



# Lower Grasse River Ice Breaking Demonstration Project

Massena, New York

January 2007

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## Alcoa May Conduct EPA-Directed Ice Breaking Demonstration Project

At the direction of the US Environmental Protection Agency (EPA), Alcoa Inc. may conduct an ice breaking demonstration project in March 2007 in the lower Grasse River. Conduct of the work will be contingent on final regulatory approvals and an assessment of the necessity of the work based on spring 2007 ice conditions. Mechanical equipment placed on a barge will cut a channel in the ice between the St. Lawrence River up to the Alcoa Bridge in the lower Grasse River. The one year demonstration project will 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. It is anticipated that breaking the ice (rather than allowing natural ice out) will provide the increased flow capacity needed to reduce the likelihood of ice jams, especially those ice jams capable of causing conditions that would disturb bottom sediments in the lower Grasse River. This fact sheet presents a summary of the ice breaking demonstration project activities; it also includes information relating to community safety during the project.

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### Demonstration Project Background

In 2003, the break-up of river ice caused an ice jam in the lower Grasse River. This temporary accumulation of ice in the river channel caused the higher flow rates under the ice jam, resulting in some localized scour of the river bottom.



Some of that scouring disturbed capping materials which had been placed on the river bottom as part of the 2001 Capping Pilot Study and some polychlorinated biphenyl (PCB)-containing sediments beneath the cap. An intensive follow-up investigation by scientists retained by Alcoa demonstrated that the 2003 ice jam-related scour did not cause river-wide changes to PCB levels; however, some local effects were observed. This investigation also researched the history of ice jams in the river, indicating that ice-jams capable of disturbing river sediments occur roughly once every 10 years in the approximate two-mile stretch of river downstream of the Power Canal. As a result, Alcoa and EPA identified the need to evaluate ice control measures to reduce the potential for ice jam-related events that could potentially disturb river sediments.

The Grasse River 2005 Remedial Options Pilot Study (ROPS) project included targeted dredging of PCB containing sediments from one portion of the ice jam-prone section of the lower river, along with the installation of a one-acre armored cap designed to withstand ice jam scour-related forces; the results of this work were summarized in the September 2006 Community Update. The ROPS also included a provision for managing potential ice jams. One option that was under consideration was a pier type ice control structure (ICS) in the river upstream of Massena in the Town of Louisville. This idea was to be evaluated as an interim (and possible longer-term) measure to prevent future ice jams in the lower Grasse River. However, based on community concerns related to the proposed location of the ICS, this upstream location was not pursued. An assessment of the use of an installed structure in the river for ice control as a longer term measure is continuing through the evaluation of a pier type structure to be located within the lower Grasse River near the Alcoa Massena West plant. Another possibility for consideration is the integration of ice control into the design of a proposed hydroelectric project on the river that is currently under evaluation by the Massena Electric Department.

#### Update: 2006 Activated Carbon Pilot Study

As described in the September 2006 Update, the Activated Carbon Pilot Study was conducted in the lower Grasse River from September to October 2006. Activated carbon was applied to the top 3-6 inches of sediment in a ~0.5 acre area using specially designed equipment. Placement of activated carbon is intended to bind PCBs to carbon particles making them unavailable to the surrounding environment and preventing movement of PCBs into both water and fish in the lower Grasse River. Alcoa is continuing to evaluate monitoring data obtained during the study, and is planning additional monitoring activities for 2007 and 2008.

At the request of EPA, Alcoa has evaluated possible short-term measures for preventing future ice jam events. Mechanical ice breaking in the lower river prior to the natural breakup of ice was identified as the only potentially feasible non-structural interim measure. Available methods of ice breaking for the Grasse River were evaluated and

it was determined that an ice breaking demonstration study is necessary to further evaluate the likelihood of its success.

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## Overview of Demonstration Project Activities and Schedule

River ice conditions (e.g., extent of cover, thickness, etc.) will be monitored throughout the 2006/2007 winter. Scientists that specialize in river ice processes will advise if ice breaking is necessary. If it is determined to be necessary, the ice breaking activities are expected to begin in mid-March 2007. The current schedule calls for the work to be initiated sometime during the week of March 12, however the actual date for the start of ice breaking will be provided in subsequent communications. Prior to starting these activities, signage and other community notification measures will be taken as further discussed below.

Ice breaking activities will be conducted using two excavators on a barge propelled by a tug boat. Starting at the downstream extent of the intact ice cover, the two excavators will mechanically break and clear the ice from an approximate 250 foot width of river channel. Ice breaking will proceed upstream to allow broken ice to move downstream into open water, and will continue until the seven-mile channel between the St. Lawrence River and the Alcoa Bridge has been cleared of ice. The extent of ice breaking activities is shown below.



The preliminary schedule for implementation of the demonstration project is as follows.

- December 2006: Mobilization of a tug boat and barge to the St. Lawrence River at Alcoa's East Plant for over-winter storage
- December 2006 through March 2007: Monitor river ice conditions to determine necessity of ice breaking activities
- January through April 2007: Public education phase, including public availability sessions in Massena in January and a campaign of notification
- March 2007: Determine necessity of ice breaking activities, complete ice breaking activities and provide community notification

**Two Public Availability Sessions will be held:  
Tuesday, January 30, 2007 at  
2:00 pm and 7:00 pm at the  
Massena Town Hall located  
on Main Street, Massena, NY**

It is anticipated that ice breaking activities will be conducted 24 hours per day for approximately three days; however, the actual duration of activities is dependent on the thickness of ice to be broken and weather conditions.

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## Community Health and Safety During the Ice Breaking Project

Two community related concerns associated with the work have been identified: safety of users of this portion of the river for winter activities; and noise associated with operation of mechanical ice breaking equipment (e.g., tugs and excavators).



Ice breaking activities will result in portions of the lower river containing both intact and broken ice cover. There is also the potential for refreezing to occur, placing a thin ice cover over the ice breaking channel following the completion of operations, but prior to natural ice out from the rest of the river. As a result, **once ice breaking activities commence, the lower river will not be safe for access or recreational use.** Although use of trails on water ways is not recommended or supported by the New York State Snowmobile Association, based on discussions with community members and local snowmobile clubs as well as anecdotal information, EPA is aware that the Grasse River is used for recreational purposes during the winter months for snowmobiling, ice fishing, snowshoeing and other outdoor activities. Notification measures will be implemented at access points to the relevant portions of the Grasse River in March 2007. Furthermore, the following measures will be implemented to notify the community of these hazards:

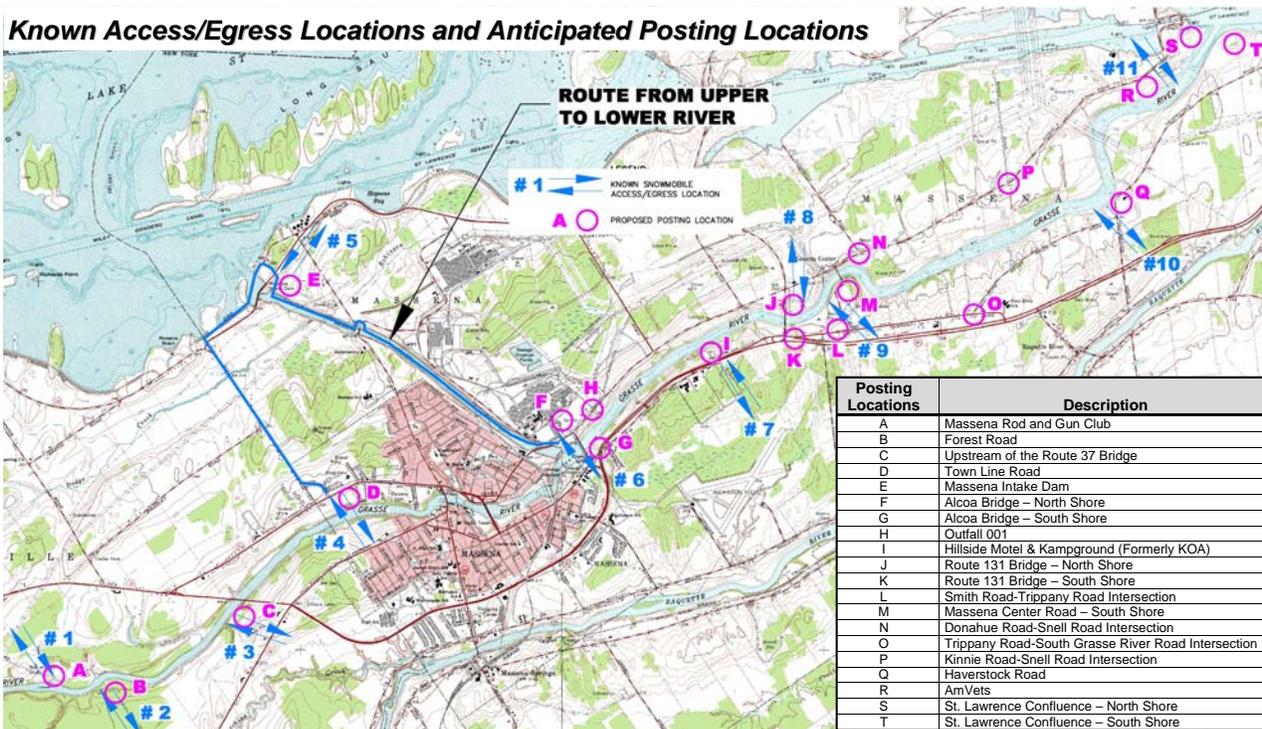
- Public notifications will be made to promote community awareness. These notifications will include mailings, postings at local businesses (gas stations, coffee shops, etc.), public availability sessions on Tuesday, January 30, 2007 at the Massena Town Hall, and announcements through local newspapers, radio and television stations, and snowmobile/outdoor clubs.



- Warning signs will be posted at known access/egress points to the river (as shown below) consisting of reflective lettering and lighting (for those points along the ice breaking portion of the river). Signs will be installed approximately one week before ice breaking activities are scheduled to begin. The warning signs will be monitored periodically to check that they are functioning as intended. If there are additional known entry and departure points commonly used by the public along the river, please contact Bruce Cook, Alcoa's On-site Manager, at (315) 764-4270 so that appropriate notification measures can be implemented at those locations. Visual markings (such as orange cones) will also be placed at the access/egress points and around the ice breaking activities if conditions safely permit.

- Alcoa is also working with local emergency responders (e.g., fire department, police, ambulance corps, hospital, coast guard, etc.), snowmobile clubs, and property owners adjacent to the river to notify them of the ice breaking activities.

**Known Access/Egress Locations and Anticipated Posting Locations**



To help further reduce risks associated with this project, ice breaking activities will be conducted as late in the spring as possible to minimize the period of time between ice breaking and the natural ice breakup in the river. Note

however, that due to the nature of the potential winter recreational activities on the Grasse River, speeds involved during snowmobile use, length of the reach of the river to be broken, possible unknown entry points to the river, and limited visibility related to night operation and/or weather conditions, the most effective means to address these potential safety hazards is to have an effective community outreach program. The identified notification measures described above are intended to accomplish this.

Noise monitoring will also be conducted throughout the demonstration project. If monitoring activities indicate a potential concern, or if complaints are received from the community about the noise levels, Alcoa and EPA will work together to address the issue as quickly as possible.

As described throughout this fact sheet, additional notifications will be provided to the community as the winter progresses.

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### For More Information

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

Young Chang (EPA Remedial Project Manager)	(212) 637-4253
Larry McShea (Alcoa Project Manager)	(724) 337-5458
Bruce Cook (Alcoa On-site Manager)	(315) 764-4270

Additional project information is also available on Alcoa's Grasse River website at [www.thegrasseriver.com](http://www.thegrasseriver.com).



**Ice Breaking Demonstration Project Public Availability Sessions**  
**Tuesday, January 30, 2007 at 2:00 pm and 7:00 pm**  
**Massena Town Hall located on Main Street, Massena, NY**

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**88 PARKER AVENUE**  
**MASSENA, NY 13662**