



Activated Carbon Pilot Study Grasse River Study Area Massena, New York



September 2006

Alcoa to Conduct Activated Carbon Pilot Study

Alcoa Inc., with oversight from the US Environmental Protection Agency (EPA), will conduct a study in the fall of 2006 to evaluate the effectiveness of applying and mixing activated carbon in the lower Grasse River sediments downstream from its Massena West Plant. Throughout the project, Alcoa has been researching and evaluating new technologies for remediation, and promising results obtained through laboratory testing work indicate that this approach merits a pilot study. The technology proposed for this pilot study consists of adding activated carbon to the upper layer of the sediments and monitoring over a multi-year period to determine effectiveness. Work at the site will begin in September and continue through October of this year. This fact sheet presents a summary of the activated carbon pilot study and includes information relating to community health and safety during the study.

Why Carbon?

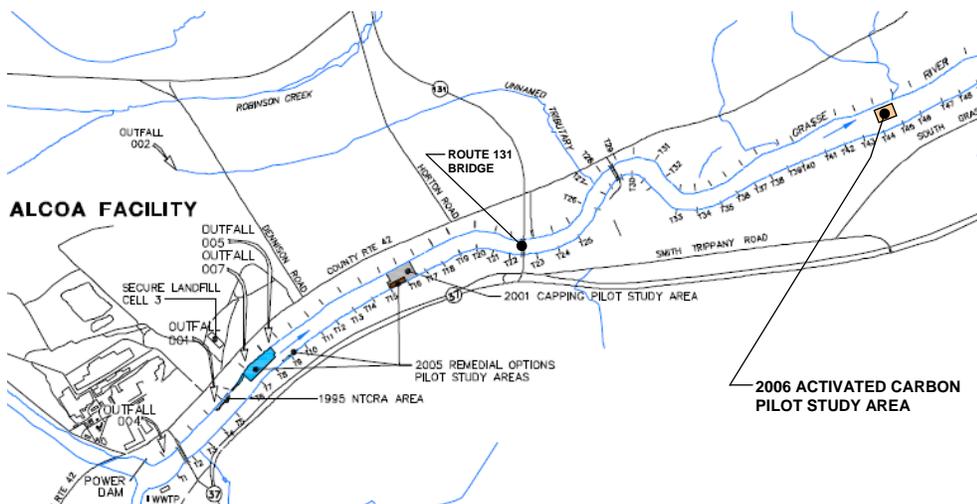
The lower Grasse River is currently under a fish consumption advisory from the New York State Department of Health due to elevated polychlorinated biphenyl (PCB) levels found in fish. Results from previous Grasse River investigations indicate that the major source of PCBs to Grasse River fish is from the river sediments. Sources to the river sediments have been controlled through remediation efforts at the Massena West Plant (see September 2006 Superfund Program Update).



Activated Carbon

Carbon is widely used to treat drinking water and, in fact, is used at the Massena plants to remove PCBs from Alcoa's river discharges. Several recent laboratory studies have shown that the addition of activated carbon to sediments can reduce the bioavailability of PCBs in sediments to fish and other river-dwelling organisms. The carbon dose is not toxic to humans, fish, or other organisms. The PCBs sorb onto the carbon particles and become trapped, making them unavailable to the fish. This, in turn, is expected to result in the reduction of PCB levels in both water and fish of the lower Grasse River. Only a thin layer of carbon is necessary to achieve this result.

Study Area Location and Application Techniques



The activated carbon pilot study (ACPS) will be performed in an approximate 0.5-acre area located in the main channel of the lower Grasse River approximately 2 miles downstream of the Route 131 bridge. A silt curtain will be used on the downstream and center channel sides of the in-river work area to control carbon from leaving the work site.

The ACPS area will be divided into three separate test plots to evaluate different application techniques and mixing methods. The application techniques were developed over a several month period and were tested on land at the

Contractor's facility prior to use in a river setting. The two application techniques that will be tested include: 1) a "roto-tiller;" and 2) a "tine sled."



Roto-tiller



Tine Sled

Both pieces of equipment have several nozzles to inject the carbon slurry (carbon mixed with water) to the sediments. The roto-tiller has the ability to mix the carbon into the top few inches of sediment via several rotating tines. It also can be used to simply inject the carbon without mechanical mixing. In this case, microscopic benthic organisms that live in the sediment would mix the carbon into the sediment over time. Carbon mixing with the tine sled occurs through the use of several "fingers" that extend into the sediment as the sled is dragged along the river bottom. Both pieces of equipment are enclosed and covered (not shown in the tine sled pictured above) to reduce the amount of disturbance from the mixing operation.

Monitoring will be performed prior to the study to determine baseline conditions, during the study to evaluate the application process, and over time after the study to determine the effectiveness of the carbon in reducing PCB availability in the sediments. Monitoring will consist of the collection of water, sediment, and benthic organisms.

Community Health and Safety During the Study

Construction activities during the study are expected to take place during daylight hours, five days per week (excluding weekends) over September and October. As a result, a variety of health and safety issues must be anticipated, and measures taken to minimize impacts to the community. Throughout the study, Alcoa will evaluate water quality, noise levels, impacts on recreational boating, and site security. If monitoring activities indicate a potential concern, Alcoa and EPA will work together to address the issue as quickly as possible.

- **Water Quality:** Water quality will be monitored daily at several locations upstream, adjacent to, and downstream of the work area. Samples will be collected from multiple depths within the water column and analyzed for PCBs and total suspended solids along with turbidity (a measure of water clarity).
- **Noise Levels:** Noise levels will be assessed throughout the study. Sounds associated with the operation of heavy equipment will be controlled to the extent possible. Since activities will be performed during daylight hours, nuisance noise is expected to be minimal.
- **Recreational Boating:** Boaters may encounter working vessels/barges and other equipment associated with study-related activities. Navigation in an area along the river's southern shore will remain unrestricted throughout the project, and efforts will be taken to promote public safety and awareness. The U.S. Coast Guard and the U.S. Border Patrol will be notified. A no-wake zone will be established near the work area, lighted buoy and buoy markers will be placed on the river, and notices to recreational boaters will be posted at local marinas and other locations in the community.
- **Site Security:** Potential shore-based concerns will only exist within the confines of the Alcoa property, which is off-limits to the public. To prevent trespassing, vandalism, or accidental entry, site security measures will be employed. Unauthorized personnel will not be permitted to enter the site.



For More Information

If you would like additional information or want to be added to the project mailing list, please contact:

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