International Niagara Board of Control
One Hundred Second Semi-Annual Progress Report
to the
International Joint Commission

Covering the Period September 17, 2003 through March 25, 2004

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COVER: **Firemen complete a successful rescue operation to recover a woman from the Niagara River near the brink of the Horseshoe Falls. (Photo: Fire Department of the City of Niagara Falls, Ontario)**

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INTERNET SITES

International Joint Commission

http://www.ijc.org

International Niagara Board of Control

http://www.ijc.org/conseil_board/niagara/en/niagara_home_accueil.htm

Lake Erie-Niagara River Ice Boom

http://www.iceboom.nypa.gov

INTERNATIONAL NIAGARA BOARD OF CONTROL

Chicago, Illinois
Burlington, Ontario

March 25, 2004

International Joint Commission
Washington, D.C.
Ottawa, Ontario

Commissioners:

1. GENERAL

The International Niagara Board of Control (Board) submits its One Hundred Second Semi-Annual Progress Report, covering the period September 17, 2003 through March 25, 2004.

2. LAKE LEVELS

All elevations in this report are referenced to International Great Lakes Datum 1985 (IGLD 1985). The values are expressed in metric units, with approximate English units (in parentheses) for information purposes only. The monthly lake level data are based on a network of four gauges to better represent the average level of the lake.

During the months of September 2003 through February 2004, the level of Lake Erie remained below its long-term average. The level of the lake started the period 11 centimetres (4.3 inches) below average. It reached its seasonal low in November with a mean of 173.87 metres (570.44 feet) which was 13 centimetres (5.1 inches) below average. In February the level was at 174.86 metres (570.41 feet), or 12 centimetres (4.7 inches) below average. Recorded water level data for the period September 2003 through February 2004 and departures from long-term averages are shown in Table 1 and depicted graphically on Figure 1.

The Lake Erie basin received approximately 46.30 centimetres (18.23 inches) of precipitation during the period September 2003 through February 2004. This is about 15% above average for the period. A particularly wet September was followed by three more months of above average precipitation. The period ended, however, on a dry note, with well below average precipitation in February. Recent precipitation data and departures from long-term averages are shown in Table 2 and depicted graphically on Figure 2.

Lakes Michigan and Huron remained well below their long-term average levels during this period. As a result, inflows to Lake Erie from the upstream lakes continued to be lower than average. Inflows from the upper lakes for the six-month period September 2003 through February 2004 were about 7% below the long-term average.

Water supplied to Lake Erie from its local drainage basin was above average for the period September through December, and below average for January and February, as can be seen in Figure 3. This is partly a reflection of the precipitation received during the period.

The water level on Lake Erie naturally affects the flow in the Niagara River, as does the amount of flow retardation in the river due to ice and weeds. The continuing below average level of the lake has kept the flows in the Niagara River generally below average. However, as the level of Lake Erie has approached the long-term average, so has the flow in the Niagara River. The flows in the Niagara River are graphically depicted in Figure 4 and summarized in Section 6.

The March 2004 water level forecast indicates that the level of Lake Erie is expected to remain below its long-term average during the next six months.

TABLE 1 - MONTHLY AVERAGE LAKE ERIE WATER LEVELS

(Based on a network of 4 water level gauges)

International Great Lakes Datum (1985)

	Metres			Feet		
	Recorded*	Average		Recorded*	Average	
Month	2003-2004	1918-2002**	Departure	2003-2004	1918-2002**	Departure
September	174.05	174.16	-0.11	571.03	571.39	-0.36
October	173.93	174.07	-0.14	570.64	571.10	-0.46
November	173.87	174.00	-0.13	570.44	570.87	-0.43
December	173.90	173.99	-0.09	570.54	570.83	-0.29
January	173.95	173.99	-0.04	570.70	570.83	-0.13
February	173.86	173.98	-0.12	570.41	570.80	-0.39

*Provisional **Period of record is 1918-2002

TABLE 2 - MONTHLY AVERAGE PRECIPITATION ON THE LAKE ERIE BASIN

	Centimetres			Inches			
	Recorded*	Average		Recorded*	Average		Departure
Month	2003-2004	1900-1996+	Departure	2003-2004	1900-1996+	Departure	in percent
September	13.56	8.03	5.53	5.34	3.16	2.18	+69
October	7.75	6.98	0.77	3.05	2.75	0.30	+11
November	8.46	7.24	1.22	3.33	2.85	0.48	+17
December	8.15	6.63	1.52	3.21	2.61	0.60	+23
January	6.07	6.20	-0.13	2.39	2.44	-0.05	-2
February	2.31	5.23	-2.92	0.91	2.06	-1.15	-56

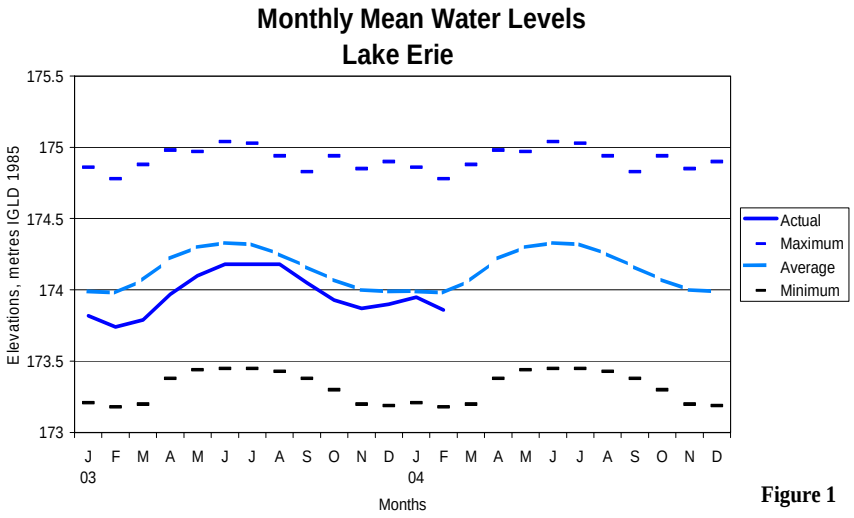


Figure 1

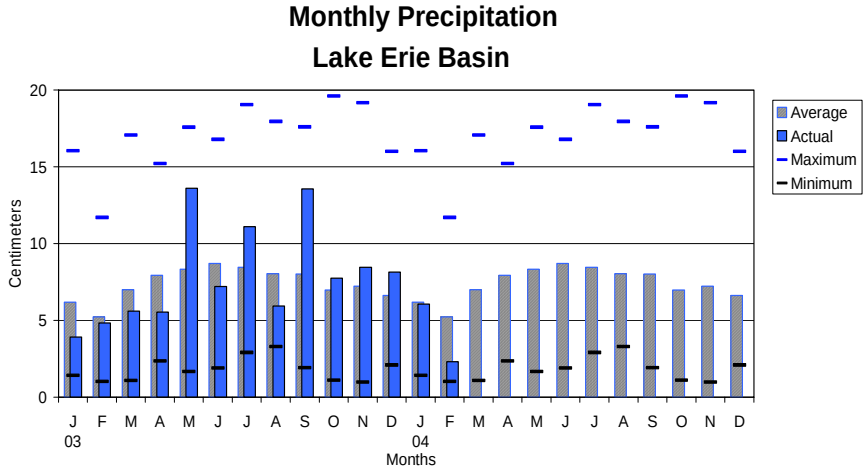


Figure 2

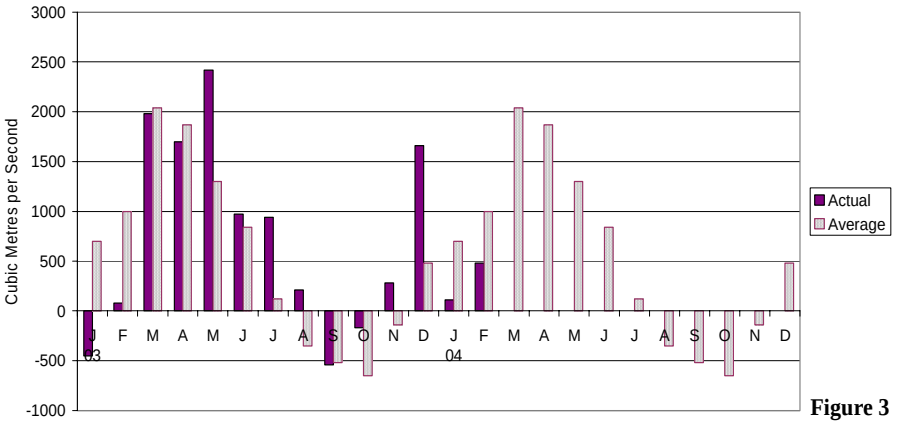


Figure 3

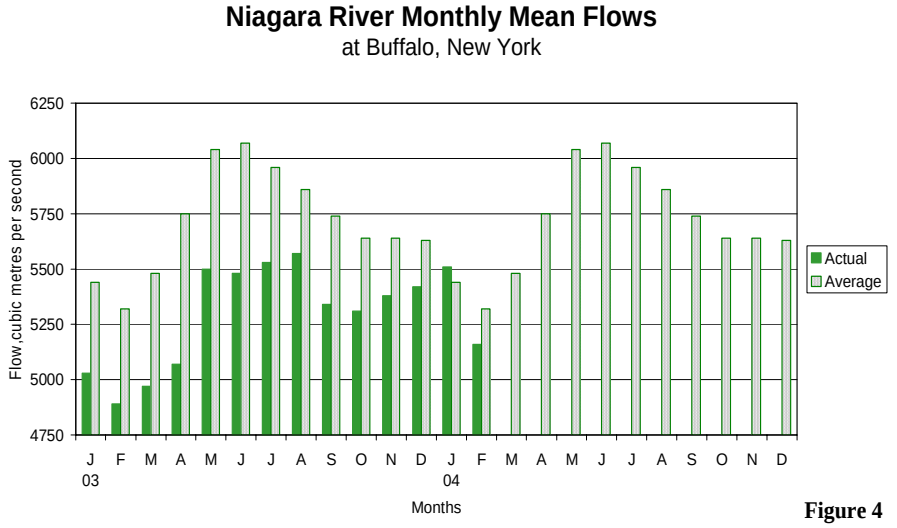


Figure 4

3. OPERATION AND MAINTENANCE OF THE CHIPPAWA-GRASS ISLAND POOL CONTROL STRUCTURE

The water level in the Chippawa-Grass Island Pool (Pool) is regulated in accordance with the Board's 1993 Directive. The Directive requires that the Power Entities operate the Chippawa-Grass Island Pool control structure to ensure the maintenance of an operational long-term average Pool level of 171.16 metres (561.55 feet) to ameliorate adverse high or low water levels in the Pool. The Directive also establishes certain tolerances for the Pool's level as measured at the Material Dock gauge. The Power Entities complied with the Board's Directive throughout the reporting period.

The accumulated deviation of the Pool's level from March 1, 1973 through February 29, 2004 was 0.33 metre-month (1.08 foot-months) above the long-term average elevation. The maximum permissible accumulated deviation is 0.91 metre-month (3.00 foot-months).

Tolerances for regulation of the Pool levels were suspended for November 13, 2003 as the result of abnormally high flows and for March 16 and 17 due to abnormally low flows. Tolerances were also suspended on January 14 through 20, 24 through 31 and February 1, 2, 6 and 8 to assist in ice management.

At the request of the City of Niagara Falls Ontario Fire Department, in the early evening of February 23rd, actions were taken by the control structure operator to lower the level of the river along the Canadian shore. Changes from normal operations were taken to assist in the rescue of a person spotted in the river a short distance from the brink of the Horseshoe Falls. Gate One, the only gate open at the time, was closed while generation at the Fortis plant ceased and diversions to the high head plants were

maximized. Lowering of the water level at the site contributed to the successful rescue of the individual. Tolerances were suspended for February 23rd and 24th as the result of the actions taken in response to this emergency.

Recorded daily Material Dock water levels covering the period September 2003 through February 2004 are shown in Enclosure 1. The locations of the water level gauges on the Niagara River are shown in Enclosure 2.

Gate 16 of the International Niagara Control Works was out of service from June 12 to December 19, 2003 for seal replacement, cylinder repair and rollway plate work. Gates 15 and 17 were out of service from December 14 through 19th to allow restoration to service of Gate 16. Gate 1 was out of service from September 15 to December 8 for main pump upgrade, oil heater removal and concrete rehabilitation on the upstream wall. Gate 2 was out of service from October 27 to December 8 for main pump upgrade and oil heater removal. Gates 9 and 10 were out of service on January 26, 2004 with gate 10 continuing out of service until the end of March as the main pump is upgraded and the oil heater is removed.

The Control Works experienced a total station AC power supply failure for 7 minutes on October 15. This was due to two separate planned outages at the Murray Transformer Station and a subsequent breaker failure on the 115 kV supplying that station. All metering and monitoring functions were maintained via the Control Works' Uninterruptible Power Supply system. No control gate operations were required during the 7 minute period.

A plan to upgrade the Control Works AC Station Service switchgear and cables in 2003 was deferred when a potential problem was identified with one of two Station Service transformers. A study is underway by Ontario Power Generation to determine if the transformers need to be replaced prior to proceeding with the upgrade of the station

service. A risk assessment of the power supply to the control structure was made by Ontario Power Generation following the August 2003 blackout. One result is that local sources for supply of a standby generator have been identified. The assessment identified a problem with the routing of the two separate supply lines to the structure. This will be resolved as part of the upgrade to the control structure's station service.

4. FLOWS OVER NIAGARA FALLS

During the tourist season daylight hours, the required minimum Niagara Falls flow is 2832 cubic metres per second (m^3/s) (100,000 cubic feet per second (cfs)). At night and during the winter months, the required minimum Falls flow is 1416 m^3/s (50,000 cfs). The operation of the Chippawa-Grass Island Pool control structure, in conjunction with power diversion operations, ensures sufficient flow over the Falls to meet the requirements of the Niagara Treaty of 1950.

Falls flows met or exceeded minimum Treaty requirements at all times during the reporting period. The recorded daily flows over Niagara Falls, covering the period September 2003 through February 2004 are shown in Enclosure 3.

5. DIVERSIONS AND FLOW AT QUEENSTON

Diversion of water from the Niagara River for power purposes is governed by the terms and conditions of the 1950 Niagara Treaty. The Treaty prohibits the diversion of Niagara River water that would reduce the flow over Niagara Falls to below the amounts specified for scenic purposes.

The high head hydro power plants, OPG's Sir Adam Beck 1 and 2 in Canada and NYPA's Niagara Power Project in the United States, withdraw water from the Chippawa-Grass Island Pool above Niagara Falls and discharge it into the lower Niagara River at Queenston, Ontario and Lewiston, New York, respectively.

During the period September 2003 through February 2004, diversion for the Sir Adam Beck 1 and 2 plants averaged 1625 m^3/s (57,390 cfs) and those by the Robert Moses Niagara Power Project averaged 1860 m^3/s (65,680 cfs).

The low head generating station, Fortis Ontario's Rankine Plant, diverts water from the Cascades, just upstream of the Horseshoe Falls, and discharges it into the Maid-of-the-Mist Pool. Since the operating efficiency of this older plant is much lower than those of the high head plants, water that is available for power generation is normally dispatched on a priority basis to the high head plants, with the excess being directed to the low head installation.

This plant was idle from October 2001 but resumed generation operations on January 9, 2004. From that time through to the end of February 2004, diversion flow for the Rankine plant averaged 22 m^3/s (780 cfs).

The average flow from Lake Erie to the Welland Canal for the period September through February 2004, was 205 m^3/s (7,240 cfs) compared to 211 m^3/s (7,450 cfs) for the same period one year ago. Diversion from the canal to OPG's DeCew Generating Stations averaged 176 m^3/s (6,220 cfs) for the period September 2003 through February 2004.

Records of Niagara River diversions for power generation covering the period September 2003 through February 2004 are shown in Enclosure 4.

The monthly average Niagara River flows at Queenston, Ontario for the period September 2003 through February 2004 were:

September	5322 m^3/s	(187,940 cfs)
October	5311 m^3/s	(187,560 cfs)
November	5398 m^3/s	(190,630 cfs)
December	5473 m^3/s	(193,280 cfs)
January	5568 m^3/s	(196,630 cfs)
February	5183 m^3/s	(183,040 cfs)

During this period, the flow at Queenston averaged 5376 m^3/s (189,850 cfs). One year ago, flows averaged 5170 m^3/s (182,580 cfs) for the period September 2002 through February 2003 with the monthly averages ranging between 4929 m^3/s (174,060 cfs) and 5319 m^3/s (187,840 cfs).

6. GAUGING STATIONS

The Niagara River gauges used to monitor the Chippawa-Grass Island Pool levels and the flows over Niagara Falls are Slater's Point, Material Dock, American Falls and Ashland Avenue gauges (see Enclosure 2). All gauges required for the operation of the Chippawa-Grass Island Pool control structure were in operation during the reporting period.

Both the U. S. National Oceanic and Atmospheric Administration (NOAA) and the Power Entities operate water level gauges at the Ashland Avenue location. Subject to continuing comparison checks of the water level data from both instruments by the International Niagara Committee (INC), the Power Entities' gauge is used for officially recording water levels used in determining the flows over Niagara Falls. Comparison of

water level readings from both gauges showed that they were within acceptable INC tolerances throughout the reporting period.

Construction of new enclosures for the Tonawanda and Huntley water level gauges was completed in December 2003.

7. FLOW MEASUREMENTS IN THE NIAGARA RIVER AND WELLAND SHIP CANAL

Discharge measurements are regularly scheduled in the Niagara River and Welland Canal as part of a program to verify the gauge ratings used to determine flows in these channels for water level management. The present schedule calls for measurements at the Cableway (Ashland rating) Section and the Welland Supply Weir in 2004, and at the American Falls Section in 2005. All measurements will be obtained through joint efforts of the United States Army Corps of Engineers and Environment Canada.

Both standard current meter and Acoustic Doppler Current Profiler (ADCP) discharge measurements were made at the Welland Canal Supply Weir section in March 2004. Results are being analyzed and a draft report will be prepared by the fall of this year.

A draft report was prepared for the spring 2003 discharge measurements made near the International Railway Bridge on the upper Niagara River. Problems were noted with one of the ADCP units being used, which may result in some of the data being discarded or adjusted. This reinforces the previous recommendation for using multiple meters at each measurement series. The remaining measurements compared well to the 2001 Buffalo rating curve. The Fort Erie equation, used by the Power Entities, did

not fit the measured data as well. Measurements are scheduled again for this reach in 2006.

In November 2003, additional discharge data was collected for a hydraulic model being designed for the upper Niagara River by the Coordinating Committee on Great Lakes Basic Hydraulic and Hydrologic Data.

8. POWER PLANTS

a) New York Power Authority

Ten of the thirteen units at the Robert Moses Niagara Power Plant have been upgraded. Upgrade of Unit #7 began in January 2003 and was completed in October 2003. Upgrade of Unit #5 began in January 2004 with a scheduled completion of October 2004. Upgrade of Units #9 and #8 respectively will be completed in 2005 and 2006, concluding the upgrade program. Full performance (Gibson) testing for Unit #7 along with index testing of Units 7, 11 and 12 is scheduled to be performed in early April.

The New York Power Authority is proceeding with the re-licensing process for the Robert Moses Niagara Power Project. The current license expires August 31, 2007. The process is following the Federal Energy Regulatory Commission's Alternative Licensing Procedures (ALP). A Niagara re-licensing website continues to be updated with all pertinent information including correspondence, comments received from stakeholders, meeting schedules etc. The website is: http://niagara.nypa.gov

The Niagara Project relicensing team is currently coordinating 34 studies and surveys (e.g. groundwater, upper Niagara River Creel Study, project survey, socioeconomic). National Economic Research Associates, Inc. has been selected to do

the socioeconomic study, which will be of considerable interest to many of the stakeholders. Stakeholders met in November 2003, after a 3-month hiatus, with the re-licensing team providing an update on progress of the studies.

During the month of January 2004, NYPA's relicensing team continued outreach efforts with key stakeholders including the New York State Department of Environmental Conservation, U.S. Federal Department of Interior and the Niagara Power Coalition to update the status of studies and the proposed schedule for 2004-2005.

b) Ontario Power Generation

The Province of Ontario, sole shareholder of Ontario Power Generation, is currently reviewing the energy sector. Ontario Power Generation is awaiting Government direction on proceeding with an additional tunnel, the first phase of expansion at the Sir Adam Beck complex.

To date, fourteen of the sixteen units at the Sir Adam Beck II Generating Station have been rehabilitated. The most recent upgrade was on Unit 22, with work begun in March and completed in December 2003. Currently, work is proceeding on Unit 13. This began in February, with expected completion in November 2004. The upgrade of Unit 14, scheduled from July 2004 to March 2005, will complete the rehabilitation project

The upgrades and expansions by the Power Entities will not affect the regulation of the Chippawa-Grass Island Pool water levels as governed by the International Niagara Board of Control's Directive. In addition, they will not require any modifications to other rules or regulations (such as the 1950 Niagara Treaty) relating to the diversion of water for operation of the projects.

9. ICE CONDITIONS AND ICE BOOM OPERATIONS

In accordance with Condition (d) of the Commission's October 5, 1999 supplementary Order of Approval, installation of the Lake Erie-Niagara River Ice Boom's spans commenced on December 16, 2003. The water temperature at Buffalo reached 4 degrees Celsius (^{o}C) (39 degrees Fahrenheit (^{o}F)) on December 15. Installation may begin when the Lake Erie water temperature at Buffalo reaches 4^{o} C (39^{o} F) or on December 16th, whichever occurs first.

Preparations for span placement began on December 3 when eight floatation barrels were installed. A further eight barrels were installed on December 4 and the final seven were placed on December 5. Six strings of pontoons were removed from the summer storage area and placed inside the Buffalo Harbor breakwall on December 8. A further five strings were placed on December 9 and a single spare string was placed on December 10.

Installation of the ice boom's spans began on December 16 when eight spans were placed starting from the Canadian side. Weather conditions were unfavourable on December 17 and 18. On December 19, a further six spans were installed. The final eight spans, continuing on towards the US shore, were installed on December 20.

Daily average air temperatures were below freezing from January 5 through February 2, 2004. It was the coldest January in ten years and the 5th coldest in 61 years of temperature records at the Buffalo Niagara International Airport. Lake Erie water temperature dropped to freezing by January 16th, just a few days later than usual.

Ice, which had formed in the river, was first observed at the International Niagara Control Works on January 9, 2004. By January 14, ice procedures and ice breaker activity

were required to maintain movement of river ice through the Chippawa-Grass Island Pool (CGIP). An ice bridge formed in the Maid-of-the-Mist Pool below the Falls on January 16.

Ice began forming behind the Lake Erie-Niagara River Ice Boom during the second week of the month. Lake Erie became ice covered by the end January.

Ice thickness measurements were taken at six sites in the eastern part of Lake Erie on February 16, with the average thickness being 24 centimetres (9 ½ inches). By comparison, similar measurements taken on February 17, 2003 resulted in an average thickness of 49 centimetres (19 ¼ inches) for the six sites sampled. Lake Erie was completely ice covered by February 18.

Open water areas began developing in the western part of the lake in late February and by mid-March, ice remained only in the eastern portion. Ice thickness measurements were taken at the six locations on March 15, with the average thickness being 27 centimetres (10½ inches).

Ice coverage on the eastern basin, as the result of aerial reconnaissance, was determined to be 57% or 2940 square kilometres (1,140 square miles). By March 25, based on RADARSAT information, it was determined to be 73% or 4090 square kilometres (1,580 square miles). The increase resulted from persistent winds from the southwest pushing additional ice into the eastern basin.

Based on the extensive amount of ice remaining in the lake, the Board advised the Commission, by letter dated March 25, that ice boom opening would be delayed beyond April 1. There were no significant lake ice runs this season.

In 2003, NYPA contracted with BMT Fleet Technology, Ltd. to conduct an analysis of the February 4, 2003 Failure Event of the Niagara River-Lake Erie Ice Boom. The final report was received in late November.

The conclusions of the analysis substantiated that the failure was caused by a combination of unfavourable events. Cold temperatures caused the boom pontoons to become frozen in the rubble ice around them. This was followed by warm temperatures that released the ice cover from the shorelines.

Strong winds from the south-west at over 30 kilometres per hour (19 miles per hour) persisted from the period of ice formation in the lake until January 25th. This created significant ice movements that led to the formation of ridges which are common in this lake. Thickening of the ice, particularly upstream of the boom where resistance to ice movement is developed, also occurred. Near shore, it was manifested by ice pile-up on the shore instead of ice forming ridges.

The failure event was preceded by relatively calm weather over about one week, with wind blowing at below 30 kilometres per hour (19 miles per hour), combined with cold temperatures. This long period provided sufficient time to freeze the ridges and the rubble ice that accumulated around the boom's cables, chains and pontoons.

The last four days prior to the event had warm temperatures hovering around 1°C (34^{o} F), which led to the weakening of the shore ice.

During the day of the event, the following occurred:

The wind was blowing from the south at an average of 49 kilometres per hour (30 miles per hour) and gusting at 90 kilometres per hour (56 miles per hour). The water level rose about 0.75 metre (2.46 feet), from 173.75 metres (570.05 feet) to 174.5

metres (572.51 feet). The high winds, and the rise in water level, would have caused the current velocity to increase significantly (although this was not measured). This would have resulted in very high ice forces that exceeded the resistance capacity of the boom.

Usually the shore takes most of the wind and current drag forces applied to the ice. However, when the ice cover rose 0.75 metre (2.46 feet), it broke free of the shore and the shore was no longer able to provide resistance to the ice. Subsequently, most of the ice load would have been applied to the boom. This load could easily exceed the design load of the boom if the boom did not submerge, allowing the ice to pass over it. With the pontoons frozen into the ice rubble, it is unlikely that they would have been able to submerge.

To reduce the risk of similar failures of the ice boom in the future, NYPA plans to take proactive ice control measures during particularly cold winters and in the presence of a stable and large ice cover upstream of the boom. This will include deploying the Ice Breaker to break up the frozen rubble ice at the downstream side of the boom

10. **PEACE BRIDGE**

The Buffalo and Fort Erie Public Bridge Authority (PBA) have undertaken a Bi-National Integrated Environmental Process. This is a planning process, with emphasis on public involvement, to consider capacity expansion of the Peace Bridge and U.S. Plaza, and improvement of the connecting roadway system. It includes consultation with federal, state, provincial and local agencies regarding environmental screening/assessments as well as public meetings and workshops on a number of bridge-related issues.

The preliminary schedule proposes up to two years for the planning and environmental review, a further two years for design, permits and related work, and then up to four years of construction.

As a result of public input, around fifty new ideas (in addition to the original proposals of the late 1990s) have been considered. An Alternative Screening Process was undertaken through a series of Public Collaborative Workshops. These were held over the period September 2002 to early August 2003. By February 2004, screening, with public involvement, reduced the alternatives from 59 down to a few with the greatest potential to achieve the project's goals and objectives.

The environmental process has completed the first of three project milestones - Ratification of the Final Scoping Document/Alternative Screening Report. This milestone was completed by the Project Partnering Group - City of Buffalo, Town of Fort Erie, and PBA - on February 5, 2004. Ratification signifies the concurrence of the Partnering Group with the screening of the 59 project alternatives and reduction down to two (both in the existing Peace Bridge Corridor), and a no-build alternative, and allows the start of Preliminary Design and development of the Draft Environmental Impact Statement/Environmental Screening Report.

In the next phase of the project, a detailed evaluation of each of the retained alternatives will be conducted. This evaluation will be reviewed by all of the appropriate agencies. It is anticipated by the Public Bridge Authority that a Preferred Alternative can be identified by mid-2004, with final approval by early 2005.

11. MEETING WITH THE PUBLIC

In accordance with the Commission's requirements, the Board will hold an annual meeting with the public on September 22, 2004 in Buffalo, New York. The Board welcomes participation by Commissioners and staff. Information on items including current and projected Great Lakes levels, the Public Bridge Authority expansion undertaking and the operation of the Lake Erie-Niagara River Ice Boom will be presented.

12. MEMBERSHIP OF THE BOARD

The membership of the Board and its Working Committee is unchanged from the last reporting period.

13. ATTENDANCE AT BOARD MEETINGS

The Board met once during this reporting period. The meeting was held on March 25, 2004 in Buffalo, New York. Colonel Gary Johnston chaired the meeting on behalf of BG (P) Hawkins who was unable to attend. All other Board Members were in attendance.

Respectfully Submitted,

BG (P) STEVEN HAWKINS
Chair, United States Section

CARR MCLEOD
Chair, Canadian Section

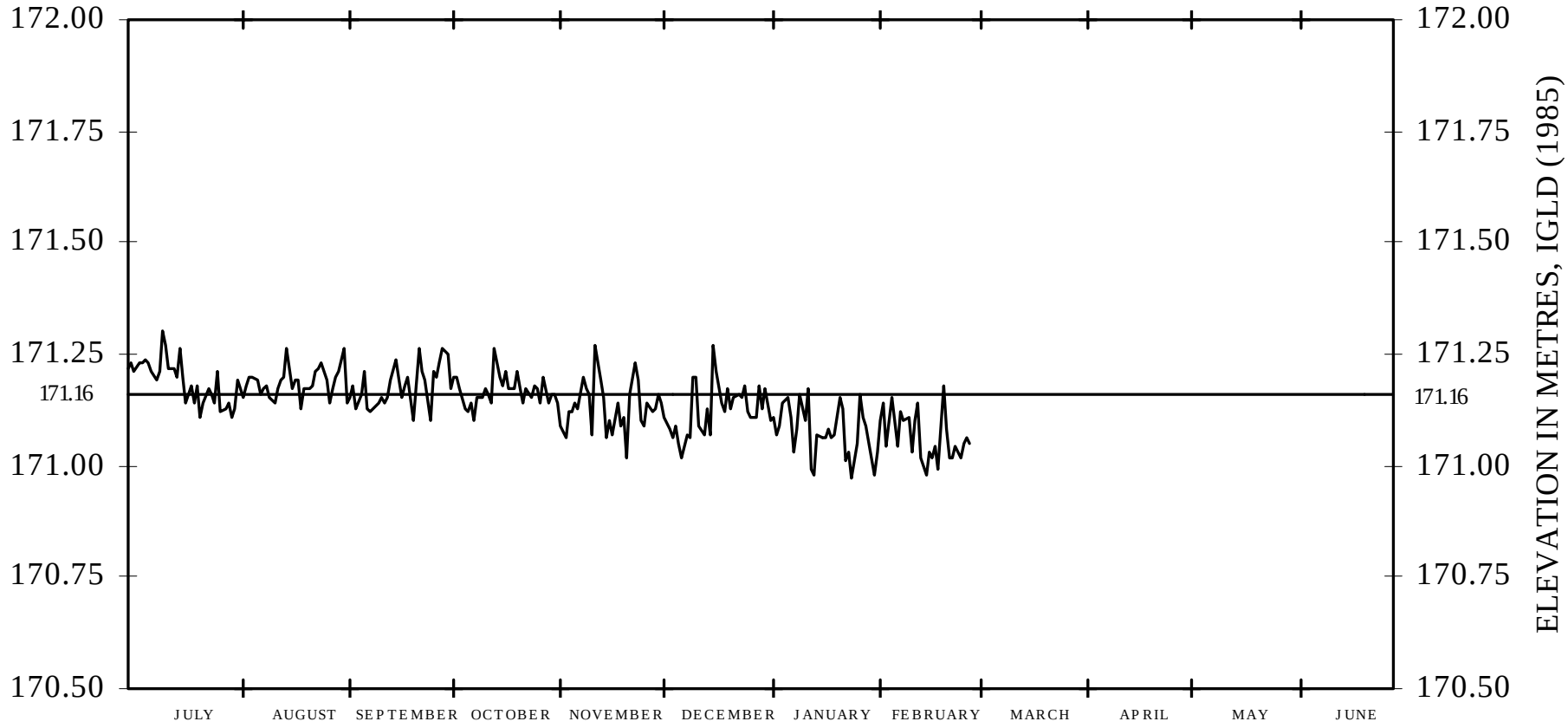
CONSTANTINE G. TJOUMAS
Member, United States Section

DAVID de LAUNAY
Member, Canadian Section

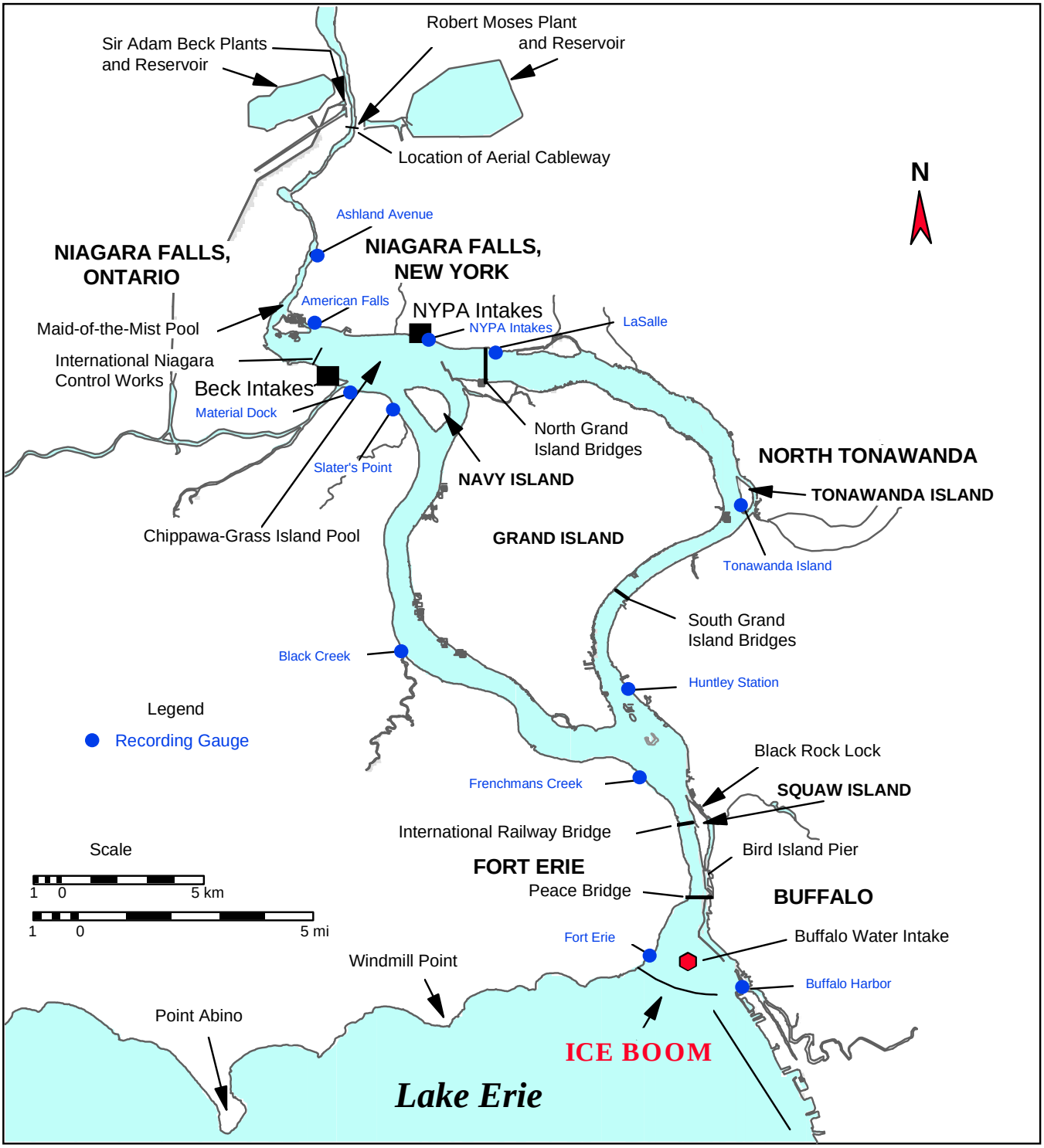
NIAGARA RIVER DAILY MEAN LEVEL AT MATERIAL DOCK GAGE

NOTE: LONG-TERM MEAN STAGE = 171.16 METRES, IGLD (1985)

JULY 2003 THROUGH FEBRUARY 2004



ENCLOSURE 1


Robert Moses Plant
and Reservoir
Sir Adam Beck Plants
and Reservoir
Location of Aerial Cableway
N
Ashland Avenue
NIAGARA FALLS,
ONTARIO
NIAGARA FALLS,
NEW YORK
American Falls
NYPA Intakes
NYPA Intakes
LaSalle
Maid-of-the-Mist Pool
International Niagara
Control Works
Beck Intakes
Material Dock
North Grand
Island Bridges
NORTH TONAWANDA
TONAWANDA ISLAND
Slater's Point
NAVY ISLAND
Chippawa-Grass Island Pool
GRAND ISLAND
Tonawanda Island
South Grand
Island Bridges
Black Creek
Huntley Station
Legend
Recording Gauge
Black Rock Lock
Frenchmans Creek
SQUAW ISLAND
International Railway Bridge
Bird Island Pier
Scale
FORT ERIE
Peace Bridge
BUFFALO
1 0 5 km
1 0 5 mi
Fort Erie
Buffalo Water Intake
Windmill Point
Buffalo Harbor
Point Abino
ICE BOOM
Lake Erie

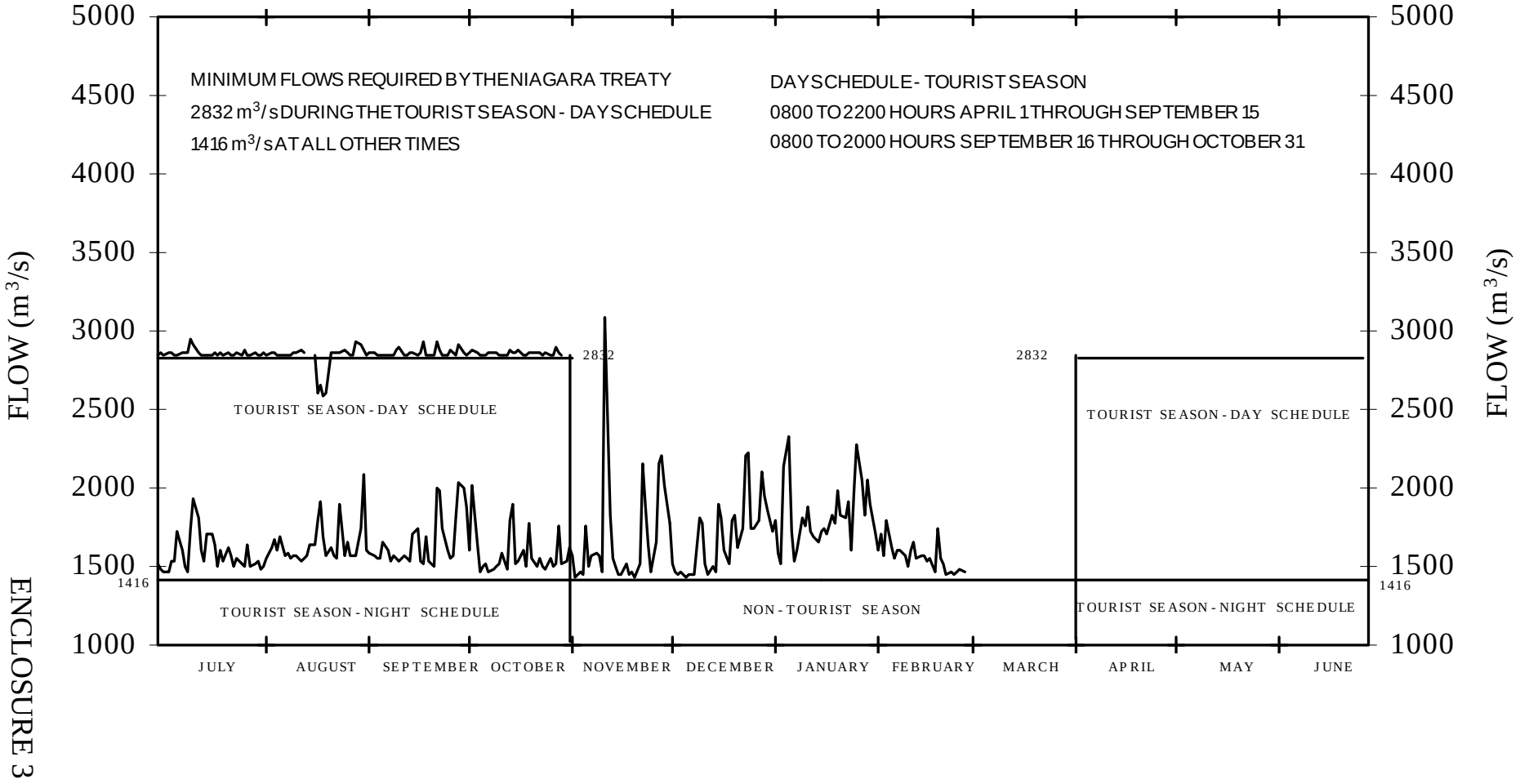
ENCLOSURE 2

DAILY FLOW OVER NIAGARA FALLS

FLOW AT ASHLAND AVENUE GAGE MINUS CN AND OP DIVERSIONS

IN CUBIC METRES PER SECOND (m^3/s)

JULY 2003 THROUGH FEBRUARY 2004

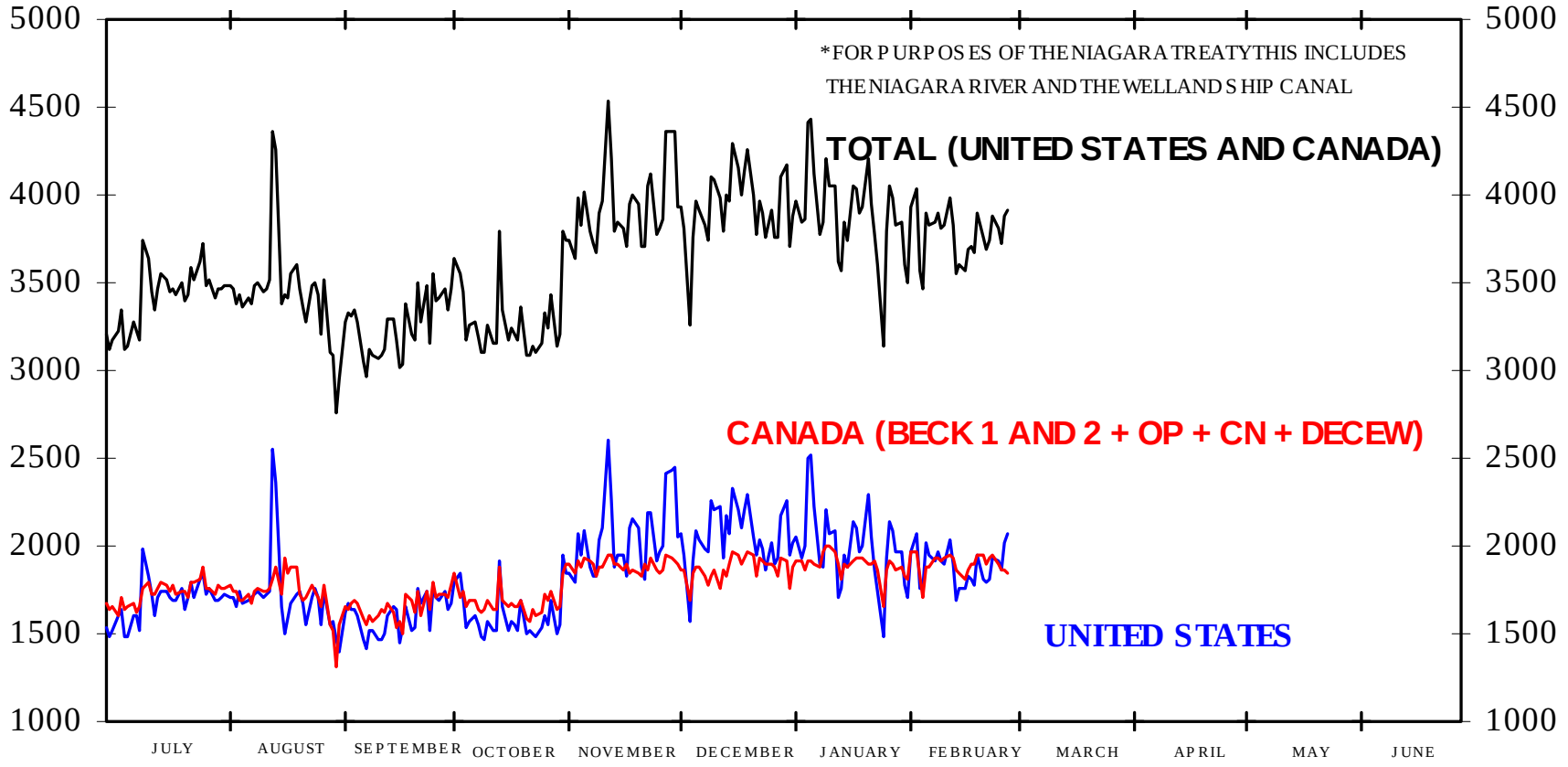


ENCLOSURE 3

DAILY DIVERSIONS OF NIAGARA RIVER WATER* FOR POWER PURPOSES

IN CUBIC METRES PER SECOND (m^3/s)

JULY 2003 THROUGH FEBRUARY 2004



ENCLOSURE 4