CITY OF IQALUIT

WATER LICENCE 3AM-IQA1626

2024 ANNUAL WATER LICENSE REPORT

May 02, 2025

EXECUTIVE SUMMARY

Under a Type A Water License 3AM-IQA1626 (the License), the City of Iqaluit (the City):

- Extracts water from Apex River to Lake Geraldine and from Lake Geraldine for municipal use;
- Discharges landfill run-off from the West 40 Landfill; and
- Discharges wastewater from the West 40 Wastewater Treatment Plant and backup Sewage Lagoon.

The City's existing license was issued by the Nunavut Water Board (NWB) in 2016 and expires on June 16, 2026. To date, there have been seven amendments made to the License, with the following amendments being relevant to the contents of the City's 2023 Annual Report:

- **Amendment No. 4** – effective April 1, 2020
- **Amendment No. 5** – effective March 15, 2021
- **Amendment No. 6** – effective October 15, 2021

This Annual Water License Report summarizes the activities conducted by the City in 2024, pursuant to the requirements stipulated in Schedule B of the License.

Monitoring Program

The City continued to perform monitoring requirements as per the City's approved Environmental Monitoring Program and Quality Assurance/Quality Control Plan (the Monitoring Plan).

Long-Term Water Supply and Storage

Qikiqtaaluk Lake was identified as the City's long-term water source and in August 2024 Council directs staff to pursue augmentation of the existing Long-Term Water Supply and Storage Solution (including intake structure, conveyance system, and new reservoir) with the addition of a permanent water extraction system from the Apex River. A bathymetric survey of Lake Geraldine was completed in the fall of 2024 and this information has been provided to our consultants to update the water balance model. The 30% design has been completed and the 30% design level submission has been provided to the Nunavut Impact Review Board (NIRB) to facilitate the project pre-screening process.

Based on the feedback from the pre-screening, a submission will be provided to the Nunavut Water Board as part of the license amendment process in 2025.

Niaqunguk River (Apex River) Supplementary Pumping Program

The City executed the replenishment of the Lake Geraldine Reservoir via supplemental pumping of water from the Apex River. Pumping activities this year were completed between June 26, 2024, and July 5, 2024. New to this year's program, the City of Iqaluit received a Letter

of Advice from Fisheries and Oceans Canada (DFO) (file reference 23-HCAA-02636) indicating that water withdrawals could be increased from 10% to 20% of the instantaneous flow when the flows are above 0.156 m3/s in the Apex River.

137,650 cubic meters of water was pumped during the supplemental pumping operations, with a maximum daily pumped volume of 15,769 cubic meters, on June 28, 2024. The total pump is less than the maximum allowable volume annually from the Apex River of 500,000 cubic meters as per Amendment 4 of the City's water license.

The spill elevation, 111.30 m at the Lake Geraldine reservoir, was reached on July 24, 2024, earlier than in 2020 and 2022. By November 27, 2024, the water level in Lake Geraldine was higher than in the previous four years.

Water Treatment Plant

As part of ongoing infrastructure improvements, the City undertook several key construction activities in 2024 focused on upgrading its fuel storage and distribution systems. This work included the installation of a new day tank system designed to support improved fuel storage management and supply consistency for critical operations.

In addition, the existing fuel pumps were replaced with modern, more efficient units, and new piping was installed to ensure safe and reliable fuel transfer. A new alarm panel was also integrated into the system to provide enhanced monitoring capabilities and early detection of potential issues such as leaks, overfills, or equipment malfunctions.

These upgrades were implemented to strengthen the operational safety, reliability, and environmental compliance of the City's fuel handling infrastructure, in alignment with best practices and regulatory requirements. The enhancements are expected to reduce maintenance demands, minimize the risk of spills, and support uninterrupted service delivery across municipal facilities.

Wastewater Treatment

In 2024, the City discharged approximately 1,361,278.29 cubic meters of effluent from the Wastewater Treatment Plant. It is also estimated that approximately 546 cubic meters of sludge was removed from the Wastewater Treatment Plant, which was deposited at the City's West 40 Landfill.

Solid Waste Management

Construction of the North 40 Landfill and Waste Transfer Station Were substantially completed in 2024 although neither have been put into operation.

The City continues to accept and manage waste at the West 40 Landfill, these operations will continue until the Citys decommissioning plan is submitted and then accepted by the Board one year to the planned closure.

In 2024, about 34,409 cubic meters of waste was deposited at the West 40 Landfill.

INTRODUCTION

In June 2016, the City of Iqaluit (the City) was issued a Water License number 3AMIQA1626 (the License) by the Nunavut Water Board (NWB). The license was issued for a ten-year period concluding in June 2026.

A requirement of the License is an annual report due March 31 of each year, summarizing activities governed by the License for the previous calendar year. In accordance with Schedule B of the Water License, this Annual Water License Report summarizes the activities conducted by the City of Iqaluit in 2024.

ANALYSIS

A. The monthly and annual quantities in cubic meters of fresh water withdrawn from the Lake Geraldine Reservoir (Monitoring Station No. IQA-01).

Table 1 summarizes the estimated monthly and annual quantities of water drawn from Lake Geraldine, the City of Iqaluit's raw water source. The total water usage for 2024 was 1,225,443 cubic meters, which is below the maximum allowable withdrawal allowance of 2,000,000 cubic meters (amended withdrawal allowance, as per Amendment No. 4).

Table 1 2023 Raw Water Drawn from Lake Geraldine Reservoir

Month	Volume (m^3)
January	92,238.57
February	89,723.24
March	103,270.64
April	114,775.18
May	115,756.91
June	92,904.59
July	93,264.19
August	101,330.95
September	107,959.32
October	119,015.85
November	99,978.86
December	95,225.12
Total Volume	1,225,443.42

B. The monthly and annual quantities in cubic meters of any discharges from the Wastewater Treatment Facilities (Monitoring Stations No. IQA-02, IQA-04, IQA-08).

Effluent was discharged from the Sewage Lagoon to Frobisher Bay (Station ID IQA-02) between July 30, 2024, and August 9, 2024.
The West 40 landfill (Station ID IQA-008) did not discharge any effluent in 2024.
A total volume of 1,361,278.29 cubic meters of effluent was discharged from the City's WWTP to Frobisher Bay (Station ID IQA-04) in 2024. A summary of this is presented in Table 2.

Table 2: IQA-04 – Effluent Discharge from the WWTP in 2024

Month	Volume (m^3)
January	94,063.96
February	90,378.27
March	101,085.06
April	119,891.27
May	127,259.89
June	53,696.20
July	191,700.94
August	124,156.91
September	135,978.46
October	119,523.42
November	107,729.26
December	95,814.65
Total Volume	**1,361,278.29**

C. Reports generated from Dam Safety Inspections and Dam Safety Reviews and proposed actions to address issues identified and/or updates on continuing actions to address issues.

Dam Safety Inspection

The City contracted MECO Engineering to complete both a Dam Safety Inspection (DSI) and a Dam Safety Report (DSR) in 2024 as per requirements of the Canadian Dam Association (CDA) *Dam Safety Guidelines*. The inspection was completed on September 18, 2024. The City will be following the recommendations from the 2024 DSI and DSR report as the basis for our maintenance plan going forward. The Dam Safety Inspection and the Dam Safety Report can be found in **Appendix A**.

Details of the DSI's are highlighted in the table below:

Table 3: 2024 DSI Deficiency Details

Priority	Deficiency	Status	Timeline for Completion	Deadline
Very High	The contaminated soil around the base of the hydro pole adjacent to the south berm should be removed.	Incomplete	≤ 1 year	December 2025
Very High	The depressions at the base of the upstream face of the center and north berms should be repaired in the spring of 2024 when the water level is low.	No depressions observed	≤ 1 year	December 2025
Very High	Exercising and testing of the valves within the valve chamber	Ongoing	≤ 1 year	December 2025
High	Damaged and deteriorated sealant material should be replaced in 2024. It may be necessary to install a (removable) sheet metal panel over the horizontal expansion joint to protect it against damage from ravens.	Incomplete	> 1 year and ≤ 3 years	December 2027
High	One sink hole was observed within the south access road that leads to the southern berm. The sink hole should be excavated area should be refilled and compacted in 12” lifts. We also recommend Concentric be present to identify the possible cause and record the depth, size, and potential impact on the berm.	No depressions observed	> 1 year and ≤ 3 years	December 2027
High	Undertake an underwater survey of the concrete dam and spillway in 2024.	Incomplete	> 1 year and ≤ 3 years	December 2027
High	The protective galvanized metal enclosure installed over the pipeline from the dam to the water treatment plant should be re-instated.	Complete	> 1 year and ≤ 3 years	December 2027
High	The metal posts / markers that were installed along the north side of the south access road should be re-instated.	Complete	> 1 year and ≤ 3 years	December 2027
High	The north and south access roads should be regraded and eroded material replaced in the spring of 2024.	Complete	> 1 year and ≤ 3 years	December 2027
High	Undertake a test opening on the downstream side of the concrete dam and center berm in late January – early February 2024 to	Incomplete	> 1 year and ≤ 3 years	December 2027

	ascertain the source of the water that forms large ice sheets within the valley in the winter months.			
High	The rip-rap material in the spillway should be re-distributed to provide cover at the base of the spillway.	Incomplete	> 1 year and ≤ 3 years	December 2027
High	The displaced rip-rap material at the south berm should be re-instated.	Incomplete	> 1 year and ≤ 3 years	December 2027
High	Repair cracks within the concrete dam, this work is tentatively scheduled for summer 2024.	Complete	> 1 year and ≤ 3 years	December 2027
High	Repair of spalled concrete within the concrete dam, this work is tentatively scheduled for summer 2024.	Complete	> 1 year and ≤ 3 years	December 2027
Low	The installation of video surveillance should be considered with scheduled implementation in the next 5 years.	Incomplete	> 5 year and ≤10 years	December 2034
Low	Updating of the permanent record file and its storage in a central location with an index that documents the date and contents of all records. The permanent record file needs to include: a) As-built drawings and specification for work undertaken at the dam. b) Weekly/monthly inspections completed by City staff. c) Dam Safety Inspections and Dam Safety Reviews generated by third parties on behalf of the City of Iqaluit. d) All maintenance records. e) Correspondence with regulatory agencies. f) Dam operation, maintenance, and surveillance documents. g) Reports and documentation generated by third parties on behalf of the City of Iqaluit.	Incomplete	> 5 year and ≤10 years	December 2034
Low	Implement a public awareness program to educate and inform the public that: a) The dam and earthen berms are no trespass area. b) Dog walkers should not allow their pets to travel atop and across the earthen berms due to the risk of (dog) fecal matter contamination of the potable water	Incomplete	> 5 year and ≤10 years	December 2034

	supply. c) ATV and skidoos should not travel on berms and across Lake Geraldine.			

Dam Safety Review

The 2024 Dam Safety Review (DSR) for Lake Geraldine Dam, prepared by Mitchelmore Consulting International Ltd. for the City of Iqaluit, provided a comprehensive assessment of the dam's safety, condition, and management practices in accordance with the 2013 Canadian Dam Association (CDA) Dam Safety Guidelines.

The dam is classified as Extreme based on potential impacts from failure, with an Inflow Design Flood (IDF) corresponding to the Probable Maximum Flood (21.9 m^3/s) and a design earthquake with a 1 in 10,000-year probability. The dam was inspected on September 18, 2024, and found to be in Good physical condition, with minor deficiencies noted.

Details of the deficiencies from the Dam Safety Review are highlighted in the table below:

Table 4: 2024 DSR Deficiency Details

Location	Priority	Defect	Recommended Mitigation	Timeline for Completion	Deadline
Concrete Spillway	Very High	Grout Injection Collars project above the surface	Zip cut all protrusions and repair as necessary	≤ 1 year	December 2025
Instrumentation	Very High	Instrumentation installed in 2019 is not being monitored	Initiate a plan to immediately start collecting data from the installed instrumentation devices	≤ 1 year	December 2025
Intake Valve	Very High	Intake valve is not regularly operated and may not work on demand	Current plans to relocate the intake valve chamber downstream should be completed	≤ 1 year	December 2025
Spillway	Very High	Planned CCTV instrumentation at the spillway is not installed	Complete plans to install a remote observation post using CCTV camera	≤ 1 year	December 2025
North and Centre Rockfill	High	The rockfill forming the upstream slope is	Install a riprap protection zone	> 1 year and ≤ 3 years	December 2027

Berm Upstream Rockfill		small and likely does not provide suitable erosion protection	on the upstream slope		
Concrete Joint Sealant	High	Sealant material is missing	Replace sealant material, as necessary, and install a solid cover to prevent future wildlife damage	> 1 year and ≤ 3 years	December 2027
All Structures	High	Currently there is no public safety around dams (PSAD) plan	Complete a PSAD risk assessment and develop a public safety plan (PSP) for Lake Geraldine Dam	> 1 year and ≤ 3 years	December 2027
Instrumentation Collars	Medium	Crushed stone placed at the base on new collars are eroding	Replace crushed stone with a geotextile fabric below the stone to prevent drop-out	> 3 years and ≤ 5 years	December 2029
South Berm	Medium	Contaminated soil located at the base of the hydro pole	Removed the contaminated soil and the remnant pole anchor	> 3 years and ≤ 5 years	December 2029
Spillway Channel	Low	Missing rock at the spillway toe may cause spillway instability	Rock stones in the spillway channel to be redistributed flush with the spillway apron	> 5 year and ≤10 years	December 2034
Concrete Spillway	Low	Hollow area downstream of South Concrete Gravity Dam	If spall occurs, repair area in accordance with ACI standard repair methodology	> 5 year and ≤10 years	December 2034
South Berm	Low	Displaced rockfill results in a gap in the rockfill parapet	Replace rockfill parapet in area of displacement	> 5 year and ≤10 years	December 2034

Design assessments confirm the dam and spillway meet current standards for flood and seismic events, but highlighted vulnerabilities. Overall, the Lake Geraldine Dam remains structurally sound.

D. The monthly and annual quantities in cubic meters of sludge removed from the Wastewater Treatment Facility.

The total sludge removed from the Wastewater Treatment Plant was approximately 547 cubic meters in 2024.

The City utilizes trailers of the same capacity to transport sludge from the Wastewater Treatment Plant (WWTP) to the West 40 Landfill. The trailer is equipped with a capacity of 3 cubic meters, so about 9 cubic meters of sludge is taken weekly from the WWTP.

Table 5: Approximate values of sludge removed from the WWTP Treatment Plant in 2024

Month	Volume (m^3)
January	48
February	42
March	45
April	45
May	45
June	45
July	48
August	45
September	45
October	48
November	45
December	45
Total Volume	**546**

E. The monthly and annual quantities of waste disposed at the West 40 Landfill.

A total of 34,409 cubic meters of waste is disposed in 2024 at the West 40 Landfill.

Table 6 summarizes the estimated monthly and annual quantities of waste deposited at the West 40 Landfill including the volume of waste transported by municipal garbage trucks.

Table 6: IQA-04 – Effluent Discharge from the WWTP in 2024

Month	Volume (m^3)
January	1479
February	1918
March	2139
April	2007
May	3102
June	3822

July	3694
August	3689
September	3167
October	4019
November	3082
December	2291
Total Volume	**34409**

F. A summary report which includes all data and information generated under the Monitoring Program, including the QA/QC program, in electronic and printed formats acceptable to the Board.

In 2024, the City continued testing procedures as described in the City's Type A Water License 3AM-IQA1626, and Environmental Monitoring Program and Quality Assurance/Quality Control Plan. Table 7 lists all lab samples that were taken in 2024.

There are no monitoring results for IQA-08 because the West 40 Landfill was not discharged in 2024. Additionally, there are no monitoring results for the Waste Transfer Station and the North 40 landfill as they were under construction and have not yet been commissioned. Monitoring of the leachate discharge will commence when the facilities are in use for municipal waste collection.

Unfortunately, due to administrative issues and changes in staff there the following monitoring results were not taken:

- IQA-01 (For the Month of January and February)
- IQA-04 and IQA-05 (For the Month March and September)

The City is acknowledging that the monitoring results are missing for the following Station IDs, relating to the Waste Transfer Station and North 40 Landfill:

Table 7: Summary of 2023 Sampling Conducted

Station ID	Description	Parameter	Date	Lab Sample ID
IQA-01	Lake Geraldine Reservoir – Raw Water and Portable Water	R, PW	2024-03-11	24-006631-1 24-006631-2 24-006631-3 24-006631-4
			2024-04-09	24-009647-1 24-009647-2 24-009647-3 24-009647-4
			2024-05-21	24-014580-1 24-014580-2 24-014580-3 24-014580-4
			2024-06-03	24-016158-1 24-016158-2

				24-016158-3 24-016158-4
			2024-07-15	24-021482-1 24-021482-2 24-021482-3 24-021482-4
			2024-08-06	24-024929-1 24-024929-2 24-024929-3 24-024929-4
			2024-09-24	24-029918-1 24-029918-2 24-029918-3 24-029918-4
			2024-10-21	24-032986-1 24-032986-2 24-032986-3 24-032986-4
			2024-11-12	24-035517-1 24-035517-2 24-035517-3 24-035517-4
			2024-12-03	24-037638-1 24-037638-2 24-037638-3 24-037638-4
IQA-02	Sewage Lagoon – Effluent Discharge Point	B, N, E, ICP	2024-07-30	24-023307-1 (Start)
			2024-08-04	24-024917-1 (During)
			2024-08-09	24-024444-1 (End)
IQA-04	Wastewater Treatment Plant - Effluent	B, N, E, ICP	2024-01-08	24-000922-2
			2024-02-06	24-003669-2
			2024-04-15	24-010279-2
			2024-05-01	24-012186-2
			2024-06-03	24-016159-2
			2024-07-15	24-021478-2
			2024-08-06	24-024916-2
			2024-10-22	24-033245-2
			2024-11-25	24-036844-2
			2024-12-03	24-037640-2
IQA-05	Wastewater Treatment Plant - Influent	B, N, E, ICP	2024-01-08	24-000922-1
			2024-02-06	24-003669-1
			2024-04-15	24-010279-1
			2024-05-01	24-012186-1
			2024-06-03	24-016159-1

			2024-07-15	24-021478-1
			2024-08-06	24-024916-1
			2024-10-22	24-033245-1
			2024-11-25	24-036844-1
			2024-12-03	24-037640-1
IQA-06	Sludge – From WWTP	B, N, E, ICP	2024-01-08	24-000925-1
			2024-05-01	24-012187-1
			2024-08-06	24-024967-1
			2024-11-25	24-036881-1
IQA-08A	Station situated up – gradient of West 40 Landfill	B, E, N, ICP, F, LS	2024-06-03	24-016164-1
IQA-08B	Station situated up – gradient of West 40 Landfill	B, E, N, ICP, F, LS	2024-06-03	24-016164-3

The laboratory and field monitoring results are available in **Appendix B**

G. A summary of all construction activities carried out for the facilities.

North 40 Landfill

The North 40 Landfill cell and treatment lagoon construction was successfully completed in Fall 2024. The major work completed in 2024 included the final grading of the cell, treatment lagoon, roads and surroundings, along with the installation of the cell and lagoon liners and cover materials and perimeter fencing. The only remaining portion is the installation of the leachate handling pumping and conveyance equipment that are not permanent fixtures. Note, the North 40 landfill was not in use as of the end of 2024.

Waste Transfer Facility

All equipment installations and related startups, mechanical, electrical and fire protection systems were all completed in late 2024. Substantial Completion was approved in early 2025 once the fire protection system was fully commissioned and certified by the respective certification and approval agency. The facility is not yet being operated, and no timeline has been set for operational startup.

LTWP – Supply and Storage

No construction activities occurred in 2024 as the design is not yet completed but ongoing and scheduled to be completed in 2026. Minor field activities related to geotechnical field investigations and other environmental studies were initiated.

Water treatment Plant

The construction activities in 2024 include the installation of a new day tank system, the replacement and installation of fuel pumps, associated piping, and a new alarm panel to enhance operational safety and reliability.

H. A summary of any modifications and/or major maintenance work carried out at the facilities and any associated structures.

Water Treatment Plant

In 2024, the City undertook a series of modifications and major maintenance activities at the Water Treatment Plant to improve operational efficiency, safety, and reliability. A full maintenance and calibration service was completed in March by WSP and Aquatech on both the treated and raw water S::CAN monitoring systems. UV reactors #1 and #2 were replaced, along with two non-modulating valves. The UV disinfection system was also successfully upgraded in early 2024 with new complete UV equipment along with new valves to allow for easier servicing and maintenance in the future.

The raw water recirculation pump was replaced with a Grundfos unit equipped to monitor temperature, and the shaft of the functioning backwash pump was extended. The pumping chamber was cleaned, and obsolete electrical components around the building—including loose wires in panels and across ceilings—were removed. The level sensors for the reservoir and clear wells were upgraded and will be fully programmed in 2025. Additional work included the installation of a raw water overflow sump pump, UPS systems for UV reactors, and a domestic water pump check valve. A GFI plug was installed in the laboratory to address safety inspection requirements. The S::CAN sample pump was replaced, and repairs were carried out on a nonfunctioning air handling unit and exhaust fans in the filter room. To improve air circulation in the chlorine gas system, a new venturi and vacuum regulator were installed. Leaks in the isolation valve and raw water recirculation line were fixed, and a Starlink system was installed to enhance communication. Upgrades also included a new web reporting tool and installing a CCTV and security system. General and preventative maintenance included regular filter changes, S::CAN sensor cleaning, replacement of UV lamps after 500 hours, and UV sensor rebuilds.

In 2025, planned improvements include the installation of new backwash pumps and SCADA control systems for various operations. The City also intends to install backup generator sets to improve power resiliency and will replace the existing chlorination system to enhance efficiency, simplify operations, and reduce chemical handling costs. Additionally, upgrades to servers and the radio communication system are planned.

Wastewater Treatment Plant

In 2024, significant upgrades and maintenance were carried out at the Wastewater Treatment Plant to improve system performance, reliability, and safety. Key mechanical improvements included the replacement of the DAF #2 TWAS pump motor and a full rebuild of the DAF #1 TWAS pump. Polymer dosing was optimized to enhance effluent treatment results, and the sludge auger 210 motor was replaced to restore dependable operation. A new server computer was programmed and installed

by ATS and WSP to support plant automation and monitoring systems. Air Handling Unit (AHU) #3 was returned to service following motor control replacement. Additionally, the polymer pump 770 was rebuilt, including a motor replacement, and Salsnes filter #2 underwent a complete rebuild. The VFD for polymer pump 790 was replaced, and Toromont CAT completed the replacement of batteries for the backup generator. These efforts were supplemented by extensive general and preventative maintenance across pumps, motors, dissolved air flotation (DAF) tanks, and the plant's ventilation systems.

For 2025, the City plans to continue investing in facility improvements. HVAC ventilation upgrades are scheduled, including computational fluid dynamics (CFD) modeling of air flow and hydrogen sulfide (H_2S) analysis to assess air quality and worker safety. A laboratory upgrade is also planned to support improved testing and compliance monitoring. In addition, electrical system upgrades will be assessed, and H_2S sensors will be cleaned and recalibrated to maintain accurate detection capabilities.

I. A progress report and revisions (if applicable) to any studies requested by the Board that relate to waste management, water use, or reclamation and a brief description of any future studies planned by the Licensee including, a non-technical executive summary for the general public, translated into Inuktitut.

Niaqunguk (Apex) River Supplemental Pumping

The 2024 Apex River Supplementary Pumping Program was undertaken to supplement the water levels in Lake Geraldine in accordance with Water License 3AM-IQA1626 (Amendment No. 4) and a Letter of Advice issued by Fisheries and Oceans Canada (DFO File: 23-HCAA-02636). Pumping activities took place from June 26 to July 5, 2024.

The program included daily monitoring and operational adjustments to ensure compliance with regulatory requirements. The DFO authorization permitted the City of Iqaluit to withdraw up to 20% of the instantaneous river flow, provided the flow remained above 0.156 cubic meters per second (m^3/s). Flow data from Water Survey of Canada (WSC) Station 10UH015, located upstream of the pump site, was used to guide these operations.

In total, 137,650 cubic meters (m^3) of water were pumped into Lake Geraldine, with the maximum daily pumped volume reaching 15,769 m^3 on June 28, 2024. From June 26 to July 1, river flow rates were inferred from water level (stage) data, which remained consistently above 6.73 meters—indicating flows greater than 3.33 m^3/s. From July 2 to July 5, direct flow measurements confirmed daily averages ranging from 3.33 to

4.17 m³/s. At no point during the program did pumping exceed the authorized 20% of the instantaneous flow rate.

The pumping operation was conducted well within the annual allowable volume limit of 500,000 m³ and achieved its objective of supplementing the reservoir prior to freeze-up. The reservoir reached spill elevation on July 24, 2024, approximately 19 days after the pumping concluded. No unanticipated environmental impacts, including to fish or fish habitat, were observed during the program. Overall, the 2024 SPP was successfully executed in full compliance with its regulatory framework. The Apex River Pumping report is available in **Appendix C**.

J. Any revisions required, in the form of addenda, to Plans, Manuals and Reports approved under the License.

In 2024, no revisions were made to the existing Operations and Maintenance (O&M) Manuals for City-operated facilities. However, as part of the City's ongoing commitment to regulatory compliance and environmental stewardship, the Spill Contingency Plan was reviewed to ensure continued alignment with current operational practices and regulatory expectations.

The General Spill Response Plan, provided in Appendix D, outlines the procedures to be followed in an unplanned discharge. It includes guidance on spill classification by volume and substance type, response protocols, containment and clean-up procedures, and reporting requirements. This plan serves as a critical resource for City staff to ensure that spills are addressed promptly, effectively, and in accordance with territorial and federal regulations.

Although no formal amendments were required or submitted in 2024, the City remains proactive in regularly reviewing all plans and manuals to ensure they remain up to date and reflective of best practices. Any future revisions will be submitted to the Board for review and approval, as required under the Water License.

K. A list and description, including volumes and Spill Report Line Identification Numbers, of all un-authorized discharges, spills and summaries of follow-up action taken.

The City acknowledges that spill reports submitted included entries where the discharge volume was not recorded. We would appreciate the Board's support in this effort—if a sample reporting template or guidance document is available, it would be beneficial to inform our approach on recording discharge volume.

A detailed list of reported spills, including Spill Report Line Identification Numbers, recorded volumes (where available), and summaries of corrective actions taken, is provided in the attached table.

Table 8 below summarizes all reported spills/ unauthorized discharges that occurred in 2024. A copy of the spill reports are appended in **Appendix E**.

Table 8: Summary of spills/unauthorized discharges in 2023

Spill ID	Date	Location	Type	Volume	Cause	Follow-Up Action
2024070	28-Mar-2024	MH70 (63.4452 -68.3020)	Waste water	Unknown	Frozen Sanitary Line	Frost fighter installed in the manhole and City crew conducted clean up
2024091	08-Apr-2024	Service Line (63.4443, -68.3016)	Waste water	Unknown	Blocked in Sewer	City crew conducted clean up
2024094	09-Apr-2024	AV 332 (63.4440, -68.2939)	Waste water	Unknown	Blocked in Sewer	City crew conducted clean up
2024096	07-Nov-2024	AV 30 (63.7426, -68.5086)	Waste water	2000 Liter	Bypass pump failed at Lift Station 1	City crew conducted clean up

L. A summary of any closure and reclamation work undertaken and an outline of any work anticipated for the next year, including any changes to implementation and scheduling.

No closure and reclamation work were undertaken in 2024.

M. A summary of actions taken to address concerns or deficiencies listed in the inspection reports and/or compliance reports filed by an Inspector.

West 40 Landfill

In response to the recommendations outlined in the 2024 CIRNAC inspection report, the City has initiated a series of corrective actions to address identified deficiencies related to hazardous waste management and site security at the West 40 Landfill.

To improve hazardous waste handling practices, on-site training for staff will be conducted in June 2025. This training will focus on the proper management, segregation, and storage of hazardous materials and will be delivered by qualified professionals to ensure alignment with federal and territorial regulatory standards.

Additionally, two 20-foot dangerous goods containers equipped with integrated secondary containment systems are scheduled to arrive at the West 40 Landfill during the 2025 sealift season. These units will enhance the safe storage of household hazardous waste (HHW) and reduce the risk of environmental contamination. The City will also receive containment pallets, which will be used to safely store smaller volumes of hazardous materials and prevent potential spills during interim handling.

To address site security and containment concerns, fencing will be installed along the eastern boundary of the West 40 Landfill. This installation is scheduled for completion by August 2025. Portions of the fencing identified as missing during the inspection are included in this year's scope of work. Completion of perimeter fencing will coincide with the landfill closure timeline, as adjustments to the fence line may be necessary depending on the potential expansion of the landfill footprint toward the adjacent rock outcrop.

N. A brief update on the implementation plan of all facilities within the scope of this License including projected implementation and status of the Upgraded Wastewater Treatment Plant.

N/A

O. A summary of any studies, reports and plans requested by the Board that related to waste disposal, water use, or reclamation and a brief description of any future studies planned.

A detailed bathymetric survey was completed in Fall 2024. The survey data was submitted to WSP to update the water balance model. As of this report's date, the updated water balance model has not been received from WSP. The City will provide the revised model to the Board upon its completion and will incorporate any necessary findings into future planning and reporting.

P. Any other details on the use of water or waste disposal requested by the Board by November 1st of the year being reported.

Please see **Appendix F** for additional information provided by the City in response to feedback provided for 2021 - 2023 Annual Report.

Q. Details of the SPP Program and monitoring at Station No IQA-10.

Appendix C outlines details of the Apex River Supplemental Pumping Program.

R. Monthly and annual quantities in cubic meters of fresh water withdrawn from Imiqtarviviniq (Dead Dog Lake) at Monitoring Station No. IQA-14.

The City did not withdraw any water from the Dead Dog Lake (Station ID IQA-014) in 2024.

S. Monthly and annual quantities, and general types of waste brought to the Waste Transfer Station and disposed at the North 40 Landfill.

Construction of the Waste Transfer Station (WTS) and related infrastructure at the North 40 Landfill was substantially completed in December 2024. Commissioning and commencement of operations for both the WTS and the landfill are pending the

submission and approval of the West 40 Landfill decommissioning plan by the Water Board.
As of this report's date, neither facility has been commissioned and both remain non-operational. The City continues to work collaboratively with the Water Board to ensure all regulatory conditions are satisfied prior to initiating operations at the new site.

T. Review of procedures for packaging, storage and shipment of harmful hazardous waste.

In Spring 2025, the City will implement enhanced hazardous waste handling procedures. AECOM will provide on-site training to staff on proper management practices. Two new ventilated hazardous waste containers with secondary containment will be introduced, along with containment pallets to further improve safety.

Traffic control in the hazardous waste area will be improved using interlocking swivel barriers. Hazardous waste is temporarily stored at the West 40 Landfill in 40-foot containers and Quartex bags, which separate materials such as adhesives, aerosols, and batteries. Unknown waste items are stored separately and assessed with support from the local waste management provider.

The City coordinates annual removal and off-site disposal of hazardous materials through an independent contractor. In 2024, this was completed in partnership with Qikiqtaaluk Environmental to ensure regulatory compliance.

Estimated quantities of hazardous materials are summarized in Table 9, as per Schedule B of the City's Water License.

Table 9: Hazardous Waste Quantity Tracker 2024

Item	Description	Quantity
1	Removal, sealift and final disposal of 20' containers containing paint-related waste (incl. supply of new empty sea container)	1
2	Removal, sealift and final disposal of 20' containers containing used tires (incl. supply of new empty sea containers)	11
3	Removal, sealift and final disposal of 20' containers containing electronic waste (incl. supply of new empty sea containers)	4
4	Removal, sealift and final disposal of Quatrex bags containing used automotive batteries (incl. supply of new empty bags)	33
5	Removal, sealift and final disposal of black Quatrex bags containing cleaning products (incl. supply of new empty Quatrex bags)	2
6	Removal, sealift and final disposal of black Quatrex bags containing aerosol waste products (incl. supply of new empty Quatrex bags)	1
7	Removal, sealift and final disposal of bulk fluid totes containing oil	1
8	Removal, sealift and final disposal of bulk fluid totes containing mixed liquid waste	8
9	Removal, sealift and final disposal of pallets of calcium hypochlorite	200

10	Removal, sealift and final disposal of 1-lb pallet size bin of propane cylinders	1
11	Removal, sealift and final disposal of 100-lbs propane cylinders	4
12	Removal, sealift and final disposal of 5-gal pails household batteries	8
13	Supply and delivery of 20' sea containers	5
14	Absorbent/rags/filters totes	5
15	Waste Oil Tote	3
16	Unknown Content waste oil/coolant tote	1
17	Hand Sanitizer, containing flammable liquid	1
18	Removal, sealift and final disposal of pails of calcium hypochlorite (non-reusable)	1
19	Biomedical waste	0.5
20	Contaminated Soil	5

U. Update on the capacity of the landfill cell currently in use, including the installation timing calculation (inputs and result), including discussion on the required actions/schedule for design and installation of the next lined disposal area in the sequence.

As part of the 2024 site evaluation, the landfill's remaining effective waste disposal capacity within Area A has been estimated at 60,264 cubic meters, as of August 2024. This figure represents the airspace currently available for continued operations without requiring significant site modifications.

Also, Area B offers 29,786 more cubic meters of potential capacity, bringing the total available landfill airspace to approximately 90,050 cubic meters. However, utilization of Area B is subject to the removal of an existing on-site structure and is therefore considered contingent capacity.

It should be noted that the above estimates do not include any airspace located within the designated scrap metal storage area, as this section is excluded from current waste disposal planning considerations. Refer to the table below for the estimated landfill lifespan years remaining.

Table 10: Estimated landfill lifespan years remaining

Disposal Area	3-Year Rolling Average	2024 Average
Area A	2.5 years	1.8 years
Area A + B	4.0 years	2.9 years

Area A refers to the active area located at the top and eastern portion of the landfill site

Area B refers to the lower zone surrounding the Quonset structure and the access route leading to it.

Please refer to **Appendix G** for the site survey.

APPENDIX A – Dam Safety Inspection and Dam Safety Report

APPENDIX B – Laboratory and Field Sampling Results

APPENDIX C – Apex River Supplemental Pumping Report

APPENDIX D – General Spill Response Plan

APPENDIX E – Spill Reports

APPENDIX F – 2021-2023 Annual Report Comments

APPENDIX G – West 40 Landfill Survey