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2009 Peconic River Monitoring Highlights and Planned 2010 Sediment Removal

Presentation to Community Advisory Council
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Managed for the U.S. Department of Energy
by Brookhaven Science Associates

U.S. DEPARTMENT OF ENERGY

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Agenda

- 2009 Sediment
  - Routine Sediment Monitoring Highlights
- Surface Water – 2009 Highlights
- Fish –2009 Highlights
- 2010 Supplemental Sediment Removal and Sediment Trap Removal Planning

2009 Routine Sediment Highlights

- **30 of 30 Routine sediment samples met or were better than ROD requirements.**
- **Supplemental sediment mercury samples completed PR-WC-06 pre-cleanup mercury characterization.**
  - **Numerous samples greater than 2.0 mg/kg.**
- **Supplemental sediment removal will begin in the fall to remove and restore 0.36 acres of contaminated sediment at PR-WC-06 and PR-SS-15 and also remove the sediment trap, as required by the ROD.**

2009 Routine Sediment Sample Results		
	Onsite	**Offsite**
2009 mercury average (mg/kg)	**0.40**	**0.26**
2009 maximum mercury (mg/kg)	**1.8**	**1.7**
ROD-required mercury average (mg/kg)	**Less than 1.0**	**Less than 0.75**
ROD-required maximum mercury (mg/kg)	**All samples less than 2.0**	

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2009 Routine Surface Water Highlights

- **Surface water mercury concentrations generally trended downwards (with occasional increases) with increasing distance downstream from Sewage Treatment Plant.**
  - **Approached Connetquot River reference station maximum concentration (4.52 ng/L) at 2.98 miles downstream of STP.**

2009 Fish Highlights

Average 2009 fish mercury concentration = 0.27 mg/kg (93 samples):

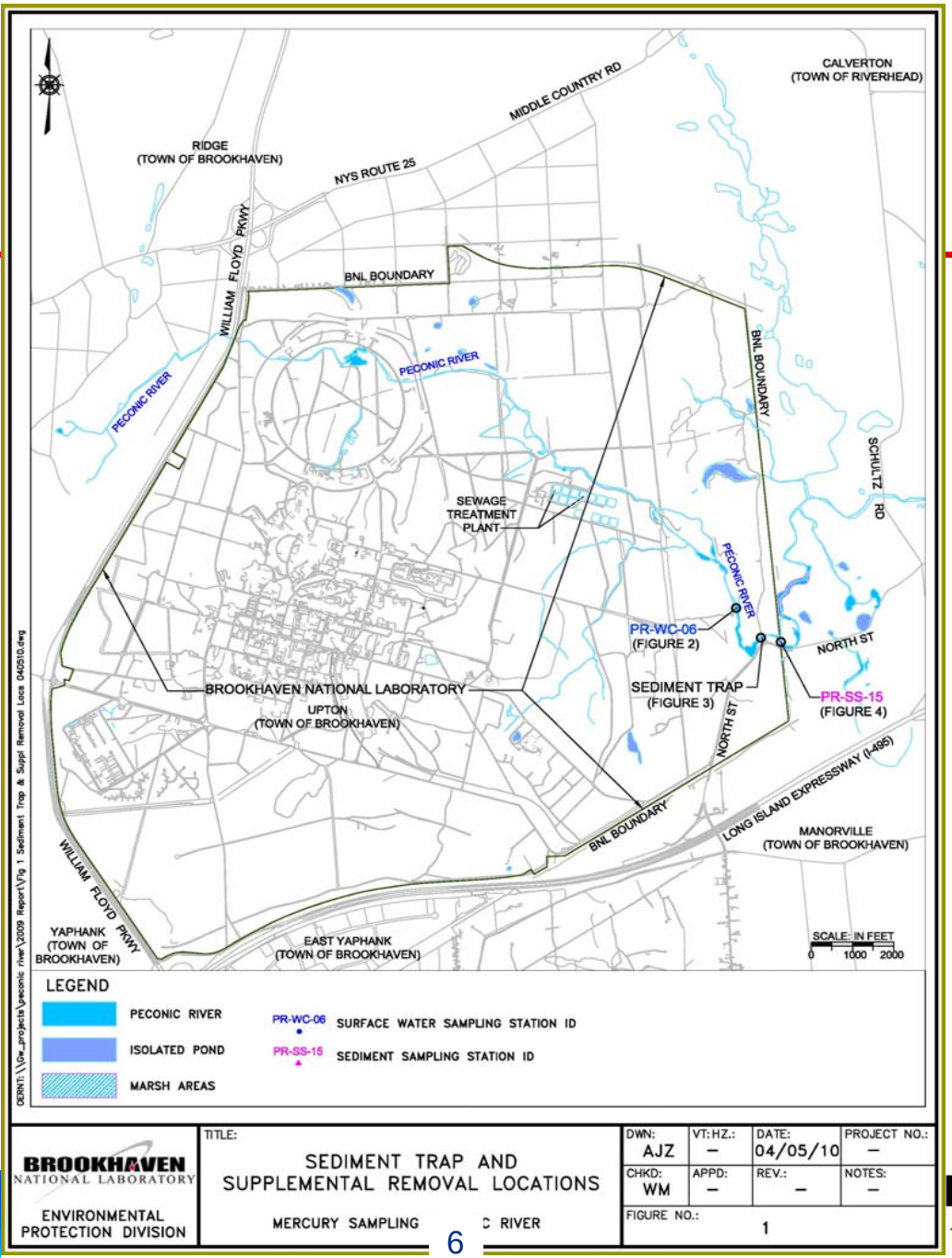
- **Minimum = 0.0219 mg/kg, Maximum = 1.63 mg/kg)**
- **Average is significantly lower than the average pre-cleanup (1996 and 2001) mercury concentration (0.58 mg/kg) .**
- **Slightly lower than EPA mercury criterion (0.3 mg/kg).**

Average 2009 fish PCB concentration = non-detect (52 samples, 7 isomers):

- **Minimum = Non-detect at MDL = 9.99 ug/kg, Maximum = 18.9ug/kg**
- **52 samples analyzed for 7 PCB isomers each = 364 analyses (362 of the 364 analyses were less than or equal to the detection limit)**

Average 2009 fish cesium-137 = 0.17 pCi/g (61 samples):

- **Minimum = 0.02 pCi/g, Maximum = 0.51 pCi/g**
- **Onsite pre-cleanup cesium-137: Average = 0.86 pCi/g, Maximum = 2.71 pCi/g**


CALVERTON
(TOWN OF RIVERHEAD)
MIDDLE COUNTRY RD
RIDGE
(TOWN OF BROOKHAVEN)
NYS ROUTE 25
WILLIAM FLOYD PKWY
BNL BOUNDARY
PECONIC RIVER
PECONIC RIVER
BNL BOUNDARY
SCHULTZ RD
SEWAGE
TREATMENT
PLANT
PECONIC RIVER
PR-WC-06
(FIGURE 2)
NORTH ST
BROOKHAVEN NATIONAL LABORATORY
UPTON
(TOWN OF BROOKHAVEN)
SEDIMENT TRAP
(FIGURE 3)
PR-SS-15
(FIGURE 4)
NORTH ST
LONG ISLAND EXPRESSWAY (I-495)
BNL BOUNDARY
MANORVILLE
(TOWN OF BROOKHAVEN)
WILLIAM FLOYD PKWY
YAPHANK
(TOWN OF
BROOKHAVEN)
EAST YAPHANK
(TOWN OF BROOKHAVEN)
SCALE: IN FEET
0 1000 2000
LEGEND
PECONIC RIVER
ISOLATED POND
MARSH AREAS
PR-WC-06 SURFACE WATER SAMPLING STATION ID
PR-SS-15 SEDIMENT SAMPLING STATION ID
BROOKHAVEN NATIONAL LABORATORY
ENVIRONMENTAL PROTECTION DIVISION
TITLE:
SEDIMENT TRAP AND SUPPLEMENTAL REMOVAL LOCATIONS
MERCURY SAMPLING C RIVER
DWN: AJZ
VT:HZ.: –
DATE: 04/05/10
PROJECT NO.: –
CHKD: WM
APPD: –
REV.: –
NOTES: –
FIGURE NO.: 1

Planned 2010 Sediment Removal Areas

Sediment Removal Mercury Concentrations and Areas					
	Sediment mercury minimum (mg/kg)	**Sediment mercury maximum (mg/kg)**	**Sediment mercury average (mg/kg)**	**Number of Samples**	**Cleanup Area (acres)**
PR-WC-06	0.029	22.3	2.476	84	0.217
PR-SS-15	0.043	36.8	4.022	57	0.121
Sediment Trap*	0.057(U)	2.5	0.365	16	0.022
Total Area					0.36

* Sediment Trap data are for area surrounding Sediment Trap. Sediment beneath trap to be sampled following trap removal.

PR-WC-06-U4, (looking upstream)

PR-SS-15, (looking upstream)

Sediment Trap (looking upstream)

2010 Sediment Removal Setup Summary

- **Access via mat-covered 2004/2005 temporary paths**
  - **Excellent vegetation recovery following 2004/2005 mat removal**

2004 Mat Road

- **River Flow diverted around Excavation Areas**
  - **Similar to 2004/2005 flow diversion**

2004/2005 Peconic River Diversion

- **The PR-WC-06 and the PR-SS-15 Sediment Removal and Sediment Trap Areas each to be isolated with upstream and downstream hydro dams**
  - **Conforms to river bottom and minimize erosion and seepage**

2004 Peconic River – Hydro Dam

2010 Dewatering Summary

- **Sump-pumps between hydro dams to be used to dewater excavation area**
  - **Similar to 2004/2005**

- **Sump-pump discharge water to be filtered before return to Peconic**
  - **Similar to 2004/2005**

2010 Sediment Removal Summary

Mini-excavator positions drop-pipe suction head

Drying agent added and mixed with sediment

- **Sediment transported from river to <u>vacuum box</u> by <u>vacuum pipe</u>**
- **Sediment transported to drying pad within <u>sealed spill-proof vacuum box</u>**
- **Sediment dried within <u>rock box</u> and stockpiled in covered drying bed for <u>rail-loading and transport</u>**

2004 – 2005 photo

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Post-2010 Sediment Removal Monitoring

- **Post-excavation confirmation samples will confirm effectiveness of meeting cleanup goals specified in Record of Decision (ROD)**

- **Sediment, surface water and fish monitoring to continue through Five Year Review in 2011**

- **All post-2004/2005 cleanup monitoring data (2004 - 2010/2011) data and future monitoring to be evaluated during Five Year Review**