

1 **INTERNATIONAL NIAGARA BOARD OF CONTROL**

2
3 Minutes of the September 19, 2018 Meeting
4 Cornwall, ON

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6 Mr. Thompson called the meeting to order at 1:00 PM in the boardroom at the Ontario
7 Power Generation St. Lawrence Power Generation Visitor Center, 2500B Second Street
8 West, Cornwall, Ontario, Canada. Those in attendance were:

9

UNITED STATES

CANADA

BOARD MEMBERS

Mr. Stephen Durrett, Alt. Chair
Mr. David Capka, Member
(via WebEx)

Mr. A. Thompson, Co-Chair
Ms. J. Keyes, Member
(via WebEx)

10
SECRETARIES

Mr. B. Carmichael

Mr. D. Beach

11
12 **WORKING COMMITTEE AND ASSOCIATES**

13 Mr. K. Koralewski
14 Mr. J. Allis
15 Mr. M. Asklar
16 Ms. L. Schifferle
17 Ms. C. Fisher (WebEx)

Dr. F. Seglenieks
Mr. K. Kornelsen
Mr. J. Schooley
Mr. H. Ahmad (WebEx)

18
19 **OTHER**

20 Mr. A Heer, USACE
21 Mr. K. McCune, USACE
22 Mr. G. Schmidt, USACE (WebEx)
23 Mr. G. Kiaer (WebEx)

Mr. D. Fay, IJC

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25 **Item 1. Opening Remarks, Introductions and Approval of Agenda**

26 The agenda was approved with addition of item 12 i) Niagara Board Web Site Review

27
28 **Item 2. Membership changes**

29 No changes to Board membership had occurred since the last meeting. Mr. Durrett
30 announced that he anticipated that he would be stepping away from his position on the
31 Board after the IJC Appearance in Ottawa and a replacement will be named for the

32 spring meetings. Changes to the Board's working committee during the reporting period
33 were: On May 23, 2018 Mr. Kurt Kornelsen, Ontario Power Generation succeeded Ms.
34 Joan Frain on the Canadian Section of the working committee. On June 29, 2018,
35 Lieutenant Colonel (LTC) Jason A. Toth became the US Chair of the Board's working
36 committee succeeding LTC Adam J. Czekanski.

37

38 **Item 3. Review of Previous Meeting Minutes.**

39 Draft minutes of the March 28, 2018 meeting were circulated.

40 Action: Final comments on the meeting minutes were requested by September 28,
41 2018.

42

43 **Item 4. Update on Lake Erie/Niagara River Conditions**

44 The Board was provided an update of water levels, precipitation, net basin supplies and
45 flows for Lake Erie and Niagara River. The level of Lake Erie was above average
46 throughout the reporting period. It began the reporting period with a March mean level at
47 60 cm (23.6 inches) above its 1918–2017 period-of-record, long-term average level for the
48 month. Lake Erie's water level went through its seasonal rise with its monthly average
49 water level rising 21 cm (8.3 inches) from March to June, compared to its average rise of
50 26 cm (10.2 inches). Its decrease in July of 7 cm (2.8 inches) was much higher than the
51 average decline of 1 cm (0.4 inches). Lake Erie levels ended the reporting period with an
52 August monthly mean water level 46 cm (18.1 inches) above average. The Lake Erie
53 basin received 48.6 cm (19.1 inches) of precipitation during the period March through
54 August 2018. This was very close to the 1900-2012 average for the period. During the
55 reporting period, the lake's NBS was above average for all months except for March and
56 July. Niagara River flows remained above average for the reporting period.

57

58 Further discussion was had to how long Lake Erie will remain above average. Beyond
59 six months, the accuracy of predictions is poor. However it is likely that Lake Erie could
60 remain above average, even with relatively dry conditions, for another year based on its
61 current water levels.

62

63 **Item 5. Lake Erie – Niagara River Ice Boom**

64 **a) 2017-2018 Installation and Maintenance update**

65 The Board was provided a review of the 2018 ice boom activities since the last meeting.
66 Ice measurements on Lake Erie were taken on February 16, 2018 showing an average
67 thickness of 36.5 cm (14.4 in). MODIS imagery from March 26, 2018 showed more than
68 650 km² (250 mi²) of ice remained in the Eastern Basin of Lake Erie and the Commission
69 was advised that day that the Ice Boom opening would be delayed past April 1. On April
70 3 it was determined that 2111 km² (815 mi²) of ice remained. A wind storm on April 7-8
71 resulted in a rapid decrease in ice cover on the lake and on April 8 members of the INWC
72 determined that 174 km² (67 mi²) of ice remained in the eastern basin. Boom removal

73 began by NYPA crews on April 10, 2018. It was noted that significant ice build-up in the
74 Maid-of-the-Mist Pool below Niagara Falls had occurred due to the high westerly winds
75 on April 7-8 pushing ice from the lake down the river. Time lapse photographs showed
76 how the ice moved past the INCW dam and filled the Maid-of-the-Mist Pool. A staged
77 approach was used for the ice boom removal to control the potential for further ice release
78 from Lake Erie into the Niagara River. The staged approach to boom removal was
79 considered successful in allowing the ice to clear from the Maid-of-the-Mist Pool while still
80 allowing timely removal of the boom from Lake Erie. The boom was fully removed from
81 the navigable section of Lake Erie by April 19, 2018. All components were stored on shore
82 by May 10, 2018.

83

84 **b) Status of 2017-18 Ice Boom Report**

85 The 2017-18 Ice Boom report is expected to be complete by October 2018. Data on the
86 annual date water temperature reached 4°C (39°F) in Lake Erie, along with start dates of
87 boom installation and boom removal was presented to the Board. It was noted that the
88 5-year review of the ice boom is due after completion of the 2018-2019 ice season.

89

90 **c) Decision Process for Boom**

91 The personnel typically involved in the current ice boom decisions in the past five years
92 were reviewed. The Working Committee recommended that all of the Working
93 Committee members be included on distribution of information and meeting requests
94 associated with decisions for ice boom operations for the 2018/19 ice boom season.
95 However it is at the discretion of each INWC member to attend and participate, and it is
96 noted that decisions from the INWC will adhere to required deadlines based on the input
97 from those available to attend. The Board approved the Working Committee
98 recommendation for the decision making process for the coming ice season (2018/19).

99

100 **Item 6. Chippawa-Grass Island Pool update**

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

103 **a) Compliance to directive**

104 The water level in the CGIP is regulated in accordance with the Board's 1993 Directive.
105 During the reporting period the CGIP was operated within all criteria indicated in the
106 1993 Directive. It was noted that the ice event of April 7-8 did not cause levels of the
107 CGIP to exceed limits.

108 **b) Operations and maintenance**

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

112

113 **Item 7. Niagara River Diversion Treaty Compliance**
114 Niagara Falls flow met or exceeded minimum Treaty requirements at all times during the
115 reporting period according to Article IV of the Niagara River Diversion Treaty. As well,
116 sharing of the water according to Article VI of the Niagara River Diversion Treaty and it was
117 determined that waters were equally shared for the past reporting period.

118

119 **Item 8. Plant Upgrades and Unit Testing**

120 a) OPG – Rehabilitation of the Sir Adam Beck diversion canal is in the planning
121 stages. The last rehabilitation on the canal was completed in 1964-65. A report is
122 being prepared to determine the extent of the repair work which will include a
123 hydraulic impact report. It is anticipated that the SAB canal will need to be
124 dewatered for some period of time tentatively between April 2022 and December
125 2023. In that report, an analysis of the potential of impacts of canal remedial
126 works to backwater in the Welland River due to the CGIP will be included. OPG
127 will keep the Board informed.

128

129 b) NYPA – NYPA is continuing unit upgrades at the Lewiston Pump Generating
130 Plant as part of its Life Extension Modernization project. Unit PG 11 was put
131 back into service October 1, 2018. The eight month replacement outage for PG4
132 is scheduled to start November 1, 2018. Two of the twelve pump-turbine units
133 remain to be completed by 2020. Control upgrades in the Robert Moses Plant as
134 part of the Life Extension Modernization project are schedule to start in 2020 and
135 unit mechanical upgrades in 2023. Refurbishment of river intakes 1 and 2 are
136 ongoing with the inspection of the twin buried conduit scheduled to be completed
137 in the spring of 2019.

138

139 **Item 9. Review discharge measurement programs**

140 a) **Overall Schedule** – The overall schedule for hydraulic flow measurements for
141 calibration of the rating curves for estimation of flow in the upper Niagara River,
142 the flow over Niagara Falls, the flow over the American Falls and the flow in the
143 Welland Canal was reviewed. Flow measurements are expected to continue on
144 schedule.

145 b) **International Railway Bridge** – Initial analysis of the flow measurements was
146 completed in May 2018 have been found that the measured flows compare well
147 with the existing 2012 Buffalo Rating Equation and the Fort Erie Rating Equation.
148 The report on the analysis is currently undergoing internal technical review. The
149 next scheduled measurements are planned for May 2021.

150 c) **Welland Canal** – Measurements were taken in the Welland Supply Canal above
151 Weir 8 to further verify the index-velocity rating used to determine flow through the

152 Welland Canal. A report verifying measurements made in May 2015 to the index
153 velocity rating discharge equations is being reviewed.

154 **d) Ashland Avenue Rating Section** – The last measurements were made May 23-
155 27, 2016 and the next measurement is scheduled for September 17-19, 2019. A
156 letter requesting the prescribed flows was sent to the Power Entities on August
157 10, 2018. A report on the results of the May 2016 measurements has been
158 completed and all measurements are within 5% of the 2009 Ashland Avenue
159 equation.

160 **e) American Falls** – The last measurements were taken between May 8 and May 12,
161 2017 for verification of the American Falls rating equation. Analysis has been
162 completed and results show that the discharge measurements fit very close to the
163 1978 Rating Equation, with all measurements falling within 1% of the rating. The
164 draft report has been internally reviewed and sent to the Niagara working committee
165 for review. Following the five-year cycle, the next scheduled measurements at this
166 location are scheduled for May 2022.

167 Action Item: INWC to complete review of American Falls flow measurement report.
168

169 **f) New ADVM's**– 1) Lower Niagara Index Velocity Meter installed by USGS and
170 collecting data. A preliminary rating curve has been established. Ongoing monthly
171 measurements are being made for verification and refinement of the index rating
172 curve for the site.

173 Action Item: INWC to compare the values from Lower Niagara Index Velocity Meter
174 to the Ashland Avenue and Power Entity values.
175

176 2) Water levels are being monitored at the new ADVM located near the International
177 Railway Bridge in the Upper Niagara River. Recent failure of a bank retaining wall
178 near the site has made it necessary to develop a new rating curve. Flow
179 measurements are continuing by ECCC and USGS throughout the year to
180 establish a new rating curve.
181

182 **Item 10. 2018/19 Public Outreach and Engagement**

183 The Board provided a public information presentation at the Canadian Geophysical
184 Union meeting on June 10, 2018 at the Niagara Falls Scotiabank Convention Centre.
185 The presentation was open to the public and was advertised by the CGU as part of a
186 conference that was occurring during that time. Approximately 80 people attended. The
187 presentation was recorded and will be made available on the new Board web sites when
188 possible. Possible Board public outreach events were discussed for the coming year
189 (2019) and it was decided that plans would be made to set up and staff a booth (as
190 operations allowed) at the Erie County Fair in August 2019.
191

192 **Item 11. Review 131st Semi-Annual Progress Report**

193 A 1st draft report was submitted to the INWC and comments have been compiled. The
194 Board was provided the 2nd draft and was asked to provide comments by October 26 so
195 that it can be finalized and sent to the IJC advisors. Once finalized and accepted by the
196 IJC commissioners, the report will be posted on the INBC web site.

197

198 **Item 12. Other Business**

199 **a. GLAM's annual report to the IJC**

200 Progress on the GLAM's 2017 annual report to the IJC was presented to the
201 Board. Action: GLAM final annual report to be sent October 8, 2018 and request
202 approval of Board.

203

204 **b. Falls Recession**

205 The Board was updated on monitoring the Falls crest for rock movement. No
206 significant changes in the crest line of the Falls were noted over the last reporting
207 period based aerial photographs taken of the Falls posted on social media taken
208 on March 19, 2018 and September 1, 2018.

209

210 **c. Ashland Avenue Gauge intake Remediation**

211 Underwater video was shown of the dive inspection completed by NYPA
212 contractors on September 15, 2018 (file 20180915081736_1.avi) of the remedial
213 works for the gauge intake completed on November 10th, 2017. The intake had
214 been through a heavy ice season with no signs of damage, and was clear of debris,
215 indicating that the intake was functioning as designed.

216

217 **d. Public Questions on Flow Management for Lakes**

218 With lakes Erie, Michigan-Huron and Superior water levels well above average,
219 there have been interest and misunderstandings from the public on how flow
220 management works in the Niagara River. The Board should look at the existing
221 FAQ and expand on them if needed in anticipation of continued interest due to high
222 water levels in Great Lakes. Action: Review, develop and update on Board website
223 as required FAQ answers.

224

225 **e. IJC Diversity Policy**

226 The new IJC Diversity Policy for Board Appointments was reviewed. All Board
227 members were in favour of upholding the policy. Action: Secretaries to respond
228 on behalf of the Board that the Board Co-chairs and members have reviewed and
229 are in agreement with upholding the policy while performing their Board
230 responsibilities.

231

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

237
238 **g. Use of ICD for Fireworks Display**
239 Discussion was had on the recent request for the Festival of Lights event to use
240 the INCW dam for a platform to launch fireworks. The event is an international
241 event that brings teams from different countries together to compete for the best
242 fireworks display. Concerns of potential damage to the INCW dam were
243 discussed due to accidental discharge of fireworks. A comprehensive safety plan
244 has been provided to NRCC and the Power Entities and they are confident that
245 the risk of damage is limited.
246 Action: NRCC to send the safety plan to the Board.

247
248 **h. IJC Logo on INCW**
249 An update was provided on the status of placing the IJC logo, along with OPG
250 and NYPA logos, on the INCW building as part of renovations that are currently
251 being completed to the building and surrounding property. The request was
252 approved by the Board and was forwarded to the US and Canadian IJC
253 Secretaries. The Commissioners are being consulted, and the IJC will provide
254 feedback once it is available.

255
256 **i. IJC website update**
257 The IJC is preparing new websites for all the International Boards. The proposed
258 site layout was reviewed and comments provided by the Board to the IJC. The
259 sites are planned to go live to the public at the time of IJC Board Appearance.
260 Maintenance and update of the web sites will be done by the Board Secretaries
261 and other Board associates.

262
263 **Item 13. IJC Appearance Meeting**
264 Topics 1) Board membership, 2) Working Committee membership 3) Board's area of
265 responsibility, 4) Lake Erie water levels and Niagara Falls flow, 5) Ashland Avenue
266 gauge rehabilitation, 6) Flow measurements program, 7) Horseshoe Falls crest
267 recession, 8) Public outreach, 9) Acceptance of the 2017-18 Ice boom report.

268
269 The next IJC Appearance is scheduled for Thursday October 25th, 2018 in Ottawa, ON,
270 Canada, from 09:30-10:00 AM EDT.

271

272 **Item 15. Next Board Meeting, Closing Remarks, Adjourn**

273 The next Board meeting is scheduled for March 7, 2019 in Detroit, Michigan, USA.

274 The closing remarks were made and the meeting adjourned at 3:46 PM.

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International Niagara Board of Control
September 19, 2018
1:00 p.m. – 3:30 p.m.
St. Lawrence Power Generation Visitor Center
2500B Second Street West
Cornwall, ON, Canada

Teleconference/WebEx Instructions Below

Agenda

1. Opening Remarks, Introductions, Approval of Agenda 1:00-1:05
2. Membership Changes, Roles and Responsibilities.....1:05-1:10
3. Review of previous meeting minutes 1:10-1:15
4. Update on Lake Erie/Niagara River Conditions..... 1:10-1:15
5. Lake Erie – Niagara River Ice Boom 1:15-1:25
 - a) Review of 2017-18 Ice Boom Season
 - b) Status of 2017-18 Ice Boom Report
 - c) Decision Process for Boom
6. Chippawa-Grass Island Pool 1:25-1:35
 - a. Compliance to Directive
 - b. Operations and maintenance
7. Niagara River Diversion Treaty Compliance 1:35-1:40
8. Plant Upgrades and Unit Testing 1:40-1:50
 - a) OPG
 - b) NYPA
9. Review discharge measurements program 1:50-2:00
 - g) Overall schedule
 - h) International Railway Bridge (Buffalo and Fort Erie)
 - i) Welland Canal
 - j) Ashland Avenue Rating Section
 - k) American Falls
 - l) New ADVMs
10. 2018/2019 Public Outreach Events 2:00-2:10
11. Review of 131st Semi-Annual Progress Report 2:10-2:15
12. Other Business
 - a) GLAM's Annual Report to IJC 2:15-2:20
 - b) Falls Recession 2:20-2:25
 - c) Ashland Avenue Gauge Intake Remediation 2:25-2:35
 - d) Public Questions on Flow Management for Lakes..... 2:35-2:45
 - e) IJC Diversity Policy 2:45-2:50
 - f) Power Entity Gauge Standards 2:50-2:55
 - g) Use of ICD for fireworks display 2:55-3:05
 - h) IJC Logo on INCW 3:05-3:10
 - i) Niagara Board Web Site Review 3:10-3:15
13. IJC Appearance – Date, topics for presentation 3:15-3:25
14. Next Board Meeting, Closing Remarks and Adjourn3:25-3:30