

**Community Advisory Group (CAG)**  
**Hudson River PCBs Superfund Site**  
**Meeting Notes**  
**Thursday October 22, 2009**  
**1:00 – 4:00 PM**  
**Fort Edward, NY**

**Members and Alternates Attending:** Chris DeBolt, Manna Jo Greene, Richard Kidwell, Bill Koebbeman, Roland Mann, David Mathis, Sharron Ruggi, Lois Squire, Julie Stokes, Rebecca Troutman.

**CAG Liaisons Attending:** Kevin Farrar (NYSDEC), David King (USEPA), Joe Moloughney (NYSCC), Deanna Ripstein (NYSDOH), Charles Sullivan (USNPS), Kristen Skopeck (USEPA).

**Others Attending:** Tom Brosnan (NOAA), Pat Doarl (Behan Communications), Andy Guglielmi (NYSDEC – Office of General Council), Gary Klawinski (Ecology & Environment), James Newewll (homeowner, GE worker), Nick Reisman (Post Star), Larisa Romanowski (Ecology & Environment), David Rosoff (USEPA), Scott Scoppettone (Scenic Hudson), Rebekah Smith (Consensus Building Institute), Thais Thely, Julia Wilson (Fort Edward resident), Lloyd Wilson (NYSDOH).

**Facilitators:** Ona Ferguson, Pat Field.

**Members Absent:** Andy Bicking, Shawn Connelly, Cecil Corbin-Mark, Mark Fitzsimmons, Richard Fuller, Robert Goldman, Robert Goldstein, Gil Hawkins, Preston Jenkins, John Lawler, Aaron Mair, Dan McGraw, Merrilyn Pulver-Moulthrop, John Reiger, Mary Fran Wachunas, Mindy Wormuth.

**Next meetings:** The next CAG meeting is scheduled for December 10, 2009 at Saratoga Spa State Park. EPA will be holding a public information session on November 12 at the Fort Edward Firehall from 6-8pm.

**Action Items**

- Steve Lorence: Distribute data to the CAG about the gradient of contamination in river wildlife in relation to the GE plant.
- DEC staff: Determine if navigational dredging maps can be shared with CAG.
- GE: Present to CAG side views of anticipated versus final Phase 1 dredge depths.

**Welcome, Introductions, Review of September Meeting Summary and Action Items**

Facilitators welcomed everyone to the meeting, and the draft of the September meeting summary was approved with one change clarifying a technical detail. All CAG meeting handouts and presentation slides are available within one week of CAG meetings at:

<http://www.hudsoncag.ene.com/documents.htm>.

## **Natural Resource Damages (NRD) Research**

Steve Lorence of NYSDEC presented on NRD research and distributed handouts which included a snapping turtle study and a printout of the NRD website, as of October 20, 2009 (a good resource on the NRD assessment and all completed studies). NRD studies are funded by state and federal agencies. If an NRD settlement is reached with GE, the NRD trustees may seek compensation. The deadline to file an NRD claim is three years after the remedy (dredging) is complete, however, a claim could be filed or settled sooner. NRD settlements can take the form of monetary damages or restoration projects. NRD staff are currently designing the criteria for selecting restoration projects. Approximately 500 projects have already been submitted for consideration. Restoration proposal applications are still being accepted and the application form is available on the website: [http://www.dec.ny.gov/docs/remediation\\_hudson\\_pdf/restfrm.pdf](http://www.dec.ny.gov/docs/remediation_hudson_pdf/restfrm.pdf).

### Wildlife Studies

Mr. Lorence summarized the many studies conducted since the mid-1990s, both completed and in progress. All look at PCB contaminant levels on species that use the Hudson River, and most focus on carnivorous animals. The NRD looks at wherever PCBs end up in the biological system as they move up the food chain, and is not limited to the remedy area. Briefly, these studies are:

### Mammal Studies

- Mink, Otter and Muskrat Study (1998-2000): In the study areas, mink and otter (which are more carnivorous than muskrats) showed higher levels of PCBs. Reproductive impairment in mink was also found to be higher than found in literature. "Reference" sites refers to areas where there are no observable adverse impacts or mortality. In the Hudson floodplain study area, 3.5 mink were trapped in 1000 trap nights, whereas more than 20 mink were trapped in the reference area. Future studies will include a mink occurrence investigation.
- Short-tailed Shrews and Earthworm Study (2000): Shrews are carnivorous and feed largely on earthworms, which live in very rich soil. Shrews from Stillwater to Rogers Island were tested. Floodplain soil contained elevated PCB levels, and shrews show higher level of PCBs as well. Shrews living in more contaminated, low-lying floodplain areas had higher corresponding levels of contamination.
- Bat Study: Bats are insectivorous. Researchers caught 25 Little Brown Bats and six Big Brown Bats in the study area and found brain contaminant levels were significantly higher than in reference sites. Bats have a long lifespan and low reproductive rate so PCBs have a chance to bioaccumulate.

### Amphibian Studies

- Bullfrog and Snapping Turtle Study (1998): PCBs were found in snapping turtles, but not in bullfrogs, likely due to the higher fat content in turtles. Snapping turtles are also long-lived which provides an opportunity for PCBs to bioaccumulate. Snapping turtles in the river were found to have PCB levels of 770-8,000+ ppb. Studies tracking hatchlings in the Upper Hudson showed that 60% of the hatched turtles died within fourteen months. The high mortality rate suggests that young turtles can't metabolize PCBs. In the reference site, only 10% percent died in that time. In the study area of 42 turtle nests, eggs had between 70-31,000 ppb PCBs, whereas eggs from the 17 nests in the reference site had a maximum of 651 ppb (the study area was up to 50 times higher). (A CAG member requested information about whether PCB concentration levels in

wildlife decline as you move further away from the GE plants. Mr. Lorence indicated that he would try to find this information to share with the CAG.)

- Bullfrog Tadpole Study: Bullfrog tadpoles in the Housatonic River had 0.25-9 ppb PCB contamination levels. 1 ppb PCBs poses a risk to amphibians.
- Wood Frog and Leopard Frog Studies: Researchers are testing both frog flesh and the sediment in their habitat. Results show PCB levels above 1 ppb, indicating possible injury, but the populations are not large enough for representative samples.

#### Avian Studies

- Researchers have investigated 11 species of birds and eggs.
- Tree Swallows Study (FWS started in 1994, still in progress): Tree swallows were found to be contaminated with PCBs, likely because they feed on macro invertebrates (flies) that live in the river. Nesting behavior was also looked at and some odd behavior was observed (inability to build nests properly).
- Woodcock and Earthworm Study: Woodcocks are migratory birds that forage almost exclusively on earthworms. Researchers found a direct connection in PCB contamination between woodcocks and earthworms.
- Spotted Sandpipers and Belted Kingfishers Study (2004-ongoing): Spotted Sandpipers are fish eaters with a high metabolism that accumulate contaminants and have high levels of PCB contamination.
- Screech Owl Egg Study: These owls feed on small mammals in the floodplain. Researchers found 740-7,400 ppb PCBs in 10 eggs.
- Waterfowl Study (2009, underway): Researchers sampled 245 waterfowl this summer (analyzed for consumption) and are testing breast tissue and fat for PCB levels and are also looking at maternal transfer.

#### Other

- Sediment Toxicity Pilot Study (2008, results not yet available): Researchers are tracking mortality of organisms living in tanks containing Hudson River sediments.
- In-River Fish Injury Study (underway, results not yet available): Researchers are looking for lesions and bacteria in fish from contaminated areas.

NRD research also includes the possibility of *per se injury*, which is when PCB contamination levels in water or wildlife exceed state- or federally-mandated limits for consumption. Per se injury levels are set as follows: DEC tests fish or water and send the results to NYSDOH. DOH makes recommendations on limits for consumption, which DEC then turns into regulation. The violation of the standard is the per se injury, proven when DEC shows that a sample, taken correctly, exceeded the standard (there is no need to prove specific damage). The recent surface water injury report is on the DEC website; the surface water in the Hudson has exceeded PCB standards 82% of the time since standards were enacted 30 years ago.

Much of the research leads to additional questions for future studies, rather than to clear conclusions. For example, while there may be fewer individuals of certain species in the Upper Hudson than predicted, amphibians are declining worldwide so it is hard to prove causality. There does appear to be a link between PCB contamination and injury to mink. NRD trustees have not yet reached broad conclusions from their research.

CAG member questions and comments focused on the following, with responses from Mr. Lorence, Kevin Farrar and Andy Guglielmi of NYSDEC:

- *Animal abnormalities.* Gross deformities have not been observed but there have been some organ malformations and observed bird morphology impacts including low bird weight, changes in feather and egg characteristics, and unusual nest-building behavior.
- *Navigational dredging.* A CAG member stated that navigational dredging should be part of the NRD claim and should happen while the dredging is still occurring. DEC stated that navigational dredging is still part of the NRD claim and nothing in NRD law prevents an interim settlement. DEC recognizes the positive impact on businesses and local economies if dredging and navigational dredging occur together.
- *Dredge area/navigational channel maps.* CAG members requested that they be provided with maps of the areas to be dredged (during Phase 1 & 2) overlaid with a map of the navigational channel, as well as a presentation at the next CAG meeting of said maps. A CAG member noted that they have been asking for these maps for years to no avail. DEC staff responded that they will find out from the Attorney General's Office what maps can be shared with CAG members.
- *Studies on humans.* Deanna Ripstein of DOH discussed studies that have been conducted and that are ongoing. One study still underway looks at blood serum PCB levels and effects on the nervous system in former employees of the Hudson Falls and Fort Edward GE Plant sites. A second study underway evaluated long-term residents of Hudson Falls and Fort Edward to examine whether living in these communities or near the Hudson River, the GE Plant Sites, or the upland dredge disposal sites could cause an increase in exposure to PCBs. This study included an analysis of indoor air and outdoor air PCB levels, blood serum PCB levels, surveys of fish consumption history and neurological function tests. DOH is also following up on Dr. Carpenter's studies of cardiovascular effects and hospital rates of people living near the river. Some resident studies and fact sheets are available online on the DOH website at: <http://www.health.state.ny.us/environmental/pcb/index.htm>.

## **Public Water Supply Sampling Results**

Lloyd Wilson, from the Bureau of Water Supply Protection at DOH presented the results of the agency's public water supply sampling. The work is funded by EPA and DOH and is designed to identify what effects, if any, dredging has on PCB levels at public water supply intakes. DOH staff tested upper river (Stillwater, Waterford, Halfmoon, Schuylerville) and lower river supplies (Green Island, Rhinebeck, Port Ewen, Lloyd, Poughkeepsie) before and during Phase 1 dredging. Stillwater and Schuylerville have wellfields, not direct river intakes. Prior to the start of dredging, Stillwater's water supply was tested and had measurable levels of PCBs, but Schuylerville did not.

In the last two decades, many tests for PCB concentrations at public water supply intakes were recorded as "non-detect," however, the detection limit was often 100 ppt, so any level below 100 ppt was "non-detect." This history of non-detect didn't correspond with the results of GE's baseline monitoring studies that were conducted in 2004-2008 which found PCB levels in river water at Waterford between 30-50 ppt. In order to address this, DOH set laboratory detection limits at 10 ppt for their own baseline studies. DOH conducted baseline monitoring between May-November 2008 using both the Aroclor and the congener testing methods on raw water and finish water so that

they would have data comparable to what GE was collecting on river water samples. Results of baseline monitoring showed that most water supplies contained PCB's, with Stillwater showing the highest levels. Warm weather in the summer months and higher river flows corresponded with higher PCB concentrations. Generally, the lower the river flow and temperature, the lower the PCB concentration.

Results of the monitoring that was conducted during dredging were similar to baseline, with all results below the drinking water standard of 500 ppt.

*Lower River Results* - For Lower Hudson River supplies, PCB levels ranged from 6-60ppt. This means there is effectively no impact from this year's dredging on PCB levels at lower river water supplies (Green Island, Rhinebeck, Port Ewen, Poughkeepsie).

*Upper River Results* – Because Halfmoon and Waterford used Troy water during dredging, rather than river water, DOH did not sample their intakes during Phase 1. The towns may opt to go back to using river water, at which time DOH will do preliminary sampling. Because Stillwater has with the presence of PCBs in their wellfield (it generally has 80-150 ppt PCBs in groundwater from their wellfield, whereas the river has approximately 50 ppt near Stillwater), a granulated activated carbon (GAC) system was installed and was used to treat water at Stillwater during dredging. EPA set up the units and sampled several times to be sure they were working. DOH also worked with EPA on the maintenance plan for the system. The GAC system has removed PCBs as expected and the Stillwater system operators are happy with it.

The next steps will be to complete the Phase 1 monitoring results, to work with towns that may want to start using river water again, and to develop the contingency measures and monitoring needed in Phase 2.

CAG members voiced their appreciation for DOH's efforts looking after the health of the communities along the river and for presenting their results to the CAG.

## **Fort Edward and Hudson Falls Plant Update**

Kevin Farrar of NYSDEC presented on the remedial programs at the GE Hudson Falls Plant site and the GE Fort Edward Plant site.

*Hudson Falls Plant Site* – The goal of this effort is to drain PCB oil into the tunnel instead of into the river. Three of four phases of construction have been completed to date, and the drain system became effective about same time as dredging began in mid-May 2009. Phase 4 is to install the final pipes and electrical equipment in the tunnel.

Air monitoring was performed during all intrusive activities at the fence and nearby. From the data, DEC observed that when air temperature was higher, PCB levels went up, so mitigation measures were taken (including covering and watering spoils piles). Concentrations of PCBs in the air in the tunnel were a thousand times higher than those measured outside. As a result of the monitoring data, in accordance with project plans, extensive measures were taken to protect workers inside the tunnels as well as area residents. Dust and volatile organic compound (VOC) monitoring also occurred during all operations.

GE proposed and DEC agreed that it is important to know that the hydraulic effect of the tunnel is big enough to accomplish the necessary draw downs to prevent PCB migration to the river. The hydraulic monitoring began with the start of tunnel drain collection system (TDCS) operation and will continue through May 2010. Once that is complete, if the hydraulic capture zone is not adequate, more drains may need to be installed. Current average flows out of the tunnel are approximately 60 gallons per minute, but project managers planned for twice that amount of water. DEC staff thinks this might be because the hydraulic properties of the rock are different than anticipated, and because portions of highly fractured area are not yielding as much as expected. The average concentration of PCBs in water entering the tunnel is on the order of 100 ppb. The water that enters the tunnel is treated in the wastewater treatment plant and then discharged at the site.

A CAG member commented about blasting at the site that caused damage to a nearby home, despite the fact that DEC conducted the work in accordance with blasting standards.

*Fort Edward Plant Site:* This is the ongoing Remedial Investigation (RI) to understand the extent of PCB oil in the bedrock near Outfall 004. Monitoring wells have been installed at a number of locations in the vicinity of the former outfall structure, and to the south, east, and west. In Outfall 004 area, DEC believes that the delineation of the lateral extent of PCB DNAPL contamination as well as its depth (approximately 300 feet) is nearly complete. When the river is low and water moves from the rock to the river, PCB concentrations increase adjacent to and immediately downstream of the site, indicating that there is still some movement of PCB from the bedrock at the site to the river. When water in the river is higher than the water levels in the rock, the PCBs are not moving. GE has proposed and DEC agreed that GE should begin a manual PCB oil recovery project. All wells were tested for DNAPL, and GE will remove PCBs directly from those with the most DNAPL. The highest yielding well is yielding ten liters of PCBs per month, indicating that the well is connected to the pooled (i.e. mobile) oil in the rock under the site. There are a few others yielding more than one liter. DEC will be evaluating additional monitoring well locations to continue with the delineation of DNAPL in the bedrock.

CAG members asked why the river is being dredged before upstream PCB contamination issues are addressed. Mr. Farrar explained that the impact on the water column from PCBs in river sediment is much greater than the impact of releases from the plant sites. For example, in the summer surface water total PCB concentrations downstream of the plant sites (at Rogers Island) averages about 3.5 ppt, while at Thompson Island six miles downstream of Rogers Island concentrations can be 50 to 80 ppt. EPA's goal in the Record of Decision for the Hudson River site set a goal for upstream source control to maximize the long-term benefits after dredging at 2 ppt tri+ PCB, which has nearly been achieved already. With further source control measures at the plant sites, DEC believes that EPA's goal for upstream source control can be met and surpassed in the near future.

## **Dredging Project Update**

David King of USEPA gave an update on the dredging project.

*Dredging:* Dredging will end for the season on approximately October 24. During Phase 1, dredging was conducted in certification units (CUs) 1-8, 17 & 18. The Fort Edward Yacht Basin will be

completed this year and will be open by the start of the season next year for navigation. There will be a minimum 12' of depth in the navigational channel. GE expected to remove 13K cubic yards from the Yacht Basin, but will have dredged closer to 50K cubic yards by the end of Phase 1, so there will be enough depth to put in 15" of cap and still maintain the desired 12' depth. Facility operations are 24/7 for now.

*Backfilling:* Backfilling is complete in CUs 2, 5, 6 and 17. Capping is also underway in some dredge areas. Backfilling/capping will continue until the canal closes in mid-November.

*Rail transport:* Eleven trains have gone to Texas, and a 12<sup>th</sup> train is being loaded. On Monday, there was a train derailment: three of the last seven cars jumped track in New Mexico. The cars did not tip over and were put back on the track. This delayed the train by a half a day. Rail system hazmat people went to the site and evacuated five families, then let them return when no toxic contamination was found.

*River Operations Demobilization:* Barges must be moved south before the locks close. Dredge operations will continue to be switched over to backfilling, and loading of rail cars will continue until all dredged material has left the facility. Treatment of rainwater at the dewatering facility site will continue year round.

*Water Monitoring:* There were no standard level exceedences in October, however, PCB concentration levels have been elevated over the last few weeks (in the 250-400 ppt range at Thompson Island station). There was one spike at Thompson Island which went down within 12 hours and for which the cause is unknown. Once backfilling/capping is completed for the season, water monitoring will continue for two weeks to ensure PCB concentrations return to pre-dredging levels. Monitoring will also continue at the water intakes.

*Productivity:* Approximately 280,000 cubic yards of sediment will have been dredged by the end of the season. Cumulative PCB load at Waterford through October 18 was approximately 38 kg tri+ PCBs and 107 kg total PCBs, which is close to what was originally predicted. 10 of 18 CUs slated for dredging in 2009 were dredged. CUs 9-16 have not yet been dredged, and the agreement with GE allows those CUs not dredged in Phase 1 to be moved to Phase 2. EPA estimates that if the rate of sediment offloading at the dewatering facility wharf were addressed, the system could have handled 1-2K cubic yards more per day. EPA estimates removal in Phases 1 and 2 of approximately 96% of PCBs in the river in Section 1, 76% in Section 2, and 58% in Section 3.

*Habitat Restoration:* In May and June 2010, 80-90,000 native plants and subaqueous vegetation will be planted in dredged areas.

*Interim Period:* Anyone may submit suggestions for improving Phase 1 processes for Phase 2 through the CAG or directly to EPA at any time. There will also be a public comment period on the Phase 1 evaluation reports, but EPA would like to receive any public input as soon as possible to ensure that there is adequate time for consideration.

CAG comments and questions focused on the following topics:

- *Visual representation (side views/cross sections) of planned vs. actual sediment removal.*  
A CAG member requested a side view of what was predicted to be removed versus the

- actual amount removed during Phase 1. EPA noted that GE had agreed to try to show something like this to the CAG.
- *Sacandaga Reservoir water releases and their effect on turbidity during dredging.* The reservoir operates under many mandates, among them keeping their supply low enough to handle floods and releasing certain amounts daily for whitewater rafting recreational purposes. Those daily pulses are visible in EPA's charts from 2009. A CAG member noted that the releases from the Sacandaga Reservoir are also designed to keep salt water below Poughkeepsie.
  - *PCB load impact on fish recovery.* DEC did a full year of baseline fish monitoring and a full round of monitoring was conducted over the spring/summer. EPA has not yet seen the fish data but GE and EPA will be looking at it during the evaluation period.
  - *Canal on the west side of Rogers Island.* A member of the public asked if the canal on the west side of Rogers' Island will be deep enough for small boats and was told that the canal will be returned to its original bathymetry levels and small boats will be able to get through.
  - *Completion of Phase 1 in 2010.* A CAG member stated that the CUs that could not be completed in Phase 1 should be dredged during 2010 while the Phase 1 evaluations are underway. The member voiced concern that a full work season would pass without anything being done which is one more year of contaminated sediment washing downstream.
  - *Air exceedances.* CAG members stated that more proactive measures should be taken to prevent air exceedances during Phase 2.
  - *Professionalism and recreational boating.* A CAG member noted that the work on the CUs that were remedied was done very professionally and that recreational boaters experienced minimal delays and heard no complaints from their peers during the dredging project, which indicates a success for GE and EPA.

## **Brief Updates**

*Floodplains Remedial Investigation:* Dave Rosoff of EPA noted that EPA recently had a good meeting with GE to start the Remedial Investigation which should make it possible to begin sampling in either 2010 or 2011. All parties still need to reach agreement in a Consent Decree and develop a workplan for the Remedial Investigation itself.

## **Committee Business**

*CAG Agenda Topics and Next Meeting* – There may be a potluck lunch prior to the December 10 CAG meeting. Suggested topics for future CAG meetings include: habitat replacement in Phases 1 and 2, Phase 1 lessons learned, potential changes for Phase 2, dredging closeout and backfilling quantities, cross section of depth anticipated vs. dredged, proposed CAG workplan for 2010, 2009 floodplains sampling update and removal actions, RIFS Upland Disposal Sites update.

## **Adjourn**

The meeting was adjourned at 4:00pm.