

ATTACHMENT 34

LTWP Historical Streamflow Statistics for Apex River

August 20, 2025

Project/File: 144903621

City of Iqaluit
1085 Mivvik Street, Iqaluit, NU X0A 3H0

Dear Murray Amirault,

Reference: Iqaluit Water License 3AM-IQA1626 Renewal Application – Request for Data

This memorandum (memo) by Stantec Consulting Ltd. (Stantec) provides a summary of hydrologic data pursuant to Water License 3AM-IQA1626 Amendment No. 4 issued to the City of Iqaluit. Specifically, it addresses an email from the City of Iqaluit to Stantec titled “Iqaluit Water License Renewal Application - Request for Data”, dated July 23, 2025, which requested the following streamflow summary statistics in cubic meters per second (it is presumed that the request is for historical statistics, i.e., based on multiple years):

- Historical mean annual flow [discharge]
- Historical mean summer flow
- Historical minimum summer flow
- Historical minimum annual flow
- Historical mean annual flood
- Historical maximum summer flood
- Historical mean summer flood

It is Stantec’s understanding that the location of interest for these statistics is the Apex River immediately above the diversion (pump) to Lake Geraldine. This location is monitored by the Water Survey of Canada (WSC) at Station 10UH015 (Apex River 1 km Above Bridge to Nowhere). Provisional (preliminary and unpublished) daily streamflow data from this station were used to calculate the requested statistics¹. Established in 2019¹, the provisional nature of the data may be due to the stage-discharge relationship (rating curve) being potentially still under development. This is also a short period of record for determining historical statistics. Therefore, there is considerable uncertainty in the available data and the resulting historical streamflow summary statistics provided here.

¹ Water Survey of Canada. 2025. Real-Time Hydrometric Data. Accessed July 30, 2025 at:
https://wateroffice.ec.gc.ca/report/real_time_e.html?stn=10UH015

Reference: Iqaluit Water License 3AM-IQA1626 Renewal Application – Request for Data

Streamflow statistics based on daily data are provided in Table 1 for a total of 4 years (2021 through 2024). “Summer” is defined as July through September when ice is generally not expected. The years 2020 and 2025 are excluded from the calculations due to incomplete summer data. Data coverage was full for 2021 and 2022, while 2023 and 2024 had a considerable amount of missing data between freeze-up, which presumably started in October both years, and break-up, which presumably ended in June and early July of 2023 and 2024, respectively. Data gaps were treated as zero flow for conservatism, based on periods of no flow on record in 2021 and 2022.

Table 1 *Historical Streamflow Statistics for Apex River 1 km Above Bridge to Nowhere (WSC 10UH015)*

Year	Daily Discharge (m ³ /s)						No. of Days with Data
	Historical Mean Annual Discharge	Historical Minimum Annual Discharge	Historical Maximum Annual Discharge	Historical Mean Summer Discharge (Jul-Sep)	Historical Minimum Summer Discharge (Jul-Sep)	Historical Maximum Summer Discharge (Jul-Sep)	
2021	0.48	0.00	3.70	0.98	0.15	3.70	365
2022	0.33	0.00	3.83	0.41	0.13	1.26	365
2023	0.30	0.00	6.97	0.91	0.22	6.97	253
2024	0.26	0.00	4.17	0.98	0.27	4.17	102
MIN	0.26	0.00	3.70	0.41	0.13	1.26	102
AVG	0.34	0.00	4.67	0.82	0.19	4.03	271
MAX	0.48	0.00	6.97	0.98	0.27	6.97	365

Notes:

Based on daily flows. Data gaps were treated as zero flow for conservatism, based on records of zero flow occurring at other times. 2020 and 2025 are excluded due to incomplete summer data. Numbers in bold are the requested historical streamflow summary statistics.

From Table 1, and with consideration of the raw data limitations discussed above (short period of record [2021-2024] and the provisional nature of the data), results for the requested historical streamflow summary statistics are as follows:

- Historical mean annual flow = 0.34 m³/s
- Historical mean summer flow (Jul-Sep) = 0.82 m³/s
- Historical minimum summer flow (Jul-Sep) = 0.13 m³/s
- Historical minimum annual flow = 0.00 m³/s
- Historical mean annual flood = 4.67 m³/s
- Historical maximum summer flood (Jul-Sep) = 6.97 m³/s
- Historical mean summer flood (Jul-Sep) = 4.03 m³/s

Reference: Iqaluit Water License 3AM-IQA1626 Renewal Application – Request for Data

Stantec Consulting Ltd. (Stantec) has prepared this memo with the information available at the time of writing, for the sole benefit of the City of Iqaluit for the purpose of providing the requested summary of hydrologic data pursuant to Water License 3AM-IQA1626 Amendment No. 4.

Stantec trusts the contents of this memo meet your expectations at this time. If you have any questions, please do not hesitate to contact the undersigned.

Respectively Submitted,

Nunami Stantec Limited

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