

**Remedial Program Status
GE Plant Sites
Hudson Falls and Fort Edward**

Community Advisory Group Meeting
September 27, 2012

GE Hudson Falls Plant Site

GE Fort Edward Plant Site



Background

- GE operated two capacitor production facilities in Fort Edward (starting in 1947) and Hudson Falls (starting in 1952).
- PCB was used, neat, as the dielectric fluid in the capacitors until 1977.
- PCB was released to the river in direct untreated discharges and to groundwater via various releases at each plant site.

Remedial History

- 1976 Agreement and Order led to discharge abatement work at both plants.
- Each site was listed on the State “Registry of Inactive Hazardous Waste Sites” in the 1980s.
- A series of Consent Orders have been issued to GE by NYSDEC under which a significant amount of investigation and remediation has been done by GE to abate the pollution problems at the plant sites.

GE Fort Edward Plant Site

- Remedial efforts to date:
 - Wastewater Treatment Plant Construction
 - Shallow Groundwater Recovery and Treatment
 - Bedrock Groundwater Recovery and Treatment
 - PCB oil Recovery Systems in overburden and bedrock
 - Offsite Overburden Groundwater Recovery and Treatment

GE Fort Edward Plant Site

- Remedial Efforts to Date:
 - Offsite Soil Vapor Intrusion Investigation and Abatement Program
 - 004 Outfall Area Soil and Sediment Removal
 - Ongoing 004 Outfall Area Bedrock RI/FS program

Status of Ongoing Efforts

- OU5 (004 Outfall Area Bedrock) RI report due in this fall.
- The extent of contamination in bedrock appears to have been delineated.
- Ongoing monitoring shows limited current impact on Hudson River as measured in surface water samples collected near the former outfall.
- Once the RI Report is finalized, FS can be done to allow for remedy selection.

Table 1
Summary of Preliminary Analytical Results for Hudson River Surface Water Samples
July 2012
General Electric Company
Former 004 Outfall, Fort Edward, New York

Sample Name	Sample Type	Date	Time	Total PCB (ng/L)	PQL (ng/L)	TSS (mg/L)	PQL (mg/L)	Hudson River Flow (cfs)
004_HR_N_20120703	Composite	7/3/2012	11:00	7.80 J	7.52	2.10	1.04	2110
004_HR_N_20120703	Composite	7/3/2012	11:00	ND	7.52	1.35	1.04	
004_HR_N_20120703_1055	Grab	7/3/2012	10:55	ND	7.52	1.46	1.12	
004_HR_A_20120703	Composite	7/3/2012	11:15	ND	7.52	1.62	1.01	
004_HR_A_20120703_1105	Grab	7/3/2012	11:05	15 J	7.52	2.37	1.03	
004_HR_S_20120703	Composite	7/3/2012	11:30	ND	7.52	1.49	0.99	
004_HR_S_20120703_1125	Grab	7/3/2012	11:25	33.2	7.52	1.84	0.971	
004_HR_N_20120718	Grab	7/18/2012	10:45	ND	7.52	ND	1.04	
004_HR_N_20120718	Grab	7/18/2012	10:45	ND	7.52	ND	1.04	2290
004_HR_A_20120718	Grab	7/18/2012	11:02	ND	7.52	ND	1.02	
004_HR_S_20120718	Grab	7/18/2012	10:33	7.91 J	7.52	1	1	

Notes:

Total PCB analyzed by NE 207_03; TSS analyzed by SM2540D

ND - Not Detected; denotes analyte not detected at a concentration greater than the Practical Quantification Limit (PQL)

PQL - Denotes lowest analyte concentration reportable for the sample

J - Estimated value; analyte detected at a concentration below the PQL

DUP - Field duplicate sample; parent sample is reported directly above

DRAFT
Subject to Change

Table 1
Summary of Preliminary Analytical Results for Hudson River Surface Water Samples
August 2012
General Electric Company
Former 004 Outfall, Fort Edward, New York

Sample Location	Sample Type	Date	Time	Total PCB (ng/L)	PQL (ng/L)	TSS (mg/L)	PQL (mg/L)	Hudson River Flow (cfs)
004_HR_N	Grab	8/15/2012	11:30	ND	7.52	ND	1.02	2290
004_HR_A	Grab	8/15/2012	11:39	ND	7.52	1.39	0.99	
004_HR_S	Grab	8/15/2012	11:15	10.8 J	7.52	ND	1.04	
004_HR_S	Duplicate	8/15/2012	11:15	13.6 J	7.52	1.2	1	

Notes:

Total PCB analyzed by NE 207_03; TSS analyzed by SM2540D

ND - Not Detected; denotes analyte not detected at a concentration greater than the Practical Quantification Limit (PQL)

PQL - Denotes lowest analyte concentration reportable for the sample

J - Estimated value; analyte detected at a concentration below the PQL

GE Hudson Falls Plant Site

- Remedial Efforts to Date:
 - A series of IRMs were done in the 1990s, including sediment removal from the Allen Mill and associated raceways, and from the vicinity of the 002 outfall
 - Installation and systematic expansion of a site-wide groundwater and PCB oil recovery and treatment program
 - Construction and operation of a state-of-the-art wastewater treatment plant

GE Hudson Falls Plant Site

- Remedial Efforts to Date – 2004 ROD:
 - Installation of Tunnel Drain Collection System to enhance existing groundwater and PCB oil recovery system.
 - Wastewater treatment plant expansion.
 - Ongoing remedial design for contaminated soils.
 - Ongoing remedial design for completion of site wide groundwater and PCB oil collection system.

Status of Ongoing Efforts

- NYSDEC currently evaluating GE proposal to break up site soils into manageable geographic units.
- This would allow for coordination between and sequencing of soil remediation, building demolition, and finalization of site wastewater collection and treatment system design and construction.

TABLE 6

**SUMMARY OF PCB AND TSS CONCENTRATIONS IN BOAT LAUNCH SAMPLE
JULY 2012**

**General Electric Company
Hudson Falls, NY**

Parameter	7/18/2012	EB 7/18/12
Total PCB	13.1	ND
Total Suspended Solids	ND	NS

Notes:

PCB - Polychlorinated Biphenyl - Analysis for PCB Aroclors was performed by EPA Method 8082

PCB reported in nanogram per liter (ng/L) (parts per trillion)

Total Suspended Solids reported in microgram per liter (mg/L) (parts per million)

EB - Denotes equipment rinsate blank sample

MDL (Method Detection Limit) - Denotes lowest analyte concentration observable for the sample based on statistical study

ND - Denotes analyte not detected at a concentration greater than the MDL

NS - Not Sampled

TABLE 5

**SUMMARY OF PCB AND TSS CONCENTRATIONS IN BOAT LAUNCH SAMPLE
AUGUST 2012**

**General Electric Company
Hudson Falls, NY**

Parameter	8/15/2012	EB 8/15/2012
Total PCB	26.9	ND
Total Suspended Solids	1.33	NS

Notes:

PCB - Polychlorinated Biphenyl - Analysis for PCB Aroclors was performed by EPA Method 8082

PCB concentrations reported in nanogram per liter (ng/L) (parts per trillion)

Total Suspended Solids reported in microgram per liter (mg/L) (parts per million)

EB - Denotes equipment rinsate blank sample

MDL (Method Detection Limit) - Denotes lowest analyte concentration observable for the sample based on statistical study

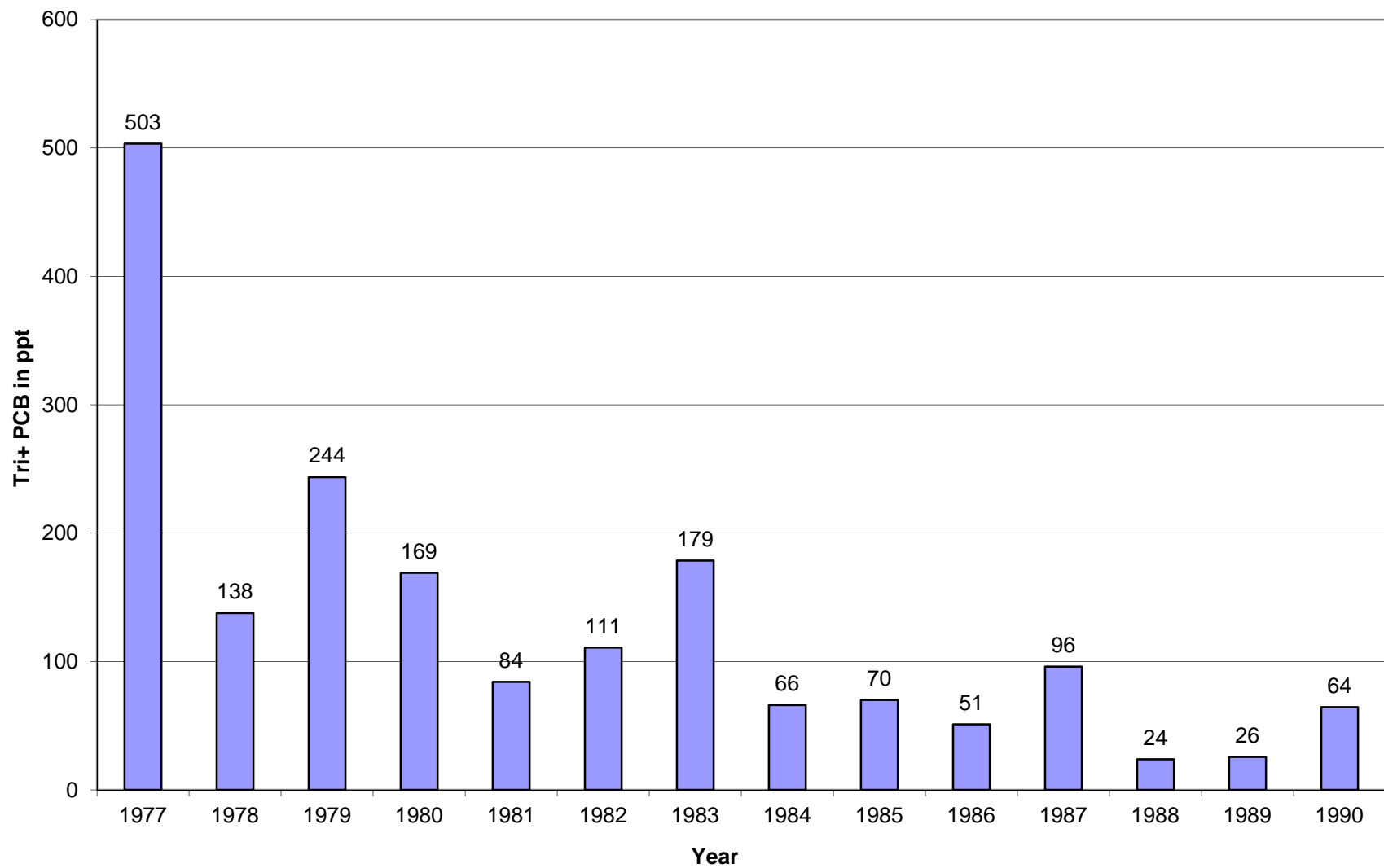
ND - Denotes analyte not detected at a concentration greater than the MDL

NS - Not Sampled

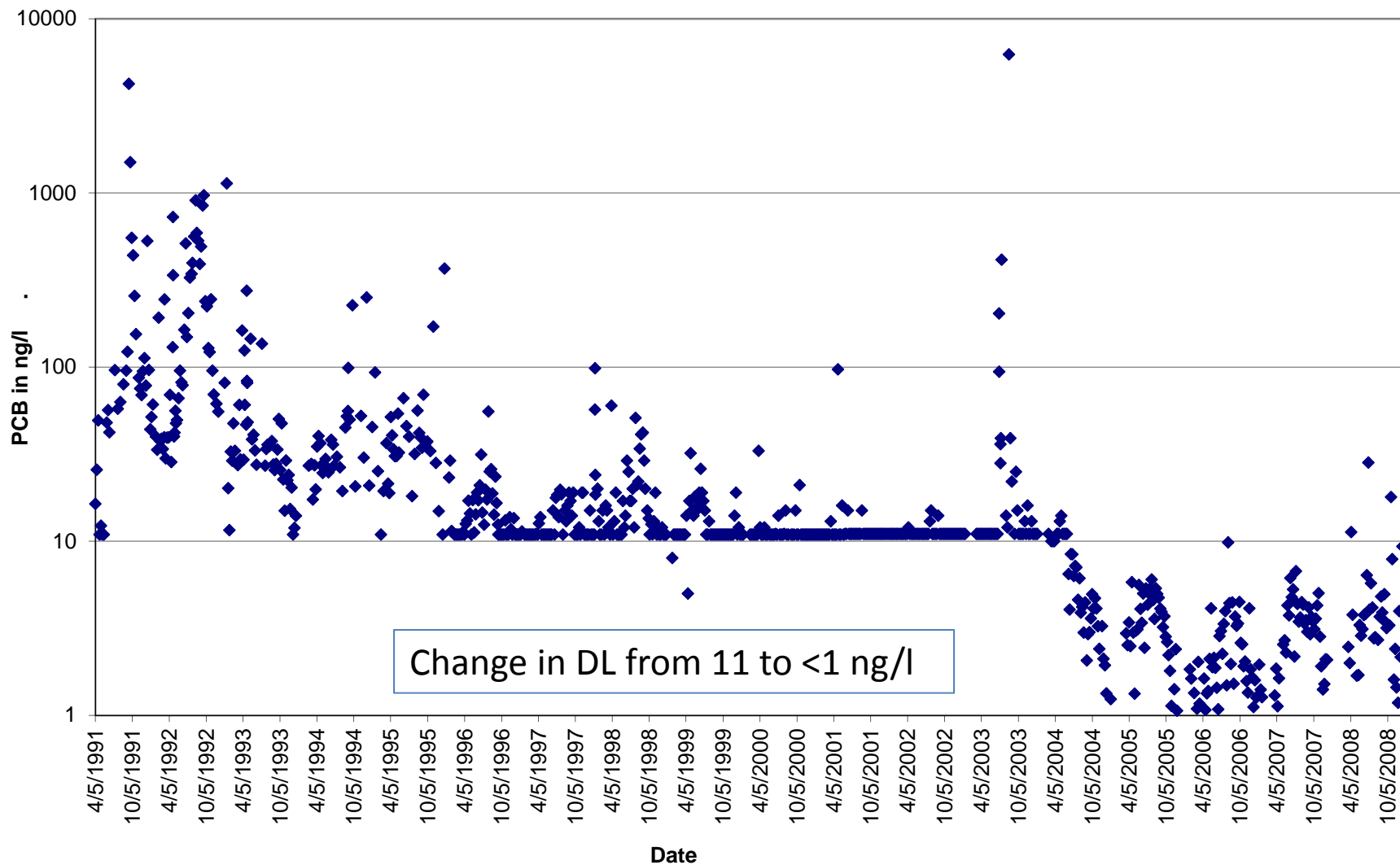
Current Impact of Plant Sites on River

- Major releases from plant sites was primarily abated by cessation of direct discharges in 1970s.
- Identification of ongoing releases during RI/FS programs in the 1980s and 1990s resulted in IRMs to achieve additional significant reductions in PCB releases.
- Remaining work needed to minimize impact of the plant sites on the river, and thus maximize the effectiveness of the EPA-lead sediment remedy.

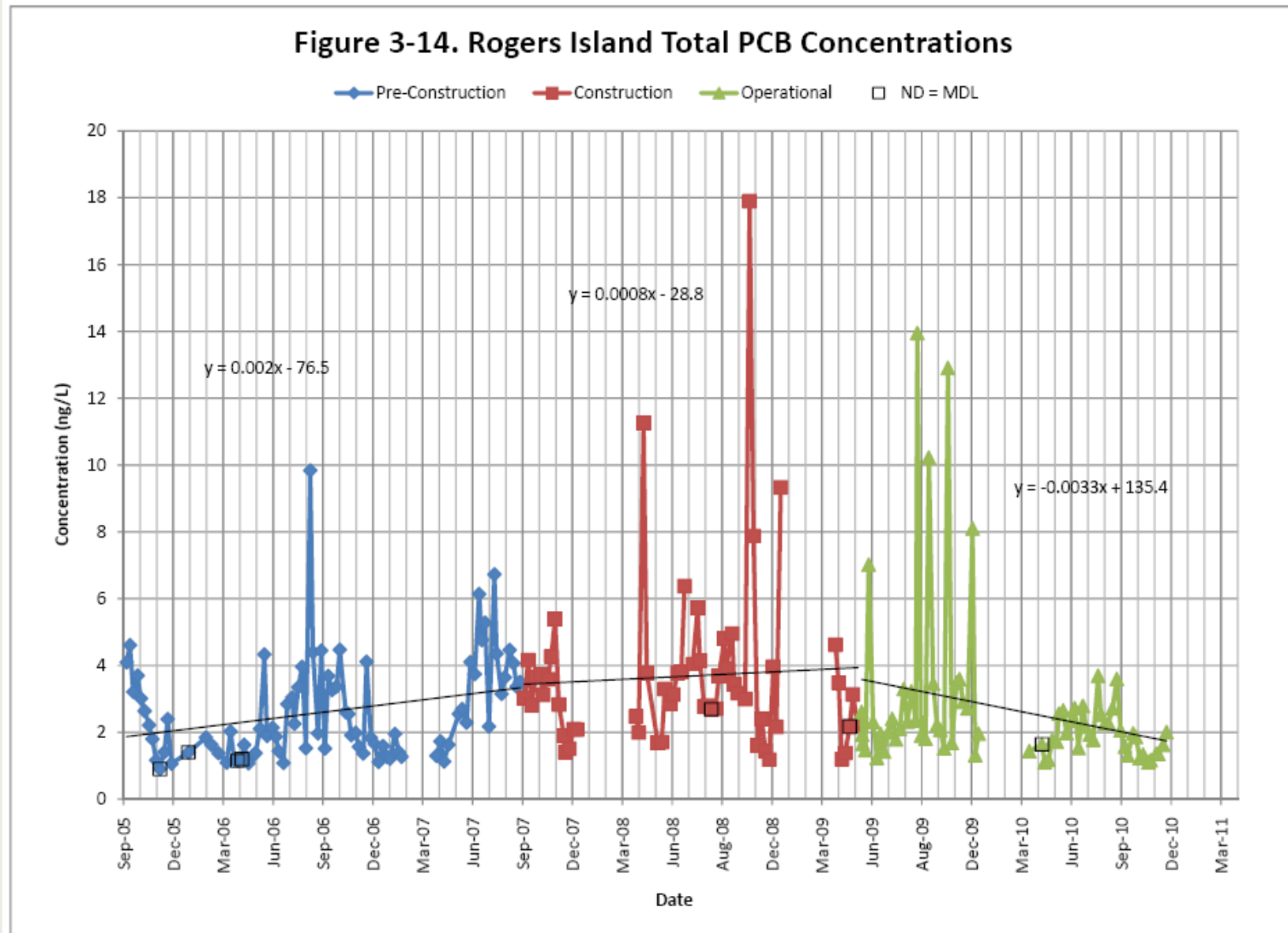
USGS Annual Average Surface Water Tri+ PCB at Fort Edward 1977 - 1990



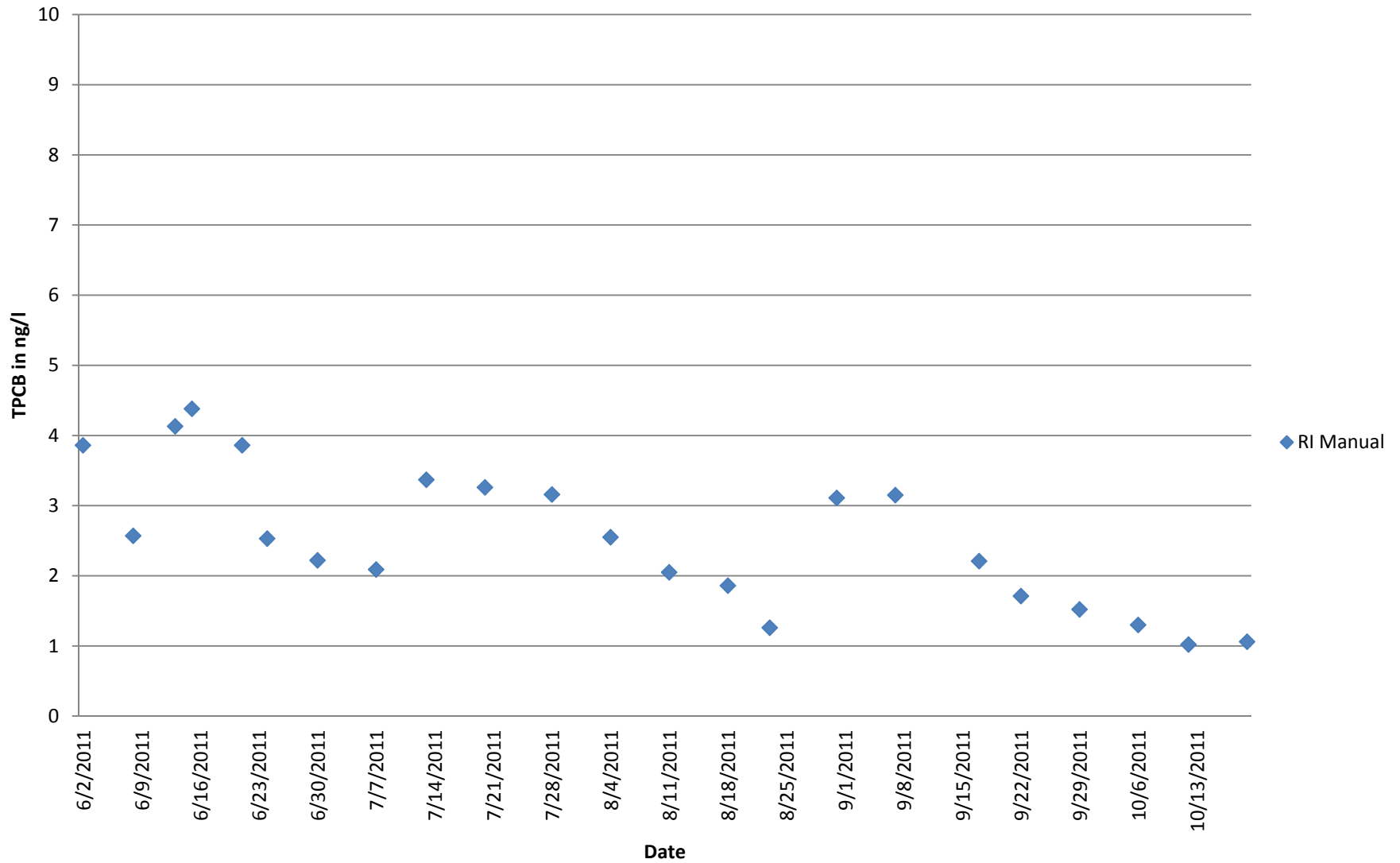
GE PCRDMP BMP Surface Water Total PCB 1991-2008 at Rogers Island



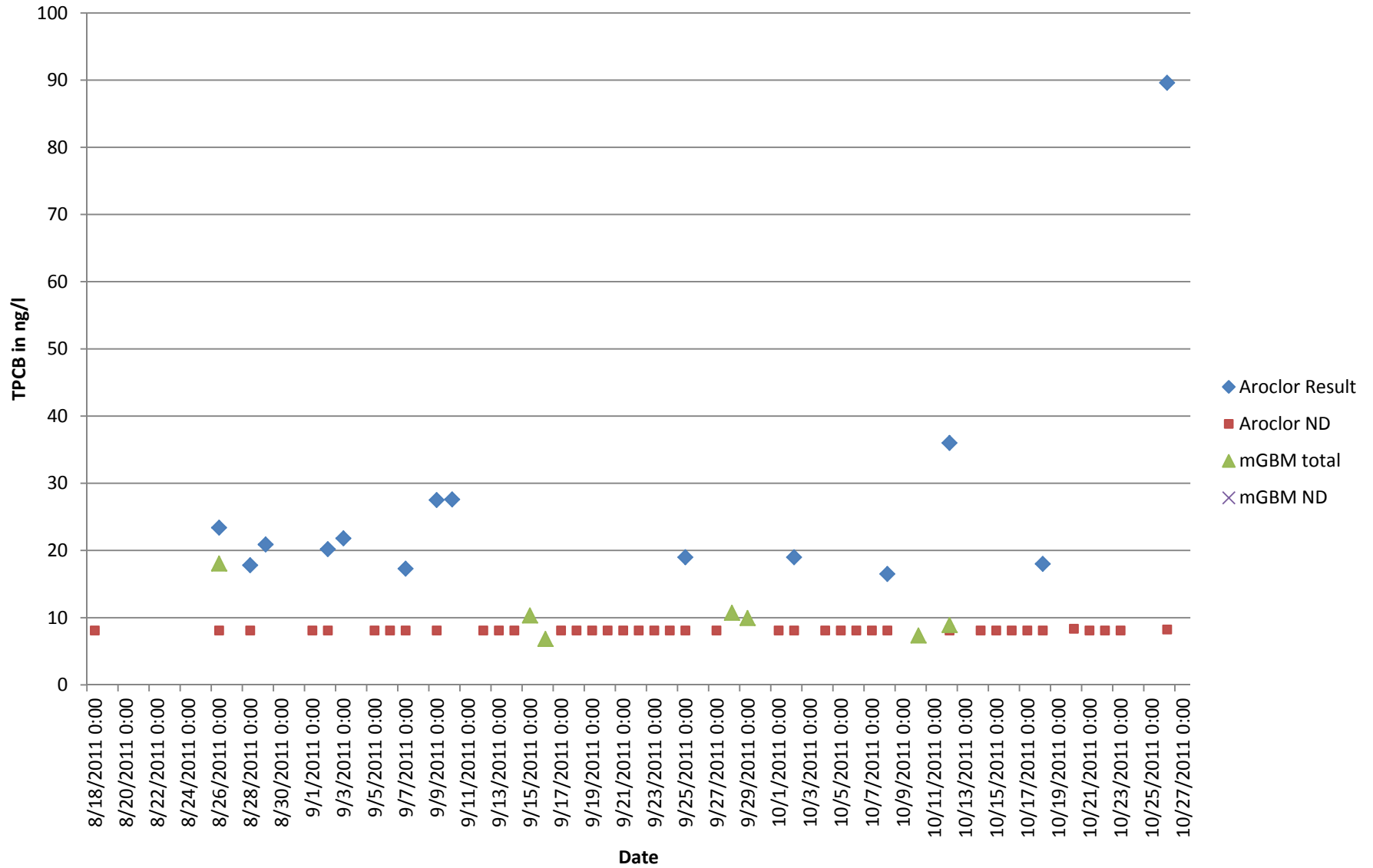
From "Tunnel Drain Collection System Performance Evaluation Report, GE Hudson Falls Plant Site" Tetra Tech Geo 2011



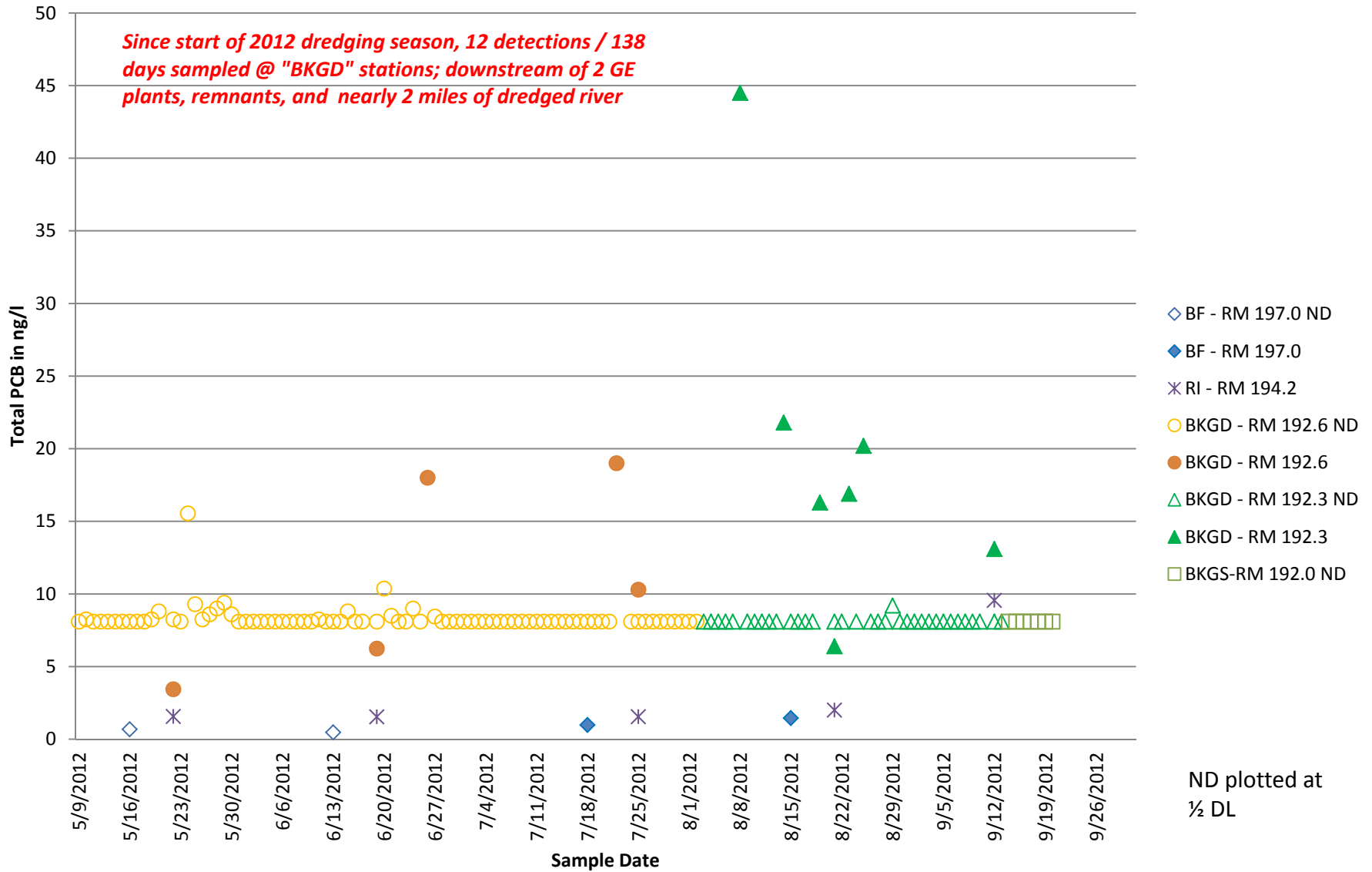
2011 RAMP Total PCB at Rogers Island Manual Station River Mile ~ 194.2



Surface Water Total PCB at RM 193.8 / RM193.6 2011 Remedial Action Monitoring Program



Surface Water Total PCB at Baker's Falls, Rogers Island, and Project Background Stations - 2012 Dredging Season



Summary

- Source control at the plant sites (cessation of direct untreated discharges, implementation of numerous IRMs by GE, and implementation of the final remedies at both plants by GE and NYSDEC) has created a new status quo – the plant sites no longer appear to be sources of PCB to the river of large scale significance.

Summary

- Available surface water PCB data suggest that the Hudson River PCB problem is starting to diminish as the remedial program progresses downstream.
- The combination of upstream source control, with focused environmental dredging of contaminated sediments, appears to be working to reduce PCB concentrations in surface water.

For More Information

- To discuss the GE Hudson Falls and Fort Edward plant site remedial projects, or to obtain data, please call or email:

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GE PCRDMP BMP Surface Water Total PCB 1991-2008

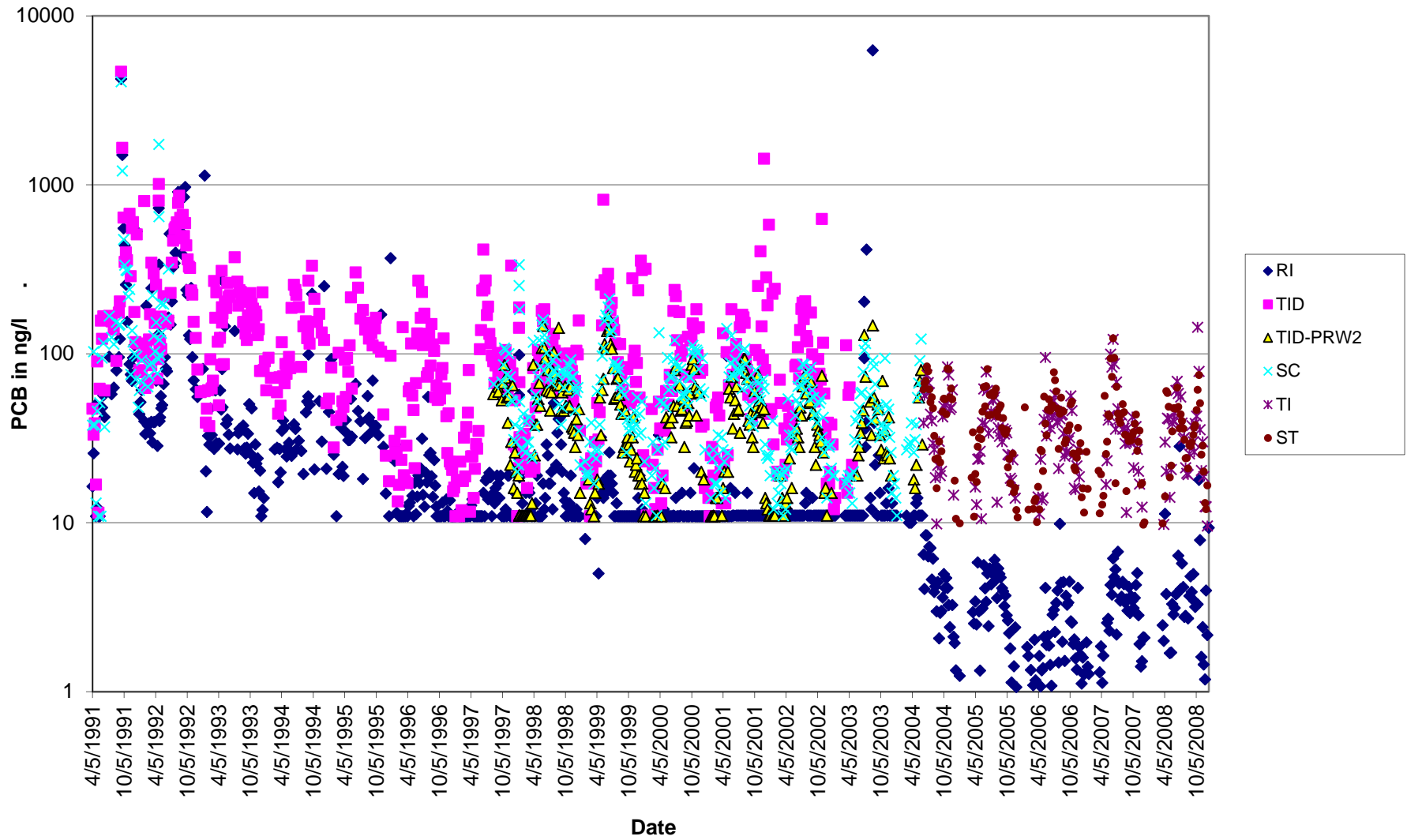


TABLE I.
GENERAL ELECTRIC COMPANY
2011/2012 HUDSON RIVER RAMP PRELIMINARY PCB RESULTS (1)

Date Collected	Location	Approx HRM (2)	Comments	Daily Flow(cfs) (3)	Water Temp (C)	TSS (mg/L)	Total PCB (ng/L) (4)	Homolog Distribution (weight percent) (4)						
								Mono	Di	Tri	Tetra	Penta	Hexa	Hepta
8/23/2011	Rogers Island	194.4		3,100	NA	<1.0	1.3	4.31	22.77	38.91	27.31	5.92	0.78	0.00
8/31/2011	Rogers Island	194.4		9,410	18.6	5.2	3.1	10.79	24.98	33.32	22.82	7.45	0.65	0.00
9/7/2011	Rogers Island	194.4		10,400	NA	2.5	3.1	11.88	17.31	37.48	24.05	8.47	0.81	0.00
9/14/2011	B.F.Br	196.9		9,010	21.0	1.2	<0.94	---	---	---	---	---	---	---
9/17/2011	Rogers Island	194.4		8,330	18.8	1.6	2.2	18.41	28.86	28.84	17.39	6.51	0.00	0.00
9/22/2011	Rogers Island	194.4		7,890	NA	1.5	1.7	21.95	3.23	45.59	16.07	9.46	3.70	0.00
9/29/2011	Rogers Island	194.4		7,540	20.6	1.8	1.5	21.76	36.66	22.32	12.22	5.39	1.65	0.00
10/6/2011	Rogers Island	194.4		8,310	NA	<1.1	1.3	41.82	5.52	33.45	14.25	4.30	0.66	0.00
10/12/2011	B.F.Br	196.9		6,530	17.2	<1.1	<1.0	---	---	---	---	---	---	---
10/12/2011	Rogers Island	194.4		6,530	17.1	<1.0	1.0	0.00	44.97	37.92	13.64	3.48	0.00	0.00
10/19/2011	Rogers Island	194.4		8,060	12.6	<1.4	1.1	40.02	13.23	26.24	13.04	6.83	0.65	0.00
10/26/2011	Rogers Island	194.4		8,460	11.9	1.8	1.2	39.32	16.96	27.87	9.43	5.86	0.56	0.00
10/31/2011	Rogers Island	194.4		7,580	9.0	<1.0	2.0	24.66	16.41	31.04	13.70	10.86	3.33	0.00
11/8/2011	Rogers Island	194.4		6,520	8.6	1.2	1.8	33.77	10.42	35.71	15.69	3.56	0.86	0.00
11/15/2011	Rogers Island	194.4		6,630	NA	<1.0	<1.1	---	---	---	---	---	---	---
11/16/2011	B.F.Br	196.9		6,650	8.8	1.3	<0.94	---	---	---	---	---	---	---
11/21/2011	Rogers Island	194.4		6,130	7.6	4.0	1.3	20.84	17.99	41.70	12.05	7.01	0.42	0.00
11/30/2011	Rogers Island	194.4		8,390	6.8	<1.1	2.6	7.49	54.25	25.84	7.21	4.21	1.01	0.00
12/8/2011	Rogers Island	194.4		8,640	5.3	1.3	<1.0	---	---	---	---	---	---	---
12/14/2011	B.F.Br	196.9		7,140	3.5	1.3	<0.96	---	---	---	---	---	---	---
12/16/2011	Rogers Island	194.4		7,430	4.2	<1.0	1.2	8.05	19.51	45.13	11.75	13.95	1.61	0.00
1/18/2012	B.F.Br	196.9		6,460	0.2	1.1	<0.96	---	---	---	---	---	---	---
2/15/2012	B.F.Br	196.9		6,490	1.2	<1.0	<1.0	---	---	---	---	---	---	---
3/14/2012	B.F.Br	196.9		5,680	3.9	<1.0	<0.94	---	---	---	---	---	---	---
4/18/2012	B.F.Br	196.9		2,710	NA	1.5	<2.0	---	---	---	---	---	---	---
5/16/2012	B.F.Br	196.9		7,250	16.5	2.6	<1.4	---	---	---	---	---	---	---
5/22/2012	Rogers Island	194.4		4,420	18.6	1.1	1.6	18.11	17.06	38.06	14.67	10.98	1.12	0.00
6/13/2012	B.F.Br	196.9		5,540	20.9	2.4	<0.94	---	---	---	---	---	---	---
6/19/2012	Rogers Island	194.4		2,710	22.2	2.3	1.5	12.25	6.32	49.61	22.00	9.29	0.54	0.00
7/18/2012	B.F.Br	196.9		2,380	26.6	<1.0	1.0	48.50	3.57	18.18	14.18	13.06	2.51	0.00
7/25/2012	Rogers Island	194.4		2,180	25.4	<1.2	1.5	15.05	13.30	27.87	33.67	9.44	0.66	0.00
8/15/2012	B.F.Br	196.9		3,060	25.6	1.5	1.5	28.41	39.39	19.51	8.91	2.25	1.53	0.00
8/21/2012	Rogers Island	194.4		2,240	25.1	1.7	2.0	25.97	12.81	39.82	13.11	6.37	1.92	0.00

- (1) Data Collected and analyzed in accordance with the 2011 RAM QAPP until May 1, 2012; After this date, data were obtained in accordance with the Phase 2 RAM QAPP.
- (2) HRM = Hudson River Mile. HRM 0.0 is located at the Battery in New York City.
- (3) Daily flow is presented as mean daily flow for the Fort Edward gaging station from provisional data provided by USGS.
- (4) Homolog groups octa-, nona-, and deca-chlorinated biphenyls were not detected greater than 0.03%. Data presented in this table are preliminary; data qualifiers are added upon receipt of finalized data from laboratory. Data are verified by automated methods; homologs were calculated based on verified data.

Key:

BD = Blind Duplicate.
 NS = Not Sampled.
 NA = Not Available.

Surface Water Total PCB in Thompson Island Sampling Stations (BMP and 2010) along with RAMP BKGD stations 2011-2012

