analyses are noted in the final report. Samples analyzed in the laboratory will be qualified on the final report with an ‘H’ to indicate holding time exceedance.

7) All samples submitted for Volatile Organic analyses must have a Trip Blank submitted at the same time. TestAmerica will supply a blank with the bottle order.

8) The project manager will be notified if any sample is received in damaged condition. TestAmerica will request that a sample be resubmitted for analysis.

9) Recommendations for packing samples for shipment.

   - Pack samples in Ice rather than “Blue” ice packs.

   - Soil samples should be placed in plastic zip-lock bags. The containers often have dirt around the top, do not seal very well and are prone to intrusion from the water which results from melted ice.

   - Water samples are best package when wrapped with bubble-wrap or paper (newspaper, or paper towels) and then placed in plastic zip-lock bags.

   - Fill cooler void spaces with bubble wrap.

SECTION 24. ASSURING THE QUALITY OF TEST RESULTS

24.1 Overview

In order to assure our clients of the validity of their data, the laboratory continuously evaluates the quality of the analytical process. The analytical process is controlled not only by instrument calibration as discussed in Section 20, but also by routine process quality control measurements (e.g. Blanks, Laboratory Control Samples (LCS), Matrix Spikes (MS), duplicates (DUP), surrogates, Internal Standards (IS)). These quality control checks are performed as required by the method or regulations to assess precision and accuracy. Quality control samples are to be treated in the exact same manner as the associated field samples being tested. In addition to the routine process quality control samples, Proficiency Testing (PT) Samples (concentrations unknown to laboratory) are analyzed to help ensure laboratory performance.

24.2 Controls

Sample preparation or pre-treatment is commonly required before analysis. Typical preparation steps include homogenization, grinding, solvent extraction, sonication, acid digestion, distillation, reflux, evaporation, drying and ashing. During these pre-treatment steps, samples are arranged into discreet manageable groups referred to as preparation (prep) batches. Prep batches provide a means to control variability in sample treatment. Control samples are added to each prep batch to monitor method performance and are processed through the entire analytical procedure with investigative/field samples.

24.3 Negative Controls

Table 24-1. Example – Negative Controls

Control Type	Details
Method Blank (MB)	are used to assess preparation and analysis for possible contamination during the preparation and processing steps.
	The specific frequency of use for method blanks during the analytical sequence is defined in the specific standard operating procedure for each analysis. Generally it is 1 for each batch of samples; not to exceed 20 environmental samples.
	The method blank is prepared from a clean matrix similar to that of the associated samples that is free from target analytes (e.g., Reagent water, Ottawa sand, glass beads, etc.) and is processed along with and under the same conditions as the associated samples. The method blank goes through all of the steps of the process (including as necessary: filtration, clean-ups, etc.).
	Reanalyze or qualify associated sample results when the concentration of a targeted analyte in the blank is at or above the reporting limit as established by the method or by regulation, AND is greater than 1/10 of the amount measured in the sample.
Calibration Blanks	are prepared and analyzed along with calibration standards where applicable. They are prepared using the same reagents that are used to prepare the standards. In some analyses the calibration blank may be included in the calibration curve.
Instrument Blanks	are blank reagents or reagent water that may be processed during an analytical sequence in order to assess contamination in the analytical system. In general, instrument blanks are used to differentiate between contamination caused by the analytical system and that caused by the sample handling or sample prep process. Instrument blanks may also be inserted throughout the analytical sequence to minimize the effect of carryover from samples with high analyte content.

Table 24-1. Example – Negative Controls

Control Type	Details
Trip Blank [1]	are required to be submitted by the client with each shipment of samples requiring aqueous and solid volatiles analyses (or as specified in the client's project plan). Additionally, trip blanks may be prepared and analyzed for volatile analysis of air samples, when required by the client. A trip blank may be purchased (certified clean) or is prepared by the laboratory by filling a clean container with pure deionized water that has been purged to remove any volatile compounds. Appropriate preservatives are also added to the container. The trip blank is sent with the bottle order and is intended to reflect the environment that the containers are subjected to throughout shipping and handling and help identify possible sources if contamination is found. The field sampler returns the trip blank in the cooler with the field samples.
Field Blanks [1]	are sometimes used for specific projects by the field samplers. A field blank prepared in the field by filling a clean container with pure reagent water and appropriate preservative, if any, for the specific sampling activity being undertaken. (EPA OSWER)
Equipment Blanks [1]	are also sometimes created in the field for specific projects. An equipment blank is a sample of analyte-free media which has been used to rinse common sampling equipment to check effectiveness of decontamination procedures. (TNI)
Holding Blanks	also referred to as refrigerator or freezer blanks, are used to monitor the sample storage units for volatile organic compounds during the storage of VOA samples in the laboratory

[1] When known, these field QC samples should not be selected for matrix QC as it does not provide information on the behavior of the target compounds in the field samples. Usually, the client sample ID will provide information to identify the field blanks with labels such as "FB", "EB", or "TB."

Evaluation criteria and corrective action for these controls are defined in the specific standard operating procedure for each analysis.

24.4 Positive Controls

Control samples (e.g., QC indicators) are analyzed with each batch of samples to evaluate data based upon (1) Method Performance (Laboratory Control Sample (LCS) or Blank Spike (BS)), which entails both the preparation and measurement steps; and (2) Matrix Effects (Matrix Spike (MS) or Sample Duplicate (MD, DUP), which evaluates field sampling accuracy, precision, representativeness, interferences, and the effect of the matrix on the method performed. Each regulatory program and each method within those programs specify the control samples that are prepared and/or analyzed with a specific batch

Note that frequency of control samples vary with specific regulatory, methodology and project specific criteria. Complete details on method control samples are as listed in each analytical SOP.

24.4.1 Method Performance Control - Laboratory Control Sample (LCS)

The LCS measures the accuracy of the method in a blank matrix and assesses method performance independent of potential field sample matrix affects in a laboratory batch.

The LCS is prepared from a clean matrix similar to that of the associated samples that is free from target analytes (for example: Reagent water, Ottawa sand, glass beads, etc.) and is processed along with and under the same conditions as the associated samples. The LCS is spiked with verified known amounts of analytes or is made of a material containing known and verified amounts of analytes, taken through all preparation and analysis steps along with the field samples. Where there is no preparation taken for an analysis (such as in aqueous volatiles), or when all samples and standards undergo the same preparation and analysis process (such as Phosphorus), a calibration verification standard is reported as the LCS. In some instances where there is no practical clean solid matrix available, aqueous LCS's may be processed for solid matrices; final results may be calculated as mg/kg or ug/kg, assuming 100% solids and a weight equivalent to the aliquot used for the corresponding field samples, to facilitate comparison with the field samples.

Certified pre-made reference material purchased from a NIST/A2LA accredited vendor may also be used for the LCS when the material represents the sample matrix or the analyte is not easily spiked (e.g. solid matrix LCS for metals, TDS, etc.).

The specific frequency of use for LCS during the analytical sequence is defined in the specific standard operating procedure for each analysis. It is generally 1 for each batch of samples; not to exceed 20 environmental samples.

If the mandated or requested test method, or project requirements, do not specify the spiking components, the laboratory shall spike all reportable components to be reported in the Laboratory Control Sample (and Matrix Spike) where applicable (e.g. no spike of pH). However, in cases where the components interfere with accurate assessment (such as simultaneously spiking chlordane, toxaphene and PCBs in Method 608), the test method has an extremely long list of components or components are incompatible, at a minimum, a representative number of the listed components (see below) shall be used to control the test method. The selected components of each spiking mix shall represent all chemistries, elution patterns and masses, permit specified analytes and other client requested components. However, the laboratory shall ensure that all reported components are used in the spike mixture within a two-year time period.

- For methods that have 1-10 target analytes, spike all components.
- For methods that include 11-20 target analytes, spike at least 10 or 80%, whichever is greater.
- For methods with more than 20 target analytes, spike at least 16 components.
- Exception: Due to analyte incompatibility in pesticides, Toxaphene and Chlordane are only spiked at client request based on specific project needs.
- Exception: Due to analyte incompatibility between the various PCB aroclors, aroclors 1016 and 1260 are used for spiking as they cover the range of all of the aroclors. Specific aroclors may be used by request on a project specific basis.

24.5 Sample Matrix Controls

Table 24-3. Sample Matrix Control

Control Type	Details	
Matrix Spikes (MS)	Use	used to assess the effect sample matrix of the spiked sample has on the precision and accuracy of the results generated by the method used;
	Typical Frequency [1]	At a minimum, with each matrix-specific batch of samples processed, an MS is carried through the complete analytical procedure. Unless specified by the client, samples used for spiking are randomly selected and rotated between different client projects.If the mandated or requested test method does not specify the spiking components, the laboratory shall spike all reportable components to be reported in the Laboratory Control Sample and Matrix Spike. Refer to the method SOP for complete details
	Description	essentially a sample fortified with a known amount of the test analyte(s).
Surrogate	Use	Measures method performance to sample matrix (organics only).
	Typical Frequency [1]	Are added to all samples, standards, and blanks, for all organic chromatography methods except when the matrix precludes its use or when a surrogate is not available. The recovery of the surrogates is compared to the acceptance limits for the specific method. Poor surrogate recovery may indicate a problem with sample composition and shall be reported, with data qualifiers, to the client whose sample produced poor recovery.
	Description	Are similar to matrix spikes except the analytes are compounds with properties that mimic the analyte of interest and are unlikely to be found in environment samples.
Duplicates[2]	Use	For a measure of analytical precision, with each matrix-specific batch of samples processed, a matrix duplicate (MD or DUP) sample, matrix spike duplicate (MSD)**,** or LCS duplicate (LCSD) is carried through the complete analytical procedure.
	Typical Frequency [1]	Duplicate samples are usually analyzed with methods that do not require matrix spike analysis.
	Description	Performed by analyzing two aliquots of the same field sample independently or an additional LCS.
Internal Standards	Use	Are spiked into all environmental and quality control samples (including the initial calibration standards) to monitor the qualitative aspect of organic and some inorganic analytical measurements.
	Typical Frequency [1]	All organic and ICP methods as required by the analytical method.
	Description	Used to correct for matrix effects and to help troubleshoot variability in analytical response and are assessed after data acquisition. Possible sources of poor internal standard response are sample matrix, poor analytical technique or instrument performance.

[1] See the specific analytical SOP for type and frequency of sample matrix control samples.
[2] LCSD's are normally not performed except when regulatory agencies or client specifications require them. The recoveries for the spiked duplicate samples must meet the same laboratory established recovery limits as the accuracy QC samples. If an LCSD is analyzed both the LCS and LCSD must meet the same recovery criteria and be included in the final report. The precision measurement is reported as "Relative Percent Difference" (RPD). Poor precision between duplicates (except LCS/LCSD) may indicate non-homogeneous matrix or sampling.

24.6 Acceptance Criteria (Control Limits)

As mandated by the test method and regulation, each individual analyte in the LCS, MS, or Surrogate Spike is evaluated against the control limits published in the test method. Where there are no established acceptance criteria, the laboratory calculates in-house control limits with the use of control charts or, in some cases, utilizes client project specific control limits. When this occurs, the regulatory or project limits will supersede the laboratory's in-house limits.

Note: For methods, analytes and matrices with very limited data (e.g., unusual matrices not analyzed often), interim limits are established using available data or by analogy to similar methods or matrices.

Once control limits have been established, they are verified, reviewed, and updated if necessary on an annual basis unless the method requires more frequent updating. Control limits are established per method (as opposed to per instrument) regardless of the number of instruments utilized.

Laboratory generated % Recovery acceptance (control) limits are generally established by taking ± 3 Standard Deviations (99% confidence level) from the average recovery of a minimum of 20-30 data points (more points are preferred).

- Regardless of the calculated limit, the limit should be no tighter than the Calibration Verification (ICV/CCV). (Unless the analytical method specifies a tighter limit).
- In-house limits cannot be any wider than those mandated in a regulated analytical method. Client or contract required control limits are evaluated against the laboratory's statistically derived control limits to determine if the data quality objectives (DQOs) can be achieved. If laboratory control limits are not consistent with DQOs, then alternatives must be considered, such as method improvements or use of an alternate analytical method.
- The lowest acceptable recovery limit will be 10% (the analyte must be detectable and identifiable). Exception: The lowest acceptable recovery limit for Benzidine will be 5% and the analyte must be detectable and identifiable.
- The maximum acceptable recovery limit will be 150%.
- The maximum acceptable RPD limit will be 35% for waters and 40% for soils. The minimum RPD limit is 10%.
- If either the high or low end of the control limit changes by ≤ 5% from previous, the control chart is visually inspected and, using professional judgment, they may be left unchanged if there is no affect on laboratory ability to meet the existing limits.

24.6.1 The lab must be able to generate a current listing of their control limits and track when the updates are performed. In addition, the laboratory must be able to recreate historical control limits.

24.6.1.1 The QA Department generates and reviews Quality Control Limit Summaries using the TALS Control Chart module. These tables summarize the updated, proposed precision and accuracy acceptability limits for each applicable analysis performed at TestAmerica Edison Once the QA Department is satisfied that the proposed limits are satisfactory the tables are forwarded to the applicable Department (Technical) Manager for final review. Once the proposed limits have been reviewed they entered into the appropriate TALS Method Limit Group database and approved for use (effectively replacing the existing limits in the database). The Quality Assurance Department maintains an archive of all limits used within the laboratory.

24.6.2 A LCS that is within the acceptance criteria establishes that the analytical system is in control and is used to validate the process. Samples that are analyzed with an LCS with recoveries outside of the acceptance limits may be determined as out of control and should be reanalyzed if possible. If reanalysis is not possible, then the results for all affected analytes for samples within the same batch must be qualified when reported. The internal corrective action process (see Section 12) is also initiated if an LCS exceeds the acceptance limits. Sample results may be qualified and reported without reanalysis if:

- The analyte results are below the reporting limit and the LCS is above the upper control limit.
- If the analytical results are above the relevant regulatory limit and the LCS is below the lower control limit.

24.6.3 If the MS/MSDs do not meet acceptance limits, the MS/MSD and the associated spiked sample is reported with a qualifier for those analytes that do not meet limits. If obvious preparation errors are suspected, or if requested by the client, unacceptable MS/MSDs are reprocessed and reanalyzed to prove matrix interference. A more detailed discussion of acceptance criteria and corrective action can be found in the lab's method SOPs and in Section 12.

24.6.4 If a surrogate standard falls outside the acceptance limits, if there is not obvious chromatographic matrix interference, reanalyze the sample to confirm a possible matrix effect. If the recoveries confirm or there was obvious chromatographic interference, results are reported from the original analysis and a qualifier is added. If the reanalysis meets surrogate recovery criteria, the second run is reported (or both are reported if requested by the client). Under certain circumstances, where all of the samples are from the same location and share similar chromatography, the reanalysis may be performed on a single sample rather than all of the samples and if the surrogate meets the recovery criteria in the reanalysis, all of the affected samples would require reanalysis.

24.7 Additional Procedures to Assure Quality Control

The laboratory has written and approved method SOPs to assure the accuracy of the test method including calibration (see Section 20), use of certified reference materials (see Section 21) and use of PT samples (see Section 15).

A discussion regarding MDLs, Limit of Detection (LOD) and Limit of Quantitation (LOQ) can be found in Section 19.

- Use of formulae to reduce data is discussed in the method SOPs and in Section 20.
- Selection of appropriate reagents and standards is included in Section 9 and 21.
- A discussion on selectivity of the test is included in Section 5.
- Constant and consistent test conditions are discussed in Section 18.
- The laboratories sample acceptance policy is included in Section 23.

SECTION 25. REPORTING RESULTS

25.1 Overview

The results of each test are reported accurately, clearly, unambiguously, and objectively in accordance with State and Federal regulations as well as client requirements. Analytical results are issued in a format that is intended to satisfy customer and laboratory accreditation requirements as well as provide the end user with the information needed to properly evaluate the results. Where there is conflict between client requests and laboratory ethics or regulatory requirements, the laboratory's ethical and legal requirements are paramount, and the laboratory will work with the client during project set up to develop an acceptable solution. Refer to Section 7.

A variety of report formats are available to meet specific needs.

In cases where a client asks for simplified reports, there must be a written request from the client. There still must be enough information that would show any analyses that were out of conformance (QC out of limits) and there should be a reference to a full report that is made available to the client. Review of reported data is included in Section 19.

25.2 Test Reports

Analytical results are reported in a format that is satisfactory to the client and meets all requirements of applicable accrediting authorities and agencies. A variety of report formats are available to meet specific needs. The report is printed on laboratory letterhead, reviewed, and signed by the appropriate project manager. At a minimum, the standard laboratory report shall contain the following information:

25.2.1 A report title (e.g. Analytical Report For Samples) with a "sample results" column header.

25.2.2 Each report cover page printed on company letterhead, which includes the laboratory name, address and telephone number.

25.2.3 A unique identification of the report (e.g. work order number) and on each page an identification in order to ensure the page is recognized as part of the report and a clear identification of the end.

Note: Page numbers of report are represented as page # of ##. Where the first number is the page number and the second is the total number of pages.

25.2.4 A copy of the chain of custody (COC).

25.2.5 The name and address of client and a project name/number, if applicable.

25.2.6 Client project manager or other contact

25.2.7 Description and unambiguous identification of the tested sample(s) including the client identification code.

25.2.8 Date of receipt of sample, date and time of collection, and date(s) of test preparation and performance, and time of preparation or analysis if the required holding time for either activity is less than or equal to 72 hours.

25.2.9 Date reported or date of revision, if applicable.

25.2.10 Method of analysis including method code (EPA, Standard Methods, etc).

25.2.11 Reporting limit.

25.2.12 Method detection limits (if requested)

25.2.13 Definition of Data qualifiers and reporting acronyms (e.g. ND).

25.2.14 Sample results.

25.2.15 QC data consisting of method blank, surrogate, LCS, and MS/MSD recoveries and control limits.

25.2.16 Condition of samples at receipt including temperature. This may be accomplished in a narrative or by attaching sample login sheets

25.2.17 A statement expressing the validity of the results, that the source methodology was followed and all results were reviewed for error.

25.2.18 A statement to the effect that the results relate only to the items tested and the sample as received by the laboratory.

25.2.19 A statement that the report shall not be reproduced except in full, without prior express written approval by the laboratory coordinator.

25.2.20 A signature and title of the person(s) accepting responsibility for the content of the report and date of issue. Signatories are appointed by the Lab Director.

25.2.21 When TNI accreditation is required, the lab shall certify that the test results meet all requirements of TNI or provide reasons and/or justification if they do not.

25.2.22 The laboratory includes a cover letter.

25.2.23 Where applicable, a narrative to the report that explains the issue(s) and corrective action(s) taken in the event that a specific accreditation or certification requirement was not met.

25.2.24 When soil samples are analyzed, a specific identification as to whether soils are reported on a “wet weight” or “dry weight” basis.

25.2.25 Appropriate laboratory certification number for the state of origin of the sample, if applicable.

25.2.26 If only part of the report is provided to the client (client requests some results before all of it is complete), it must be clearly indicated on the report (e.g., partial report). A complete report must be sent once all of the work has been completed.

25.2.27 Any non-TestAmerica subcontracted analysis results are provided as a separate report on the official letterhead of the subcontractor. All TestAmerica subcontracting is clearly identified on the report as to which laboratory performed a specific analysis.

25.2.28 Non-accredited tests shall be clearly identified in the case narrative when claims of accreditation to the TNI standard are made.

Note: Refer to the Corporate SOP on Electronic Reporting and Signature Policy (No. CA-I-P-002) for details on internally applying electronic signatures of approval.

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25.3 Reporting Level or Report Type

The laboratory offers four levels of quality control reporting. Each level, in addition to its own specific requirements, contains all the information provided in the preceding level. The packages provide the following information in addition to the information described above:

- Level I is a report with the features described in Section 25.2 above.
- Level II (also called 'Results/QA) is a Level I report plus summary information, including results for the method blank reported to the laboratory MDL, percent recovery for laboratory control samples and matrix spike samples, and the RPD values for all MSD and sample duplicate analyses.
- NJDEP Reduced Deliverables Format which contains, at minimum, the elements listed in the current NJDEP Technical Requirements for Site Remediation, N.J.A.C. 7:26E.
- NJDEP Full Deliverables Format (Non-USEPA CLP Methods) which contains, at minimum, the elements listed in the current NJDEP Technical Requirements for Site Remediation, N.J.A.C. 7:26E.
- NJDEP Full Deliverables Format (USEPA CLP Methods) which contains, at minimum, the elements listed in the current NJDEP Technical Requirements for Site Remediation, N.J.A.C. 7:26E.
- NYSDEC ASP 'A' and 'B' Deliverables Format which contain, at minimum, the elements listed in the current *New York State Department of Environmental Conservation Analytical Services Protocol*.

In addition to the various levels of QC packaging, the laboratory also provides reports in diskette deliverable form. Initial reports may be provided to clients by facsimile. All faxed reports are followed by hardcopy. Procedures used to ensure client confidentiality are outlined in Section 25.6.

25.3.1 Electronic Data Deliverables (EDDs)

EDDs are routinely offered as part of TestAmerica's services. TestAmerica Edison offers a variety of EDD formats including NJ Hazsite Deliverables, Excel, Dbase, GISKEY, and Text Files.

EDD specifications are submitted to the IT Department by the PM for review and undergo the contract review process. Once the facility has committed to providing data in a specific electronic format, the coding of the format may need to be performed. This coding is documented and validated. The validation of the code is retained by the IT staff coding the EDD.

EDDs shall be subject to a review to ensure their accuracy and completeness. If EDD generation is automated, review may be reduced to periodic screening if the laboratory can demonstrate that it can routinely generate that EDD without errors. Any revisions to the EDD format must be reviewed until it is demonstrated that it can routinely be generated without errors. If the EDD can be reproduced accurately and if all subsequent EDDs can be produced error-free, each EDD does not necessarily require a review.

25.4 Supplemental Information for Test

The lab identifies any unacceptable QC analyses or any other unusual circumstances or observations such as environmental conditions and any non-standard conditions that may have affected the quality of a result. This is typically in the form of a footnote or a qualifier and/or a narrative explaining the discrepancy in the front of the report.

Numeric results with values outside of the calibration range, either high or low are qualified as 'estimated'.

Where quality system requirements are not met, a statement of compliance/non-compliance with requirements and/or specifications is required, including identification of test results derived from any sample that did not meet TNI sample acceptance requirements such as improper container, holding time, or temperature.

Where applicable, a statement on the estimated uncertainty of measurements; information on uncertainty is needed when a client's instructions so require.

Opinions and Interpretations - The test report contains objective information, and generally does not contain subjective information such as opinions and interpretations. If such information is required by the client, the Laboratory Director will determine if a response can be prepared. If so, the Laboratory Director will designate the appropriate member of the management team to prepare a response. The response will be fully documented, and reviewed by the Laboratory Director, before release to the client. There may be additional fees charged to the client at this time, as this is a non-routine function of the laboratory.

Note: Review of data deliverable packages for submittal to regulatory authorities requires responses to non-conforming data concerning potential impact on data quality. This necessitates a limited scope of interpretation, and this work is performed by the QA Department. This is the only form of "interpretation" of data that is routinely performed by the laboratory.

When opinions or interpretations are included in the report, the laboratory provides an explanation as to the basis upon which the opinions and interpretations have been made. Opinions and interpretations are clearly noted as such and where applicable, a comment should be added suggesting that the client verify the opinion or interpretation with their regulator.

25.5 Environmental Testing Obtained From Subcontractors

If the laboratory is not able to provide the client the requested analysis, the samples would be subcontracted following the procedures outlined in the Corporate SOP on Subcontracting (SOP No. CA-L-S-002).

Data reported from analyses performed by a subcontractor laboratory are clearly identified as such on the analytical report provided to the client. Results from a subcontract laboratory outside of TestAmerica are reported to the client on the subcontract laboratory's original report stationary and the report includes any accompanying documentation.

25.6 Client Confidentiality

In situations involving the transmission of environmental test results by telephone, facsimile or other electronic means, client confidentiality must be maintained.

TestAmerica will not intentionally divulge to any person (other than the Client or any other person designated by the Client in writing) any information regarding the services provided by TestAmerica or any information disclosed to TestAmerica by the Client. Furthermore, information known to be potentially endangering to national security or an entity's proprietary rights will not be released.

Note: This shall not apply to the extent that the information is required to be disclosed by TestAmerica under the compulsion of legal process. TestAmerica will, to the extent feasible, provide reasonable notice to the client before disclosing the information.

Note: Authorized representatives of an accrediting authority are permitted to make copies of any analyses or records relevant to the accreditation process, and copies may be removed from the laboratory for purposes of assessment.

25.6.1 Report deliverable formats are discussed with each new client. If a client requests that reports be faxed or e-mailed, the reports are faxed with a cover sheet or e-mailed with the following note that includes a confidentiality statement similar to the following:

This material is intended only for the use of the individual(s) or entity to whom it is addressed, and may contain information that is privileged and confidential. If you are not the intended recipient, or the employee or agent responsible for delivering this material to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone at the 1-800-765-0980 (or for e-mails: please notify us immediately by e-mail or by phone (1-800-765-0980) and delete this material from any computer).

25.7 Format of Reports

The format of reports is designed to accommodate each type of environmental test carried out and to minimize the possibility of misunderstanding or misuse.

25.8 Amendments to Test Reports

Corrections, additions, or deletions to reports are only made when justification arises through supplemental documentation. Justification is documented using the laboratory's corrective action system (refer to Section 12).

The revised report is retained on the Archive data server, as is the original report. The revised report is stored in the Archive data server under the sample number followed by "Rev (n)" where 'n' is the revision number. The revised report will have the words "Revision (n)" on the report cover page beneath the report date. Additionally, a section entitled "Revised Report" will appear on the Case Narrative page. A brief explanation of the reasons for the re-issue will be included in this section.

25.9 Policies on Client Requests for Amendments

25.9.1 Policy on Data Omissions or Reporting Limit Increases

Fundamentally, our policy is simply to not omit previously reported results (including data qualifiers) or to not raise reporting limits and report sample results as ND. This policy has few exceptions. Exceptions are:

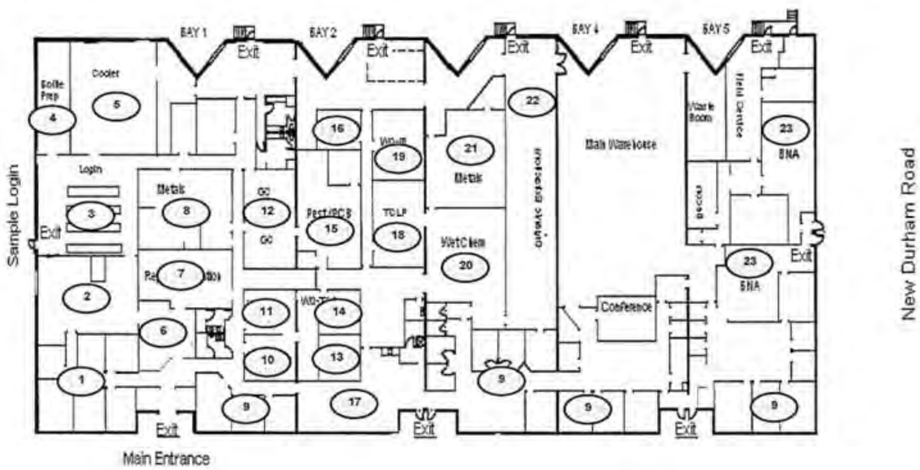
- Laboratory error.
- Sample identification is indeterminate (confusion between COC and sample labels).
- An incorrect analysis (not analyte) was requested (e.g., COC lists 8315 but client wanted 8310). A written request for the change is required.
- Incorrect limits reported based on regulatory requirements.
- The requested change has absolutely *no possible* impact on the interpretation of the analytical results and there is *no possibility* of the change being interpreted as misrepresentation by anyone inside or outside of our company.

25.9.2 Multiple Reports

TestAmerica does not issue multiple reports for the same work order where there is different information on each report (this does not refer to copies of the same report) unless required to meet regulatory needs and approved by QA.

Appendix 1. Laboratory Floor Plan

Edison Floor Plan

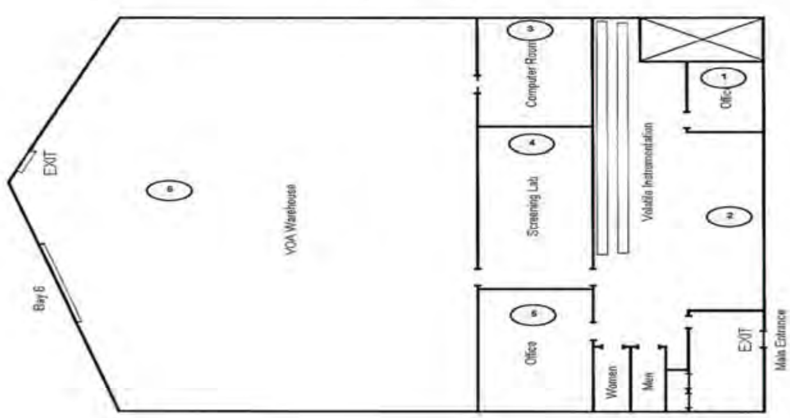


Key Areas *

1. PM-PMA/Admin.
2. Project Management
3. Sample Login
4. Bottle Prep
5. Sample Cooler
6. Reception
7. Report Production
8. Metals
9. Offices
10. Wet Chem-IC
11. Wet Chem - Lachat
12. GCs
13. DAI Instruments
14. Wet Chem-TOC
15. Pest/PCBs
16. Mercury Rm
17. Cafeteria
18. TCLP Extration
19. Wet-Chem-IR
20. Wet Chem Lab
21. Metals
22. Organic Extractions
23. BNA

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Edison Floor Plan



Key Areas *

1. Office
2. Volatile Organics
3. Computer Rm
4. Screening Rm
5. Office
6. Warehouse

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Appendix 2. Glossary/Acronyms (EL-V1M2 Sec. 3.1)

Glossary:

Acceptance Criteria: Specified limits placed on characteristics of an item, process, or service defined in requirement documents. (ASQC)

Accreditation: The process by which an agency or organization evaluates and recognizes a laboratory as meeting certain predetermined qualifications or standards, thereby accrediting the laboratory.

Accuracy: The degree of agreement between an observed value and an accepted reference value. Accuracy includes a combination of random error (precision) and systematic error (bias) components which are due to sampling and analytical operations; a data quality indicator. (QAMS)

Analyst: The designated individual who performs the “hands-on” analytical methods and associated techniques and who is the one responsible for applying required laboratory practices and other pertinent quality controls to meet the required level of quality.

Analytical Uncertainty: A subset of Measurement Uncertainty that includes all laboratory activities performed as part of the analysis. (TNI)

Assessment: The evaluation process used to measure or establish the performance, effectiveness, and conformance of an organization and/or its systems to defined criteria (to the standards and requirements of laboratory accreditation). (TNI)

Audit: A systematic and independent examination of facilities, equipment, personnel, training, procedures, record-keeping, data validation, data management, and reporting aspects of a system to determine whether QA/QC and technical activities are being conducted as planned and whether these activities will effectively achieve quality objectives. (TNI)

Batch: Environmental samples that are prepared and/or analyzed together with the same process and personnel, using the same lot(s) of reagents. A **preparation batch** is composed of one (1) to twenty (20) environmental samples of the same quality systems matrix, meeting the above mentioned criteria and with a maximum time between the start of processing of the first and last sample in the batch to be twenty-four (24) hours. An **analytical batch** is composed of prepared environmental samples (extracts, digestates or concentrates) which are analyzed together as a group. An analytical batch can include prepared samples originating from various quality system matrices and can exceed twenty (20) samples. (TNI)

Bias: The systematic or persistent distortion of a measurement process, which causes errors in one direction (i.e., the expected sample measurement is different from the sample’s true value). (TNI)

Blank: A sample that has not been exposed to the analyzed sample stream in order to monitor contamination during sampling, transport, storage or analysis. The blank is subjected to the usual analytical and measurement process to establish a zero baseline or background value and is sometimes used to adjust or correct routine analytical results. (ASQC)

Calibration: A set of operations that establish, under specified conditions, the relationship between values of quantities indicated by a measuring instrument or measuring system, or values represented by a material measure or a reference material, and the corresponding values realized by standards. (TNI)

1) In calibration of support equipment the values realized by standards are established through the use of reference standards that are traceable to the International System of Units (SI).

2) In calibration according to methods, the values realized by standards are typically established through the use of Reference Materials that are either purchased by the laboratory with a certificate of analysis or purity, or prepared by the laboratory using support equipment that has been calibrated or verified to meet specifications.

Calibration Curve: The mathematical relationship between the known values, such as concentrations, of a series of calibration standards and their instrument response. (TNI)

Calibration Standard: A substance or reference material used to calibrate an instrument (QAMS)

Certified Reference Material (CRM): A reference material accompanied by a certificate, having a value, measurement uncertainty, and stated metrological traceability chain to a national metrology institute. (TNI).

Chain of Custody (COC) Form: Record that documents the possession of the samples from the time of collection to receipt in the laboratory. This record generally includes: the number and types of containers; the mode of collection; the collector; time of collection; preservation; and requested analyses. (TNI)

Compromised Samples: Those samples which are improperly sampled, insufficiently documented (chain of custody and other sample records and/or labels), improperly preserved, collected in improper containers, or exceeding holding times when delivered to a laboratory. Under normal conditions, compromised samples are not analyzed. If emergency situation require analysis, the results must be appropriately qualified.

Confidential Business Information (CBI): Information that an organization designates as having the potential of providing a competitor with inappropriate insight into its management, operation or products. TNI and its representatives agree to safeguarding identified CBI and to maintain all information identified as such in full confidentiality.

Confirmation: Verification of the identity of a component through the use of an approach with a different scientific principle from the original method. These may include, but are not limited to Second Column Confirmation; Alternate wavelength; Derivatization; Mass spectral interpretation; Alternative detectors or Additional Cleanup procedures. (TNI)

Conformance: An affirmative indication or judgment that a product or service has met the requirements of the relevant specifications, contract, or regulation; also the state of meeting the requirements. (ANSI/ASQC E4-1994)

Correction: Actions necessary to correct or repair analysis specific non-conformances. The acceptance criteria for method specific QC and protocols as well as the associated corrective actions. The analyst will most frequently be the one to identify the need for this action as a result of calibration checks and QC sample analysis. No significant action is taken to change behavior, process or procedure.

Corrective Action: The action taken to eliminate the causes of an existing nonconformity, defect or other undesirable situation in order to prevent recurrence. (ISO 8402)

Data Audit: A qualitative and quantitative evaluation of the documentation and procedures associated with environmental measurements to verify that the resulting data re of acceptable quality (i.e., that they meet specified acceptance criteria).

Data Reduction: The process of transforming the number of data items by arithmetic or statistical calculations, standard curves, and concentration factors, and collation into a more useable form. (TNI)

Deficiency: An unauthorized deviation from acceptable procedures or practices, or a defect in an item. (ASQC)

Demonstration of Capability: A procedure to establish the ability of the analyst to generate analytical results of acceptable accuracy and precision. (TNI)

Document Control: The act of ensuring that documents (and revisions thereto) are proposed, reviewed for accuracy, approved for release by authorized personnel, distributed properly, and controlled to ensure use of the correct version at the location where the prescribed activity if performed. (ASQC)

Duplicate Analyses: The analyses or measurements of the variable of interest performed identically on two subsamples of the same sample. The results from duplicate analyses are used to evaluate analytical or measurement precision but not the precision of sampling, preservation or storage internal to the laboratory. (EPA-QAD)

Equipment Blank: Sample of analyte-free media which has been used to rinse common sampling equipment to check effectiveness of decontamination procedures.

External Standard Calibration: Calibrations for methods that do not utilize internal standards to compensate for changes in instrument conditions.

Field Blank: Blank prepared in the field by filing a clean container with pure de-ionized water and appropriate preservative, if any, for the specific sampling activity being undertaken (EPA OSWER)

Field of Accreditation: Those matrix, technology/method, and analyte combinations for which the accreditation body offers accreditation.

Holding Times: The maximum time~~s~~ that samples may be held prior to analyses and still be considered valid or not compromised. (40 CFR Part 136)

Internal Standard: A known amount of standard added to a test portion of a sample as a reference for evaluating and controlling the precision and bias of the applied analytical test method. (TNI)

Internal Standard Calibration: Calibrations for methods that utilize internal standards to compensate for changes in instrument conditions.

Instrument Blank: A clean sample (e.g., distilled water) processed through the instrumental steps of the measurement process; used to determine instrument contamination. (EPA-QAD)

Instrument Detection Limit (IDL): The minimum amount of a substance that can be measured with a specified degree of confidence that the amount is greater than zero using a specific instrument. The IDL is associated with the instrumental portion of a specific method only, and sample preparation steps are not considered in its derivation. The IDL is a statistical estimation at a specified confidence interval of the concentration at which the relative uncertainty is ± 100%. The IDL represents a range where qualitative detection occurs on a specific instrument. Quantitative results are not produced in this range.

Laboratory Control Sample (however named, such as laboratory fortified blank, spiked blank, or QC check sample): A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes, taken through all preparation and analysis steps of the procedure unless otherwise noted in a reference method. It is generally used to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system.

An LCS shall be prepared at a minimum of 1 per batch of 20 or less samples per matrix type per sample extraction or preparation method except for analytes for which spiking solutions are not available such as total suspended solids, total dissolved solids, total volatile solids, total solids, pH, color, odor, temperature, dissolved oxygen or turbidity. The results of these samples shall be used to determine batch acceptance.

Least Squares Regression (1st Order Curve): The least squares regression is a mathematical calculation of a straight line over two axes. The y axis represents the instrument response (or Response ratio) of a standard or sample and the x axis represents the concentration. The regression calculation will generate a correlation coefficient (r) that is a measure of the "goodness of fit" of the regression line to the data. A value of 1.00 indicates a perfect fit. In order to be used for quantitative purposes, r must be greater than or equal to 0.99 for organics and 0.995 for inorganics.

Limit(s) of Detection (LOD) [a.k.a., Method Detection Limit (MDL)]: A laboratory's estimate of the minimum amount of an analyte in a given matrix that an analytical process can reliably detect in their facility. (TNI)

LOD Verification [a.k.a., MDL Verification]: A processed QC sample in the matrix of interest, spiked with the analyte at no more than 3X the LOD for single analyte tests and 4X the LOD for multiple analyte tests and processed through the entire analytical procedure.

Limit(s) of Quantitation (LOQ) [a.k.a., Reporting Limit]: The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. (TNI)

Quality System (QS) Matrix: The component or substrate that contains the analyte of interest. For purposes of batch and QC requirement determinations, the following matrix distinctions shall be used:

Aqueous: Any aqueous sample excluded from the definition of Drinking Water or Saline/Estuarine —Includes surface water, groundwater, effluents, and TCLP or other extracts.

Drinking Water: Any aqueous sample that has been designated as a potable or potential potable water source.

Saline/Estuarine: Any aqueous sample from an ocean or estuary, or other salt water source such as the Great Salt Lake.

Non-Aqueous Liquid: Any organic liquid with <15% settleable solids.

Biological Tissue: Any sample of a biological origin such as fish tissue, shellfish, or plant material. Such samples shall be grouped according to origin.

Solids: Includes soils, sediments, sludges, and other matrices with >15% settleable solids.

Chemical Waste: A product or by-product of an industrial process that results in a matrix not previously defined.

Air & Emissions: Whole gas or vapor samples including those contained in flexible or rigid wall containers and the extracted concentrated analytes of interest from a gas or vapor that are collected with a sorbant tube, impinger solution, filter, or other device. (TNI)

Matrix Spike (spiked sample or fortified sample): A sample prepared, taken through all sample preparation and analytical steps of the procedure unless otherwise noted in a referenced method, by adding a known amount of target analyte to a specified amount of sample for which an independent test result of target analyte concentration is available. Matrix spikes are used, for example, to determine the effect of the matrix on a method's recovery efficiency.

Matrix Spike Duplicate (spiked sample or fortified sample duplicate): A replicate matrix spike prepared and analyzed to obtain a measure of the precision of the recovery for each analyte.

Method Blank: A sample of a matrix similar to the batch of associated samples (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences are present at concentrations that impact the analytical results for sample analyses.

Method Detection Limit: The minimum concentration of a substance (an analyte) that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte. (40 CFR Part 136, Appendix B)

Negative Control: Measures taken to ensure that a test, its components, or the environment do not cause undesired effects, or produce incorrect test results.

Non-conformance: An indication, judgment, or state of not having met the requirements of the relevant specifications, contract, or regulation.

Performance Audit: The routine comparison of independently obtained qualitative and quantitative measurement system data with routinely obtained data in order to evaluate the proficiency of an analyst or laboratory.

Positive Control: Measures taken to ensure that a test and/or its components are working properly and producing correct or expected results from positive test subjects.

Precision: The degree to which a set of observations or measurements of the same property, obtained under similar conditions, conform to themselves; a data quality indicator. Precision is usually expressed as standard deviation, variance or range, in either absolute or relative terms. (TNI)

Preservation: Any conditions under which a sample must be kept in order to maintain chemical and/or biological integrity prior to analysis. (TNI)

Proficiency Testing: A means of evaluating a laboratory's performance under controlled conditions relative to a given set of criteria through analysis of unknown samples provided by an external source. (TNI)

Proficiency Testing Program: The aggregate of providing rigorously controlled and standardized environmental samples to a laboratory for analysis, reporting of results, statistical evaluation of the results and the collective demographics and results summary of all participating laboratories. (TNI)

Proficiency Test Sample (PT): A sample, the composition of which is unknown to the laboratory and is provided to test whether the laboratory can produce analytical results within specified acceptance criteria. (TNI)

Quality Assurance: An integrated system of management activities involving planning, implementation, assessment, reporting and quality improvement to ensure that a process, item, or service is of the type of quality needed and expected by the client. (TNI)

Quality Assurance [Project] Plan (QAPP): A formal document describing the detailed quality control procedures by which the quality requirements defined for the data and decisions pertaining to a specific project are to be achieved. (EAP-QAD)

Quality Control: The overall system of technical activities that measures the attributes and performance of a process, item, or service against defined standards to verify that they meet the stated requirements established by the customer; operational techniques and activities that are used to fulfill requirements for quality; also the system of activities and checks used to ensure that measurement systems are maintained within prescribed limits, providing protection against "out of control" conditions and ensuring that the results are of acceptable quality. (TNI)

Quality Control Sample: A sample used to assess the performance of all or a portion of the measurement system. One of any number of samples, such as Certified Reference Materials, a quality system matrix fortified by spiking, or actual samples fortified by spiking, intended to demonstrate that a measurement system or activity is in control. (TNI)

Quality Manual: A document stating the management policies, objectives, principles, organizational structure and authority, responsibilities, accountability, and implementation of an agency, organization, or laboratory, to ensure the quality of its product and the utility of its product to its users. (TNI)

Quality System: A structured and documented management system describing the policies, objectives, principles, organizational authority, responsibilities, accountability, and implementation plan of an organization for ensuring quality in its work processes, products (items), and services. The quality system provides the framework for planning, implementing, and assessing work performed by the organization and for carrying out required QA and QC activities. (TNI)

Raw Data: The documentation generated during sampling and analysis. This documentation includes, but is not limited to, field notes, electronic data, magnetic tapes, untabulated sample results, QC sample results, print outs of chromatograms, instrument outputs, and handwritten records. (TNI)

Record Retention: The systematic collection, indexing and storing of documented information under secure conditions.

Reference Material: Material or substance one or more properties of which are sufficiently homogeneous and well established to be used for the calibration of an apparatus, the assessment of a measurement method, or for assigning values to materials. (TNI)

Reference Standard: Standard used for the calibration of working measurement standards in a given organization or a given location. (TNI)

Sampling: Activity related to obtaining a representative sample of the object of conformity assessment, according to a procedure.

Second Order Polynomial Curve (Quadratic): The 2^{nd} order curves are a mathematical calculation of a slightly curved line over two axis. The y axis represents the instrument response (or Response ratio) of a standard or sample and the x axis represents the concentration. The 2^{nd} order regression will generate a coefficient of determination (COD or r^2) that is a measure of the "goodness of fit" of the quadratic curvature the data. A value of 1.00 indicates a perfect fit. In order to be used for quantitative purposes, r^2 must be greater than or equal to 0.99.

Selectivity: The ability to analyze, distinguish, and determine a specific analyte or parameter from another component that may be a potential interferent or that may behave similarly to the target analyte or parameter within the measurement system. (TNI)

Sensitivity: The capability of a method or instrument to discriminate between measurement responses representing different levels (e.g., concentrations) of a variable of interest. (TNI)

Spike: A known mass of target analyte added to a blank, sample or sub-sample; used to determine recovery efficiency or for other quality control purposes.

Standard: The document describing the elements of laboratory accreditation that has been developed and established within the consensus principles of standard setting and meets the approval requirements of standard adoption organizations procedures and policies. (TNI)

Standard Operating Procedures (SOPs): A written document which details the method for an operation, analysis, or action, with thoroughly prescribed techniques and steps. SOPs are officially approved as the methods for performing certain routine or repetitive tasks. (TNI)

Storage Blank: A blank matrix stored with field samples of a similar matrix (volatiles only) that measures storage contribution to any source of contamination.

Surrogate: A substance with properties that mimic the analyte of interest. It is unlikely to be found in environment samples and is added to them for quality control purposes.

Surrogate compounds must be added to all samples, standards, and blanks, for all organic chromatography methods except when the matrix precludes its use or when a surrogate is not available. Poor surrogate recovery may indicate a problem with sample composition and shall be reported to the client whose sample produced poor recovery. (QAMS)

Systems Audit (also Technical Systems Audit): A thorough, systematic, qualitative on-site assessment of the facilities, equipment, personnel, training, procedures, record keeping, data validation, data management, and reporting aspects of a total measurement system. (EPA-QAD)

Technical Manager: A member of the staff of an environmental laboratory who exercises actual day-to-day supervision of laboratory operations for the appropriate fields of accreditation and reporting of results

Technology: A specific arrangement of analytical instruments, detection systems, and/or preparation techniques.

Traceability: The ability to trace the history, application, or location of an entity by means of recorded identifications. In a calibration sense, traceability relates measuring equipment to national or international standards, primary standards, basic physical constants or properties, or reference materials. In a data collection sense, it relates calculations and data generated throughout the project back to the requirements for the quality of the project. (TNI)

Trip Blank: A blank matrix placed in a sealed container at the laboratory that is shipped, held unopened in the field, and returned to the laboratory in the shipping container with the field samples.

Uncertainty: A parameter associated with the result of a measurement that characterizes the dispersion of the value that could reasonably be attributed to the measured value.

Acronyms:

CAR – Corrective Action Report
CCV – Continuing Calibration Verification
CF – Calibration Factor
CFR – Code of Federal Regulations
COC – Chain of Custody
DOC – Demonstration of Capability
DQO – Data Quality Objectives
DUP - Duplicate
EHS – Environment, Health and Safety
EPA – Environmental Protection Agency
GC - Gas Chromatography
GC/MS - Gas Chromatography/Mass Spectrometry
HPLC - High Performance Liquid Chromatography
ICP - Inductively Coupled Plasma Atomic Emission Spectroscopy
ICP/MS – ICP/Mass Spectrometry
ICV – Initial Calibration Verification
IDL – Instrument Detection Limit
IH – Industrial Hygiene
IS – Internal Standard
LCS – Laboratory Control Sample
LCSD – Laboratory Control Sample Duplicate
LIMS – Laboratory Information Management System
LOD – Limit of Detection
LOQ – Limit of Quantitation
MDL – Method Detection Limit
MDLCK – MDL Check Standard
MDLV – MDL Verification Check Standard
MRL – Method Reporting Limit Check Standard
MS – Matrix Spike
MSD – Matrix Spike Duplicate
NELAP - National Environmental Laboratory Accreditation Program
PT – Performance Testing
TNI – The NELAC Institute
QAM – Quality Assurance Manual
QA/QC – Quality Assurance / Quality Control
QAPP – Quality Assurance Project Plan
RF – Response Factor
RPD – Relative Percent Difference
RSD – Relative Standard Deviation
SD – Standard Deviation
SOP – Standard Operating Procedure
TAT – Turn-Around-Time
VOA – Volatiles
VOC – Volatile Organic Compound

Appendix 3. Laboratory Certifications, Accreditations, Validations

TestAmerica Edison maintains accreditations, certifications, and approvals with numerous state and national entities. Programs vary but may include on-site audits, reciprocal agreements with another entity, performance testing evaluations, review of the QA Manual, Standard Operating Procedures, Method Detection Limits, training records, etc. At the time of this QA Manual revision, the laboratory has accreditation/certification/licensing with the following organizations:

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Certifications

Laboratory	Program	Authority	Identification	Expiration Date
TestAmerica Edison	Federal	USDA	NJCA-003-08	03/11/2014
TestAmerica Edison	NELAP	New Jersey	12028	06/30/2014
TestAmerica Edison	NELAP	New York	11452	04/01/2014
TestAmerica Edison	NELAP	Pennsylvania	68-00522	02/28/2014
TestAmerica Edison	State Program	Connecticut	PH-0200	09/30/2014
TestAmerica Edison	State Program	DE Haz. Subst. Cleanup Act (HSCA)	N/A	04/30/2014
TestAmerica Edison	State Program	Rhode Island	LAO00132	12/30/2013

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* Certification Valid - Laboratory is Pending Renewal with the Program Authority

For more information, or to contact a local TestAmerica representative nearest you, please visit our website at www.testamericainc.com

The certificates and parameter lists (which may differ) are available, upon request, from a laboratory representative. for each organization may be found on the corporate web site, the laboratory's public server, the final report review table, and in the following offices: QA, marketing, and project management.