4.1 NEW JERSEY REMEDIATION STANDARDS

New Jersey recognizes several different levels of remedial action. Based on the intended future use, a contaminated site may be cleaned up to one of several standards, which are as follows, based on the New Jersey Brownfields and Contaminated Site Remediation Act (BCSRA) of 1997. (For an effective summary of New Jersey's Brownfield redevelopment criteria and implementation tools, see "New Jersey Gives Brownfields Shot in the Arm" by Bruce S. Katcher, which first appeared in *The Legal Intelligencer* in Jan. 1998).

Essentially, New Jersey's standards provide for one of three options, namely unrestricted (e.g. residential), restricted (e.g. non-residential), industrial or a site-specific arrangement. Whatever the standard, each contaminant must fall at or below the prescribed risk-based value, which in New Jersey does not change per future use. In short , New Jersey's *Technical Rules for Site Remediation* (7:26 E) broadly defines remedial action as "...those actions taken at a contaminated site as may be required by the Department [NJDEP], including, without limitation, removal, treatment measures, containment, transportation, securing, or other engineering or institutional controls, whether to an unrestricted use or otherwise, designed to ensure that any discharged contaminant is remediated in compliance with 7:26 E".

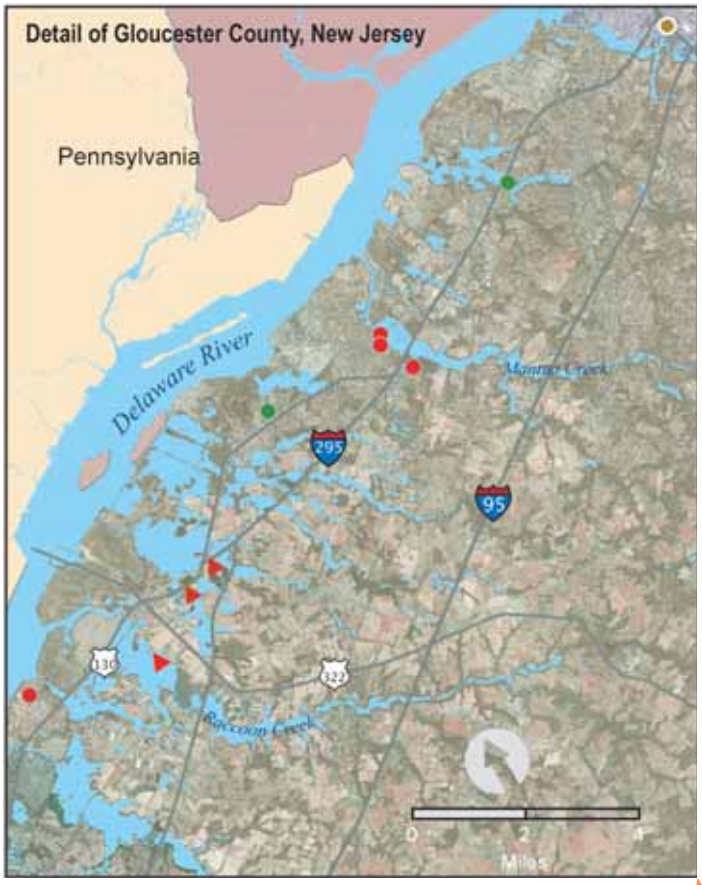
It defines different surface water bodies according to their natural characteristics and also their intended use. N.J.A.C. 7.9B-1.12 designates the uses for all types of waters. Within the Delaware River Basin there are five separate distinct types of surface water bodies and, as illustrated below, have different allowable concentrations of PCBs. Each of these uses also allow for "other reasonable uses", that do not lead to impairment of their intended use. The surface water standards apply to all other water bodies as well. Sediments, while not having a specific remediation standard, must not be allowed to contribute to substantial risk to human uses (i.e. fishing, recreation, potable water etc.) or ecological vitality. This threshold is considered to be crossed when a given contaminant is found in concentrations that exceed the risk value greater than 1 x 10^{-6} over an expected human lifetime of 70 years.

Table 11. New Jersey Remediation/Quality Standards for PCBs

SOIL (N.J.A.C 7:26D, 1992)		
Residential Direct Contact Soil Cleanup Criteria	**Non-Residential Direct Contact Soil Cleanup Criteria**	**Impact to Groundwater Soil Cleanup Criteria**
0.49 mg/kg	2 mg/kg	50 mg/kg
GROUNDWATER (N.J.A.C 7:9C, 2005)		
Groundwater Quality Criteria	**Practical Quantitation Level**	
0.02 µg/L	0.05 µg/L	
SURFACE WATER (N.J.A.C. 7:9B, 2005)	**Surface Water Body Classification**	
Criteria in µg/L		
0.014 c; 0.00017 hc	All FW2	
0.03 c; 0.00017 hc	All SE	

NOTE: for a listing of waterbodies by catgory, please see N.J.A.C 7:9B, infra., available at www.state.nj.us/dep/wmm/sgwqt/swqs-docs.html.

Fig. 8. Status of Known PCB Sites in the State of New Jersey



NJDEP submitted 10 sites for the 2006 DelTRiP report. Files for all but one site (Woodstown-Pilesgrove Sanitary Landfill) were available and an additional two sites were discovered through outside research, both of whose remedial statuses could not be confirmed through file review (Trenton Fibre Drum Company, Inc. and Fazio Sanitary Landfill). These three sites may still contain PCBs. In addition, Safety Kleen Bridgeport is now solely under EPA Region 2 lead. Therefore, EPA Region 2 leads remediations at eight sites undergoing cleanup for PCBs. Additionally, three sites submitted by EPA were found to be outside of the Delaware River basin, and thus, will not be summarized in the current 2007 report or in future editions.

Number of Known PCB Sites in the State of New Jersey by Lead Agency and Current Remedial Status

- 4 — EPA Region 2 sites with reportedly completed remediation
- 8 — EPA Region 2 lead sites with ongoing PCB remediation
- 2 — NJDEP lead sites with reportedly completed PCB remediation
- 4 — NJDEP lead sites with ongoing PCB remediation
- 3 — Unknown remedial status (NJDEP)

4.2 SITES WITH ONGOING PCB REMEDIATION IN NEW JERSEY

EPA Region 2

Site Name:	Bridgeport Disposal, LLC (previously known as Safety Kleen, Inc., Bridgeport, Laidlaw Environmental Services, and Rollins Environmental (submitted in 2006 by NJDEP)	
Agency Site ID:	NJDEP ID# 004586 (EPA ID# NJD053288239)	
Site Location:	Bridgeport, NJ	
Site County:	Gloucester	
Site Coordinates:	**Latitude:**	39.786667
	Longitude:	-75.353056
Last history update by agency:		2006
Site Category:		Former Hazardous Waste Disposal Facility
Site Watershed:		Delaware River
Discharge Point(s):		Raccoon Creek
Name of Nearest Water Body:		Raccoon Creek, unnamed wetlands
Distance to Nearest Water Body:		Adjacent
Adjacent to Delaware River?		No
PCBs in groundwater?		Potentially
Remediation Complete?		No
If so, when did it end?		N/A

Bridgeport Disposal, LLC is currently at the beginning stages of its PCB-related remediation under a RCRA corrective action. Operating under several different names and under the ownership of several different proprietors, it operated as a RCRA-approved commercial treatment, storage and disposal facility for hazardous wastes from 1969 to 2001. The facility accepted a variety of wastes that were incinerated. Incineration activities also generated residues (such as fly ash) that were disposed onsite before 1980.

Adjacent to Raccoon Creek, a tributary to the Delaware River, and a series of unnamed wetlands, most of the PCB-related contamination likely resulted from an explosion and fire in December 1977 that destroyed 18 of 31 tanks that contained a variety of wastes and constituents, including PCBs. To extinguish the extensive fire, crews used water from nearby lagoons that were tainted with a variety of contaminants, thereby resulting in a wide dispersion of organic substances. Following the fire, NJDEP ordered the facility closed for one month, whence removal of the top 12 inches of soil from the tank farm, roughly 120,000 gallons of contaminated liquids and ponded "fire water", and the planning for the removal of liquids present in the lagoons would take place. In addition, the 11 hazardous waste "impoundment areas" that held liquid wastes were to be closed (closure was completed in 1986). Although these efforts were intended to remediate any resulting contamination from either the fire or that water used to put it out, data generated between 1988 and 1996 in a series of RCRA remedial investigations indicate that these efforts were only partially successful.

A 1981 NJDEP issued administrative and consent order (ACO) ordered the then owner, Rollins Environmental Services, to begin groundwater monitoring and abatement for a variety of substances, including PCBs, which continues to present day. Treated water is discharged intermittently into Raccoon Creek under a NJPDES permit during outgoing tide periods, averaging roughly 0.47 mgd. Numerous sampling events between 1988 and 1996 (totaling 369 samples from 0-16 feet bgs and 191 samples from 0-2 feet bgs) samples have revealed widespread PCB contamination in almost all areas of the 78 acres where the facility previously operated ranging from below detectable levels to over 500 ppm. The validity of prior testing has been brought into question by Bridgeport Disposal, LLC's consultant in 2005 in which they claim that "quantitative [phase I soil sampling] statements about the results cannot be extrapolated to the entire site…Therefore, a more appropriate approach to sampling must be implemented to collect data required to evaluate remediation strategies (if required). It is anticipated that only [one] additional phase will be required to define the extent of impacts; additional phases may be required for area-specific delineation based on results of the first [two] phases" (Clean Harbors, Inc., 2005). An additional 60

samples are therefore planned to fully delineate PCB concentrations in surface and subsurface soils using EPA methods 8082 and 1668A, a more expensive variant capable of detected more specific congeners. 1993 testing of the area known as the Northern Marsh (the adjacent NJ-recognized wetland area) showed PCB results ranging from 0.16 ppm to 159 ppm in soils. This is the data that will reportedly be used for a future ecological risk assessment.

Site Name:	Bridgeport Rental Oil Services (BROS)	
Agency Site ID:	NJD053292652	
Site Location:	Logan Township (Town of Bridgeport)	
Site County:	Gloucester	
Site Coordinates:	**Latitude:**	39.801669
	Longitude:	-75.321661
Last history update by agency:		July 2006
Site Category:		Former waste oil recycling facility
Site Watershed:		Delaware River
Discharge Point(s):		Little Timber Creek
Name of Nearest Water Body:		Little Timber Creek, Cedar Swamp
Distance to Nearest Water Body:		Onsite
Adjacent to Delaware River?		No
PCBs in groundwater?		Yes
PCB Remediation Complete?		No
If so, when did it end?		N/A

Fig. 9. BROS in the 1980s. *Source:* US EPA

BROS represents one of the most complex and expensive cleanups in New Jersey's history according to the EPA. The 30-acre parcel of land was once used as a waste oil storage and recovery facility that housed a tank farm with roughly 100 tanks, process vessels, drums, tank trucks, and, most significantly, a 13-acre unlined waste oil and wastewater lagoon. The sludge that settled to the bottom of the lagoon acted to partially prevent certain portions from fully entering the water table, which remains fairly constant throughout the site at roughly 10 feet below the surface of the lagoon; thus, the lagoon was in direct contact with groundwater. Initial estimates in 1981 indicated that the waste oil lagoon contained roughly 2.5 million gallons of oil contaminated with a variety of substances, primarily PCBs, and an additional 70 million gallons of contaminated wastewater. More accurate assessments of contaminated surfaces became apparent later, when as of 2005, over 250 million gallons of wastewater had been treated and discharged to Little Timber Creek. An onsite incinerator was installed in 1991, which ultimately eliminated over 172,000 tons of contaminants, including roughly 80,000 tons of PCB impacted sediments from the lagoon (with PCB levels as high as 6,000 ppm). The lagoon was eventually fully excavated and backfilled with almost half a million tons of clean fill after the last of the over 5,200 55-gallon drums had been removed from it and its bank in 1996. Additionally, 350 drums, eight large gas cylinders, and approximately 4,000 cubic yards of soil were excavated and removed from site between 2001-2003.

At present, efforts are being made to address three different plumes of PCB-containing LNAPL that are believed to have migrated up to one-half-mile from site and the dissolved phase organic compound water plume. The LNAPL plumes are distributed over a three acre on-site area and have impacted the Potomac-Raritan-Magothy aquifer. LNAPL characterization data collected at the site indicates total PCB concentrations up to 4,300 ppm. EPA's September 2006 Record of Decision proposes innovative technologies as well as traditional methods to address the LNAPL and groundwater plumes. The 800 nearby residents who have historically used well water have been connected to public water supplies. Ten acres of sediment and soil from neighboring Little Timber Creek Swamp will also be excavated (PCBs as high as 400 ppm and 120 ppm, respectively) down to depths of over three feet. The wetland will be restored upon completion of the remedial action. In addition, PCB impacted onsite soil remains and extends to depths exceeding 25 feet below ground surface.

EPA Region 2

Site Name:	Burnt Fly Bog	
Agency Site ID:	NJD980504997	
Site Location:	Marlboro Township, NJ	
Site County:	Monmouth	
Site Coordinates:	**Latitude:**	40.375
	Longitude:	-74.279169
Last history update by agency:		June 2006
Adjacent to Delaware River?		No
PCBs in groundwater?		Yes
PCB Remediation Complete?		No
If so, when did it end?		N/A

This site is outside the Delaware River basin

EPA Region 2

Site Name:	Chemical Leaman Tank Lines, Inc.	
Agency Site ID:	NJD047321443	
Site Location:	Logan Township	
Site County:	Gloucester	
Site Coordinates:	**Latitude:**	39.798331
	Longitude:	-75.332781
Last history update by agency:		May 2006
Site Category:		Former tanker truck washing facility
Site Watershed:		Delaware River
Discharge Point(s):		Great Cedar Swamp
Name of Nearest Water Body:		Great Cedar Swamp, Moss Branch Creek
Distance to Nearest Water Body:		Adjacent
Adjacent to Delaware River?		No
PCBs in groundwater?		Yes
PCB Remediation Complete?		No
If so, when did it end?		N/A

Since 1961, Chemical Leaman Tank Lines, Inc. (CLTL) has operated a tank washing facility on its 34 acre property. Prior to 1975, the wastewater from cleaning the trucks that contained chemicals was stored in seven unlined lagoons which ultimately discharged to adjacent Great Cedar Swamp and Moss Branch Creek. EPA noted during a 1990 site visit that "…there is a 75-foot wide swath of dead trees that marks the effluent flow path". When these lagoons were closed, the sludges that covered the bottoms were removed and disposed off site.

PCB levels in soil averaged 2,160 µg/kg of Aroclors-1254 and 1248 in 1991. In addition, PCBs were found in two out of 30 sediment samples in adjacent Great Cedar Swamp up to 7.4 mg/kg but not in surface water or groundwater. The choice of remediation for the swamp was excavation of a swale area, totaling roughly 11,500

tons over 7.3 acres, filling with clean infill, and restricting access to the site while groundwater continues to be monitored over the long term for a variety of COCs. Reconstruction of the diminished wetlands is also ongoing.

The onsite soils (operable unit 2) were reportedly not remediated upon choosing a "no action" as the preferred alternative. This decision by EPA's cleanup branch has received criticism from within EPA, and from NJDEP and NOAA. This will have left in place unsaturated zone soils and sludges within the former lagoons, which are believed to be a continual source of groundwater contamination. Thus, the PCB levels reported above are presumably still onsite, leaving an estimated 26,000 cubic yards of contaminated surface and subsurface soil, though there has been no recent soil or sediment sampling to confirm this. Aroclor 1248 was found at a concentration of 1.6 mg/kg in 1991 surface soils. The EPA is currently completing a remedial investigation of the remaining areas and have not yet selected a remedial alternative; they expect to issue a ROD for this OU in 2008.

OU3 consists of onsite wetlands. Remediation of the wetlands was completed in June 2006. The remediation consisted of the excavation, backfill and restoration of the wetlands. A total volume of 8421 tons of soil and sediments consisting of metals, SVOCs and pesticide/PCB contaminants were removed during the remedial action. The only PCB of concern found in sediment was Aroclor 1254. All detected levels were excavated and replaced with clean fill and the cleanup confirmed with post-excavation sampling. The target cleanup goal established was 1,000 ppb and the highest post excavation sample measured at 410 ppb.

Site Name: Dayco Corp./L.E. Carpenter Co..
Agency Site ID: NJD002168748
Site Location: Wharton, NJ
Site County: Morris
Site Coordinates: **Latitude:** 40.90333
Longitude: -75.5775
Last history update by agency: June 2006
Distance to Nearest Water Body: Adjacent
Adjacent to Delaware River? No
PCBs in groundwater? Yes
PCB Remediation Complete? No
If so, when did it end? N/A

This site is outside the Delaware River basin

EPA Region 2

Site Name: Fort Dix Landfill
Agency Site ID: NJ2210020275
Site Location: Pemberton, NJ
Site County: Burlington County
Site Coordinates: **Latitude:** 39.980100
Longitude: -74.624400
Last history update by agency: Last available record dated
Site Category: Department of Defense site
Site Watershed: Newbold Run
Discharge Point(s): Unknown
Name of Nearest Water Body: Newbold Run
Distance to Nearest Water Body: 1,200 feet
Adjacent to Delaware River? No
PCBs in groundwater? No
Remediation Complete? No
If so, when did it end? N/A

EPA Region 2

The NPL Fort Dix Landfill Site consists of a 126-acre (principal) landfill. This site has been capped and is not leaching any PCBs into the environment. The remaining 33,000 acres of Fort Dix is divided into seven BRAC

properties that are tracked by EPA and 30 plus sites that are tracked by the State. The BRAC properties are grouped into four operable units been divided into multiple operating units (OU1 through OU4) to facilitate study and remediation described below. The remediation activities at OU4 have been completed. Activities at OU1 and OU2 are ongoing. No PCBs were detected in the area of OU3.

OU1
PCB contamination in the area of OU1 was studied in three phases. Phases 1 and 2 identified and studied the transformers in the survey area. The Phase 3 study identified Aroclor 1260 contamination in a high voltage room in the Mid-State Correctional Facility, located on the property. Concrete chips from the room indicated PCB concentrations as high as 57,000 mg/kg. The aroclor was also found in the soil outside of the exterior door to the room with a concentration as high as 13 ppm. The next step for this operating unit, under State oversight, is to evaluate the options for treatment and removal. In addition to the Mid-State Correctional Facility, also included in OU1 is a landfill area. A 1989 study indicated that PCBs were not detected in ground water or in the surface water of Cannon Run.

OU2
A survey of the area of OU2 indicated two underground tanks used to store waste oil. No PCBs were found in ground water, though Aroclor 1260 was detected in surface and subsurface soils. The underground storage tanks were removed in 1997, along with 100 cubic yards of soil that had a PCB concentration ranging from 5.2 ppm to 24.4 ppm. Further delineation of the area of OU2 in 2000 and 2001 indicated surface concentrations of Aroclor 1260 ranging from 0.017 mg/kg to 2,000 mg/kg, and subsurface concentrations of this aroclor ranging from 0.018 mg/kg to 3,400 mg/kg. In the spring of 2003 an interim solution to remove and dispose of PCB contaminated soil was approved. A Remedial Investigation and Closure Report was prepared in 2004 but was not yet released to the EPA's record management system as of the DelTRiP review in June 2006.

OU4
The area of OU4 was divided into multiple Areas Requiring Environmental Evaluation (AREE). The PCB transformer storage area, also known as *AREE29*, was initially investigated in 1993. Soil concentrations of Aroclor 1260 were as high as 0.850 µg/kg. PCBs were not detected in the surface water of Newbold Run or sediment. Aroclor 1260 was also detected on the interior walls and floor of a building with a concentration as high as 2,291 µg/kg. Likewise, Aroclor 1016 was detected on the interior walls and floor as high as 24.5 µg/kg. In 2002 the building was demolished and 34 tons of soil was removed.

Transformers with PCB oil were also found atop poles in *AREE41* of OU4. The soil under the poles was tested and ranged from 1 ppm to 4 ppm. No further action was recommended.

NJDEP

Site Name:	Hercules Incorporated Facility (Burlington)	
Agency Site ID:	N/A	
Site Location:	300 Neck Road, Burlington NJ	
Site County:	Burlington County	
Site Coordinates:	**Latitude:**	40.092222
	Longitude:	-75.833056
Last history update by agency:		
Site Category:		Industrial
Site Watershed:		Delaware River
Discharge Point(s):		N/A
Name of Nearest Water Body:		Delaware River
Distance to Nearest Water Body:		Adjacent
Adjacent to Delaware River?		Yes
PCBs in groundwater?		Yes
PCB Remediation Complete?		No
If so, when did it end?		N/A

This 135 acre site is at the juncture of River and Neck Roads, in Burlington County. The west side of the site borders the Delaware River. From 1947-1992, Hercules manufactured resins that were used in ink, gum, and perfume production. From 1953-1971, the company produced dimethylterephthalate, and from 1962-1969, it made Herban, an agricultural herbicide. Industrial operations on the site ceased in 1992. The site is currently owned by Burlington Neck, LLC. According to the Final (100%) Remedial Design, "Surface water runoff from the Site is collected in man-made ditches which discharge to stormwater basin at southwest corner of site. Water discharges from basin to Delaware River."

As of 2001, 64 out of 101 Areas of Concern (AOCs) were determined to require No Further Action. Out of the remaining 37 AOCs, PCBs were detected in 27, which were grouped into 4 Operating Units (OUs). OU1 consists of sediment and surface soils in and around the stormwater drainage system. OU2 includes the contaminated surface soils in other areas of the site. OU3 refers to the former wastewater lagoons, including the South Pit. OU4 is composed of four groundwater AOCs. NJDEP approved monitoring natural attenuation at OU4 with a classification of Exception Area Designation. OU4 is not part of the scope of PCB remediation. "In general, the PCB soil contamination at the Hercules Burlington site can be described as widespread and low level. Most of the PCB results which exceed the standard are in the 1-3 ppm range." (DelTRiP Annual Report, January 2006) The PCBs on site have not migrated to the water table and the impact to groundwater has not been exceeded. Soil boring samples taken from both OU1 and OU2 on 3/30/2006 had a maximum PCB concentration of 10.5 mg/kg. All other concentrations were under 2 mg/kg, which is the level for non-residential use. No PCBs were found in the stormwater.

Proposed remedial action for OU1 and OU2 consists of excavation and onsite reuse. OU3 will be filled with rubble fill and excavated material from OU1 and OU2 and then capped. Soils with PCBs over 100 mg/kg will be excavated and disposed of off-site. This is estimated to be about 45 yd^3. According to the April 2006 monthly progress report, remedial closeout is scheduled to end October of 2006, and the project would then end in August of 2007.

EPA Region 2

Site Name: Imperial Oil Co. Inc./Carpenter Chemicals
Agency Site ID: NJD980654099
Site Location:
Site County: Monmouth
Site Coordinates: **Latitude:** 40.383889
Longitude: -74.245831
Last history update by agency:
Distance to Nearest Water Body:
Adjacent to Delaware River? No
PCBs in groundwater? N/A
PCB Remediation Complete? No
If so, when did it end? N/A

This site is outside the Delaware River basin

NJDEP

Name: Lail Property (Exxon/Mobil)
Agency Site ID: PI#G000005968
Site Location: East Greenwich Township, Borough of Paulsboro
Site County: Gloucester County
Site Coordinates: **Latitude:** 39.832222
Longitude: -75.231667
Last history update by agency:
Site Category: Industrial
Site Watershed: Mantua Creek
Discharge Point(s): N/A
Name of Nearest Water Body: Mantua Creek
Distance to Nearest Water Body: ~300 feet
Adjacent to Delaware River? No
PCBs in groundwater? Yes
PCB Remediation Complete? No
If so, when did it end? N/A

This site is in Gloucester County, southeast of the Interstate 295 overpass of Mantua Creek. The property is about 16 acres and includes a tidally influenced freshwater embayment, a freshwater wetland, and upland areas. The Delaware River is about 2 miles from the site, which is bounded by I-295 and commercial facilities. The site was previously investigated in 1986, and 17 subsurface anomalies were found. Four were determined to be potential drum areas. Three of these were remediated by removing drums and soil, and no further action was required. The fourth site contained aluminosilicate materials (ASM), high in PCB concentrations, which had been dumped there in the 1950s.

FROM DelTRiP ANNUAL REPORT, JANUARY 2006 (Revised)

The site consists of a tidally influenced embayment off the Mantua Creek (which contains up to 4' of water during high tide and only isolated puddles during low tide), and emergent wetland and surrounding upland areas. The embayment was created through excavation for borrow material and is part of the Mantua Creek, which flows into the Delaware River two miles from the site. The site is surrounded by industrial, commercial, and residential properties. Previous environmental investigations and remediation revealed and removed buried drums and associated contaminated soils from six separate areas of the site. Area J was revealed to be an area with buried material containing PCBs, specifically Aroclor-1254. The material placed into the former borrow pit was a catalyst used in the petroleum industry and consists of ASM which was passed through a bath containing Aroclor

1254 and fired to a glass-like consistency. The material was placed into the borrow pit during the 1950s. ASM is only found in the locations in which it was originally dumped in the 1950s, because of its cohesive properties when saturated. According to the referenced document and portions of a report included as Appendix A, the aluminosilicate material is up to nine feet thick and contains PCB levels of either up to 5,800 ppm or up to 21,000 ppm (conflicting data exists). Regardless of which data is more accurate, the PCB levels exceed NJDEP soil cleanup criteria (0.49 ppm), ecological screening benchmarks 0.060 ppm of Aroclor-1254) and TSCA removal criteria (100 ppm) by several orders of magnitude.

The sample containing 5,800 ppm of Aroclor-1254 yielded a TCLP concentration of 0.011 ppm or 11 ppb (0.0002% of the total concentration). The solubility of Aroclor 1254 is 12 ppb. Therefore, even though conditions in the TCLP analysis provide a more favorable condition for leaching than pure water at 20º C, this result still indicates a high level of solubility. The cover over the buried ASM is anywhere from nonexistent to five feet thick. Approximately 30,000 cubic yards of material exists in the embayment and adjacent upland areas with approximately 75% of the emergent wetland containing ASM.

SEDIMENTS

The embayment and wetland area sediments consist mainly of sands on the western portion of the embayment, the mudflats and the southern emergent wetland area. The northern portion of the embayment is comprised of gravel and sand, and the middle portion of the embayment and the eastern emergent wetland is comprised mainly of silt. During the May/June 2001 sampling event, sediment samples were collected in twenty-seven locations, with PCBs detected in twenty-five of these locations. PCB concentrations in the shallow sediments ranged from 0.14 ppm to 1,200 ppm while concentration in deep sediments ranged from 0.092 ppm to 1,060 ppm. PCB levels in all 25 locations (49 samples) exceed ecological screening benchmarks for fresh water sediments (0.060 ppm for Aroclor 1254 and 0.070 ppm for total PCBs). Twenty-two of the shallow sediment samples and twenty-one of the deep sediment samples exceed the NJDEP soil cleanup criteria (SCC) (0.49 ppm), and four of the shallow sediment samples and one deep sediment sample exceed the TSCA removal criteria (100 ppm). Previous investigations revealed PCB concentrations up to 21,000 ppm, but this result was never approached or duplicated. In addition to aluminosilicate material (ASM), which was detected in five locations in the May/June 2001 sampling event, a petroleum odor or sheen was observed in four locations during this event.

As evidenced in file review during the summer of 2006, in sediments, there were no PCBs detected in 37% of 480 samples. Concentrations exceeded the Lowest Effect Levels in the Delaware River, Mantua Creek, embayment, and the connecting channel. 72% were below the Severe Effects Level Sediment Quality Guideline. The range of these results were 0.52 mg/kg – 1200 mg/kg. The average was 155 mg/kg in ASM areas, down to an average of 1.3 mg/kg with increasing depth. Outside ASM areas, the average PCB concentration was 1.3 mg/kg, down to 0.22 mg/kg at deeper levels. (Remedial Action Work Plan, 2/2006)

SOIL

Six soil samples were collected from the three monitoring wells (two samples from each well) during installation in April 2001. Four of the six soil samples exhibited PCB concentrations ranging from 0.21 to 3.9 ppm, with three of the six soil samples exceeding the NJDEP SCC. The remaining two samples, MW1 S1 0”-6” and MW2 S-1 12”-18” exhibited estimated concentrations of 0.094 ppb and 0.075 ppb, respectively.

As of summer 2006, PCBs were nondetect in 46% of 221 soil samples. Concentrations were below the Residential Direct Contact Soil Cleanup Criteria of 0.49 mg/kg in 64% of samples. The range of results was 0.32 – 2300 mg/kg, and the average was 155 mg/kg. With depth, the range was ND – 2.8 mg/kg; the average was 0.56. Outside ASM area, the average concentration was 0.67 mg/kg. (Remedial Action Work Plan, 2/2006)

GROUNDWATER

Three groundwater samples were collected from the monitoring wells in May 2001. MW3 exhibited a PCB concentration of 2.54 ppb, which exceeds the NJDEP groundwater quality standard (GWQS) of 0.5 ppb. MW1 and MW2 exhibited estimated concentrations of 0.5 ppb and 0.56 ppb, respectively.

During summer 2006 file review, it was revealed that in three subsequent rounds of sampling and testing (8/2002, 8/2003, and 9/2003), no PCBs were detected. No further action was required by the NJDEP. (Remedial Action Work Plan, 2/2006)

SURFACE WATER

Eight surface water samples were collected from selected sediment sample locations in May 2001. One surface water sample exhibited a PCB concentration of 3 ppb, which exceeds the NJDEP surface water quality standard (SWQS) of 0.014 ppb (freshwater aquatic) and 0.000244 ppb (freshwater human health). The SWQS is based on total concentration in unfiltered samples. One of the surface water sample bottles was broken by the laboratory and was not analyzed and two of the samples were collected four feet above the sediments instead of the zero to six-inch interval above the sediments.

As of summer 2006, 2001/2002 samples had PCB concentrations exceeding surface SWQC (0.014 ug/L) by almost 240 ug/L. However, results from a 2004 analysis from the embayment area showed concentrations below SWGC. (Remedial

WILDLIFE

Six vegetation samples (common Spatterdock) were collected within the embayment and wetlands in May 2001. All vegetation samples were ND for PCBs. Eight composite samples of mummichogs and rainwater killifish along with one duplicate sample and one MS/MSD sample were collected within the embayment in June 2001 for analysis of PCBs and % lipids. All ten samples exhibited PCB concentrations ranging from 1.26 ppm to 8/6 ppm. The fish were collected from the northern and northeastern portion of the embayment where PCB concentrations are at the lowest levels within the embayment; however, the fish were collected at low tide from the remaining water within the channel and represent fish from the entire embayment. During low tide, small fish are densely packed into available standing water. One unidentified killifish and one juvenile stripped bass were also caught during the sampling event.

PROPOSED REMEDIAL ACTIONS as of 2/2006:

As of 2/2/2006, Exxon Mobil had determined the extent of PCB contamination, and will asses the potential environmental hazards associated with it. This will be found in the Ecological and Human Health Risk Assessments, when it is published.

Proposed remedial actions include:

1. Construction of two stone berms to reduce movement of sediments and fish between ASM and Mantua Creek.
2. Removal and disposal of ASM containing PCBs. Exxon Mobile submitted a Site-Specific PCB disposal approval request to the EPA to outline where the PCBs will be disposed. However, Site Specific standards have not yet been determined. Also submitted was a plan for post-remedial monitoring, including quarterly and storm event inspections. (Remedial Action Work Plan, 2/2006)

NJDEP

Site Name:	Manchester Machinery and Salvage Site (former)/Dana Transport	
Agency Site ID:	NJDEP# 7754	
Site Location:	Crown Point Road, West Deptford Township	
Site County:	Gloucester	
Site Coordinates:	**Latitude:**	39.832222
	Longitude:	-75.226389
Last history update by agency:		June 2006
Site Category:		Industrial
Site Watershed:		Mantua Creek
Discharge Point(s):		Mantua Creek
Name of Nearest Water Body:		Mantua Creek
Distance to Nearest Water Body:		Adjacent
Adjacent to Delaware River?		No
PCBs in groundwater?		Yes
Remediation Complete?		No
If so, when did it end?		N/A

This site includes several properties located along Crown Point Road and adjacent to Mantua Creek, a tributary to the Delaware River. The site was in use for more than 40 years fort machine, salvage, welding, and other assorted operations. Contamination has been confirmed from waste oils and drums disposed onsite and draining of transformer oil that contributed PCBs, petroleum hydrocarbons, metals, PAHs, and pesticides to soil, groundwater, surface waters and sediments of Mantua Creek. PCBs seem to be widespread across the site, consisting of ten separate tax parcels, with one soil sample revealing a range of concentrations between 0.009 ppm and 1,240 ppm on lot 22, acquired by Dana Transport in 1995 from Shell Oil. Though not extensive, several rounds of sampling in 1986 and 1997, with one additional sampling event in 1999 for sediments, revealed extensive contamination, principally with PCBs. Lot 25, whose historic operations include scrap and equipment salvage from 1963 to 1987 had a maximum PCB soil concentration of 36 ppm in 1997.

The most recent (1997) groundwater and surface water sampling revealed PCBs as high as 390 ppb and 5.5 ppm, respectively. The NJDEP standards for groundwater and surface water concentrations are 0.5 ppb and 0.014 ppb (for freshwater aquatic life). The most recent 1999 sediment sampling event revealed PCBs in 11 of 17 samples with a maximum concentration of 11 ppm. To date, there has been no effective cleanup of any of the ten parcels. Currently, NJDEP is coordinating an extensive sampling plan with its contractor, Louis Berger Group, Inc., in order to determine possible remediation strategies.

EPA Region 2

Site Name:	Martin Aaron, Inc. (submitted in 2006 by NJDEP)	
Agency Site ID:	NJDEP ID# 12007 EPA ID# NJD014623854	
Site Location:	1542 South Broadway, Camden, NJ	
Site County:	Camden	
Site Coordinates:	**Latitude:**	39.926286
	Longitude:	-75.119378
Last history update by agency:		2006
Site Category:		Industrial
Site Watershed:		Woodbury Creek
Discharge Point(s):		Unknown
Name of Nearest Water Body:		Delaware River
Distance to Nearest Water Body:		~0.75 miles
Adjacent to Delaware River?		No
PCBs in groundwater?		No
Remediation Complete?		No
If so, when did it end?		N/A

Added to the NPL in 1999, EPA is now the lead agency for this site, though a file review was performed only at NJDEP. Originally encompassing five properties (Martin Aaron, Inc., South Jersey Port Corporation (SJPC), Comarco Products, Ponte Company, and Royal Auto Center scrap yard), EPA and NJDEP approved a request from a potential purchaser of SJPC to address this site separately. The remaining four properties are being addressed by EPA.

Some of the existing contamination is the result of historic fill, which is considered non-indigenous material placed on a site to raise its topographic elevation. Ash, cinders, brick, concrete, and other random debris underlies all five properties and is a source of some contamination, though not necessarily from Martin Aarons Inc. Martin Aarons Inc. contributed heavily to contamination of the area through its almost 25 years of operations as a drum recycling business. Anonymous sources indicated that containerized waste was buried on site, confirmed by inspections as early as 1981-1983 by EPA and NJDEP, who found unpermitted discharges of hazardous wastes that were leaking from drums and roll-off containers.

PCBs are a concern only at the Martin Aaron Inc. property, though one soil spot sample for in 2000 showed 3.2 ppm of Aroclor 1254 in the neighboring property, owned by Comarco Products, an active meat processing plant on Jackson Street. PCBs, detected in four surface soil samples at Martin Aaron, showed the presence of Aroclors 1254 and 1260 above NRDCSCC. The analytical results ranged from 0.047 ppm to 19 ppm. Subsurface PCB contaminated soils (2-21 feet below ground surface) were detected in fewer samples, however, where they were detected, were at higher levels than in surface soil (1.6 ppm to 48 ppm).

Though the 2005 Record of Decision (ROD) for both contaminated soil and groundwater, the selected remedies involve excavating highly contaminated arsenic and VOC soils, eliminating direct contact through capping the remaining residual contaminated soils, and utilizing a groundwater collection and treatment system. Although the ROD identified only VOCs and arsenic as principal threat wastes since they are considered a source of groundwater contamination, both Aroclors 1254 and 1260 were included as part of the Cleanup Goals for the site. Since there are no surface water bodies close by (the Delaware River is roughly .75 miles west of the site, Cooper River is roughly 2 miles north-northeast, and Newton Creek is roughly 1.5 miles south), there is very little possibility that on site PCBs or other site related contaminants will reach any of these water bodies. In addition, groundwater, though contaminated with a variety of substances, is believed to flow away from the Delaware River. The site, however, sits within the 100-year floodplain.

Site Name:	Matteo & Sons, Inc. (submitted in 2006 by NJDEP)	
Agency Site ID:	NJD011770013	
Site Location:	1708 Rte. 130, Thorofare, NJ	
Site County:	Gloucester County	
Site Coordinates:	**Latitude:**	39.822222
	Longitude:	-75.231667
Last history update by agency:		2006
Site Category:		Industrial/Landfill
Site Watershed:		Mantua Creek
Discharge Point(s):		Unknown
Name of Nearest Water Body:		Hessian Run, Woodbury Creek
Distance to Nearest Water Body:		Adjacent
Adjacent to Delaware River?		No
PCBs in groundwater?		Yes
PCB Remediation Complete?		No
If so, when did it end?		N/A

This site is 80 acres, bounded by a residential trailer park, Routes 130/295, Hessian Run, and Woodbury Creek. This property has been owned by the Matteo family since 1947. It was once the site of a battery-metals reclamation business and from 1971-1985 it was also the site of a lead melting operation. Portions of the site were used as an unauthorized landfill for solid and industrial wastes until the 1970s. Materials disposed of at this site include incinerator ash and production wastes from the battery business. Previous investigations at the site led to actions such as onsite waste burial (around 1972), drum removals, and sampling. A scrap metal recycling facility is operating onsite. Two underground pipelines (Buckeye and PSE&G) run through the site. During excavation for the installation of these two pipelines, anonymous complaints of "acidic vapors" prompted sampling and testing of soil and nearby water. NJDEP investigations revealed "a "lead sweating operation," landfilling of crushed automobile battery casings along the banks of Hessian Run, unauthorized use of an incinerator for lead smelting operation, ash from lead smelting operation hauled to on-site landfill, two fires at the landfill, discovery of abandoned drums of unknown waste, and discovery of a yellow waste dispersed across the Site." *(Final Remedial Investigation Report, May 2004)*

As stated in the 2006 DelTRiP Report, "Site is 80 acres along Hessian Run in the Woodbury-Hessian Run marshes (freshwater tidal). Both lead and PCB contamination are widespread in site soils and sediments. The sources of PCBs are unknown, but it is speculated that the source may have been a widespread application of a PCB-containing agent for dust and weed control on unpaved roadways and lots that supported the junkyard and past waste-disposal activities. A PCB containing material may have also been mixed in with the waste that was buried at the site.

File reviews during the summer of 2006 revealed that in surface soils, 457 samples were taken at various depths. Aroclor-1248, -1254, and -1260 were detected. Of 187 lab samples, 42 exceeded the RDCSCC, and 29 exceeded the NRDCSCC. Only 9 of 187 had a PCB concentration over 10 mg/kg, the highest of which was 49 mg/kg. Most of the affected areas were in the top layer of soil, as opposed to intermediate or deep soils. The majority of Hessian Run estuary is affected, with the exception of the central channel portions.

The major media of concern are waste/soil, sediment, and groundwater. There are three AOCs for waste soil: the waste disposal areas along Hessian Run, the open field area, and the scrapyard area. All have PCBs. The site was listed on the final NPL in September 2006. Though EPA has not not selected a remedy, options for remediation include no further action, institutional and engineering controls that would limit exposure, capping, excavation and disposal on or off-site, or a combination of these alternatives. Groundwater remediation could include limiting exposure and enhanced monitored natural attenuation. These alternatives are being analyzed to determine which is the best option for treatment of this facility.

NJDEP

Site Name:	Monsanto (later Solutia)	
Agency Site ID:	N/A	
Site Location:	Logan Township, NJ	
Site County:	Gloucester	
Site Coordinates:	**Latitude:**	39.795833
	Longitude:	-75.396389
Last history update by agency:		
Site Category:		Industrial
Site Watershed:		Delaware River
Discharge Point(s):		Unknown
Name of Nearest Water Body:		Delaware River (north), Birch Creek (east)
Distance to Nearest Water Body:		The above water bodies form the property line
Adjacent to Delaware River?		Yes
PCBs in groundwater?		Yes
PCB Remediation Complete?		No
If so, when did it end?		N/A

Monsanto was the sole manufacturer of PCBs for over forty years. They ceased production several years before the passage of TSCA in 1977, which criminalized the production of PCBs and made their transport, use, and disposal a federally regulated activity. Monsanto Co. (certain subsidiaries were reorganized under the name Solutia) in Logan Township was engaged in the manufacture of plasticizers, flame retardants, organic industrial chemicals and dyes since 1961. Each of these products potentially contain PCBs as a constituent. Solutia operated a RCRA regulated landfill on the northeast portion of the property until 1985 and a separate landfill for PCB wastes in the northwest. PCBs have been found in soils at the PCB landfill up to 1,230 ppm (from 12-14 feet bgs) and in groundwater at concentrations up to 402,000 µg/L (ppb) in 1984 and 1983, respectively. More recent analyses have shown PCB impaired soils with concentrations of up to 360 ppm.

Groundwater remediation commenced in 1986 and has been continually monitored at least twice a year since; 2005 sampling showed Aroclor-1268 at 3.6 µg/L, far in exceedance of NJDEP's allowable limit of 0.5 µg/L. While TCE and benzyl alcohol have reportedly discharged to the Delaware River via groundwater, it is currently unclear whether PCBs migrated as well.

Site Name:	Roebling Steel	
Agency Site ID:	NJD073732257	
Site Location:	Florence Township, NJ	
Site County:	Burlington	
Site Coordinates:	**Latitude:**	40.120831
	Longitude:	-74.770839
Last history update by agency:		July 2006
Site Category:		Former steel and wire manufacturer
Site Watershed:		Crafts Creek
Discharge Point(s):		Delaware River
Name of Nearest Water Body:		Delaware River, Crafts Creek
Distance to Nearest Water Body:		Adjacent
Adjacent to Delaware River?		Yes
PCBs in groundwater?		Yes
PCB Remediation Complete?		No
If so, when did it end?		N/A

The John A. Roebling Steel Company (JARSCO) was used between 1906 and 1982 for the fabrication of steel and wire products. The site witnessed numerous other companies and a variety of different operations including truck and auto repair, chemical companies, and storage and warehousing when the steel and wire company ceased operations in 1981. Slag residue from historic steel production was used to fill a 34-acre section of the Delaware River shoreline, producing an enormous area that has and continues to contribute to both on and off site contamination. In addition, as late as 1964, roughly 15 million gallons of wastewater and other products containing acids, iron and other metals, oil, and a high volume of suspended solids were being discharged per year. Several extensive cleanups have taken place at Roebling Steel since 1987 after NJDEP declared Roebling Steel one of its sites most in need of cleanup.

Fig. 10. Roebling Steel in late 1970's. *Source*: http://geog135.tripod.com/index.html

The first remedial action (after a significant initial removal of a large number of immediately hazardous materials) constituted the removal of contamination sources areas. 860,709 pounds of transformer carcasses were removed along with 45,864 gallons of transformer oil, over a quarter million gallons of tank liquids and tank sludges, 800 tons of baghouse dust, 126 tons of burnt tires, 261 tons of recyclable tires, roughly 750 tons of soil, all PCB-contaminated or containing. Since then, the site has been dealt with in several phases, or operable units, two of which have addressed the enormous slag pile, estimated to contain 1,458,000 cubic yards of heavy metals and PAH. Eventhough one of the prior remedies was capping with impervious material, there is still potential that over time contaminated fill may leach into the Delaware River. Cleanup has also involved the demolition and removal of many site structures, including buildings, underground pipes, and a number of USTs, all of which had PCB contamination to some extent. One UST, tested and removed in 1989, contained PCB contaminated oil was to have levels as high as 810,000 µg/L. Roughly 160 cubic yards of PCB impacted soil was removed from an adjacent playground.

PCBs levels as of 2003 are generally low level and isolated in site soils (found in 8 of 57 samples, averaging 1.428 ppm), but have also been identified in sediments in Crafts Creek (190 µg/kg in most recent sampling), Delaware River sediments (120 µg/kg in 11 of 16 samples). EPA estimates in 2003 indicated that the remediation was roughly fifty percent complete and involves the decontamination of the remaining buildings and removal of additional debris. In addition, prospective purchaser agreements (PPA) are being considered with potential

developers and investors to return the site to productive use when the lengthy and expensive remediation is completed.

EPA Region 2

Site Name:	Welsbach and General Gas Mantle	
Agency Site ID:	NJD986620995	
Site Location:	Camden, New Jersey	
Site County:	Camden, Gloucester	
Site Coordinates:	**Latitude:**	39.919722
	Longitude:	-75.121944
Last history update by agency:		Last available record, March 2006
Site Category:		Former industrial
Site Watershed:		Delaware River
Discharge Point(s):		Delaware River
Name of Nearest Water Body:		Delaware River, Newton Creek
Distance to Nearest Water Body:		Adjacent
Adjacent to Delaware River?		Yes
PCBs in groundwater?		No
PCB Remediation Complete?		See text
If so, when did it end?		N/A

Welsbach and General Gas Mantle (WGGM, unless otherwise noted) each manufactured thorium gas mantles (a type of lantern) since 1890. As thorium is a radioactive element, which primarily degrades to radium through radioactive decay, radiation is the principal contaminant of concern; in the 1990s, NJDEP investigated over 1,100 properties in Camden and Gloucester City for radiological contamination. More than 30 properties had radiation shielding and radon ventilation systems installed. In total, the site consists of residential and commercial properties, a public park, and vacant land, in addition to the former Welsbach building, occurring over six distinct study areas, not all of which are noted for PCBs.

At present, PCBs have not been discovered in soils at WGGM proper but EPA, NJDEP, and their various consultants have determined that PCBs are present in sediments in neighboring Newton Creek and Delaware River. Levels of PCBs, Malcolm Pirnie stated in a 2005 Human Health Evaluation, "…exceeded EPA's cancer risk range and non cancer health hazard level…based on historic information [however]…it was determined that PCBs are not related to this site". In the same report, PCBs were identified in sediments in the Delaware River at 5,100 µg/kg (Aroclor-1254) and 3,300 µg/kg (Aroclor-1260). Aroclor-1254 was listed as the single greatest risk in the Delaware River and Newton Creek, both adjacent to the site. PCB concentrations in Newton Creek were not available during our file review.

Because of the enormous area that is believed to have been impacted by historic operations at WGGM, future work on site, as well as in the affected communities, will take place in a number of stages. But the most recent ROD for the site (OU3, which is for wetlands and sediments) decided on "no further action necessary," and again, lists PCBs as "the only non-radiological chemicals of concern identified in OU3…that poses an unacceptable risk to human health". Despite this, the ROD continues, "…PCBs were not in wide use when these facilities operated at the Welsbach Site. Therefore no additional evaluation of PCBs in the surface water, sediment, and wetland areas in the WGGM Site study area I is necessary under the Superfund Program."

OU1's remedy (explained in a 1999 ROD), addresses contamination in buildings and adjacent soils, which had low levels of PCB contamination. Though the ROD does not highlight PCB concentrations throughout the WGGM site, the decontamination and off site disposal of a large amount of soils and building debris would render PCBs a non-factor. PCB contamination on site was reportedly minimal, consisting mostly of sporadic amounts in soils and on some of the building surfaces. The onsite building were decontaminated and demolished. OU1 activities are ongoing as of summer 2006.

4.3 SITES WITH REPORTEDLY COMPLETE PCB REMEDIATION IN NEW JERSEY

EPA Region 2

Site Name:	Cosden Chemical Coatings Corporation (former)	
Agency Site ID:	NJD000565531	
Site Location:	Beverly, New Jersey	
Site County:	Burlington	
Site Coordinates:	**Latitude:**	40.058183
	Longitude:	-74.925899
Site Watershed:		Rancocas Creek
PCBs in groundwater?		Yes
PCB Remediation Complete?		Yes
If so, when did it end?		2003

The 6 ½ acre Cosden Chemical Coatings Corporation site operated under many different names from 1945 until its closure in 1989. This facility produced paints for mainly industrial applications that involved the use of solvents which were ultimately stored in drums on site. Remediation is being addressed in three stages, or operable units: 1) Building demolition and removal, 2) soil remediation and 3) groundwater remediation. Only groundwater contamination remains, though PCBs are not a contaminant of concern. Soil sampling in 1988 revealed PCB concentrations up to 120 parts per million (ppm). Early cleanup actions were the removal of drums, paint cans and the contents of a leaking underground storage tank (UST). In 1999, roughly 9,000 tons of soil, 1,800 tons of PCB- contaminated building debris, and 3,000 gallons of liquid wastes were removed from site. An additional 724 tons of PCB contaminated soil was removed in 2002 to eliminate several low level "hot spots". At present, PCB levels on site are below the New Jersey residential requirement of .49 ppm and the site has been refilled with clean soil, regraded and replanted.

EPA Region 2

Site Name:	Ellis Property	
Agency Site ID:	NJD980529085	
Site Location:	Evesham and Medford Townships	
Site County:	Burlington County, New Jersey	
Site Coordinates:	**Latitude:**	39.905000
	Longitude:	74.864719
Site Watershed:		Sharps Run (tributary to Rancocas Creek)
PCBs in groundwater?		No
PCB Remediation Complete?		Yes
If so, when did it end?		1998

A 1992 Phase 2 Remedial Investigation Report for this site indicated that several drums were leaking PCB fluid with a concentration of 3 mg/kg. Soil borings indicated contamination concentration as high as 100 mg/kg; a concentration of 23.10 mg/kg was detected in shallow soil samples. Sediment concentrations were non-detect. The drums were removed as well as 60 cubic yards of soil (soil excavation completed in 1998). The Preliminary Closeout Report dated September 2000 was not available for review.

The first five year review of the site, in September 2005, indicated that there is an ongoing ground water pump and treat program for fouling metals and VOCs.

NJDEP

Site Name:	Hercules (Gibbstown)	
Agency Site ID:	NJDEP ID 3450 (EPA ID NJD002349058)	
Site Location:	Greenwich, NJ	
Site County:	Gloucester	
Site Coordinates:	**Latitude:**	39.838889
	Longitude:	-75.277781
Last history update by agency:	2003 (last available reference)	
Name of Nearest Water Body:	Delaware River, unnamed wetlands	
Distance to Nearest Water Body:	Adjacent	
Adjacent to Delaware River?	Yes	
PCBs in groundwater?	No	
Remediation Complete?	N/A – PCBs were never addressed in cleanup actions	
If so, when did it end?	N/A	
Remedial standard attained?	N/A	

Listed on the NPL in 1983, primarily for extensive groundwater contamination, Hercules Gibbstown has had a number of non PCB-related cleanup actions. Hercules purchased the site in 1952 from E.I. du Pont de Nemours and Company, who used the northernmost section of the property, which is adjacent to the Delaware River, as a landfill for dark, tar-like substances. These substances were mostly removed before the sale of the site. Throughout the course of this site's history, a number of chemicals and intermediaries were manufactured.

PCBs were tested for in site soils, adjacent creek and onsite wetlands sediments, and groundwater. They were determined to not be a contaminant of concern, since they were fairly localized and at low levels (1-2 ppm range). In addition, removal of these samples would have involved the expensive dredging of up to 24 inches of sediment from a swale located at the base of the Delaware River levee found at the northernmost section of the 300 acre site known as the Northern Ditch. Dredging these sediments would have lacked both financial sense and permanence, since "…replacement of the [removed] sediments and vegetation would eventually restore the wetland conditions…but the regional presence of pesticides and PCBs would likely result in recontamination of the ditch ("Feasibility Study of the Solid Waste Disposal Area", ERM, 1993).

Further, sediment sampling from this area, which is within the 100-year floodplain, reveals that "background levels" of PCBs, derived from control points along the Delaware River, were actually higher than the PCB-affected areas at the Hercules site. PCB levels in fish from the Northern Ditch and Clonmell Creek were all well within the reported range of concentrations for fish collected in the Delaware River, which reflects ambient PCB concentration.

NJDEP

Site Name:	Former General Engines Company (a.k.a. The Estate of Frances Flowers)	
Agency Site ID:	N/A	
Site Location:	Next to Interstate 295, Thorofare and West Deptford Township	
Site County:	Gloucester County	
Site Coordinates:	**Latitude:**	39.849167
	Longitude:	-75.173611
Site Watershed:	Delaware River	
PCBs in groundwater?	Unknown	
PCB Remediation Complete?	Yes	
If so, when did it end?	2001	
Remedial standard attained?	Unknown	

General Engines formerly ran an assembly plant, which produced specialty truck beds, starting in the early 1950s. In the mid-1980s, an expansion warranted the purchase of the neighboring Neely property. The Neely property was a former auto and truck salvage and towing yard, and also had a drum reconditioning business. These industries produced limited quantities of waste oils, waste thinners, and paint scrapings. Waste materials and oil-contaminated soil were removed and disposed of off-site. In 1992, operations on the site ceased. All surface drums were removed. Since the first Remedial Investigation, much of the contaminated soil has been removed.

Groundwater flow is west to southwest, and as of 8/25/2005, there were no PCBs above the Ground Water Quality Criteria (GWQC). The site is now composed of three Areas of Concern (AOCs): 3, 6, and 7.
AOC-3 is the former Neely Drum Storage Area. Several samples were found to have elevated PCBs, meaning they were above the Unrestricted Use Criteria. Two hot spots were found, and have since been excavated. All areas with concentrations greater than ten times the Unrestricted Use Criteria (UUC) have been remediated by soil removal. The highest remaining concentration is 4.4 mg/kg. This is more than a tenth less than the previous highest concentration. A 2-ft native soil cover for areas with PCB concentrations greater than the UUC and a Deed Notice to restrict uses in the area were proposed, and approved by the NJDEP 2/1/2001. Work was done to complete the cap in October and November of 2002.

AOC-6 is the former drum storage area. PCBs were found to be below UUC for surface soils. Concentrations were above UUC for subsurface soils but well below the impact to groundwater criteria. A deed notice was proposed, and accepted 2/1/2001.

AOC-7 is the refuse area. Subsurface soils in this area had PCBs above the Residential Direct Contact Soil Cleanup Criteria (RDCSCC), and contamination was delineated. In the surface soil, there were two locations in which the PCBs were above RDCSCC. Excavation of PCB soil was conducted, and a deed notice for subsurface soil was approved 2/1/2001.

There is a monitoring and inspection plan in place for all three areas of concern. In June 2005, the Semi-Annual Remedial Action Progress Report was approved by the NJDEP.

EPA Region 2

Site Name:	Pijak Farm	
Agency Site ID:	NJD980532808	
Site Location:	New Egypt, NJ	
Site County:	Ocean County	
Site Coordinates:	**Latitude:**	40.075550
	Longitude:	74.499439
Site Watershed:		Crosswicks Creek
PCBs in groundwater?		No
PCB Remediation Complete?		Yes
If so, when did it end?		1996

A 1984 site investigation yielded a soil sample as with a PCB concentration as high as 2,300 µg/kg. Approximately 4,000 cubic yards of soil was excavated. No PCBs were found in ground water, nor in surface water. The Pijak Farm was deleted from the NPL in 1999.

EPA Region 2

Site Name:	Swope Oil & Chemical Company	
Agency Site ID:	NJD041743220	
Site Location:	Pennsauken Township	
Site County:	Camden	
Site Coordinates:	**Latitude:**	39.988600
	Longitude:	-75.034700
Site Watershed:		Delaware River
PCBs in groundwater?		Yes
PCB Remediation Complete?		Yes
If so, when did it end?		

Between 1969 and 1979, Swope Oil operated as a processing facility for chemicals including phosphate-esters, hydraulic fluids, paints and varnishes, solvents, oils, plasticizers, and printing ink. Some of these products have historically used PCBs as a component. Initial testing revealed that soils had PCBs "generally in the 50-500 ppm range" (ROD, 1985), though one sample along the southwest border of the site contained levels greater than 500 ppm. Other contaminants were found as deep as 42 feet bgs, though soils below 1.5 feet generally had PCB concentrations less than 1 ppm.

Remedial actions have involved the removal of onsite storage tanks and building demolition, excavation of sludge (1,375 cubic yards containing PCBs greater than 500 ppm) and placing an impervious cap over the affected area to minimize potential exposure. Remnants of this sludge supposedly still remain that have affected soils, which are currently being treated with in situ soil vaporization. PCBs were not detected in groundwater during the most recent sampling event conducted in 1990. No additional sampling for PCBs in groundwater is planned.

Excavation removed roughly 24,000 tons of PCB impacted soil and the current in situ soil vaporization treatment is intended to remediate upwards of 392,000 tons of soil. The last five-year review, completed in 2002 concluded that the groundwater remediation is effective. Monitoring of groundwater continues. Information offered by EPA in January 2007 indicated that "PCB remediation at the site has been completed."