INTERNATIONAL NIAGARA BOARD OF CONTROL

Minutes of the September 26, 2019 Meeting
Canadian Centre for Inland Waters, Burlington, ON

Mr. Thompson called the meeting to order at 1:00 PM in the boardroom at the South Seminar Room, Canadian Centre for Inland Water, 867 Lakeshore Road, Burlington, Ontario, Canada. Those in attendance were:

UNITED STATES	CANADA
BOARD MEMBERS	
Mr. S. Durrett, Alt. Chair	Mr. A. Thompson, Co-Chair
Mr. D. Capka, Member (via WebEx)	Ms. J. Keyes, Member (via WebEx)
SECRETARIES	
Mr. B. Carmichael	Mr. D. Beach
WORKING COMMITTEE AND ASSOCIATES	
LTC J. Toth	Dr. F. Seglenieks
Mr. K. Koralewski	Dr. K. Kornelsen
Mr. M. Asklar	Ms. J. Fooks
Mr. J. Allis (WebEx)	
Mr. A. Armstrong	
Ms. C. Fisher (WebEx)	
OTHER	
Mr. M. Colosimo IJC	Ms. E. Klyszejko, IJC
Mr. A. Greeley , IJC	

Item 1. Opening Remarks, Introductions

Mr. Thompson welcomed attendees to the Canadian Centre for Inland Waters. Attendees present at the meeting location and those attending by WebEx introduced themselves.

Item 2. Approval of Agenda

The agenda was approved with Addition of item 13 j) Ashland Avenue Gauge Intake Inspection.

Item 3. Membership changes

The Canadian members of the board remained the same from the last meeting. The US Co-chair became vacant with the transfer of MG Mark Toy to a new post. A new US Co-chair is being sought. There were no changes to the membership of the International Niagara Working Committee (INWC).

Item 4. Review of Previous Minutes

The review of the previous meeting minutes from the board meeting held in Syracuse, New York March 7, 2019 was completed by email and the meeting minutes have been finalized. It was suggested that this practice be carried forward.

Previous Action Items

The previous action item of creation of an informational video was discussed and it is now thought that the board can work with the communications staff at the United States Army Corps of Engineers, Buffalo office to complete an updated information video on board activities. All other action items were covered in the agenda items of this meeting.

Item 5. Update on Lake Erie/Niagara River Conditions

The board was provided an update of water levels, precipitation, net basin supplies and flows for Lake Erie and Niagara River for the reporting period. Levels of Lake Michigan-Huron, which supplies water to Lake Erie, were well above average for the entire reporting period and for the months of June and July were at or only slightly below seasonal record high values (1918-2018). Monthly mean flows in the Detroit River were at record high values (1900-2018) for the entire reporting period. Precipitation, another key component of water supplies, on the Lake Erie basin was 27% above average. The monthly net basin supplies to Lake Erie were at or above average values for four of the six months over the reporting period. Due in part to the high inflows from Lake Michigan-Huron the net total supplies were at or above record high values for April, May, June and July. The high water supplies to Lake Erie over the reporting period resulted in record breaking conditions (1918-2018) in Lake Erie and the Niagara River during this reporting period. Lake Erie began the reporting period with a March mean level 58 cm (22.8 inches) above its period-of-record (1918-2018) average level for the month. The level of Lake Erie was well above average throughout this reporting period, setting record high monthly mean values for May, June, July and August. The monthly mean level for June was the highest recorded since 1918. The August mean water level was 75 cm (29.5 inches) above average and 8 cm above its record high set in 1986. During the reporting period, the Niagara River flow at Queenston averaged 7,578 m^3/s (267,610 cfs), which

was 1,633 m^3/s (57,670 cfs) above the 1900-2018 average of 5,945 m^3/s (209,950 cfs). The June monthly mean flow of 8,059 m^3/s (284,600 cfs) set a new period-of-record high for the Niagara River at Queenston. Daily flows over Niagara Falls were above 2832 m^3/s (100,000 cfs) for day and night time from the last half of April to the end of the reporting period, and only dipped below these values in the first half of April during the night time. The six month forecast for Lake Erie levels estimates that levels will remain well above average even if very dry conditions are encountered, and could remain near record high values if very wet conditions occur.

Item 6. Lake Erie – Niagara River Ice Boom

a) 2018-19/2019-20 Ice Boom Seasons

The board was provided a review of the 2018-19 ice boom activities. Wind events on 29 January 2019 and 24 February 2019 pushed large amounts of ice over the boom and into the Niagara River. The boom submerged allowing the ice to pass over top it as intended, however several breaks in the boom resulted from the force of the ice. Considerable ice shelving occurred on Lake Erie as the thick ice was piled up on itself and large piles of ice where blown onto shore at Fort Erie due to the high winds pushing the ice up over shoreline breakwaters. An ice thickness measurement flight was taken on 16 March 2019 during this reporting period to add to the data collected in the 22 February 2019 measurement flight. Ice thickness ranged from 24 cm (9.4 in) to 36 cm (14.2 in) on the 16 March flight. On 29 March 2019 the INWC determined that more than 650 km2 (250 mi2) of ice would likely remain past April 1 and the Commission and public were informed that the Ice Boom would remain in place past 1 April 2019. The INWC monitored ice conditions using satellite images and performed a fixed wing airplane ice survey 17 April 2019 and 746 km2 (288 mi2) of thick ice still remained. The 2018/19 ice season was heavy with ice cover at or above average cover from the week 29 January 2019 to the week of 19 March 2019 with a peak cover of 95%. Thick, heavy ice persisted at the boom well into April making removal efforts slow. Removal of the boom began on 22 April 2019 and due to the heavy ice conditions all spans could not be removed until 7 May 2019. All components of the boom where in storage by 20 May 2019.

2019/20 Season update

In preparation for the upcoming ice season, NYPA is repairing cables damaged in previous winter. One pontoon remains trapped in the American Falls rapids. Operations are planned later in the fall to remove the pontoon from the rapids with a US Coast Guard helicopter. Maintenance is on schedule for deployment for the 2019/20 season.

b) Status of 2018-19 Ice Boom Report

The first draft of the Ice Boom Report was provided on 20 September 2019. All comments are due back to USACE Buffalo by 3 October 2019.

c) 5 Year Review of the Ice Boom

It was noted that the 5-year review of the ice boom for the IJC is due after completion of the 2018-2019 ice season. It was decided that a draft of the review be targeted to be completed for discussion in the spring meeting.

Item 7. Chippawa-Grass Island Pool update

The board was provided a summary of the operation and maintenance of the Chippawa-Grass Island Pool (CGIP) and International Niagara Control Works (INCW).

a) Compliance to directive

The water level in the CGIP is regulated in accordance with the board's 1993 Directive. During the reporting period the CGIP was operated within all criteria indicated in the 1993 Directive. However due to record high flows in the Niagara River tolerances were suspended for 14 days in May, 28 days in June, 30 days in July and 10 days in August. The past record high flows in the Niagara River were set in 1986 and an ad hoc review team from INWC completed a study of the 1973 Directive. The conclusions of the study were that no changes should be made to the Directive limits. In comparison with daily fluctuations ranges and CGIP levels between 1986 and 2019, the operation of the CGIP in 2019 was found to compare well with levels seen in 1986 for the reporting period. The board agreed that no changes to the Directive where required at this time.

b) Operations and maintenance

The board was provided an update on regulatory gauge outages, regulatory reporting, International Control Dam (ICD) outages, and ICD environmental issues. Operations of the CGIP and INCW were satisfactory for this reporting period.

Item 8. Niagara River Diversion Treaty Compliance

Niagara Falls flow met or exceeded minimum Treaty requirements at all times during the March 1st to August 31st reporting period according to Article IV of the Niagara River Diversion Treaty.

Item 9. Plant Upgrades and Unit Testing

a) OPG – The planning process previously discussed for rehabilitation of the Sir Adam Beck diversion canal has been extended to a 2027 start for refurbishment. The last rehabilitation on the canal was completed in 1964-65. Plans are also being developed to upgrade SAB 1 G1 and G2 units from 20 Hz to 60 Hz units from 2020 to 2023. Unit G5 was overhauled from May 2019 to June 2020. DeCew Falls GS2 overhaul that began in November 2016 was returned to service in August 2019.

b) NYPA – NYPA is continuing unit upgrades at the Lewiston Pump Generating Plant as part of its Life Extension Modernization project. Unit PG4 was brought

back into service in June 2019. PG3 is in outage mode for an eight month period starting June 30, 2019 while it is being replaced. This leaves two out of 12 units, PG1 and PG10, for anticipated completion by 2020. The Robert Moses Plant 'Next Generation Niagara' LEM has plans to upgrade the control boards at the end of 2020 with unit mechanical upgrades scheduled for 2023; the targeted completion of all 13 units is 2032. In April 2019, NYPA completed the inspection of the twin intake conduits connecting the Hydro-plant forebay and the Niagara River, and intake gates and their housing structure.

Item 10. Review discharge measurement programs

a) Overall Schedule – The schedule for flow measurements for verification of the rating curves for estimation of flows in the upper Niagara River, over Niagara Falls (including the Horseshoe Falls and American Falls), over the American Falls and in the Welland Canal was reviewed. Flow measurements are expected to continue on schedule.

b) **International Railway Bridge** – Results of the 2018 flow measurements compared well to the 2012 Buffalo rating equation and the 2018 Fort Erie equation. Technical review is complete and the report was distributed to the Working Committee for review on 27 February 2019. No comments were received and the report is recommended final. The 2018 Fort Erie report is final and uploaded to the IJC SharePoint site. The next scheduled measurements are planned for May 2021.

c) Welland Canal – Measurements were taken in the Welland Supply Canal above Weir 8 to further verify the index-velocity rating used to determine flow through the Welland Canal in May 2018 and a report is being prepared. The next set of measurements is planned for May 2021.

d) Ashland Avenue Rating Section – Measurements is at the AARS were taken September 17-18, 2019. Due to record high flow in the Niagara River discharge measurements were obtained between 2,400 m^3/s and 4,400 m^3/s. Measurements at the originally requested flows of 1420, 1700 and 2000 m^3/s were not attempted due to the large quantities of water flowing in the Niagara River. The obtained flows will be processed and a report written up on results. The next measurements are planned for the fall of 2022.

e) **American Falls** – The last measurements for verification of the American Falls rating equation were completed in May 2017. Analysis has been completed and the report is final. Following the five-year cycle, the next scheduled measurements at this location are scheduled for May 2022. Following the five-year cycle, the next scheduled measurements at this location are scheduled for May 2022.

f) New ADVM's– 1) The Lower Niagara Index Velocity Meter has been installed by USACE near Old Fort Niagara, Youngstown, New York. The USACE is providing

maintenance for the meter and is developing the index rating. The USGS has been contracted through the USACE to provide data collection support.

Action Item: Ongoing INWC to compare the values from Lower Niagara Index Velocity Meter to the Ashland Avenue and Power Entity values as data becomes available.

2) The new ADVM installed and operated by ECCC near the International Railway Bridge in the Upper Niagara River is recording water levels. Recent failure of a bank retaining wall near the site has made it necessary to develop a new rating curve. Flow measurements are continuing by ECCC and USGS throughout the year to establish a new rating curve.

Item 11. 2018/19 Public Outreach and Engagement

A board exhibit with U.S. INWC members available to answer questions was set up at the Paddles Up Niagara event on July 27, 2019 at Beaver Island State Park on Grand Island, New York. About 200 participants attend the event and answers to questions by the public on the board's activities where covered by the FAQ's. The Paddles Up Niagara venue will be considered in the future for public outreach.

A WebEx is planned for October 8, 2019 to provide information on board activities to the public and provide an opportunity for members of the public to ask questions to the board members.

Action Item: A need for communication products for outreach events (e.g. short clip descriptive documentaries that could be run at a display table) was identified.

Item 12. Review 133rd Semi-Annual Progress Report

A 1st draft report was submitted to the INWC on September 9 for discussion at the INWC meeting on September 10. Discussion from INWC meeting and comments were compiled. The board was provided the 2nd draft on September 24 and was asked to provide comments by October 3 so that it can be finalized and sent to the IJC advisors. Once finalized and accepted by the IJC commissioners, the report will be posted on the INBC web site. The Canadian co-chair requested that a draft report near completion be provided to board members in advance of the meetings so that there is appropriate time for review.

Item 13. Other Business

a. Briefing Note to IJC – High Niagara River Flows

The need and material to update the Commission on the current record breaking conditions in the Niagara River was discussed. The board decided that the appropriate material be developed for presentation at the upcoming board IJC appearance.

b. Falls Recession

The board was updated on monitoring the Falls crest recession. No significant changes in the crest line of the Falls were noted over the last reporting period based on aerial photographs posted on the internet of the Falls during the British Red Arrow Jet fly-by on August 29, 2019. There was discussion of alternatives methods for monitoring the recession of the Falls crest line, including the potential of a formal survey using available equipment (e.g. drones) from USACE, OPG and NYPA.

c. IGLD 2020 Update

The board was given a summary of the International Great Lakes Datum (IGLD) 2020 update that was provided to the INWC. A summary of the importance of the update and why it is needed was provided. A Global Navigation Satellite System (GNSS) Campaign Survey is planned for the summer of 2020. Key water gauging stations on the Niagara River and Lake Erie are included in the plans for GNSS occupation. The importance of updating the vertical reference for these gauges was discussed in order to maintain consistency and accuracy in reporting of water use by the Power Entities. The Power Entities plan to participate in the GNSS Campaign Survey.

d. Upper Niagara Flow Issues

A number of eco-restoration projects have been proposed on the US side of the Niagara River, some included fill in the Niagara River. In order to assess cumulative impacts, USACE has commissioned an updated hydrodynamic model. The board will be kept updated on the findings.

e. Updating Inspection Schedule Procedures

The board agreed that the schedule of inspections used by the International Niagara Committee for verifying the diversions of water from the Niagara River for hydro power generation meets the board’s needs and no additional actions are required on behalf of the board.

f. Public Inquiries – New IJC Board Web Site

The new board web site has provided a new contact link that the pubic has been using to ask questions of the board. The questions go to the board secretaries to answer. Going forward in order to keep all informed of the questions and answers the secretaries will blind cc the INWC and board with the answers provided.

g. Gauge Maintenance Program

The Power Entities, USACE, ECCC, USGS and NOAA will continue to work on providing maintenance of gauges for accurate measurement of flows in the Niagara River.

h. Power Entity Gauge Standards

The review of standards for the Power Entity gauges is ongoing. Available documents on standard maintenance procedures has been reviewed. Standards are being developed by the INWC. Action: INWC to prepare Draft report on Gauge maintenance standards (ongoing).

i. GLAM Update

The board's involvement with the GLAM adaptive management initiative was discussed. The board will continue to keep up to date on this initiative.

j. Ashland Avenue Gauge Intake Inspection

A dive inspection completed by NYPA contractors on September 25, 2019 showed the AAG intake operating as designed. Underwater video was not available at the time of the meeting, but a picture of the intake showing clean intake screen was shown.

Item 14. IJC Appearance Meeting

The presentation for the upcoming IJC Appearance meeting will be prepared. Topics to include: 1) board membership, 2) Working Committee membership 3) board's area of responsibility, 4) Lake Erie water levels and Niagara Falls flow, 5) Ashland Avenue gauge rehabilitation, 6) Flow measurements program, 7) Horseshoe Falls crest recession, 8) Public outreach, 9) Acceptance of the 2018-19 Ice boom report.

The next IJC Appearance is scheduled for Wednesday October 23rd, 2018 in Ottawa, ON, Canada, from 09:30-10:00 AM EDT.

Item 15. Next Board Meeting, Closing Remarks, Adjourn

The next board meeting is tentatively scheduled for March 2020 in Syracuse New York or Detroit, Michigan, USA. The closing remarks were made and the meeting adjourned at 3:46 PM.

International Niagara Board of Control
September 26, 2019
1:00 p.m. – 3:30 p.m.
Canadian Centre for Inland Waters - South Seminar Room
867 Lakeshore Road, Burlington, ON, Canada

Teleconference/WebEx Instructions Below

Final Agenda

1.	Opening Remarks, Introductions ……	1:00-1:05
2.	Approval of Agenda ……	1:05-1:10
3.	Membership Changes, Roles and Responsibilities……	1:10-1:15
4.	Review of previous meeting minutes ……	1:15-1:20
5.	Update on Lake Erie/Niagara River Conditions……	1:20-1:25
6.	Lake Erie – Niagara River Ice Boom	
	a) 2018-19 / 2019-20 Ice Boom Seasons ……	1:25-1:30
	b) Status of 2017-18 Ice Boom Report ……	1:30-1:35
	c) 5-year Review of Ice Boom ……	1:35-1:45
7.	Chippawa-Grass Island Pool	
	a. Compliance to Directive ……	1:45-1:50
	b. Operations and maintenance ……	1:50-1:55
8.	Niagara River Diversion Treaty Compliance ……	1:55-2:00
9.	Plant Upgrades and Unit Testing	
	a) OPG ……	2:00-2:05
	b) NYPA ……	2:05-2:10
10.	Review discharge measurements program ……	2:10-2:20
	g) Overall schedule	
	h) International Railway Bridge (Buffalo and Fort Erie)	
	i) Welland Canal	
	j) Ashland Avenue Rating Section	
	k) American Falls	
11.	2018/2019 Public Outreach Events ……	2:20-2:25
12.	Review of 133rd Semi-Annual Progress Report ……	2:25-2:30
13.	Other Business	
	a) Briefing Note to IJC - High Niagara River Flows ……	2:30-2:35
	b) Falls Recession ……	2:35-2:40
	c) IGLD Update 2020 ……	2:40-2:45
	d) Upper Niagara Flow Issues ……	2:35-2:45
	e) Updating inspection schedule procedure ……	2:45-2:50
	f) IJC Web Site Update ……	2:50-2:55
	g) Gauge Maintenance Program ……	2:55-3:00
	h) Power Entity Gauge Standards ……	3:00-3:15
	i) GLAM Update ……	3:15-3:16
	j) Ashland Avenue Gauge Intake Inspection ……	3:16-3:20
14.	IJC Appearance – Date, topics for presentation ……	3:20-3:25
15.	Next Board Meeting, Closing Remarks and Adjourn ……	3:25-3:30