

Grasse River — Project 2 (the River) Update Summary

Site Description

The Grasse River Study Area extends for 8.5 miles of the Grasse River from the upstream site limit to its confluence with the St. Lawrence River and includes Robinson Creek and Massena Power Canal.

Potential Responsible Parties (PRPs)

The PRP is Alcoa Inc.

Threats and Contaminants

The constituent of concern is polychlorinated biphenyls (PCBs).

Cleanup Approach and Remedial Activities Update Since 2004

The following additional studies and pilot/demonstration projects have been performed since 2004 in a continuing evaluation of remedial alternatives for the site (additional information is available at www.thegrasseriver.com):

- In 2005, a Remedial Options Pilot Study (ROPS) was completed. The study was conducted to further evaluate potential remedial options for a stretch of the lower Grasse River. The elements of the pilot study included:
 - Hydraulic dredging (i.e., horizontal auger) in the main channel of the river (including the side slopes) and mechanical removal (i.e., clamshell bucket) in the northern near shore area. Dredging was implemented by Severson Environmental Services (SES) and began in June 2005. By mid-September 2005, far less sediment had been removed than originally anticipated. After dredging the top layer of sediment, a variety of issues complicated removal of the remaining materials. The river bottom was irregular and uneven, and dredge operators frequently encountered hard bottom, rocks or debris – all of which resulted in equipment damage. These problems were compounded by the fact that as sediment removal became more difficult, typically more water was dredged with the sediments, and that excess water had to be separated. Significant time was lost to silt curtain maintenance due to weather and other factors. Finally, the results of daily water sampling indicated periodic

exceedances of PCB action levels (see discussion below) that necessitated operational and equipment adjustments (including trial use of a cutterhead dredge) to address these complications and maintain progress toward the project goals. Although these adjustments were beneficial, the lower productivity rates and other difficulties were limiting and as a result, only about 40% of the targeted sediments were removed from the main channel. All targeted sediments in the northern near shore area were removed.

- Placing various types of sediment caps in different locations in the river. In areas where the river was dredged (the main channel and northern near shore area), a cap consisting of 1 foot of a sand and topsoil mixture was placed. Caps were also placed in two areas of the river that were not dredged using a mechanical clamshell bucket. A thin layer cap (3 to 6 inches of sand and topsoil) was placed in the southern near shore area over existing sediments. An armored cap was placed over an area located downstream of the dredging areas.
- Monitoring conditions in the river before, during and after dredging and capping activities. Profiling surveys were conducted prior to the study to characterize the shape of the river bottom and the depth of sediments. In general, the results during and after dredging indicated that, in the main channel, significant amounts of targeted sediment remained, and the irregular nature of the river bottom with boulders and rock outcrops in some areas limited the ability to remove all of the targeted sediments. More than 800 water samples were collected during the pilot study for PCB and solids analysis – PCB action levels were exceeded on 8 days during pilot study dredging. Over 100 air samples were collected for analysis of PCBs, particulate matter, and other compounds. Elevated levels of particulate matter were detected, but were determined not to be related to the project. 144 fish samples were collected for PCB analysis. PCB levels were higher than results obtained in 2004 for certain fish.
- In 2006, an Activated Carbon Pilot Study (ACPS) was performed to evaluate the effectiveness of applying and mixing activated carbon in the river sediment as a means of reducing PCB bioavailability in sediments to fish and other river-dwelling organisms. TetraTech/JF Brennan was the contractor that performed this work. Activated carbon was chosen because several recent laboratory studies have shown that the addition of activated carbon to sediments can reduce the bioavailability of PCBs in sediments. The proposed carbon dose is reportedly not

toxic to humans, fish or other organisms. PCBs sorb into the carbon particles, making them unavailable to fish, which, in turn, is expected to result in the reduction of PCB levels in both the water and fish of the lower Grasse River. While laboratory studies had shown positive results, the ability to effectively mix the activated carbon into native sediment in the field required testing. The overall objective of the ACPS was to verify that the bioavailability of PCBs within lower Grasse River sediments can be effectively reduced at the field scale through the addition of activated carbon.

- The ACPS was 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. The ACPS was divided into separate test plots to evaluate different application techniques and mixing methods. The two application techniques tested were “roto-tiller” and “tine sled” techniques. Both pieces of equipment had several nozzles to inject a carbon slurry into the sediments. The roto-tiller was able to mix the carbon into the top few inches of the sediments, but also had the capability of injecting the carbon without mixing. The tine sled mixed the carbon when several “fingers” that extended into the sediments were dragged along the river bottom.
- Monitoring was performed prior to the study to determine the baseline conditions and during the study to evaluate the application process. Monitoring of the water, sediments and benthic organisms will be performed over time to determine the effectiveness of the carbon in reducing PCB availability in sediments. Sediment cores collected immediately following application of activated carbon indicated that an overall average activated carbon increase of 2.5 percent or greater was successfully achieved in each of the treatment areas, although some variability was observed in the measurements. The ACPS includes a detailed 2-year post-implementation physicochemical and biological monitoring program to evaluate the longer-term effectiveness of the treatment.
- In 2007, an EPA-directed Ice Breaking Demonstration Project was performed to evaluate the use of ice breaking as an interim measure to prevent ice jams from forming in the river until the final remedy is determined and implemented. McKeil was the contractor that performed this work. Two excavators on a barge propelled by a tug boat mechanically broke and cleared ice from an approximate 250 foot wide, 7 mile long channel in the river. The ice breaking proceeded from downstream to upstream to allow broken ice to move downstream into the open

water prior to natural ice out of the river. Two community related concerns associated with the work were identified prior to implementation of the work: safety of the users of the river for winter activities (e.g., ice fishing, snowmobiling), and noise associated with operation of mechanical ice breaking equipment. In order to prevent recreational use of the river during ice breaking activities, several steps were taken: public notifications were made through local newspapers, radio and television stations, snowmobile and outdoor clubs, and public availability sessions in order to promote community awareness; warning signs were posted at known access and egress locations to the river; banners were hung from bridges with information regarding the ice breaking activities; and Alcoa notified local emergency responders, schools, snowmobile clubs, and property owners to make them aware that ice breaking activities would be occurring.

- Evaluation of potential long-term ice control measures is ongoing.
- Results of these projects are currently under EPA review.
- The costs associated with the remedial activities since 2004 are not yet available.

Scheduled Activities

Currently there are no scheduled field activities for the site. The results from these field studies will be incorporated into the FS for the site which is currently under development.

References

Alcoa Inc. *Superfund Program Update for the Grasse River Study Area*. September 2006. (<http://www.thegrasseriver.com/pdf/Sept06%20Update%20ROPS.pdf>)

Alcoa Inc. *Activated Carbon Pilot Study*. September 2006. (<http://www.thegrasseriver.com/pdf/ACPSinsert082906wgraphics.pdf>)

Alcoa Inc. *Lower Grasse River Ice Breaking Demonstration Project*. March 2007. (<http://www.thegrasseriver.com/pdf/Ice%20Break%20CommUpdateJan07.pdf>)

EPA. Technology News and Trends. Activated Carbon Applied to Sediment Potentially Reduces PCB Bioavailability. July 2007. (<http://www.clu-in.org/products/newsletters/tnandt/view.cfm?issue=0707.cfm>)

www.thegrasseriver.com