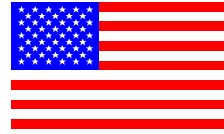




**INTERNATIONAL LAKE SUPERIOR
BOARD OF CONTROL**



Canada
Mr. Jaymie Gadai, Member
Mr. Rob Caldwell, Secretary

United States
Mr. Stephen Durrett, Alternate Member
Mr. Arun Heer, Secretary

13 October 2015

MEMORANDUM TO INTERNATIONAL JOINT COMMISSION

Enclosed are the approved minutes of the Board's 24 September 2015 meeting in Montreal, Quebec. We will post these to the Board Website as soon as possible.

Sincerely,

Enclosure

Rob Caldwell
Secretary, Canadian Section

DISTRIBUTION:

Mr. J. Gadai
Ms. S. Lobrichon
Ms. C. Mageau
Board Members
Mr. A. Heer
Regulation Representatives

INTERNATIONAL LAKE SUPERIOR BOARD OF CONTROL

Minutes of the 24 September 2015 meeting

The International Lake Superior Board of Control met on 24 September 2015 in the André-Robert Room at Place Bonaventure in Montreal, Quebec. Mr. Jaymie Gadal, Canadian Chair, chaired and convened the meeting at 8:35 a.m. The attendees were:

<u>United States</u>		<u>Canada</u>
	Board Members	
Mr. S. Durrett (Alt.)		Mr. J. Gadal
	Secretaries	
Mr. A. Heer		Mr. R. Caldwell
	Regulation Representatives	
LTC M. Sellers Mr. J. Allis (Alt.)		Mr. J. Bruxer
	Associates/IJC	
Mr. J. Oyler Mr. A. Grodsky Ms. C. Jarema Mr. K. McCune Mr. P. Schmitigal (by phone) Ms. S. Runyon Dr. M. Colosimo		Ms. J. Dickhout Mr. R. Stefano Ms. W. Leger Mr. D. Fay Mr. G. Walker

Item 1. Welcome and Introductions

Chair Gadal initiated a round of introductions.

Item 2. Approval of Agenda and Status of Prior Action Items

The agenda was approved as drafted. Mr. Caldwell noted that all prior action items were promptly completed.

Item 3. GLAM Committee Updates

Ms. Leger presented slides to provide an overview of the Great Lakes – St. Lawrence River Adaptive Management Committee (GLAM). The annual work plan draft covering 1 October 2015 through 30 September 2016 was completed and distributed to the Board on 17 September. The communication management strategy was also distributed on 17 September. The Committee is seeking comments on both from the Board by 7 October. Mr. Gadal requested that the Committee let the Board know which stakeholders GLAM contacts within the basin.

Item 4. Update from Regulation Representatives

Hydrologic Conditions

The Board was provided with the following update on hydrologic conditions for lakes Superior, Michigan-Huron, and Erie. Mr. Bruxer presented slides showing recent net basin water supplies, levels and flows (observed and forecasted), precipitation, and climate outlooks. Highlights included:

- The upper Great Lakes remain above average and above last year's levels.
- Observed a very cold winter for the second year in a row.
- During the past six months, basin-wide water supplies were unremarkable, but locally, some very wet and very dry conditions were observed.
- There was a maximum of about five gates equivalent open at the Compensating Works this summer.

Regulation and Deviation Strategy Update

Mr. Bruxer then summarized the results of the Board's 2015 flow deviation strategy. Given significant hydropower maintenance and reduced side-channel capacity had been expected this past spring and fall, on 19 March, the Board requested to deviate from Plan 2012 from May to November and reduce the impact of large,

fluctuating flows in the St. Marys Rapids. The objective was to spread the excess flow that would have been required each month in the St. Marys Rapids due to side-channel flow capacity limitations over these several months, rather than month-by-month. The Commission approved these deviations on 16 April.

Mr. Bruxer also noted that seasonally declining water levels and ice effects this past winter combined with hydropower maintenance outages in April resulted in significant side-channel capacity limitations during the first four months of 2015. Furthermore, because Plan 2012 was prescribing the maximum winter outflow of 2410 m³/s and the usual winter gate setting fixed at one-half gate equivalent, this resulted in unintentional under-discharge deviations. At the half-gate setting, the maximum winter flow is only achievable when the hydropower plants are running at their absolute maximum capacity, but this is difficult under certain hydrologic conditions, particularly during winter. This is an issue the Board and GLAM will investigate in the near future.

Mr. Bruxer added that, since May, the Board has followed the IJC-approved deviation strategy but deviations have been less than anticipated (due to generally near-normal water supply conditions and a partial reduction in the amount of hydropower maintenance that was originally anticipated) and overall, it is expected that lake level impacts would be negligible. The highest gate setting equivalency used this reporting period was around five gates during July through September, with a gradual increase and decrease before and after, whereas Plan 2012 would have prescribed the highest gate setting of five gates open as well, albeit in June and September, and with relatively high gate settings in May and October expected. As a result, generally a more natural release pattern was followed this summer than the Plan would have called for in consideration of the hydropower plant maintenance that occurred.

Item 5. Hydropower Issues

Expected Plant Maintenance and Other Outages

Brookfield Renewable Energy Partners (BREP)

Mr. Stefano reported 880 hours of outages during the reporting period, less than ten of which were unexpected. The usual three planned outages are expected next year, along with an overhaul study with a current work timeline in the 2020s that might mean downtimes on the order of three to six months for each unit.

Cloverland Electric Co-op

Mr. Schmitgal reported that canal restoration work will be suspended for the winter and will recommence in the spring. Flow will be limited to 280 m³/s during canal working hours. Bad icing was noted throughout this past winter, and particularly during the extreme cold experienced in February 2015, which affected the plant's flow capacity.

U.S. Government Hydropower Plant

LTC Sellers reported 1130 hours of outages during the reporting period, mainly on Unit 1. A couple of unplanned outages were also noted as a result of work at the international bridge as well as a 14-hour outage due to an unexpected intruder.

Item 6. Compensating Works

Inspections

Ongoing, routine, monthly inspections of the Compensating Works occurred in the past six months.

Mr. Stefano noted that routine monthly inspections conducted on the Canadian portion by BREP indicated the structure remains in good condition. The five-year inspection was completed on 15 August and included underwater inspections of Gates 2 through 8. A final report is expected in the fourth quarter of 2015. The mechanical equipment was reported to be in excellent repair with some minor maintenance required. The survey showed no significant movement of any of the piers. Mr. Bruxer noted that as each gate was inspected, it, and the two gates adjacent to it, were closed in coordinated movements, with additional gates opened further to offset the effects and reduce the impact on flows and water levels in the St. Marys Rapids. Mr. Stefano noted that Gate 1 was not closed and underwater inspections were not conducted on it this year because BREP could not obtain the neces-

sary approvals from some key stakeholders. BREP will continue to seek these approvals in hopes it can complete the inspections of Gate 1 in 2016.

LTC Sellers reported that the monthly inspections conducted on the U.S. portion performed by the U.S. Army Corps of Engineers (USACE) Detroit District found the Compensating Works facilities to be in good condition. Great Lakes Restoration Initiative funding of \$350K will be employed for the design to automate all eight U.S. gates. Mr. Stefano noted that BREP might consider buying the power and automating the Canadian gates too if the U.S. cable supplying the Compensating Works were large enough to supply power to the entire structure.

Maintenance: Recent & Planned

Nothing to report

IWI Study

Mr. Bruxer reported that this work in the St. Marys Rapids finally got under way this year after several postponements due to high flows and concerns of adverse impacts of adjusting the gates up and down to accommodate the field data required for this study. Instead, data collection begun in the spring and a full season from May to November is anticipated with a full suite of data including water levels, flows, and velocity measurements. A LiDAR survey will be undertaken at lower flows, perhaps in November, and the CN bridge inspection will also require such a low-flow period. These data will be used to develop and verify 1-D and 2-D hydrodynamic models (extending the analysis of St. Marys Rapids hydrodynamics to a wider range of conditions), which will be used to establish gate movement limits, as well as improve flood analysis of Whitefish Island, ecohydraulics, partial gate equations, and the Board's estimations of the total Lake Superior outflows.

Partial-Gate Measurements and Rating Equations

Mr. Bruxer noted that another IWI project was initiated this year to permit Water Survey of Canada to participate in some additional flow measurements with the USACE and USGS at partially-open gate settings to enhance the refinement of rating equations. Mr. Bruxer provided a brief summary of some in-house work that was completed and noted that this builds on some studies conducted by students at University of Michigan during the previous year to develop improved rating equations for use with partially-opened gates.

Item 7. Flow Verification Measurements

LTC Sellers noted that flow measurements were performed on 13 and 14 July at the four hydropower plants as part of the five-year cycle. Preliminary results demonstrate that, at the U.S. Government Plant, flows from Unit 10 may be under-reported at higher flows, but generally, total measured flows were within 5% of the expected values at the U.S. Government Plant. Total flows were generally over-reported by slightly more than 5% at Brookfield when total flows were less than about 850 m³/s. At Cloverland, there was an under-measurement bias observed in almost all of the data, particularly those measurements obtained at the Spruce Street section. Additional follow-up analysis is expected. The power plant measurement program will continue on a five-year cycle and will next be undertaken in 2020. A final report is expected to be available by the March Board meeting.

Flow measurements were also performed at the Compensating Works in June, July and August during partial-gate settings. Additional measurements are scheduled for the start of October and November, ensuring a broad range of conditions will be measured this year.

Item 8. Communications

2015 Meeting with the Public

Mr. Caldwell reported that the Board hosted a public Webinar on 9 June, holding both an afternoon and evening session. About 9 people participated, including members of the public, media, plus government officials, Board Members, staff, and associates. This was a turnout comparable to recent years. No concerns were received and only questions of a technical nature were asked by attendees. It was noted that only one person attended the evening session. It was agreed to hold just one session at noon henceforth. Also, the session will be recorded and the transcript will be posted to the Board's Facebook site for people that might miss the session.

The date of next year's Webinar will be established at the Spring business meeting.

2015 Engineer's Day

Mr. Bruxer presented a few photos from the 26 June event, where nearly 10,000 people were estimated to be in attendance. An enhanced Board display was located in a tent between the locks and was again very well-attended. Hundreds of people made their way through the tent and viewed the Board's display and brochures, and discussed their concerns and interests with the Board's representatives in an informal manner. All available Board and IJC material was handed out.

A similar Board presence is planned at next year's event.

Website/Facebook

Mr. Bruxer provided a brief synopsis of the Facebook page activity. "Likes" have reached 182 in total, up 60 since March, and most seem to be from the Sault Ste. Marie area and northern Michigan. Post reach tends to average 100 to 200 people, though two recent popular posts saw a reach of over 2000. There are still relatively few comments received, except in certain shared posts.

Enhancements continue on the Board Website. FAQs have been developed and will be posted shortly.

Public Feedback

Mr. Bruxer provided a summary of the public comments and feedback received to date. Most were either from anglers related to Rapids flows (i.e., either disruption to fishing or sensitivity to flow in relation to breeding, though didymo algae or "rock snot" has become a new concern for some) or riparians (i.e., high lake levels causing erosion concerns and loss of beaches).

NOTE: A fire drill interrupted the remainder of the meeting. The attendees reconvened outside and completed the agenda items to the best of their ability without documentation, presentations, etc. to guide discussions. The meeting was adjourned approximately one hour into the fire drill when it became clear that re-entry to the meeting room was unlikely. The remaining minutes are a summary of the discussions that took place during the drill.

Item 9. Other

Canadian Flow-accounting Audits

Mr. Bruxer provided a summary of a June audit follow-up visit to several of the Canadian flow facilities. The measurement and accounting procedures, first reviewed during a 2012 visit, were revisited at the Parks Canada and BREP sites. At each location, Board representatives met new personnel, discussed the roles and responsibilities, flow reporting requirements, planning and scheduling of maintenance, forecasting, stakeholder communications, etc. At Brookfield, it also provided an opportunity to discuss winter emergency measures and variations in the maximum outflow capacity. A report was prepared in July.

Superior Board GLAM/IWI Priorities and Needs

Mr. Bruxer presented a short list of priorities that the GLAM Committee has discussed as a so-called "wish list" of potential projects for the near future that are related to this Board. Items include St. Marys hydrodynamic studies (some initiated this year [e.g., rating equations, hydrodynamic model, partial-gate work]), a commercial navigation performance indicator (initiated last year as the unified upper Great Lakes/Lake Ontario model), shoreline damages study for Lake Michigan-Huron, a dam stability analysis (partially completed), a Whitefish Island flood analysis (initiated), extreme high Lake Superior levels study, etc.

Item 10. Review Semi-Annual Progress Report

Mr. Caldwell requested timely receipt of any additional comments or changes to the draft Semi-Annual Progress Report. He will incorporate changes, update the available data, and distribute advance copies to the IJC prior to its October meeting. Mr. Fay indicated that the IJC would appreciate advance electronic copies of the report by 1 October.

Item 11. Next Meeting and IJC Appearance

The IJC Great Lakes Boards of Control Appearances have been scheduled for 8:30 to 10:30 a.m. on 29 October (a Thursday). The IJC again seeks issue-oriented discussions. The reception is scheduled for 6:30 p.m. the prior evening. The Spring Board meeting will be held in Detroit, MI on the afternoon of 30 March. The Spring IJC Appearances in Washington, DC, are scheduled for the week of 11 April 2016. The 2016 public Webinar date will be determined via e-mail.

Item 12. Action Item Review

Mr. Caldwell noted no major actionable items during this meeting.

Item 13. Closing Remarks and Adjourn

Mr. Gadal closed out the meeting in the parking lot across the street from Place Bonaventure during the prolonged fire drill.

There being no other business, the meeting adjourned at 12:05 p.m.

INTERNATIONAL LAKE SUPERIOR BOARD OF CONTROL

Board Meeting held on September 24, 2015

8:30 am to 12:00 pm

André-Robert Conference Room, 7th floor

Place Bonaventure, North-East Portal

800 de la Gauchetière Street West, Suite 7810

Montreal, QC H5A 1L9

AGENDA

1. Welcome and Introductions [Gadal]
2. Approval of Agenda and Status of Prior Action Items [Caldwell]
3. GLAM Committee Updates [Leger]
4. Update from Regulation Representatives [Bruxer]
 - a) Hydrologic Conditions
 - b) Regulation and Deviation Strategy Update
5. Hydropower Issues
 - a) Expected Plant Maintenance and Other Outages [Stefano, Sellers, Schmitigal]
6. Compensating Works
 - a) Inspections [Stefano, Sellers]
 - b) Maintenance: recent and planned [Stefano, Sellers, Allis]
 - c) IWI Study [Bruxer, Jarema]
 - d) Partial Gate Flow Measurements and Rating Equations [Bruxer]
7. Flow Verification Measurements [Sellers]
8. Communications
 - a) 2015 Meeting with the Public [Caldwell]
 - b) 2015 Engineer's Day [Bruxer]
 - c) Website/Facebook Updates [Bruxer]
 - d) Public Feedback [Bruxer]
9. Other Business
 - a) Canadian Flow-accounting Audits [Bruxer, Jarema]
 - b) Superior Board GLAM/IWI Priorities and Needs [Bruxer, Allis]
10. Review Semi-Annual Progress Report [Caldwell]
11. Next Meeting¹ and IJC Appearance² [Caldwell]

¹ March 2016 in U.S. (date/location TBD); ² Thursday, 29 October 0830-1030
12. Action Item Review [Caldwell]
13. Closing Remarks and Adjourn [Gadal]