



Infrastructure, environment, facilities

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Subject:

Pollution Abatement Services Superfund Site – Fourth Operable Unit  
Oswego, New York  
Annual Progress Report

Dear Ms. Simmons-Pierre:

On behalf of National Grid and General Motors Corporation (the Settling Defendants), please find enclosed two copies (one bound and one unbound) of the tenth Annual Progress Report for activities performed during 2007 in connection with the fourth operable unit (OU4) at the Pollution Abatement Services (PAS) Superfund Site located in Oswego, New York. The Annual Progress 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.

Please feel free to call me at 518.452.7082 (ext. 21) if you have any questions regarding the enclosed.

Sincerely,

ARCADIS

David K. Rigg  
Principal Scientist

Enclosure

Imagine the result

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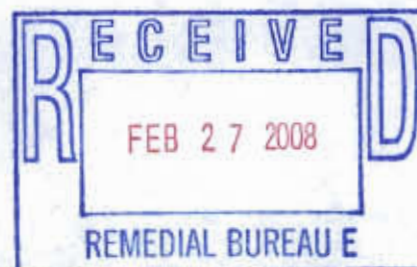
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ARCADIS

Ms. Simmons-Pierre  
February 21, 2008

Copies:

Chief, New York/Caribbean Superfund Branch, Office of Regional Counsel, United States Environmental Protection Agency, Region 2 -- Attention: PAS Superfund Site Attorney

Chief Environmental Enforcement Section, Environment and Natural Resources Division, United States Department of Justice, Re: DOJ # 90-11-2-2A

Director, Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation -- Attention: PAS Site Project Manager

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

**Annual Progress Report  
Period Covered: January 1, 2007 - December 31, 2007**

This is the tenth Annual Progress Report for the fourth operable unit (OU4) at the Pollution Abatement Services (PAS) Superfund Site (the Site) located in Oswego, New York. This progress report has been prepared in accordance with the requirements set forth in Section X of the OU4 Consent Decree lodged by the Court on December 15, 1998 between the United States Environmental Protection Agency (USEPA), and National Grid and General Motors Corporation (the Settling Defendants). The activities conducted pursuant to the requirements of the OU4 Consent Decree for the year 2007 are summarized below.

In accordance with the requirements set forth in the OU4 Consent Decree and the September 1997 Record of Decision (ROD) for OU4 (USEPA, 1997), the August 1999 *PCB Long-Term Monitoring Plan* (Plan) was developed by Blasland, Bouck & Lee, Inc. (BBL) (BBL, 1999a). BBL (currently ARCADIS) is the USEPA-approved Supervising Contractor identified in the OU4 Consent Decree. The Plan provides a detailed description of the requirements, methods, and procedures for monitoring the polychlorinated biphenyl (PCB) levels in the sediments and biota (fish) in the creeks and wetlands adjacent to the Site. The Plan was approved by the USEPA in a July 22, 1999 letter (USEPA, 1999a).

The monitoring activities identified in the Plan include sampling of surficial sediments (0 to 3 inch), subsurface sediments (3 to 6 inch and 6 to 12 inch), suspended sediment (trap), and biota (fish). 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, as documented in BBL's May 31, 2001 letter to the USEPA (BBL, 2001a).

#### **I. Actions Taken Toward Compliance with the Consent Decree**

During this reporting period, the ninth round of annual PCB monitoring activities was completed. The monitoring activities were conducted in accordance with the USEPA-approved Plan, as modified in May 2001. The monitoring activities included collecting surficial sediment, sediment trap, and fish samples at the five specified locations in White Creek and Wine Creek. A description of the monitoring and a summary of results obtained are presented in Attachment 1. The references cited herein are also listed in Attachment 1.

#### **II. Analytical Results and Data Generated**

The analytical results/data that have been generated during this reporting period, and in association with the OU4 Consent Decree, are solely related to completing the ninth year of annual monitoring identified in the Plan. As previously stated, the monitoring activities included sediment, sediment trap, and biota sampling. Laboratory analysis of sediment included PCBs and total organic carbon (TOC), and laboratory analysis of biota included PCBs and percent lipids. A summary of that data is presented in Attachment 1. Two complete copies of the analytical data and validated data reports associated with the ninth year of annual monitoring were submitted to the USEPA (Ms. Patricia Simmons Pierre, USEPA Project Manager) on November 27, 2007 (ARCADIS BBL, 2007b).

### **III. Plans and Reports and other Deliverables Completed or Submitted**

In addition to this annual progress report, the only other submittal to the USEPA during this reporting period was the November 27, 2007 submittal, providing two complete copies of the analytical data and validated data reports associated with the annual PCB monitoring.

### **IV. Planned Activities for 2008**

Based on nine 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, once every three years (i.e., in 2010 and 2013). 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. Therefore, there are no additional sampling activities planned for 2008.

The only activity planned for 2008 will be the USEPA completion of third five-year review, which should be completed before December 2008.

### **V. Delays Encountered or Anticipated**

No delays were encountered during 2007, and no delays are anticipated during 2008.

### **VI. Modifications to Plans or Schedules**

There were no modifications to the Plan and/or associated schedules during 2007.

### **VII. Actions Taken in Support of the Community Relations Plan**

In accordance with the requirements of the OU4 Consent Decree, the Settling Defendants will, upon notice by the USEPA, participate in the Community Relations Plan developed by the USEPA. To date, the USEPA has not requested any participation by the Settling Defendants. Accordingly, no actions have been taken by the Settling Defendants in support of the USEPA's Community Relations Plan.

ARCADIS

**Attachment**

## ATTACHMENT 1 - PCB LONG-TERM MONITORING DATA REPORT

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

#### **Annual Progress Report Period Covered: January 1, 2007 - December 31, 2007**

#### **1. Introduction**

This attachment to the *Annual Progress Report* provides a summary of the polychlorinated biphenyl (PCB) long-term monitoring data collected in 2007 at the Pollution Abatement Services (PAS) Superfund Site (the Site) located in Oswego, New York. This attachment describes the ninth 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 the 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) or 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. 2007 PCB Long-Term Monitoring Activities

The monitoring activities conducted by ARCADIS BBL during the ninth annual (2007) 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
- 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 BBL conducted the sediment sampling on June 15, 2007. New York State Department of Environmental Conservation (NYSDEC) Project Manager, Mr. Payson Long (Environmental Remediation Unit, Remedial Bureau D), was present during the 2007 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 BBL at each of the five sediment sampling locations described above on June 15, 2007. The sediment traps consisted of pre-cleaned sample jars placed in stainless steel pans. The traps were monitored periodically by ARCADIS BBL for the collection of deposited sediment. Sediment samples from the traps were retrieved by ARCADIS BBL from all locations on August 9, 2007 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 June 14 and 15, 2007 by ARCADIS BBL. 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. As specified in the OU4 Consent Decree (Paragraph 21), two copies of the validated PCB analytical results, as well as TOC and percent lipids data, were submitted to the USEPA with a November 27, 2007 letter to Ms. Patricia Simmons Pierre, Project Manager (ARCADIS BBL, 2007b).

## 3.2 2007 Results

This section presents the results obtained during the ninth year of the long-term PCB monitoring program.

### 3.2.1 Sediment Sampling Results

Analytical results for surficial sediment samples are presented in Table 1. PCBs were detected in three of the five surficial sediment samples at concentrations ranging from 0.14 mg/kg (PAS-SS-401) to 2.04 mg/kg (PAS-SS-301). PCBs were not detected at a concentration exceeding the associated laboratory quantitation limits in the surficial sediment sample collected from Locations 1 and 2. TOC concentrations ranged from approximately 0.19% (PAS-SS-101) to 2.2% (PAS-SS-201).



### 3.2.2 Sediment Trap Sampling Results

Analytical results for sediment trap samples are presented in Table 2. PCBs were detected in four of the five sediment trap samples, at concentrations ranging from 0.30 mg/kg (PAS-ST-501) to 1.3 mg/kg (duplicate sample PAS-ST-401). PCBs were not detected at a concentration exceeding the associated laboratory quantitation limits from the trap sample collected from upstream Location 1 (PAS-ST-101). TOC concentrations ranged from approximately 3.9% (PAS-ST-501) to 6.7% (PAS-ST-201).

### 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 one sample.

Analytical results for biota samples are presented in Table 3. PCBs were detected in each of the biota samples (including the upstream location). Total PCB concentrations in creek chubs (which were collected from all locations) ranged from 0.87 mg/kg (Location 1) to 1.6 mg/kg (Location 5). Total PCB concentrations for brook stickleback (which were collected from Locations 1, 2, 3, and 4) ranged from 0.62 mg/kg (Location 1) to 1.9 mg/kg (Location 4). The arithmetic mean total PCB for all of the biota samples collected in 2007 is 1.2 mg/kg.

### 3.2.4 Discussion

The PCB data collected in 2007 represent the ninth 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 2007 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 2007 was 2.04 mg/kg. By comparison, over the nine years the maximum detected PCB concentrations have shown similar results on several occasions, including 2002 (3.1 mg/kg from Location 4) and 2001 (1.8 mg/kg from Location 3). Overall, the sediment PCB concentrations observed during 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 2007 data follow a pattern consistent with previous years (Table 5). PCB concentrations are typically lowest (non-detect) at Location 1, and consistently highest at Location 4. The maximum detected PCB concentration for sediment trap samples in 2007 (1.3 mg/kg from Location 4) is below the highest PCB concentration detected in the 2006 (5.7 mg/kg from Location 4).

For fish, the 2007 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 2007 (1.9 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 (2006 = 1.5 mg/kg; 2005 = 1.8; 2004 = 1.7 mg/kg; and 2003 = 1.2 mg/kg). However, these concentrations are lower than those observed during 2000 and 2001 sampling events.

The 2007 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 2007 fish tissue arithmetic mean PCB concentration (1.2 mg/kg) would also result in hazard quotient of less than 1, indicating that ecological risks at the Site are insignificant.

#### 4. Summary

In 2007, 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 2007 indicate the following:

- PCBs were detected in three out of five surficial sediment samples, with a maximum concentration of 2.04 mg/kg. The sediment PCB concentrations show yearly fluctuation, but are generally comparable to or lower than earlier concentrations.
- PCBs were detected in four out of five sediment trap samples, with a maximum concentration of 1.30 mg/kg. 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 1.9 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 2007 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 nine 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 2010 and 2013). 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.

## 5. References

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BBL. 2006b. Letter from David K. Rigg to Patricia Simmons Pierre of the USEPA. December 1, 2006.

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USEPA. 1999a. Letter from Patricia Simmons of USEPA to M. Cathy Geraci of BBL approving the *PCB Long-Term Monitoring Plan*. July 22, 1999.

USEPA. 1999b. Letter from Carol Berns of USEPA to William Weiss, Esq., of Niagara Mohawk regarding annual report submittal schedule. November 23, 1999.

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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 (2007)

Location	Sample Identification	Total PCB Concentration (mg/kg)	TOC (mg/kg)
1	PAS-SS-101	ND (0.087)	1,890 J
2	PAS-SS-201	ND (0.12)	22,400 J
3	PAS-SS-301	2.04 J [0.40 J]	14,900 J [16,200 J]
4	PAS-SS-401	0.14	7,140 J
5	PAS-SS-501	0.23	13,700 J

**Notes:**

1. Samples were collected by ARCADIS BBL on June 15, 2007.
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 (2007)

Location	Sample Identification	Total PCB Concentration (mg/kg)	TOC (mg/kg)
1	PAS-ST-101	ND (0.44)	43,400 J
2	PAS-ST-201	0.32	66,600 J
3	PAS-ST-301	0.49	62,400 J
4	PAS-ST-401	1.29 [1.30]	48,700 J [46,500 J]
5	PAS-ST-501	0.30	38,800 J

**Notes:**

1. Sample traps were placed by BBL on June 1, 2006, and retrieved on June 29, 2006.
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 (2007)**

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-125	Creek Chub	9	5.8 - 7.7	31.7	5.90	0.87 J
PAS-BS-126	Brook Stickleback	23	3.6 - 5.7	23.1	5.88	0.88 J
PAS-BS-127	Brook Stickleback	23	3.5 - 5.9	23.7	5.35	0.62 J
<b>Location 2</b>						
PAS-BS-222	Brook Stickleback	20	4.0 - 5.9	23.4	3.93	1.3 J
PAS-BS-223	Brook Stickleback	21	3.9 - 6.0	24.6	4.63	1.4 J
PAS-BS-224	Brook Stickleback	21	4.2 - 5.7	23.3	5.28	1.4 J
<b>Location 3</b>						
PAS-BS-321	Creek Chub	8	5.7 - 6.5	21	5.10	1.1 J
PAS-BS-322	Brook Stickleback	30	4.0 - 6.6	35.7	4.07	1.2 J
PAS-BS-323	Brook Stickleback	30	4.0 - 5.9	35.3	3.47	1 J
<b>Location 4</b>						
PAS-BS-422	Brook Stickleback	6	4.2 - 5.3	7.2	3.92	1.9
<b>Location 5</b>						
PAS-BS-525	Creek Chub	12	5.8 - 6.6	34.1	8.20	1.4 J
PAS-BS-526	Creek Chub	5	7.3 - 8.5	30	8.54	1.6 J
PAS-BS-527	Creek Chub	13	7.3 - 8.4	81.2	7.82	1.5 J

**Notes:**

1. Samples were collected by Arcadis BBL on June 14 and 15, 2007.
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)
<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)
<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]

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
<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

**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)
<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
<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

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>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]
<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

**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
<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
<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

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

Location 4		
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
Location 5		
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

**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

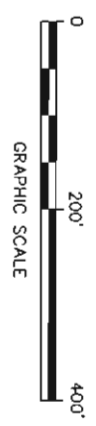
Figures

XREFS: IMAGES PROJECTNAME: ----



- LEGEND:**
- APPROXIMATE LONG-TERM MONITORING FISH SAMPLING LOCATION
  - APPROXIMATE LONG-TERM MONITORING SEDIMENT SAMPLING LOCATION
  - APPROXIMATE PREVIOUS SEDIMENT SAMPLING LOCATION
  - APPROXIMATE STREAM GAUGE LOCATION
  - APPROXIMATE SPRDS PHASE II SEDIMENT SAMPLING LOCATION
  - FENCE (SITE BOUNDARY)
  - SLURRY WALL
  - APPROXIMATE LOCATION OF SUBSURFACE LEACHATE COLLECTION TRENCH
  - LAND AREAS SUBJECT TO FREQUENT, SHALLOW INUNDATION
  - WETLAND AREAS DELINEATED BY MENZIE-CURA & ASSOCIATES, INC. (AUGUST 1992)
  - REACH BOUNDARY

- NOTES:**
1. BASE MAP ADAPTED FROM TOPOGRAPHIC MAP DEVELOPED BY LOCKWOOD MAPPING, INC. BASED ON AN APRIL 14, 1993 AERIAL PHOTOGRAPH. SOME WELL AND STREAM-GAUGE LOCATIONS ARE INFERRED. LOCATION OF SLURRY WALL BASED ON SITE PLAN DRAWN BY DUNN GEOSCIENCE CORP. (DEC. 1984), TITLED "BORING WELL & TEST PIT PLAN." LOCATION OF SUBSURFACE LEACHATE-RECOVERY TRENCHES BASED ON SITE MAP PROVIDED BY O'BRIEN & GERE ENGINEERING INC.
  2. SURFACE WATER IS SHOWN IN BLUE. AREAS SHADED GREEN REPRESENT WETLAND AREAS DELINEATED BY MENZIE-CURA & ASSOCIATES, INC. (AUGUST 1992).
  3. BOUNDARIES FOR REACH 10 AND REACH 12, AS WELL AS SPRDS PHASE II SAMPLING LOCATIONS WERE PRESENTED IN THE FINAL FOCUSED FEASIBILITY STUDY FOR PCB-IMPACTED SEDIMENTS IN THE VICINITY OF THE PAS SUPERFUND SITE, OSWEGO, NEW YORK (ENVIRON, AUGUST 20, 1997).

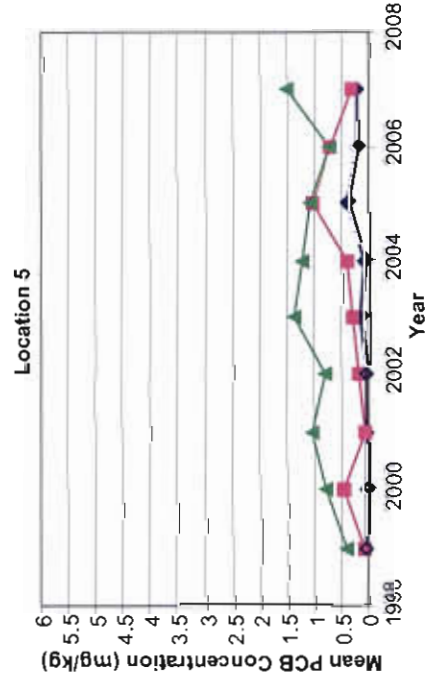
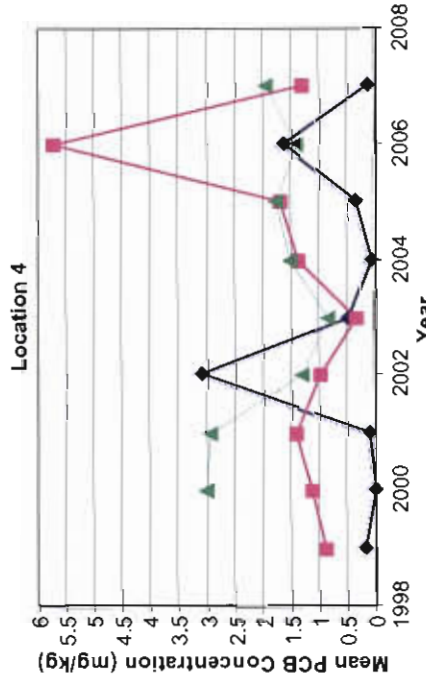
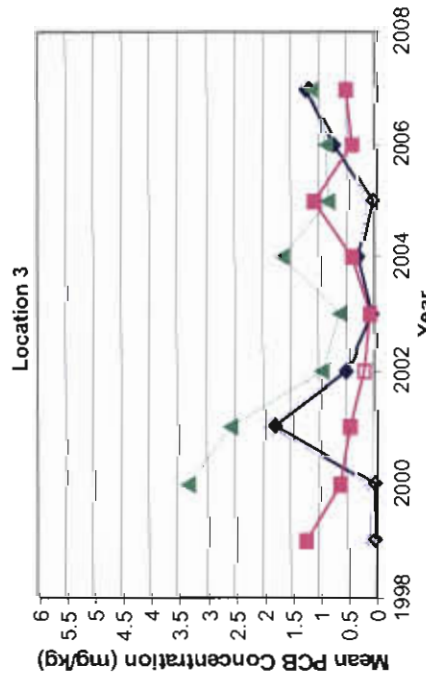
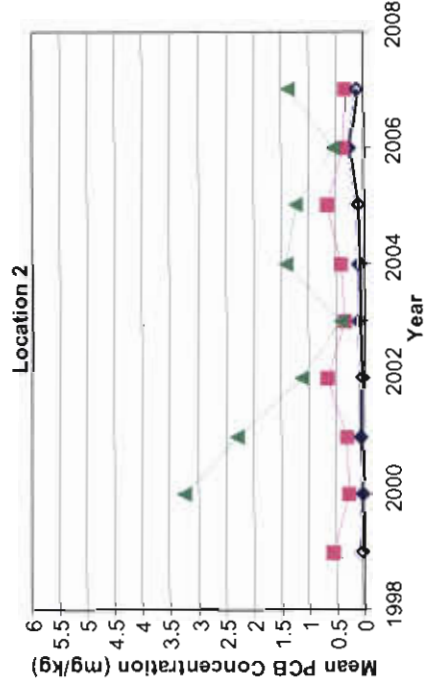
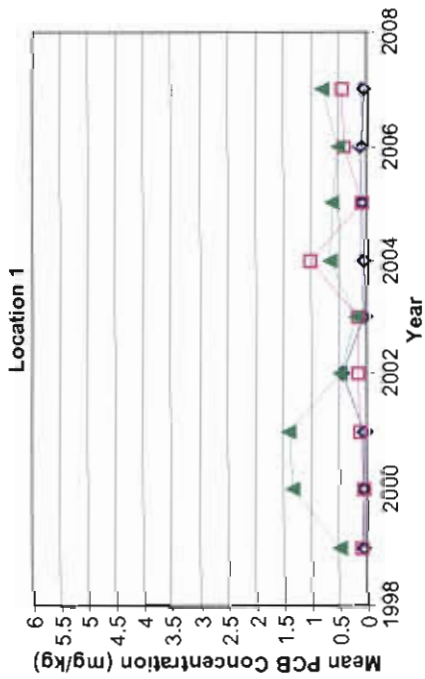


POLLUTION ABATEMENT SERVICES SITE  
OSWEGO, NEW YORK  
**PCB LONG-TERM MONITORING DATA REPORT**

**SAMPLE LOCATION MAP**







**LEGEND:**

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

**NOTE:**  
Locations with observations of all non-detects utilize the sample specific reporting limit to derive an arithmetic mean value.

**PCB DATA SUMMARY**

