



MKE

McGhee-Krizsan Engineering Limited

PETERBOROUGH UTILITIES INC.

**LONDON STREET GENERATING STATION
WATER MANAGEMENT PLAN IMPLEMENTATION REPORT
FOR PERIOD MARCH 2005 THROUGH DECEMBER 2022**

**FOR SUBMISSION TO:
MINISTRY OF NORTHERN DEVELOPMENT, MINES,
NATURAL RESOURCES AND FORESTRY**

1959 Creston Place
Burlington, ON L7P 2Y5
Phone: 905-331-9692
E-mail: kmcghee@m-k-e.ca
Website: www.m-k-e.ca



MKE

McGhee-Krizsan Engineering Limited

December 31, 2022

Ministry of Northern Development, Mines, Natural Resources and Forestry
Peterborough District Office, Southern Region
1st Floor, 300 Water Street,
Peterborough, ON
K9J 3C7
(Submitted by email to michael.elgar@ontario.ca)

Attention: Mr. Michael Elgar, IRM Technical Specialist

Dear Mr. Elgar:

**RE: LONDON STREET GENERATING STATION
WATER MANAGEMENT PLAN IMPLEMENTATION REPORT
FOR THE PERIOD APRIL 2005 THROUGH DECEMBER 2022**

Please find attached a copy of the first Implementation Report for the *Water Management Plan for Waterpower, London Street Generating Station* (WMP). MKE is submitting this report on behalf of the proponent, Peterborough Utilities Inc to fulfill the requirements of Section 8.0 of the Amended WMP.

Please do not hesitate to contact the undersigned at kmcghee@m-k-e.ca or 905-331-9692 if you have any questions regarding this report or require any additional information.

Yours truly,

Q O I \$ Png mch\$

\$

Karen McGhee, P.Eng.
President

c.c. Paul Ernsting and Jason Hoskin, Peterborough Utilities Inc.

C:\Karen\Peterborough Utilities\London Street\WMP\2022-12-31 London Street WMP Implementation Report.docx

1959 Creston Place
Burlington, ON L7P 2Y5
Phone: 905-331-9692
E-mail: kmcghee@m-k-e.ca
Website: www.m-k-e.ca

MKE

**PETERBOROUGH UTILITIES INC.
LONDON STREET GENERATING STATION
WATER MANAGEMENT PLAN IMPLEMENTATION REPORT
FOR PERIOD APRIL 2005 THROUGH DECEMBER 2022**

Table of Contents

LETTER OF TRANSMITTAL

1.0	INTRODUCTION	1
2.0	SUMMARY OF AMENDMENT REQUESTS RECEIVED	2
2.1	AMENDMENTS COMPLETED.....	2
2.2	OTHER AMENDMENT REQUESTS RECEIVED.....	3
3.0	STATUS OF THE STANDING ADVISORY COMMITTEE	3
4.0	EFFECTIVE MONITORING PROGRAM (EMP).....	3
5.0	STATUS OF ANY DATA OR INFORMATION COLLECTION.....	4
5.1	DATA AND INFORMATION COMMITMENTS COMPLETED DURING THIS PERIOD	4
5.2	PENDING DATA OR INFORMATION COLLECTION COMMITMENTS.....	7

1.0 INTRODUCTION

The *Water Management Plan for Waterpower, London Street Generating Station* (WMP) was prepared and issued in March 2005 to follow the goals and principles set out in the Ministry of Natural Resources and Forestry's (MNRF) *Water Management Planning Guidelines for Waterpower* (MNRF, 2002). The WMP was subsequently amended to align with MNRF's *Maintaining Water Management Plan Technical Bulletin* (MNRF, 2006) that replaced the earlier 2002 guidelines.

The following document is the initial Implementation Report for the WMP. Implementation Reports are generally required to be issued every five (5) years, however, this initial report is intended to cover the 17-year term of April 2005 through December 2022. It has been prepared on behalf of the plan proponent Peterborough Utilities Inc. (PUI) with input from MNRF.

This Implementation Report has been issued to provide MNRF and interested parties with a status update on the WMP, provide transparency of dam operations, and help to inform adaptive management considerations. It is not intended to initiate a fundamental review of the WMP.

The WMP is categorized as a "Simplified WMP". A Simplified WMP is defined by MNRF as follows:

"Plans prepared for a river section based on limited control over water flows and levels by waterpower facilities and water control structures, with few issues to resolve."

2.0 SUMMARY OF AMENDMENT REQUESTS RECEIVED

2.1 Amendments Completed

The following is a listing of all approved amendments completed since the original issuance of the Water Management Plan in April 2005:

- March 31, 2015:

The Ministry of Natural Resources and Forestry (MNR) approved an administrative amendment for the WMP to extend the initial term of the plan by three (3) years i.e., from 10 to 13 years. This term extension to March 31, 2018 was made to ensure that the water management plan remained in effect while providing time for the results of the provincial review of proposed changes to the requirements for the preparation, amendment and review of water management plans. No changes were made to the text of the plan.

- March 23, 2018:

The MNR approved an administrative amendment for the WMP to extend the term of the plan by a further six months, to September 30, 2018. No changes were made to the text of the plan.

- June 29, 2018:

The MNR approved an administrative amendment for the WMP to align the plan with MNR's approved 2016 Maintaining Water Management Plans Technical Bulletin. This amendment included changes to the following:

- Removal of the expiry date, plan term, and mandatory review;
- New amendment classification, processes, and proponent roles and responsibilities;
- New compliance monitoring and data processes; and
- Details of the newly required Implementation Report.

Specifically, changes were made to the following sections:

- Table 1 and Section 6 were revised with respect to Monitoring and Reporting Requirements, and Compliance;
- Section 7 was replaced; and
- Section 8 and Appendix B were added.

2.2 Other Amendment Requests Received

No other amendment requests were received by, or presented to, Peterborough Utilities Inc. (PUI) during the reporting period (April 2005 - December 2022).

PUI is currently considering applying for a minor amendment to incorporate the 2016 expansion of the London Street Generating Station.

An amendment to the water management plan may also be considered by the Ministry in the future to update the plan to align with the province's modernized landscape-level approach to fisheries management.

3.0 STATUS OF THE STANDING ADVISORY COMMITTEE

No Standing Advisory Committee (SAC) was assigned to this WMP.

4.0 EFFECTIVE MONITORING PROGRAM (EMP)

No Effective Monitoring Program (EMP) was established for the London Street Generating Station in the WMP. The daily water flow requirements continue to be provided by Parks Canada's Trent Severn Waterway to assist in maintaining navigational requirements, provide sufficient water for the operation of the upstream Water Treatment Plant, and support downstream fisheries. The only identified resource values associated with the waterpower facility are the economic benefit associated with the generation of the hydropower and the mitigation of river flows and levels.

During the reporting period for this Implementation Report, the facility consistently:

- generated power based on the availability of the water provided to it for generation, with the exception of periods for required maintenance;
- sold that electricity for use on the provincial grid;
- communicated adjustments of flows and levels to upstream and downstream operators;
- completed compliance monitoring and reporting requirements with no outstanding issues; and
- mitigated river flows and levels, thereby reducing the severity of fluctuations.

5.0 STATUS OF ANY DATA OR INFORMATION COLLECTION

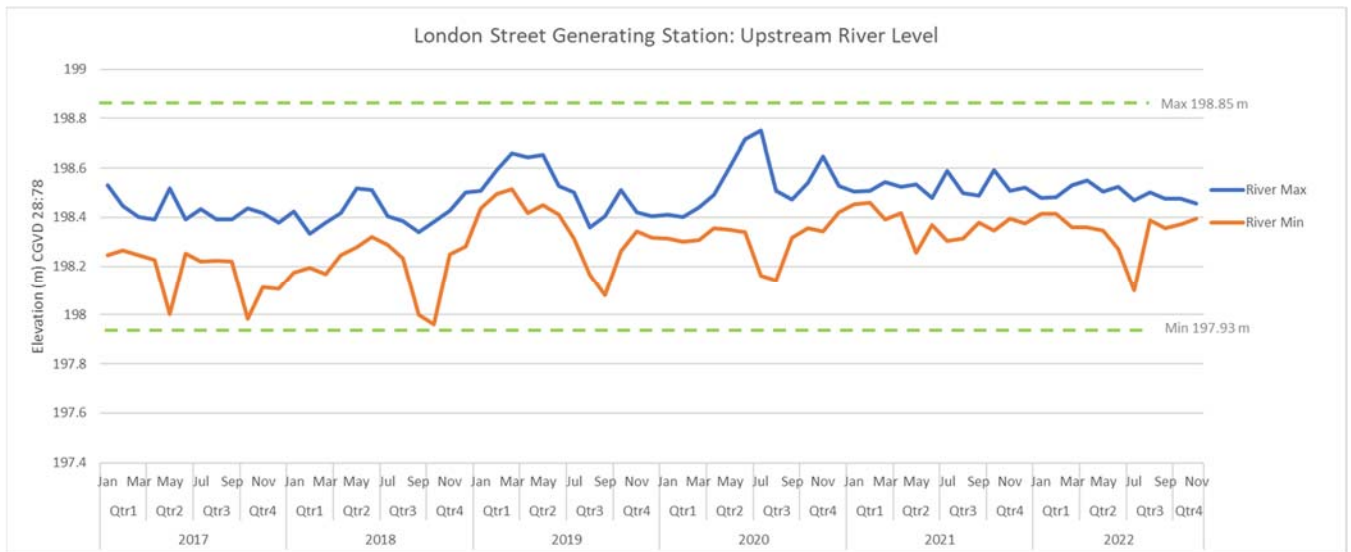
The WMP listed a number of information gaps to be filled using a cooperative approach with the MNRF. The following section provides a status of the WMP recommendations for data collection.

5.1 Data and Information Commitments Completed During This Period

1. Upstream water levels:

Upstream water levels were monitored and recorded for the last six years and are provided graphically below in Chart 5.1.

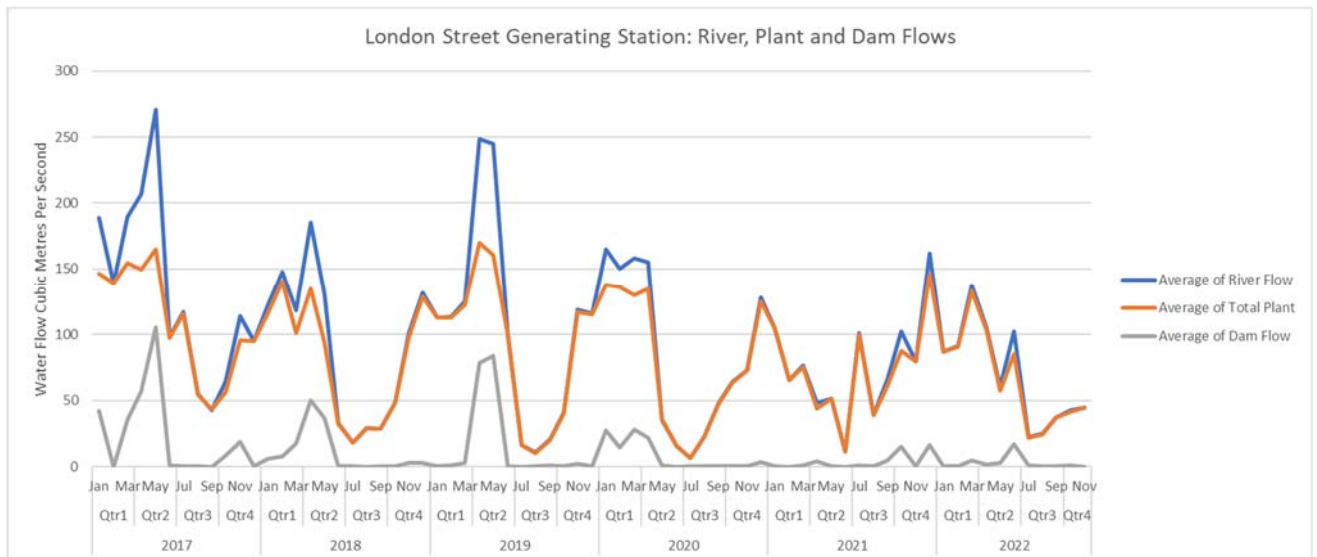
Chart 5.1
Upstream Water Levels (2017-2022)



2. *Water flows through the dam and generating station:*

Water flows through the dam and generating station were monitored and recorded for the last six years. These flows are provided graphically below in Chart 5.2.

Chart 5.2
Flow Through Dam and Generating Station (2017-2022)



3. *Operating range based on Geodetic datum:*

A survey was completed in 2016 and the instrument on site was recalibrated by 1.71 m to the geodetic datum, as opposed to the local assumed datum used in the WMP. The upstream water level operating range is, therefore, between 197.93 and 198.85 m Canadian Geodetic Vertical Datum (CGVD).

4. *Information on the existing fish community on the Otonabee River between Lock 19 and the Nassau Dam, including species presence/absence and relative abundance and biological characteristics of important fish species (e.g. age, distribution, growth rates etc.):*

Since development of the Water Management Plan (WMP), MNRF has shifted from specific area monitoring to fisheries management at the landscape level. The Ministry undertakes routine monitoring within Fisheries Management Zone 17 (FMZ 17), which contains the Kawartha Lakes, to assess species presence/absence, relative abundance and biological

characteristics. Due to connectivity of these lakes by way of the Trent-Severn Waterway (TSW), information collected in the lakes supports the sections of waterway between them.

In addition to the above, the proponent completed the following fisheries studies during this period as part of its environmental assessment work for the 2016 expansion of the London Street Generating Station:

- 2009: *Walleye Spawning Habitat Survey* by Niblett Environmental Associates Inc. This spawning survey was completed for the downstream reach between the London Street Dam and Hunter Street Bridge. The study concluded that the area below the dam includes “poor quality walleye spawning habitat” due to “high spring velocities and depths during preferred water temperatures”. However, some spawning may still occur within this area despite the conditions.
- 2011: *Natural Heritage Study* by Oakridge Environmental Ltd. This study investigated fish communities and usage in the downstream reach between the London Street Dam and Hunter Street Bridge featuring a snorkeling survey and fish collection between June and August 2011. Thirteen (13) types of fish were collected. After receiving anecdotal observational evidence from the plant operators, the study added muskellunge to the fish list, stating that they may also use the area, on occasion, as a migration route between Katchewanooka and Rice Lakes. The low number of walleye observed in June supports the 2009 spawning study that the area below the dam is not a productive walleye spawning location.
- 2012: *Upstream Minnow Collection* by Dillon Consulting Limited. This study included collecting minnows upstream of the dam. Trap placement was varied to cover various substrates, depths, and macrophyte cover. Fish captured were representative of those observed in the forebay and included Bluntnose Minnow, Rock Bass and Bluegill (*Lepomis macrochirus*).
- 2012 *Velocity Distribution Through Powerhouse and Spillway Study* by Hatch. This study included 2-D modelling of downstream water velocities between the London Street Dam and Hunter Street Bridge under different flows conditions. The modelling indicated that water velocities are in excess of the maximum sustained swimming speed attributed to Walleye (i.e., 1-2 m/s), thereby supporting the 2009 spawning study conclusions that high flows contribute to poor quality spawning habitat in this area.

-
5. *Examination of the area immediately downstream of the dam during periods of low flow or following a dramatic reduction in flows to address concerns regarding the potential for fish stranding:*

Within FMZ 17, walleye are the highest priority for fisheries management planning. For dams that are considered priority walleye spawning areas MNRF regularly communicates with the dam owner pre-spawn, during the spawn, and post-spawn through to the anticipated hatch. At these priority areas there has also been a Walleye Watch monitoring program implemented to verify important spawning habitat, estimate the number of walleye using the site, and identify the quality of the habitat present. The London Street Generating Station is not considered a priority walleye spawning area, and therefore, no specific monitoring or communication related to walleye spawning at this location has been required.

5.2 Pending Data or Information Collection Commitments

1. *Characteristics of the dam and hydropower facility operations including inflows, outflows, headpond and tailrace levels, and how these change through the spawning and incubation periods:*

Inflows, outflows, and water levels have been recorded through the period of this report (See Charts 5.1 and 5.2). However, since the dam at the London Street Generating Station is not considered to be a priority walleye spawning area, no study has been completed to investigate changes through spawning and incubation.

2. *A description of the physical attributes of the known and/or suitable spawning sites:*

Since the London Street Generating Station is not considered a priority walleye spawning area, no specific monitoring related to physical attributes of the site has been conducted.

3. *The MNRF, Peterborough District has been invited to participate in portions of the annual operators meeting to facilitate communication between MNRF and the operators.*

MNRF routinely communicates with Parks Canada prior to and during spring freshet to share information regarding water management and fisheries. There has been no need for MNRF to participate in the annual operators meeting.