

## INTERNATIONAL LAKE SUPERIOR BOARD OF CONTROL

Minutes of the 8 September 2010 meeting

The International Lake Superior Board of Control met on 8 September 2010 in a boardroom at the Holiday Inn, Kingston, Ontario. Mr. Fay convened the meeting at 1:25 p.m. The attendees were:

### United States

COL J. Drolet (Alt.)

Mr. J. Kangas

LTC. M. Derosier

Mr. B. Belleau  
Mr. E. Tauriainen  
Mr. R. Thomas  
Mr. M. Abdo

### Board Members

### Secretaries

### Regulation Representatives

### Associates

### Canada

Mr. D. Fay

Mr. R. Caldwell

Mr. R. Caldwell

Mr. R. Stefano

### **Item 1. Approval of Agenda**

The agenda was approved.

### **Item 2. Hydrologic Conditions and Regulation Update**

The Board was provided with the following update on hydrologic conditions for lakes Superior, Michigan-Huron, and Erie. Mr. Caldwell also presented slides showing recent net basin water supplies, levels (observed and forecasted), and Lakes Superior/Michigan-Huron water balance parameters.

- Over all, water supplies to the Lake Superior basin for the past six months were near record low while supplies to the Lakes Michigan-Huron basin were also well below average.
- Lakes Superior and Michigan-Huron levels remain below average, and below levels of last year. Lake Superior was 15 to 34 cm (6 to 13 in.) below average during the past six months. Lakes Michigan-Huron were 22 to 37 cm (9 to 15 in.) lower than average. Levels of Lake Superior have been consistently below average since April 1998, while levels of Michigan-Huron have been consistently below average since January 1999.
- Lake Superior outflows were 74% of average over the past six months, and ranged from 1,550 to 1,690 m<sup>3</sup>/s. Outflows were as specified by Regulation Plan 1977-A. The gate setting at the Compensating Works was the equivalent of ½ gate open.
- With average supplies, Lake Superior's level is expected to remain below average and fall to its chart datum this winter. Michigan-Huron levels are very likely to remain below average for the next six months, and are expected to fall below their chart datum this winter.
- The 1900-1986 "standardized departure" data as used in Plan 1977-A show that Lake Superior's level was significantly lower relative to Lakes Michigan-Huron at the beginning of September. Lake Superior was about 2.4 standard deviations below its mean level, while Michigan-Huron was about 1.1 standard deviations below its mean level.
- Since last year, Lake Superior has received about 100 mm (4") less total precipitation than normal.
- According to the NOAA drought monitor, much of the upper Great Lakes basin is again experiencing drought or is abnormally dry.
- Mr. Caldwell noted that the NOAA and Environment Canada climatological outlooks for September-November were consistent (warmer than normal) for temperature, but differed on precipitation (NOAA → equal chances of above, below, or normal precipitation; Environment Canada → above normal precipitation).

The Board agreed that outflows specified by the regulation plan be continued.

### **Item 3. Update on Long Lac and Ogoki Diversions**

Ontario Power Generation (OPG) continued to provide the Board with information on the operations of the Long Lac and Ogoki Diversions. The Ogoki Diversions into Lake Nipigon (which flows into Lake Superior) averaged  $90.4 \text{ m}^3/\text{s}$  (3,190 cfs) and the Long Lac Diversion averaged  $11.8 \text{ m}^3/\text{s}$  (420 cfs) from March through August. Combined, these diversions were about 60 percent of average for the period 1944-2009. Record low Long Lac Diversion values were passed in June and July this year.

Slots cut into Waboose Dam provide a minimum flow northward to the Ogoki River of approximately  $2 \text{ m}^3/\text{s}$  (to meet fisheries requirements). "Slot flow" (averaging  $2.0 \text{ m}^3/\text{s}$  (71 cfs)) was passed during March through August.

Continuous minimum flows of  $2 \text{ m}^3/\text{s}$  (70 cfs) are maintained from the Saturday of Victoria Day weekend (in May) through Labour Day from the northern outlet of Long Lake (Kenogami Dam) for environmental enhancement. No additional water was spilled from March through August.

### **Item 4. Flow Verification Measurements**

LTC Derosier noted that hydropower flow verification measurements are performed on a five-year cycle, and are expected to be completed this summer during the weeks of 13 and 20 September. A final report will be prepared and the results presented to the Board. Compensating Works flow verification measurements may be scheduled in 2011, following completion of BRP's refurbishment program this fall.

Flow measurements were made on 18 and 19 May at model sections in the lower St. Marys River. Additional measurements will be made the week of 13 or 20 September. These are for use in the calibration of hydraulic models and are not related to the power plant flow verification program.

### **Item 5. Hydropower Plant Maintenance & Other Outages**

*Brookfield Renewable Power (BRP):* Mr. Stefano reported that a series of scheduled maintenance outages had been undertaken. Unit G2 was shut down from 3 to 7 May, and Unit G1 was shut down from 8 to 18 May for annual inspections. A 10-hour shutdown on 29 August facilitated an inspection of the head race ice boom (which broke in several spots earlier in August). A daytime shutdown is scheduled for 25 September to facilitate the annual underwater cable inspection and maintenance for Lake Superior Power Ltd., and the boom will be repaired at that time. Unit G3 is scheduled for shut down from 24 September until 8 October for annual inspection and replacement of a transformer.

*Cloverland Electric Cooperative (CEC):* Cloverland Electric Co-operative completed acquisition of Edison Sault Electric Company on 4 May. Mr. Belleau reported that routine maintenance was conducted during the reporting period. Placement of stone on the bottom of the power canal is expected to resume on 13 September 2010, and continue for four to six weeks. During the reporting period all flow allocations were used.

*United States Government Plant (USGP):* LTC Derosier summarized that, as reported previously, the turbine runner for Unit 10 was damaged by cavitation. Vibration problems were experienced when the unit was repaired permanently and brought back to service on 12 February. The shaft was re-shimmed and returned to service on 15 March. Unit 10 was taken off line from 20 to 21 May for transformer and generator inspection and testing. Unit 3A was off line from 7 to 9 June and from 14 to 16 June for hydraulic system repairs. From 29 to 30 June, the plant was backed down to 7-10 MW output for 11 hours daily to facilitate maintenance at the Magazine Street substation. On 14 June, Unit 10 was down for about 7 hours for screen rack cleaning. On 5 August, Unit 1 was off line due to failure of a wicket gate control sensor. A detailed inspection of the main plant and Unit 10 powerhouse, and a visual inspection of the dikes, was conducted on 26 and 27 May. No major issues were identified.

The power entities were able to schedule their water use during the shutdowns and reductions and the full monthly water allocations as specified by the Board were able to be released within each month. No problems related to water levels were reported as a result of the above flow variations.

## **Item 6. Compensating Works**

### *Item 6a. Inspections*

The five-year periodic inspection of the Canadian side was completed between 15 to 17 July, with the exception of the underwater portions of Bays 1 and 2. Underwater inspection of Gate 1 was completed on 21 and 22 August. Underwater inspection of Bay 2 will be carried out once the scaffolding and dewatering structures needed for the refurbishment program are removed. Painting of Gate 2 is complete and removal of the enclosure and dewatering gates is under way. A final report was provided to the Board on 8 September (*that will be amended, if necessary, pending results of the lattermost inspection*).

Monthly inspections and routine maintenance continued to be conducted on the U.S. portion by the USACE Soo Area Office. The 9 August monthly inspection found the facilities to be in good condition. The five-year periodic detailed inspection of the U.S. portion was done on 26 and 27 May. A report of the findings and recommendations is being prepared.

### *Item 6b. Temporary Closures of Gate 1*

BRP's major multi-year repainting and refurbishment program recommenced on 10 June, with completion of the program expected by late November.

On 5 June 2009, BRP submitted a request to the Commission to temporarily suspend Condition 3(a) of the 11 December 1985 Orders of Approval (requirement to maintain a flowrate of 15 m<sup>3</sup>/s to the Fishery Remedial Works downstream of Gate 1). BRP sought and received the concurrence of relevant natural resource agencies (i.e., Batchewana First Nations (BFN) of Ojibways, Ontario Ministry of Natural Resources, Michigan Department of Natural Resources and Environment, Canadian Department of Fisheries and Oceans, and the US Fish and Wildlife Service) to temporarily close Gate 1 subject to a number of conditions. In July, the Board sent a letter to the Commission, supporting the request. On 23 July, the Commission issued a supplementary Order, granting BRP permission to close Gate 1 temporarily, as required, for periods of less than 24 hours at a time, between 1 August and 15 September, to facilitate the work. A gate opening and closing protocol approved by the above agencies (i.e., a rate of no more than 10 cm (4") every hour) was followed to minimize potential adverse impacts by accommodating the lack of mobility and slow response of small fish in the downstream channel to receding water and flushing water. BRP arranged to have BFN technicians return all forms of trapped and stranded aquatic life to flowing water after each closure of Gate 1, and a monitoring report will be prepared and provided to the Board.

On 21 August, large debris, some lodged under the gate, was removed prior to the initial closure of Gate 1, by slowly raising the gate an extra 13 cm (5"). All gate movements were undertaken at a rate of 1" (2.5 cm) every 15 minutes. Underwater inspections of the upstream apron area followed closure of the gate. A temporary control structure will be installed upstream of the gate to maintain flow to the fisheries remedial works. The structure consists of a steel truss (at apron level), a steel beam (at pier top level), and moveable panels supported by the truss and beam. Installation and removal of the structure requires gate closure to accommodate divers. However, approval to close Gate 1 lapses on 15 September. Removal of the upper portions of the structure and scaffolding will be performed without need for gate closure. The steel truss and scaffold feet will remain in place, within the flowing water, until further approval for gate closures can be obtained from the IJC.

### *Item 6c. Maintenance: Recent & Planned*

A previously repaired hub of a gear wheel in the north mechanism of Gate 6 was found to contain cracks. It was removed on 27 July for repairs and will be re-installed in late September or early October. Gate 6 is inoperable in the interim.

## **Item 7. Peaking and Ponding Update**

Mr. Caldwell reported that, due to higher levels in the lower St Marys River and adequate monthly outflows this reporting period, the Board did not need to restrict ponding operations. No shipping delays due to ponding operations have been reported. The Board continues to include a semi-annual update on peaking and ponding in each progress report to the Commission, and Mr. Caldwell noted that the IJC agreed in April to postpone a full review that had been scheduled for 2010, to await a review of peaking and ponding within the IUGLS.

## **Item 8. Communications**

### *Item 8a. 2010 Meeting with the Public Debrief*

The Board reviewed the meeting/teleconference with the public held the evening of 9 June from Sault College in Sault Ste. Marie, ON.

It was reiterated that this forum is an excellent opportunity to explain matters and educate people while receiving important feedback. COL Drolet added that it is always important that the public be aware that our degree of actual control (of water levels) is very limited.

The Board continues to provide monthly media releases informing the public about Lake Superior regulation and water level conditions. The Board provides hydrologic update information to the IJC to maintain a Board Web site. The Detroit District of the U.S. Army Corps of Engineers (USACE) maintains additional information on its own Board Web site and continues to issue monthly memoranda to shipping interests, advising them of expected flows in the St. Marys River.

Mr. Kangas introduced Mr. Mark Abdo, a communications specialist that the USACE recently hired to provide communications support to the Boards of Control.

## **Item 9. Other Business**

### *Item 9a. IUGLS Proposals*

Mr. Caldwell reported that there were currently no proposals under the International Upper Great Lakes Study that are relevant and need to be brought to the Board's attention. Plan formulation efforts continue as the Superior Regulation Task Team continues to seek ways of improving regulation of Lake Superior outflows.

### *Item 9b. Sea Lamprey Trapping Study*

Mr. Caldwell noted that the Great Lakes Fisheries Commission, received funding through the USEPA's Great Lakes Restoration Initiative (GLRI) to test the potential for improving sea lamprey trapping efficiencies at traps located downstream of the hydropower plants. The timeline was modified (at the EPA's request) and field-work will be completed in 2011, following receipt of the funds. Objectives include evaluation of how changes in hydropower outflows affects water levels (plus turbulence and air entrainment), observation of lamprey behaviour near the traps (to assess those that may be exploited to improve efficiencies) and distribution of fin-clipped individuals (to ascertain whether all individuals migrate to trap sites and have the potential to be trapped), evaluation of the feasibility/efficiency of traps at the Compensating Works, assessing the feasibility of manual removal by divers, and assessing whether a reduction in the gated flow reduces the number of nests.

The proponents continue to seek the Board and power entities' cooperation to vary the flow releases during the sea lamprey spawning period in 2011 to facilitate experiments. The requested flow manipulations may include requests for deviations from the Plan 1977-A flow.

The Board agreed in principle to cooperate with the experiments, but continues to await further details and discussions with the experimenters. The Board noted that the prior approval of the Commission was required for any deviations. Board staff will continue to work with the proponents to get as early an indication as possible of proposed flow variations in order to request from the Commission permission to deviate.

Mr. Stefano added that BRP would prefer that this study be deferred until water allocations (to the hydro-power entities) rise. Recent allocations have been about 75% of historical values, and any potential manipulations to the peaking schedule would create further detriment to the entities.

A non-related proposal for a fisheries habitat study in the St. Marys Rapids did not receive GLRI funding. However, Dr. Mark Bain and other scientists will attempt to continue to work with the IUGLS Ecosystem TWG to seek out ways to study how levels in the rapids respond to gate changes.

*Item 9c. Status of Lock Replacement*

LTC Derosier summarized that a new "Poe sized" lock will replace the existing Davis and Sabin Locks at the Soo Locks complex at Sault Ste. Marie, MI. The purpose of this project is to provide for more efficient movement of waterborne commerce. The Water Resources Development Act (2007) directs that construction shall be at full U.S. Federal expense.

In FY 2010, \$969,000 was appropriated. Contracts for construction of cofferdams and deepening of the downstream approach channel, which were awarded using FY 2009 funds, will be completed in FY 2010. Plans and specifications for the guide walls and an upstream channel excavation contract will be completed in FY 2010. Design of the lock chamber continues and will also be completed in FY 2011 if funds are provided. The future advertisement of additional construction contracts will be dependent on the availability of funds. LTC Derosier noted that not much work has been done recently, but the eight stoplogs are currently being delivered at a rate of about one per month.

*Item 9d. Contact Cards*

Mr. Kangas noted that it's been a year since the Board's emergency contact cards had been updated, and asked Members and Associates to ensure that their information is up-to-date and that any changes be sent to the Secretaries. New cards will be made available at the IJC appearances in Ottawa in October.

**Item 10. Review Semi-Annual Progress Report**

The Board reviewed and made some changes to the draft Semi-Annual Progress Report.

The Canadian Secretary will incorporate the changes, update the data, and distribute advance copies to the IJC prior to its October meeting.

**Item 11. Next Meeting and IJC Appearance**

The IJC Appearance has been scheduled for 10:15 a.m. on 20 October. The reception is scheduled for 6:30 p.m. that evening. The Spring meeting will take place between 22 and 24 March 2011 in Buffalo, NY. The Spring IJC Appearances in Washington, DC, are scheduled for 12 to 14 April 2011.

There being no other business, the meeting adjourned at 4:05 p.m.

# **INTERNATIONAL LAKE SUPERIOR BOARD OF CONTROL**

## **BOARD MEETING**

**8 September 2010  
1330-1700 hours**

**Holiday Inn, Kingston Waterfront  
2 Princess Street  
Kingston, Ontario**

### **Agenda**

1. Approval of agenda
2. Hydrologic conditions and regulation update
3. Long Lac and Ogoki diversions
4. Flow verification measurements
5. Hydropower plant maintenance and other outages
6. Compensating works
  - a. Inspections
  - b. Temporary closures of Gate #1
  - c. Maintenance: recent and planned
7. Peaking and ponding update
8. Communications
  - a. 2010 Meeting with the public debrief
9. Other business:
  - a. IUGLS proposals
  - b. Sea lamprey trapping study
  - c. Status of lock replacement
10. Review semi-annual progress report
11. Next meeting and IJC appearance