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Ms. Patricia Simmons-Pierre  
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Central New York Remediation Section  
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New York, NY 10007-1866

Subject:  
Pollution Abatement Services Superfund Site – Fourth Operable Unit  
Oswego, New York  
Annual PCB Long-Term Monitoring Report

Date:  
October 8, 2008

Dear Ms. Simmons-Pierre:

Contact:  
David K. Rigg

On behalf of National Grid and General Motors Corporation (the Settling Defendants), please find enclosed the Annual PCB Long-Term Monitoring Report, which describes the activities performed during 2008 in connection with the fourth operable unit (OU4) at the Pollution Abatement Services (PAS) Superfund Site located in Oswego, New York. The report has been prepared in accordance with the requirements outlined in Section X of the Consent Decree for OU4 between the USEPA and the Settling Defendants. That Consent Decree was lodged by the Court on December 15, 1998.

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Our ref:  
B0036444.0012

Please feel free to call me at (518) 452-7084 (ext. 21) if you have any questions regarding the enclosed.

Sincerely,

ARCADIS

David K. Rigg  
Principal Scientist

Enclosure

Imagine the result

Copies:

Carol Berns, New York/Caribbean Superfund Branch, Office of Regional Counsel,  
United States Environmental Protection Agency, Region 2  
Chief, Environmental Enforcement Section, Environment and Natural Resources  
Division, United States Department of Justice, Re: DOJ # 90-11-2-2A  
Payson Long, Division of Hazardous Waste Remediation, New York State  
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James M. Nuss, P.E., Arcadis

## **ANNUAL PCB LONG-TERM MONITORING REPORT (2008)**

### ***Pollution Abatement Services Superfund Site Oswego, New York Fourth Operable Unit***

#### **1. Introduction**

This *Annual PCB Long-Term Monitoring Report (2008)* provides a summary of the polychlorinated biphenyl (PCB) data collected in 2008 at the Pollution Abatement Services (PAS) Superfund Site (the Site) located in Oswego, New York. This report describes the tenth year of annual monitoring data collected under the United States Environmental Protection Agency (USEPA)-approved *PCB Long-Term Monitoring Plan* (Plan) for the fourth operable unit (OU4) of the PAS Site [Blasland, Bouck & Lee, Inc. (BBL), 1999a] and the USEPA-approved modification to that Plan (BBL, 2001a). The annual monitoring described in the Plan is in response to the Consent Decree lodged by the Court on December 15, 1998 (USEPA, 1998), and the September 30, 1997 *Record of Decision* (ROD) for OU4 (USEPA, 1997). The ROD presents the remedial action selected by the USEPA to address PCBs detected in the sediments of White and Wine Creeks and the adjacent wetlands. The USEPA-selected remedy presented in the OU4 ROD is long-term annual monitoring of PCB levels in sediments and fish in White and Wine Creeks and the adjacent wetlands. Neither the OU4 Consent Decree (USEPA, 1998) nor ROD (USEPA, 1997) present a timetable for discontinuing the long-term monitoring activities, other than to state that a Remedial Action Completion Report will be completed within 90 days after the Settling Defendants conclude that the remedial action has been fully performed.

As documented in the PAS OU4 Consent Decree (USEPA, 1998), the 1996 Phase 2 Supplemental Pre-Remedial Design Study (SPRDS) concluded that, although the Site was a source of PCBs before the construction of the containment facility in 1986, the Site is not a present source of PCBs for sediments in White and Wine Creeks or the adjacent wetlands, and that other potential upstream sources of PCBs exist. Additionally, previous PCB sediment monitoring data, collected prior to 1996, indicate that the associated risk levels were relatively low and that there had been an overall decline in PCB concentrations in the creeks (USEPA, 1998).

#### **2. Overview of the PCB Long-Term Monitoring Activities**

The PCB long-term monitoring activities for the Site identified in the Plan include collecting surficial sediment (0 to 3 inch), subsurface sediment (3 to 6 inch and 6 to 12 inch), suspended sediment (trap), and biota (fish) samples. In the third *Annual Progress Report* (BBL, 2000), BBL proposed that subsurface sediment samples not be collected in the future, and that future long-term monitoring events include the continued collection of surficial sediment, sediment trap, and fish samples in accordance with the Plan. USEPA approved this modification to the Plan on May 30, 2001 (BBL, 2001a). The results of the previous long-term monitoring events, together with the relevant conclusions, were presented to the USEPA in the previous *Annual Progress Reports* (BBL, 1999b; 2000; 2001b; 2003a; 2003d; 2005a; 2006a; 2007a) and the *Five-Year Data Review Report* (BBL, 2003c). The data and conclusions presented in these reports confirm the USEPA (1998) conclusion that sediment PCB concentrations have decreased since the sampling rounds that were conducted prior to 1996.

### **3. 2008 PCB Long-Term Monitoring Activities**

The monitoring activities conducted by ARCADIS during the tenth annual (2008) PCB long-term monitoring event focused on White and Wine Creeks (and the adjacent wetland areas) at locations upstream, adjacent to, and downstream of the Site. Specific activities included:

- Sampling of surficial (0 to 3 inch) sediments;
- Installing and sampling of sediment traps; and
- Fish tissue sampling.

As identified in the OU4 ROD and Consent Decree, data generated from the PCB long-term monitoring program are used to monitor PCB concentrations in sediments and biota of White and Wine Creeks and the adjacent wetlands.

#### **3.1 Methods**

This section identifies the sampling locations and describes the methods that were used for the surficial sediment, sediment trap, and biota sampling, and the laboratory analyses. The methods employed followed the procedures outlined in the Plan.

##### **3.1.1 Sample Locations**

The Plan identified the collection of co-located sediment, sediment trap, and biota samples from five locations in White and Wine Creeks and the adjacent wetlands. The sample locations were identified by the 8-foot sections of iron pipe which were driven into the bank during the 1999 sampling round. These locations were determined based on the results of a probing exercise conducted by BBL in 1999 to locate prime sediment depositional areas, and have been sampled during each of the nine annual sampling events. These locations (shown on Figure 1) are identified below.

- Location 1: Upstream (east) of the Site, in White Creek, near historical sample location SS-1.
- Location 2: Adjacent to and northeast of the Site, in White Creek, in the vicinity of Phase 2 SPRDS sample location White 11A.
- Location 3: Adjacent to and north of the Site, in White Creek, approximately 50 feet downstream of historical sample location SS-3.
- Location 4: North of the Site in White Creek, in the vicinity of Phase 2 SPRDS sample location White 12B.
- Location 5: Downstream (northwest) of the Site, and downstream of the confluence of White and Wine Creeks, in the vicinity of historical sample location SS-4A.



### 3.1.2 Sediment Sampling

ARCADIS conducted the sediment sampling on July 17, 2008. The New York State Department of Environmental Conservation (NYSDEC) was not present during the 2008 field work.

The surficial sediment samples were collected at each of the aforementioned locations from 0 to 3 inches using a stainless steel corer. At each sample location, the corer was pushed into the sediment, and slowly pulled out. The top three inches of the sediment cores were extracted from the stainless steel tube onto an aluminum pan using a brass push rod. The sediment samples were homogenized and placed in the appropriate sampling jars for shipment to the laboratory, in accordance with procedures identified in the Plan.

### 3.1.3 Sediment Traps

Sediment traps were placed by ARCADIS at each of the five sediment sampling locations described above on July 17, 2008. The sediment traps consisted of pre-cleaned sample jars placed in stainless steel pans. The traps were monitored periodically by ARCADIS for the collection of deposited sediment. Sediment samples from the traps were retrieved by ARCADIS from all locations on August 21, 2008 and placed in the appropriate sampling jars for shipment to the laboratory, in accordance with the procedures identified in the Plan.

### 3.1.4 Biota Sampling

Electrofishing of White and Wine Creeks was conducted on July 9, 2008 by ARCADIS. The NYSDEC Project Manager, Mr. Payson Long (Environmental Remediation Unit, Remedial Bureau D) provided oversight during the sampling activities. The objective of the electrofishing, as identified in the Plan, was to collect three composite fish samples from each location. The target species were creek chubs (*Semotilus atromaculatus*) and stickleback (*Culaea inconstans*, *Gasterosteus aculeatus*).

The biota sampling was conducted using a backpack electrofishing unit. Following collection, the appropriate target fish were placed in labeled Ziploc®-type bags, and stored on ice prior to sample processing. Sample processing included dividing the fish into three composite samples per location. Individual fish lengths, numbers of individuals per sample, and total sample weight were recorded. The samples were then wrapped and shipped to the analytical laboratory, in accordance with the procedures detailed in the Plan.

### 3.1.5 Laboratory Analyses

Laboratory analyses of sediments included PCBs and total organic carbon (TOC), in accordance with the requirements in the Plan. The sediment analyses were performed by Columbia Analytical Services, Inc. (Rochester, New York). The sediment and sediment trap samples were analyzed for PCBs using USEPA SW-846 Method 8082 (USEPA, 1986), as referenced in the current NYSDEC Analytical Services Protocol (ASP), and for TOC using USEPA Region 2's Lloyd Kahn Method (USEPA, 1988). The biota samples were analyzed by Pace Analytical Services, Inc. (Green Bay, Wisconsin) for PCBs using USEPA SW-846 Method 8082, as referenced in the current NYSDEC ASP, and for percent lipids using standard gravimetric techniques.

## **3.2 2008 Results**

This section presents the results obtained during the tenth year of the long-term PCB monitoring program. Figure 2 presents the trends (arithmetic means) in PCB data collected over the past ten years at Locations 1 through 5. Parent and duplicate sample results are presented as a single value for each location in Figure 2.

### **3.2.1 Sediment Sampling Results**

Analytical results for surficial sediment samples are presented in Table 1. PCBs were detected in four of the five surficial sediment samples at concentrations ranging from 0.14 mg/kg (PAS-SS-201) to 1.41 mg/kg (PAS-SS-301 duplicate sample). PCBs were not detected at a concentration exceeding the associated laboratory quantitation limit in the surficial sediment sample collected from Location 1. TOC concentrations ranged from approximately 0.09% (PAS-SS-101) to 2.8% (PAS-SS-301 duplicate sample).

### **3.2.2 Sediment Trap Sampling Results**

Analytical results for sediment trap samples are presented in Table 2. PCBs were detected in each of the five sediment trap samples, at concentrations ranging from 0.09 mg/kg (PAS-ST-101) to 5.2 mg/kg (duplicate sample PAS-ST-401). TOC concentrations ranged from approximately 0.58% (PAS-ST-101) to 6.8% (PAS-ST-301).

### **3.2.3 Biota Sampling Results**

Whole-body composite samples of fish (brook stickleback and/or creek chub) were collected from each of the five sampling locations. Three samples were collected from each location, with the exception of Location 4 where there were only enough fish to complete two samples.

Analytical results for biota samples are presented in Table 3. PCBs were detected in each of the biota samples (including those from the upstream location). Total PCB concentrations in creek chubs (which were collected from Locations 1, 3, and 5) ranged from 0.54 mg/kg (Location 5) to 1.0 mg/kg (Locations 3 and 5). Total PCB concentrations for brook stickleback (which were collected from Locations 1, 2, 3, and 4) ranged from 0.52 mg/kg (Location 1) to 2.2 mg/kg (Location 4). The arithmetic mean total PCB for all of the biota samples collected in 2008 is 1.0 mg/kg.

### **3.2.4 Discussion**

The PCB data collected in 2008 represent the tenth consecutive round of long-term monitoring data. Summaries of the available data from all of the long-term monitoring events are provided in Table 4 (surficial sediment), Table 5 (sediment trap), and Table 6 (biota). The data are also summarized in Figure 2.

For surficial sediment (Table 4), the 2008 data are generally consistent with previous long-term monitoring results. PCB concentrations in surficial sediment are typically highest at Locations 3 and 4, and PCBs are non-detect at Location 1. The maximum detected surficial sediment PCB concentration in 2008 was 1.41 mg/kg (duplicate sample collected from Location 3). By comparison, historically the maximum detected PCB concentrations have shown similar results, and have been as high as 3.1 mg/kg (in 2002 from Location 4). Overall, the sediment PCB



concentrations observed during the ten year duration of the long-term monitoring program are much lower than those detected during some of the earlier investigations. For example, the maximum concentration detected in OU-4 during the 1996 SPRDS sampling was 11.4 mg/kg.

For sediment traps, the 2008 data follow a pattern consistent with previous years (Table 5). PCB concentrations are typically lowest at Location 1, and consistently highest at Location 4. In 2008 the maximum detected PCB concentration for sediment trap samples was 5.2 mg/kg (from Location 4, duplicate sample). In comparison, historic PCB concentrations for Location 4 ranged from 0.32 mg/kg (2003) to 5.7 mg/kg (2006).

For fish, the 2008 data are similar to previous results in that concentrations are generally highest for Locations 3 and 4, and lowest at Locations 1 and 5 (Table 6). The maximum detected PCB concentration in 2008 (2.1 mg/kg from Location 4) is slightly higher than the maximum detected PCB concentrations for fish tissue samples over the last four years from Location 4 (2007 = 1.9 mg/kg; 2006 = 1.5 mg/kg; 2005 = 1.8 mg/kg; and 2004 = 1.7 mg/kg). However, these concentrations are lower than those observed during 2000 and 2001 sampling events.

The 2008 surficial sediment, sediment trap, and fish tissue data are consistent with previous results in that PCB concentrations fluctuate but remain relatively low. PCBs are typically highest at Locations 3 and 4 (Figure 2). This area of White Creek flows through the marsh area northeast of the landfill, and is characterized by slower water velocity and softer sediment deposits. As such, this area likely represents a net depositional area, and a possible sink for the relatively low concentrations of PCBs that remain in the system.

Ecological risks from the Site were previously evaluated in the site-specific ecological risk assessment (ERA) [Appendix B of the *Focused Feasibility Study* (ENVIRON, 1997)]. According to the food web models presented in the site-specific ERA, a fish PCB concentration of 1.0 mg/kg results in a hazard quotient for piscivorous wildlife (i.e., mink) of 0.82. Similarly, the 2008 fish tissue arithmetic mean PCB concentration (1.0 mg/kg) would also result in hazard quotient of less than 1, indicating that ecological risks at the Site are insignificant.

#### 4. Summary

In 2008, surficial sediment, suspended sediment, and biota were collected as part of the PCB long-term monitoring program for OU4 of the Site. The data collected in 2008 indicate the following:

- PCBs were detected in four out of five surficial sediment samples, with a maximum concentration of 1.4 mg/kg (duplicate sample). The sediment PCB concentrations show yearly fluctuation, but are generally comparable to or lower than earlier concentrations.
- PCBs were detected in each of the five sediment trap samples, with a maximum concentration of 5.2 mg/kg (duplicate sample). The sediment trap PCB concentrations are generally consistent with previous monitoring data.
- PCBs were detected in each of the fish samples, with a maximum concentration of 2.2 mg/kg. At most locations fish tissue PCB concentrations are lower than earlier monitoring results.

- Based on the results of a previous site-specific ecological risk assessment (ENVIRON, 1997), the 2008 fish tissue PCB concentrations do not represent a significant ecological risk because the HQ value would be less than 1.
- PCB concentrations in surficial sediment, sediment trap, and fish tissue samples are typically highest at Locations 3 and 4. This area of White Creek is characterized by slower water velocity and softer sediment deposits. As such, this area likely represents a sink for the relatively low concentrations of PCBs that remain in the system.

Based on ten years of monitoring data and relatively low and variable PCB concentrations observed in surficial sediment, sediment trap, and fish tissue, a reduced frequency of long-term monitoring for the site is recommended. Specifically, it is recommended that two more rounds of sampling are conducted at a frequency of once every three years (i.e., in 2011 and 2014). If PCB concentrations observed during the next two rounds of monitoring are similar to or lower than previous data, then a recommendation for discontinuing the long-term monitoring may be warranted.

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**Tables**

Table 1

**Pollution Abatement Services Superfund Site  
Operable Unit 4  
Oswego, New York  
PCB Long-Term Monitoring Program Report**

**Surficial Sediment Sample Results for PCBs and TOC (2008)**

Location	Sample Identification	Total PCB Concentration (mg/kg)	TOC (mg/kg)
1	PAS-SS-101	ND (0.042)	914 J
2	PAS-SS-201	0.14	14,400 J
3	PAS-SS-301	1.11 [1.41]	18,800 J [28,100 J]
4	PAS-SS-401	0.49	8,070 J
5	PAS-SS-501	0.25	13,200 J

**Notes:**

1. Samples were collected by Arcadis on July 17, 2008.
2. Samples were analyzed for PCBs using USEPA SW-846 Method 8082 and for total organic carbon (TOC) using USEPA Region 2 Lloyd Kahn Method.
3. ND = Not detected. Each PCB Aroclor was not detected above the laboratory quantitation limit shown in parentheses.
4. Duplicate results in brackets.
5. J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
6. Sediment samples were collected from the 0- to 3-inch interval.
7. Total PCB concentrations represent total Aroclors.



Table 2

Pollution Abatement Services Superfund Site  
Operable Unit 4  
Oswego, New York  
PCB Long-Term Monitoring Program Report

Sediment Trap Results for PCBs and TOC (2008)

Location	Sample Identification	Total PCB Concentration (mg/kg)	TOC (mg/kg)
1	PAS-ST-101	0.09	5,820 J
2	PAS-ST-201	0.42	48,200 J
3	PAS-ST-301	0.65	67,700 J
4	PAS-ST-401	3.60 [5.19]	31,400 J [39,600 J]
5	PAS-ST-501	1.27	12,500 J

**Notes:**

1. Sample traps were placed by Arcadis on July 17, 2008, and retrieved on August 21, 2008.
2. Samples were analyzed for PCBs using USEPA SW-846 Method 8082 and for total organic carbon (TOC) using USEPA Region 2 Lloyd Kahn Method.
3. ND = Not detected. Each PCB Aroclor was not detected above the laboratory quantitation limit shown in parentheses.
4. Duplicate results in brackets.
5. J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
6. Total PCB concentrations represent total Aroclors.

Table 3

Pollution Abatement Services Superfund Site  
 Operable Unit 4  
 Oswego, New York  
 PCB Long-Term Monitoring Program Report

Fish Tissue Results for PCBs and Percent Lipids (2008)

Sample Identification	Species	No. of Individuals per Sample	Length Range (cm)	Total Sample Weight (g)	Lipid (%)	Total PCB Concentration (mg/kg)
<b>Location 1</b>						
PAS-BS-128	Creek Chub	6	6.6 - 7.9	27.2	5.9	0.68
PAS-BS-129	Brook Stickleback	40	3.2 - 5.4	21.6	4.4	0.52
PAS-BS-130	Brook Stickleback	42	3.2 - 4.4	21.1	4.2	0.64
<b>Location 2</b>						
PAS-BS-225	Brook Stickleback	39	3.2 - 4.7	16.9	4.2	1.1
PAS-BS-226	Brook Stickleback	41	2.9 - 4.1	17.8	9.7	0.93
PAS-BS-227	Brook Stickleback	40	2.6 - 4.9	17.2	5.2	1.0
<b>Location 3</b>						
PAS-BS-324	Creek Chub	6	6.3 - 7.1	19.9	7.6	0.82
PAS-BS-325	Creek Chub	14	6.6 - 8.0	61.3	6.4	1.0
PAS-BS-326	Brook Stickleback	45	3.5 - 5.3	29.6	4.9	1.1
<b>Location 4</b>						
PAS-BS-423	Brook Stickleback	65	2.1 - 4.6	22.4	3.9	2.2
PAS-BS-424	Brook Stickleback	63	2.1 - 4.6	20.6	3.4	1.9
<b>Location 5</b>						
PAS-BS-528	Creek Chub	8	6.7 - 7.9	35.2	7	1.0
PAS-BS-529	Creek Chub	21	6.3 - 7.9	87.2	5.2	0.54
PAS-BS-530	Creek Chub	8	6.1 - 7.0	24.4	7.3	0.79

**Notes:**

1. Samples were collected by Arcadis on July 9, 2008.
2. Samples were analyzed for PCBs using the USEPA SW-846 Method 8020 and for percent lipids using gravimetric techniques.
3. Total PCB concentrations represent total Aroclors.
4. J= The compound was positively identified; however, the associated numerical value is an estimated concentration only.

Table 4

Pollution Abatement Services Superfund Site  
 Operable Unit 4  
 Oswego, New York  
 PCB Long-Term Monitoring Program Report

Summary of Surficial Sediment PCB Concentrations

Year	Total PCB Concentration (mg/kg)
<b>Location 1 (PAS-SS-101)</b>	
1999	ND (0.020)
2000	ND (0.021)
2001	ND (0.022)
2002	ND (0.41)
2003	ND (0.044)
2004	ND (0.084)
2005	ND (0.085)
2006	ND (0.10)
2007	ND (0.087)
2008	ND (0.042)
<b>Location 2 (PAS-SS-201)</b>	
1999	ND (0.030)
2000	0.015 J [0.013 J]
2001	0.042 [0.047]
2002	ND (0.052)
2003	0.072
2004	0.054 J
2005	ND (0.096)
2006	0.26
2007	ND (0.12)
2008	0.14
<b>Location 3 (PAS-SS-301)</b>	
1999	ND (0.030)
2000	ND (0.042)
2001	1.8
2002	0.50
2003	0.040 J
2004	0.30
2005	ND (0.080)
2006	0.70
2007	2.04 J [0.40 J]
2008	1.11 [1.41]



Table 4

Pollution Abatement Services Superfund Site  
 Operable Unit 4  
 Oswego, New York  
 PCB Long-Term Monitoring Program Report

Summary of Surficial Sediment PCB Concentrations

Year	Total PCB Concentration (mg/kg)
<b>Location 4 (PAS-SS-401)</b>	
1999	0.17 J
2000	0.014 J
2001	0.090
2002	3.1 D
2003	0.45
2004	0.076 J [0.085 J]
2005	ND (0.089) [0.6 J]
2006	1.53 [1.76]
2007	0.14
2008	0.49
<b>Location 5 (PAS-SS-501)</b>	
1999	ND (0.03)
2000	ND (0.024)
2001	0.034
2002	ND (0.049) [ND (0.050)]
2003	0.21 J [0.047 J]
2004	0.085 J
2005	0.39
2006	0.20
2007	0.23
2008	0.25

**Notes:**

1. ND = Not detected. Each PCB Aroclor was not detected above the laboratory quantitation limit shown in parentheses.
2. Duplicate results in brackets.
3. J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
4. Sediment samples were collected from the 0- to 3-inch interval.
5. Total PCB concentrations represent total Aroclors.
6. D = Concentration is based on a diluted sample analysis.

Table 5

Pollution Abatement Services Superfund Site  
 Operable Unit 4  
 Oswego, New York  
 PCB Long-Term Monitoring Program Report

Summary of Sediment Trap PCB Concentrations

Year	Total PCB Concentration (mg/kg)
<b>Location 1 (PAS-ST-101)</b>	
1999	ND (0.080)
2000	ND (0.033)
2001	ND (0.12)
2002	ND (0.15)
2003	ND (0.14)
2004	ND (1.0)
2005	ND (0.073)
2006	ND (0.38)
2007	ND (0.44)
2008	0.090
<b>Location 2 (PAS-ST-201)</b>	
1999	0.53
2000	0.25
2001	0.30 [0.25]
2002	0.81 [0.50]
2003	0.32
2004	0.40 J
2005	0.63 J
2006	0.34
2007	0.32
2008	0.42
<b>Location 3 (PAS-ST-301)</b>	
1999	1.2 [1.2]
2000	0.62
2001	0.42
2002	ND (0.17)
2003	0.059 J
2004	0.40 J
2005	1.05 J
2006	0.39
2007	0.49
2008	0.65

**Table 5**

**Pollution Abatement Services Superfund Site  
Operable Unit 4  
Oswego, New York  
PCB Long-Term Monitoring Program Report**

**Summary of Sediment Trap PCB Concentrations**

<b>Year</b>	<b>Total PCB Concentration (mg/kg)</b>
<b>Location 4 (PAS-ST-401)</b>	
1999	0.86
2000	1.1
2001	1.4
2002	0.96
2003	0.32 J
2004	1.7 J [1.0 J]
2005	1.66 [1.68 J]
2006	5.7
2007	1.29 [1.30]
2008	3.60 [5.19]
<b>Location 5 (PAS-ST-501)</b>	
1999	0.06
2000	0.42 [0.48]
2001	0.081
2002	0.19
2003	0.25 J [0.33]
2004	0.40 J
2005	1.04 JN
2006	0.86 [0.53]
2007	0.30
2008	1.27

**Notes:**

1. ND = Not detected. Each PCB Aroclor was not detected above the laboratory quantitation limit shown in parentheses.
2. Duplicate results in brackets.
3. J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
4. Total PCB concentrations represent total Aroclors.
5. N = The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.



Table 6

Pollution Abatement Services Superfund Site  
 Operable Unit 4  
 Oswego, New York  
 PCB Long-Term Monitoring Program Report

Summary of Fish Tissue PCB Concentrations

Year	Total PCB Concentration (mg/kg)	
	Range	Arithmetic Mean
<b>Location 1</b>		
1999	0.43 - 0.47	0.46
2000	1.1 - 1.5	1.30
2001	1.1 - 1.7	1.40
2002	0.32 - 0.55	0.46
2003	0.098 - 0.26	0.18
2004	0.45 - 0.96	0.65
2005	0.21 - 1.0	0.59
2006	0.37 - 0.54	0.48
2007	0.62 - 0.88	0.79
2008	0.52 - 0.68	0.61
<b>Location 2</b>		
1999	NA	
2000	2.8 - 3.6	3.23
2001	2.2 - 2.4	2.27
2002	0.87 - 1.3	1.09
2003	0.30 - 0.46	0.38
2004	0.91 - 1.8	1.37
2005	0.74 - 1.7	1.22
2006	0.47 - 0.64	0.53
2007	1.3 - 1.4	1.37
2008	0.93 - 1.1	1.01
<b>Location 3</b>		
1999	NA	
2000	3.0 - 3.9	3.30
2001	2.4 - 2.8	2.57
2002	0.84 - 1.0	0.93
2003	0.41 - 0.72	0.60
2004	0.99 - 2.8	1.63
2005	0.72 - 0.96	0.82
2006	0.74 - 0.93	0.84
2007	1 - 1.2	1.10
2008	0.82 - 1.1	0.97

**Table 6**

**Pollution Abatement Services Superfund Site  
Operable Unit 4  
Oswego, New York  
PCB Long-Term Monitoring Program Report**

**Summary of Fish Tissue PCB Concentrations**

Year	Total PCB Concentration (mg/kg)	
	Range	Arithmetic Mean
<b>Location 4</b>		
1999	NA	
2000	2.7 - 3.3	3.00
2001	2.5 - 3.4	2.90
2002	0.93 - 1.7	1.28
2003	0.25 - 1.2	0.80
2004	1.3 - 1.7	1.50
2005	1.7 - 1.8	1.74
2006	1.3 - 1.5	1.39
2007	1.9 - 1.9	1.90
2008	1.9 - 2.2	2.05
<b>Location 5</b>		
1999	0.33 - 0.52	0.40
2000	0.72 - 0.81	0.77
2001	0.74 - 1.4	1.04
2002	0.67 - 0.96	0.79
2003	0.7 - 2.0	1.33
2004	1.1 - 1.3	1.20
2005	0.45 - 1.5	1.07
2006	0.56 - 0.79	0.70
2007	1.4 - 1.6	1.50
2008	0.54 - 1.0	0.78

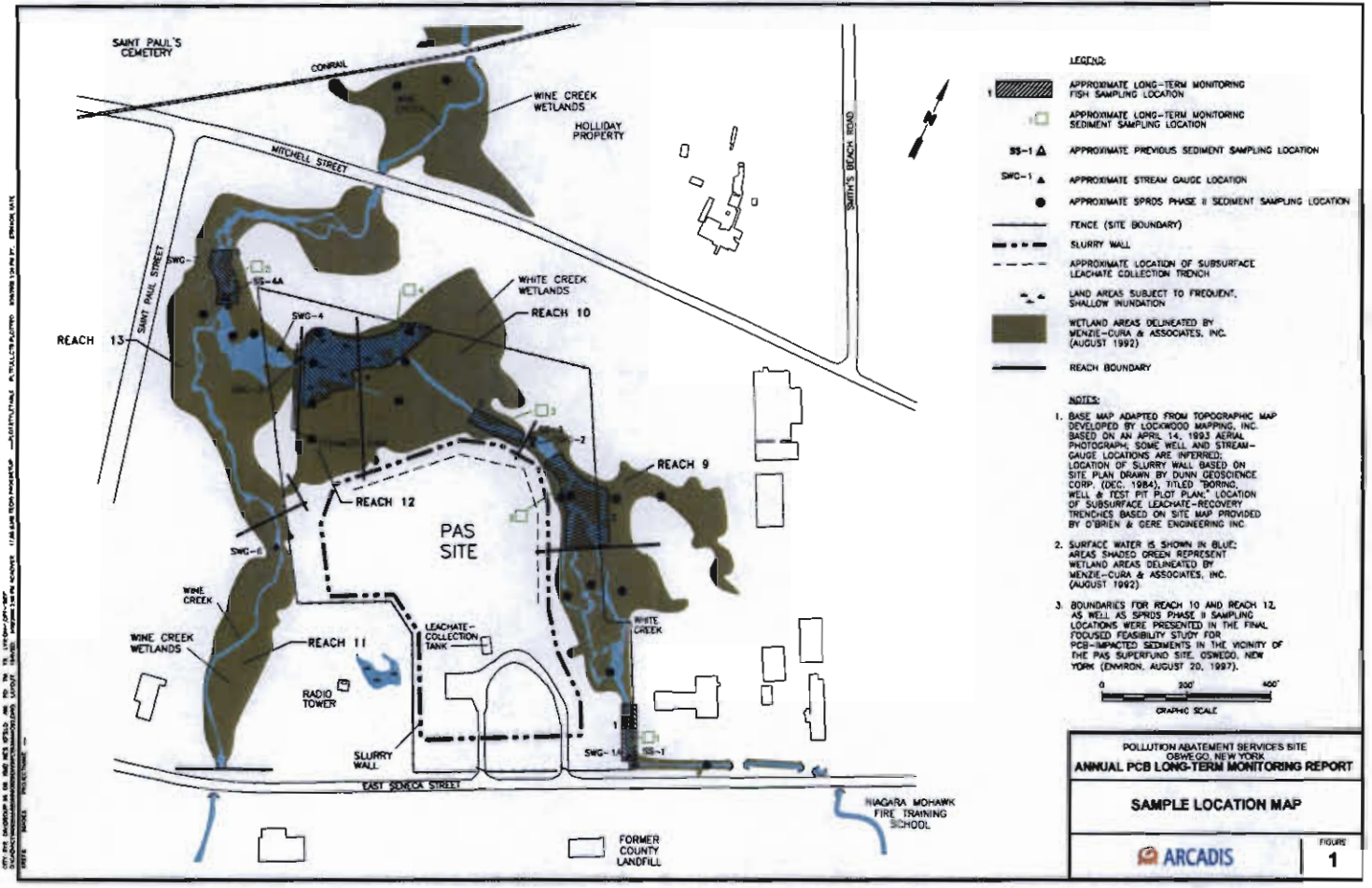
**Notes:**

1. ND = Not detected. Each PCB Aroclor was not detected above the laboratory quantitation limit shown in parentheses.
2. Total PCB concentrations represent total Aroclors.
3. NA = Not Available. Fish tissue samples were not collected from this location during this event.

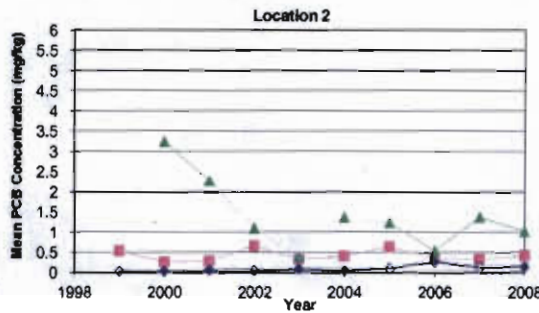
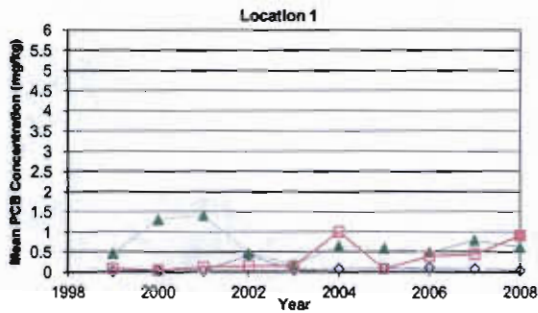
ARCADIS

**Figures**



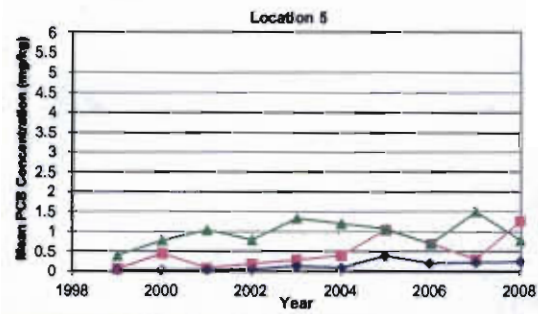
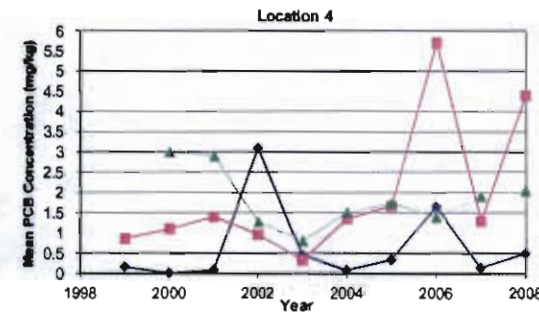
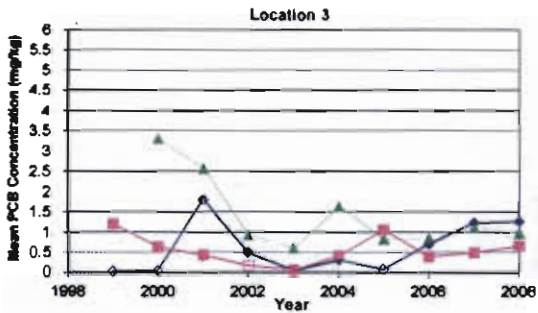


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**LEGEND:**

- ◆ Surface Sediment (Detected)
- ◇ Surface Sediment (Not Detected)
- Sediment Trap (Detected)
- Sediment Trap (Not Detected)
- ▲ Fish Tissue (Arithmetic Mean)



**NOTES:**

- Locations with observations of all non-detects utilize the sample specific reporting limit to derive an arithmetic mean value.
- Parent and duplicate sample results are presented as a single value for each location.

POLLUTION ABATEMENT SERVICES SITE OSWEGO, NEW YORK <b>ANNUAL PCB LONG-TERM MONITORING REPORT</b>	
<b>PCB DATA SUMMARY</b>	
	FIGURE <b>2</b>