

Department of Community and Government Services

Emergency Measures Review 2021: Water Contamination Incident in Iqaluit

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List of Acronyms

The City	City of Iqaluit
CGS	Department of Community and Government Services
CPHO	Chief Public Health Officer
EMO	Emergency Management Officer
HEA	Department of Health
JTFN	Canadian Armed Forces' Joint Task Force North
MWTP	Mobile Water Treatment Plan
ROWPU	Reverse Osmosis Water Purification Unit
WTP	Water Treatment Plant

Executive Summary

On October 12, 2021, the Government of Nunavut's (GN) Department of Health (HEA) responded to the apparent petroleum hydrocarbon-based contamination of the City of Iqaluit's supply of treated drinking water by issuing to Iqaluit residents a Do Not Consume Advisory. Later that evening, the City [declared a local state of emergency](#) under the authority of *Cities, Towns and Villages Act*. The following day, the Department of Community and Government Services (CGS) invoked Section 11 of Nunavut's [Emergency Measures Act](#) to declare a territorial state of emergency in Iqaluit. A declaration under the *Act* is a legal mechanism that provides the responsible minister with additional powers to implement measures to address the emergency. The Deputy Minister of CGS was appointed as the Emergency Management Officer (EMO) authorized to assume full control and direction of the overall emergency response.

In the days and weeks that followed, CGS identified a series of emergency measures to respond to the drinking water issue in Iqaluit. CGS organized its emergency response measures based on the following five objectives:

- I. Address short-term drinking-water needs by providing bottled water.
- II. Produce treated water in the community to meet drinking water needs and reduce dependency on bottled water supply plans.
- III. Ensure residents have access to water by constructing a utilidor to bypass the Iqaluit water treatment plant to move from a Do Not Consume order to a Boil Water Advisory.
- IV. Identify specialized treatment and system flushing options.
- V. Maintain public confidence through intentional communications.

The development and implementation of the response plan was impacted by factors including COVID-19 public health directives, the onset of winter, and the need to ensure continuity in other municipal and territorial government service areas. Even though the nine weeks that followed were extremely difficult for all those involved, the community continued to function throughout. This was due in no small part to the combined efforts of CGS, HEA, the City of Iqaluit, and the Canadian Armed Forces, as well as the numerous contractors, stakeholders, and volunteers who contributed to the emergency response, not to mention the patience and resilience of Iqaluit residents. Given the scope and magnitude of its role in responding to the emergency and in keeping with best practices, CGS commissioned a third-party review to identify opportunities to improve future emergency responses. This review is limited in scope, focusing on CGS's response during the declaration, and as such it is distinct from the broader review of the emergency and response being commissioned by the Government of Nunavut's Department of Health (HEA).

In line with the above, CGS commissioned a third-party review of its response to the Iqaluit Water Emergency, with a particular emphasis on the various actions taken by CGS, challenges faced, successes, outcomes achieved, and lessons learned in relation to the five objectives listed above. This review was conducted in three phases, beginning with an in-depth review of relevant documents, followed by engagement with key stakeholders, and concluding with a qualitative analysis of the data collected during the first two phases. This report summarizes the results of this review, including a timeline of key events; the themes which emerged from engagements with key informants; and a summary of key actions and responses by emergency-response objective.

This review found that CGS was successful in developing an emergency-response plan that prioritized and mitigated various risks facing the City. However, differing assessments of the magnitude of the risks and hazards associated with the City's water treatment and distribution system posed a challenge to maintaining a collaborative intergovernmental response throughout the emergency. This differential assessment contributed to a lack of alignment between the measures being advanced by the City and CGS, and contributed to a lack of clarity regarding the respective roles and responsibilities within the joint emergency response. Yet, ultimately the five emergency response objectives pursued by CGS sought to complement the work being done by the City in an effort to implement a range of initiatives to mitigate risks to the public.

This report details the findings outlined above, in addition to summarizing the key lessons learned from the Iqaluit Water Emergency, including the following:

- It is important to establish roles and responsibilities and a shared risk-management framework—that is, a codified rationale and collaborative process for identifying, assessing, prioritizing, and mitigating risks—when formulating and pursuing emergency-response objectives.
- It is vital that the stakeholder group with ultimate jurisdiction over the emergency response feels secure in its leadership role, and comfortable requesting additional resources when appropriate.
- Timely and consistent inter-agency/public communications plans are critical to interagency coordination and maintaining the public's trust and confidence during an emergency.

Finally, this report offers the following recommendations to enhance responses to future incidents which may require collaboration between multiple levels of government:

1. Develop an updated Territorial Emergency Management Plan that includes a clearly defined division of responsibilities and codifies a collaborative, interagency decision-making process and risk-management framework. The shared risk-management framework should codify the rationale behind risk identification, assessment, prioritization, and mitigation measures to ensure a shared understanding not just of the magnitude of risks, but also of the relative importance of mitigating particular risks.
2. Amend territorial legislation such as the *Emergency Measures Act*, *Hamlets Act*, and *Cities, Towns and Villages Act* to provide clarity concerning the roles and responsibilities of the various levels of government during a state of emergency.
3. Hold annual or biannual emergency-response training sessions and exercises with all levels of government.
4. Develop a fully operational mobile water treatment plant (MWTP) for rapid deployment.
5. Provide onboarding material at the time of hiring with information on key responsibilities and duties pertinent to the legislated roles of each respective level of government.
6. Maintain a roster of communications staff that are fluent in Nunavut's official languages that could be called upon during an emergency response to enact a timely and consistent communications strategy.
7. Secure heated, waterproof, and/or water-resistant storage spaces in Iqaluit (and other strategic locations) to support future emergency responses.

1 Introduction

On October 12, 2021, the Government of Nunavut's (GN) Department of Health (HEA) issued a Do Not Consume Advisory for Iqaluit's supply of treated drinking water, citing the apparent contamination of the City of Iqaluit's (the City) water treatment plant with petroleum hydrocarbons. Later that evening, the City convened an emergency City Council meeting, where [a local state of emergency was declared](#). In addition, the City called on the territorial and federal governments to "fund a bypass of the affected Water Treatment Plant, all reclamation efforts to ensure a safe and adequate municipal water supply in Iqaluit, and to facilitate any and all temporary measures required in the interim." The following day, the Minister of Community and Government Services (CGS), Jeannie Ehaloak [declared a territorial state of emergency](#) in Iqaluit under Section 11 of Nunavut's [Emergency Measures Act](#) to facilitate CGS's emergency response.

Ultimately, the Do Not Consume Advisory was lifted on December 10, 2021. Though remediation efforts at the Iqaluit Water Treatment Plant (WTP) are ongoing at the time of writing, this effectively brought the first phase of the Iqaluit Water Emergency to an end. Despite the unprecedented nature of these events, the community continued to function throughout this period thanks to the combined efforts of CGS, HEA, the City, the Canadian Armed Forces, as well as the numerous contractors, stakeholders, and volunteers who contributed to the emergency response, not to mention the patience and resilience of Iqaluit residents. Given the scope and magnitude of its role in responding to the emergency and in keeping with best practices, CGS opted to commission a third-party review to identify opportunities to improve future emergency responses. It should be noted that this review is limited in scope, focusing on CGS's response during the declaration, and as such it is distinct from the broader review being commissioned by HEA.

In line with the above, CGS commissioned a third-party review of its emergency response. The third-party reviewers completed a thorough review and analysis of relevant documents, in addition to conducting interviews with those who led, or directly participated in, the emergency response, including employees from CGS, HEA, the City, various contractors, and members of the Canadian Armed Forces. This report summarizes the results of this review by highlighting the various actions taken, challenges faced, successes and outcomes achieved, and lessons learned by the various stakeholders who participated in the emergency response.

1.1 Scope and Context

This report is principally concerned with how CGS and related stakeholders responded to the 2021 Iqaluit Water Emergency, with a particular emphasis on understanding these actions in relation to the emergency-response objectives outlined below. For the purposes of this report, the Iqaluit Water Emergency is considered to have started on October 12, 2021, when the Do Not Consume Advisory was first issued, and ended on December 10, 2021, when the Do Not Consume Advisory was lifted. The bulk of the analysis presented in this report is concerned with the events which transpired during this period, though a number of important subsequent events are also included for context.

This report does not attempt to identify the historical causes of, or establish the factors which precipitated, the Iqaluit Water Emergency. Similarly, technical details regarding the contamination of the Iqaluit WTP and subsequent remediation efforts are also beyond the scope of this report. Additionally, it should be noted that this review is distinct from the broader review into the Iqaluit Water Emergency being commissioned by the Department of Health.

1.1.1 Emergency Measures Act and Declaration of a Territorial State of Emergency

Nunavut's [Emergency Measures Act](#) (the Act) provides the Minister of CGS with the power to declare a Territorial State of Emergency in all, or part of Nunavut. Under Section 12 of the Act, in order for the Minister to determine that an emergency exists, the Minister must be satisfied that the following conditions are met:

- (a) the situation or event requires immediate action to prevent or reduce serious harm to persons or substantial damage to property;
- (b) the resources ordinarily available to the Government of Nunavut;
 - (i) cannot be relied on without the risk of serious delay,
 - (ii) cannot be relied on without impairing the ability of the Government of Nunavut to prevent or respond to another emergency, or
 - (iii) would be insufficient to effectively address the situation or event;
- (c) declaring a state of emergency will prevent or reduce the serious harm to persons or substantial damage to property.

A declaration under the Act provides the Minister with the authority to take additional measures and actions not normally available to the government to prevent or respond to an emergency for the duration of the declaration. On October 13, 2021, following an assessment of the information available, CGS Minister Jeannie Ehaloak chose to [declare a territorial state of emergency in Iqaluit](#), the full text of which is excerpted below.

EMERGENCY MEASURES ACT

EXTENSION OF THE DECLARATION OF A STATE OF EMERGENCY IN THE CITY OF IQALUIT

WHEREAS the supply of drinking water in the City of Iqaluit is, or appears to be, contaminated and unsafe for human consumption;

WHEREAS this situation requires immediate action to prevent or reduce serious harm to persons;

WHEREAS the resources ordinarily available to the Government of Nunavut

- (a) cannot be relied on without impairing the ability of the Government of Nunavut to prevent or respond to another emergency, and*
- (b) would be insufficient to effectively address the situation;*

AND WHEREAS declaring a state of emergency will prevent or reduce the serious harm to persons;

The Minister, under section 11 of the Emergency Measures Act and every enabling power, declares a state of emergency in the City of Iqaluit effective immediately for a period of 14 days.

Dated October 13, 2021.

Hon. Jeannie Ehaloak

Minister of Community and Government Service

The declaration allowed the Minister to delegate authority for the coordination and implementation of emergency management programs prepared under the Act to the Government of Nunavut’s Emergency Management Officer (EMO). Per Section 14 of the Act, all persons, government institutions, municipal corporations, and organizations involved in the implementation of such programs are subject to the control and direction of the EMO. The Deputy Minister of CGS was appointed EMO and was therefore authorized to assume full control and direction of the overall emergency response under the provisions of the Act.

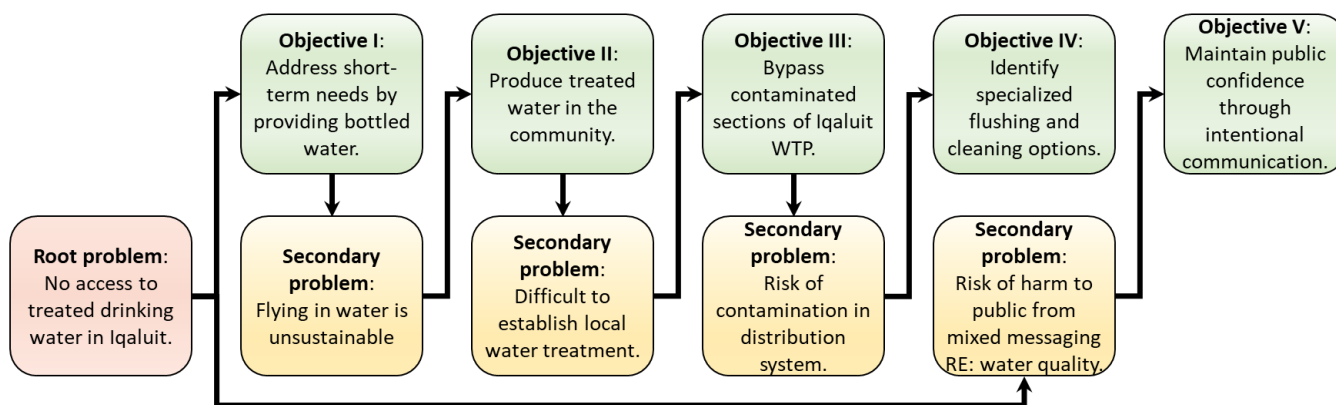
At the onset of the emergency, the extent of the contamination of the City’s water infrastructure, and the underlying cause of the contamination, was unknown. To streamline the investigation and remediation work, the EMO consulted with City officials and recommended that a unified command model be established. Under a unified command model, CGS and the City might have been better able to streamline the assignment and prioritization of equipment, personnel, and human resources under a common organizational structure. Ultimately, however, as the City had an existing responsibility for, and understanding of the operation and design of, the Iqaluit WTP and associated infrastructure, it was agreed that the City would maintain responsibility for managing the operation and repair of its water treatment and distribution system, while CGS dedicated its resources toward supplementing the City’s capacity to respond to the contamination of the Iqaluit WTP and maintain services to residents.

It was in this context that CGS established the five emergency-response objectives described in the following section. CGS designed these objectives with the aim of pursuing a collaborative joint response with the City in which CGS would offer complementary technical support and pursue risk-mitigation measures to allow the City to focus its efforts on remediation efforts at the Iqaluit WTP.

1.1.2 Emergency Response Objectives

As noted above, this report is principally concerned with assessing CGS’s emergency response in relation to the emergency-response objectives established during the Iqaluit Water Emergency. For this reason, it is important to establish and contextualize these objectives in relation to the particular challenges they were designed to address. Throughout this report, these objectives are presented chronologically – that is, in the order in which they were established to address various problems and risks. The process through which these objectives were established, and the challenges each objective was designed to address, are briefly described below and illustrated by Figure 1.

Figure 1: Overview of how CGS’s emergency-response objectives emerged in response to the various problems and risks encountered during the Iqaluit Water Emergency.



1.1.2.1 Objective I: Address Short-Term Needs by Providing Bottled Water

When the Do Not Consume Advisory was issued on October 12, 2021, Iqaluit residents were effectively cut off from their only source of treated drinking water. To address the various harm-related risks associated with this problem, CGS's foremost emergency-response objective was to ensure that Iqaluit residents had access to safe drinking water. To that end, CGS took immediate action to ensure the community had access to drinking water. Achieving this objective required CGS to establish a temporary supply chain to facilitate the procurement and shipping of bottled water, which was then distributed to Iqaluit residents in collaboration with the City.

1.1.2.2 Objective II: Produce Treated Water to Reduce Dependency on Bottled Water

Given the significant costs associated with, and logistical challenges created by, the task of chartering in tens of thousands of litres of water on a daily basis, CGS identified the need for a more sustainable, medium-term solution to bridge the gap between Objective I on the one hand, and the lifting of the Do Not Consume Advisory on the other. Accordingly, CGS's second objective was to produce treated water in the community. To that end, CGS set about siting, commissioning, and operating a mobile water treatment plant.

1.1.2.3 Objective III: Bypass the Contaminated Sections of the Iqaluit Water Treatment Plant

The uncertainty around when the Iqaluit WTP could be brought back online, and the difficulties associated with producing treated water locally, led CGS to consider whether contaminated sections of the treatment plant could be bypassed. Accordingly, CGS's third objective was to facilitate the installation of a "bypass" utilidor at the Iqaluit WTP, thereby bypassing the contamination and upgrading the drinking water from "Do Not Consume" to "Boil Water Advisory" status. To that end, the CGS secured an engineering firm to produce a bypass design and detailed parts list for the City's consideration.

1.1.2.4 Objective IV: Identify Specialized Flushing and Cleaning Options

As the City continued with remediation work at the Iqaluit WTP and CGS advanced design of the bypass, CGS's risk assessment indicated that the bypass could result in the reintroduction and circulation of contaminants in the distribution system and the depletion of the total water available before spring. To mitigate this risk, CGS's fourth objective was to identify specialized treatment, cleaning, and system flushing options for piped services in Iqaluit. To that end, CGS began work on water tank cleaning and flushing protocols that would allow different zones in the system to be isolated, flushed, and tested.

1.1.2.5 Objective V: Maintain Public Confidence Through Intentional Communications

Consistency in the timing and presentation of information to the public from lead agencies is important throughout an emergency. To reduce the risk of public harm due to inconsistent, incomplete or inaccurate information, CGS in collaboration with the City and CPHO identified a fifth response objective. To that end, a communications specialist from HEA was assigned to the City to facilitate daily update meetings and assist in the development of information resources, public service announcements, and a communications plan.

1.1.3 Work Breakdown Structure by Objective

To advance CGS's emergency response objectives, the EMO assigned staff to lead and implement each respective objective (see Table 1). These assignments were managed in addition to existing responsibilities within CGS. Due to capacity limitations within CGS, some departmental staff were assigned multiple roles within the overall response plan (e.g., leading one objective while providing a supporting role in another functional area).

Table 1: Work breakdown, structure, and responsibility assignments by objective.

Objective	Planning	Logistics	Operations	Finance
#1: Address short term needs by providing bottled water	CGS Planning and Logistics	CGS Planning and Logistics	CGS Emergency Management with City of Iqaluit	CGS Financial Services
#2: Produce treated water in the community (MWTP)	CGS Community Infrastructure Division	CGS Emergency Management	CGS Community Support Division	CGS Financial Services
#2: Produce treated water in the community (LENTUS)	CGS Nunavut Emergency Management	JTFN	JTFN with Nunavut Emergency Management and City of Iqaluit	JTFN
#3: Bypass contaminated sections of Iqaluit Water Treatment Plant	CGS Infrastructure Branch	CGS Contractor Support	City of Iqaluit	CGS Financial Services
#4: Identify specialized flushing and cleaning options for water distribution system	CGS Technical Services	Contractor Support	City of Iqaluit	CGS Financial Services
#5: Maintain public confidence through intentional communication	CGS Communications	Department of Health	Department of Health/City of Iqaluit	CGS Financial Services

1.2 Review Methodology

The review underlying this report was conducted in three phases: (1) document review; (2) key informant engagement; and (3) qualitative analysis. The methods and activities undertaken during each of these phases are briefly described below.

1.2.1 Phase 1: Document Review

In the first phase of this review, background documentation was reviewed to identify key informants as well as to inform the design of data-generation tools. All documents reviewed during this phase were categorized and organized according to a variety of characteristics, including the document date, type, and source; a preliminary assessment of its relevance in relation to the five objectives; and any stakeholder groups or individuals mentioned in, or party to, the document and/or the events described therein.

In addition to making note of the characteristics listed above, notes were prepared containing preliminary analysis and questions concerning important events, key informants, emerging themes, and apparent gaps in understanding the events that unfolded over the course of the Iqaluit Water Emergency. This process also led to the identification of several key informants, each of whom would later be asked to participate in the second phase of this review. These preliminary findings also informed the design of the interview guide developed for engaging with key informants during phase two.

1.2.2 Phase 2: Key Informant Engagement

The second phase of this review focused on engaging with the key informants identified through the document review. During this phase, a total of 35 key informants across 11 stakeholder groups—including three GN departments, the City, the Canadian Armed Forces, the Nunavut Water Board, and five contractors—were invited to participate in an interview. Introductory emails were sent to prospective interviewees (a) explaining that CGS had commissioned a review; (b) providing an overview of the review and its objectives; and (c) inviting them to participate in an interview within a specified date range while offering to accommodate those unavailable during this period. Despite significant efforts, not all key informants were interviewed, as some declined to participate while others did not respond to numerous attempts to establish contact (see Table 2).

Table 2: The number of informants invited to participate in this review from each stakeholder group, along with the eventual number of participants from each group.

Stakeholder Group	Informants Contacted	Participants
Government of Nunavut Department of Community and Government Services	10	7
Government of Nunavut Department of Health	2	2
Government of Nunavut Department of Environment	1	0
City of Iqaluit	13	5
Contractors	5	3
Canadian Armed Forces Joint Task Force North	3	1
Nunavut Water Board	1	1

A total of 19 key informants across 8 stakeholder groups participated in this review. 14 of these key informants participated in an interview while the other 5 provided written responses to the provided questions. Interviews were conducted online, over Microsoft Teams, and ranged in length from 30 to 60 minutes. To assist participants in preparing for their respective interviews, a copy of the interview guide was provided (see Appendix A) at least one day in advance of each interview.

1.2.3 Phase 3: Data Analysis

In phase three, the data generated during the first two phases were analyzed to (a) inform the development of an emergency response timeline; (b) identify recurring interview themes; (c) prepare a summary of actions and responses by objective; and (d) identify key challenges, successes, and lessons learned. To that end, notes generated during the interviews and document review were coded and analyzed with a view towards synthesizing the data generated over the course of this review.

1.3 Structure of this Report

The remainder of this report is structured as follows:

Section 2: Review Findings, details the key findings to emerge from this review, including (a) a timeline of key milestones in the emergency response; (b) a summary of themes to emerge through engaging with key informants; and (c) a summary of actions and responses by objectives and analysis of the key challenges for each objective.

Section 3: Conclusion, builds on the findings detailed in Section 2 by way of a synthesis and discussion concerning lessons learned during the Iqaluit Water Emergency. In addition, a number of recommendations are offered for CGS's consideration.

Finally, Appendix A includes the interview guides used to conduct interviews with key informants.

2 Review Findings

This section details the findings to emerge from this third-party review of CGS’s response to the Iqaluit Water Emergency. This section describes the timeline of emergency response milestones, followed by a discussion of the themes to emerge from engagements with key informants, and concludes with a detailed overview of actions and responses by objective. It is important to note, for each of these sections, the relevant functions and roles played by each of the key stakeholder groups in the emergency response, as outlined by Table 3.

Table 3: Key stakeholder groups involved in the emergency response.

Stakeholder Group	Relevant Function(s)	Primary Role(s) in Response
City of Iqaluit (the City)	<ul style="list-style-type: none"> – Owner and operator of Iqaluit water treatment plant and distribution infrastructure – Municipal Water Licence Holder 	<ul style="list-style-type: none"> – Coordinating the local state of emergency response. – Remediating the contamination of the Iqaluit WTP. – Maintaining supply of drinking water and restoring treated drinking water service for Iqaluit residents.
GN Department of Community and Government Services (CGS)	<ul style="list-style-type: none"> – Responsible for emergency management in the territory – Responsible for local government services 	<ul style="list-style-type: none"> – Coordinating the territorial state of emergency response – Mitigating risks facing the City to prevent or reduce serious harm to Iqaluit residents. – Providing the City with technical and financial support to facilitate remediation efforts at the Iqaluit water treatment plant.
GN Department of Health (HEA) and Chief Public Health Officer (CPHO)	<ul style="list-style-type: none"> – Responsible for regulating the provision of treated drinking water in Iqaluit 	<ul style="list-style-type: none"> – Providing regulatory oversight over drinking water quality and remediation efforts at the Iqaluit WTP. – Providing support and oversight for communications regarding water quality. – Determining when to lift the Do Not Consume advisory.

2.1 Timeline of Emergency Response Milestones

This section offers a brief outline of key milestones in the response to the Iqaluit Water Emergency. These milestones, briefly outlined below, are discussed and analyzed in much greater detail in section 2.3. It is also worth noting that, for the purposes of this report, the Iqaluit Water Emergency is considered to have started on October 12, 2021, when the Do Not Consume Advisory was first issued, and ended on December 10, 2021, when the Do Not Consume Advisory was lifted. Accordingly, the below timeline covers the same temporal period.

On **October 12, 2021**, HEA issued a Do Not Consume Advisory for Iqaluit, citing the apparent hydrocarbon-based contamination of the City’s supply of treated drinking water. Accordingly, the City convened an emergency City Council meeting and, with several CGS staff in attendance, [declared a Local State of Emergency in Iqaluit](#). The City established truck-fill stations at the Sylvia Grinnell River and subsequently other stations within the City itself. As water from the Sylvia Grinnell River needed to be boiled before it could be considered potable, CGS offered to fly in bottled water. Despite initially declining CGS’s offer, the City later agreed to pursue this approach and to distribute bottled water to Iqaluit residents, while CGS agreed to manage distribution to GN offices and institutions. Additionally, the City set about investigating the causes of the contamination at the Iqaluit Water Treatment Plant (WTP).

On **October 13**, CGS Minister Jeannie Ehaloak [declared a Territorial State of Emergency in Iqaluit](#) and appointed the Deputy Minister of Community and Government Services as Emergency Management Officer. CGS also

activated **Objective I** of its emergency-management plan, **address short-term drinking water needs by providing bottled water**, which included procuring bottled water; chartering flights to transport the water; securing a contractor to facilitate ground logistics; and arranging for heated storage space in Iqaluit.

On **October 14**, the City and its contactors started the process of pumping contaminated water out of the Iqaluit WTP, in addition to continuing to investigate the root cause of the contamination. This work continued more or less uninterrupted in the days that followed.

On **October 15**, the City opened two distribution sites to distribute bottled water to Iqaluit residents. The distribution of bottled water, which continued for the duration of the Iqaluit Water Emergency, proved to be a significant logistical challenge. In light of this challenge, and the enormous cost involved, CGS activated **Objective II** of its emergency-management plan, **produce treated water in the community to meet drinking water needs and reduce dependency on bottled water supply plans**, by beginning commissioning work on a newly built mobile water treatment plant (MWTP) that (coincidentally) arrived in the days prior to the Iqaluit Water Emergency..

On **October 19**, the City **extended the Local State of Emergency in Iqaluit**.

On **October 20**:

CGS staff, having encountered problems bringing the new MWTP online, concluded it could not be brought online quickly and submitted a formal Request for Assistance (RFA) to Public Safety Canada, requesting the deployment of federal water treatment assets and personnel.

In light of the difficulties associated with producing treated water in the community, CGS activated **Objective III** of its emergency-management plan, **ensure residents have access to water by constructing a utilidor to bypass the Iqaluit water treatment plant to move from a Do Not Consume order to a Boil Water Advisory**. To that end, CGS established a task force, met with the City to discuss the bypass, and secured the services of a contractor to produce a bypass design and parts list. CGS and its contractor requested access to the Iqaluit WTP to assess design options for a bypass of contaminated sections of the Iqaluit WTP. The City were not able to accommodate this request but then at the request of the EMO agreed to allow access. Ultimately, CGS and its contractors were allowed limited access to the facility on October 21.

In light of the risk that a bypass could introduce contaminants to the distribution system, CGS activated **Objective IV** of its emergency-management plan, **identify specialized treatment and system flushing options**. To that end, CGS Technical Services contacted a contractor to request a proposal for engineering services relating to a conceptual design to remove hydrocarbons from the water supply, and an engineering input for flushing hydrocarbons from the distribution system.

CGS activated **Objective V** in collaboration with the CPHO and the City to **maintain public confidence through intentional communication** to reduce the risk of harm to the public from mixed messaging concerning water quality in general, and interpretation of water test results in particular. To facilitate this, HEA assigned a communications specialist to the City. This communications specialist would sit in on meetings with the City for the remainder of the Iqaluit Water Emergency to ensure better alignment of the content and timing of territorial and municipal messaging.

Canadian Coast Guard-Louis St. Laurent was located in the area and offered to provide up to 120,000L of treated water to the City and up to 25,000L per day while on site. The City declined this offer citing limited storage capacity and operational challenges associated with filling trucks.

On **October 21**, the Public Safety Canada responded to CGS's October 20 RFA by dispatching the Canadian Armed Forces' Joint Task Force North (JTFN) to Iqaluit with its reverse-osmosis water purification unit (ROWPU) for what became known as Operation LENTUS. JTFN, with assistance from CGS, set about identifying potential sites for the deployment of its ROWPU. Additionally, at request of the EMO, the City granted CGS and its

contractors limited access to portions of the Iqaluit WTP to inform the design of the bypass. This limitation impacted the design of the bypass.

On **October 24**, City staff and contractors discovered a long-unused, underground fuel storage tank in the 'void' situated between the Iqaluit WTP and the exposed bedrock beneath it. This fuel storage tank, which was identified as the probable source of the contamination, was subsequently removed by the City and its contractors. The City and its contractors pumped out the rest of the contaminated water, and installed an online water-monitoring system capable of detecting hydrocarbon-based contaminants in the water supply. With City tests indicating that the level of contamination had decreased, the City asked the Chief Public Health Officer (CPHO) to consider lifting the Do Not Consume advisory. The CHPO responded to this request on October 27.

On **October 25**, the 2021 Nunavut general election was held. The incumbent CGS Minister responsible for the territorial *Emergency Measures Act* and declaration, Jeannie Ehaloak, was not re-elected to her Cambridge Bay seat. As such, despite having declared the Territorial State of Emergency, Jeannie Ehaloak would soon no longer be responsible for overseeing CGS's emergency response.

On **October 26**, the City [extended the Local State of Emergency in Iqaluit](#), and CGS Minister Jeanie Ehaloak [extended the Territorial State of Emergency in Iqaluit](#).

On **October 27**, the CPHO provided the City with a list of eight criteria, including the installation of a system for bypassing the Iqaluit WTP, that must be addressed before the Do Not Consume Advisory could be lifted.

On **October 28**, after several days of debate with CGS concerning where best to establish JTFN's water-treatment operation, the City submitted a request to the Nunavut Water Board to amend the City's water licence to permit the temporary operation of a ROWPU at the Sylvia Grinnell River. This request was approved two days later.

On **November 1**, Operation LENTUS was underway as JTFN started setting up its ROWPU at the Sylvia Grinnell River. The following day, however, Operation LENTUS had to be temporarily suspended due to high winds, which damaged JTFN equipment.

On **November 2**, a contractor delivered to CGS the first of three technical memorandums concerning a conceptual design for flushing hydrocarbons from the Iqaluit water distribution system. Additionally, the City [extended the Local State of Emergency in Iqaluit](#).

On **November 4**, pursuant to the *Nunavut Elections Act*, returns from the 2021 Territorial Election were filed, identifying members of the legislative assembly. Additionally, the CGS technical team met with the City to discuss a WTP bypass design concept.

On **November 6**, Operation LENTUS started producing treated water at the Sylvia Grinnell River. The following day, the City's water trucks started transporting treated water produced by Operation LENTUS from the Sylvia Grinnell River to stainless-steel potable water storage tanks, purchased by CGS, located at several secondary distribution sites in Iqaluit.

On **November 8**, CGS and its contractors delivered to the City a completed bypass design and a detailed list of the parts required to install it. The City maintained that the bypass was unnecessary and that the design proposed by CGS presented a risk of introducing naturally occurring sediment into the distribution system. Accordingly, the City declined to proceed with the installation and subsequently commissioned its own bypass design.

On **November 9**, the City [extended the Local State of Emergency in Iqaluit](#), and CGS Minister Jeannie Ehaloak [extended the Territorial State of Emergency in Iqaluit](#).

On **November 11**, David Joanasié, Member of the Legislative Assembly for South Baffin, was appointed Minister of Community and Government Services and Minister Responsible for the *Emergency Measures Act*.

On **November 15**, the City submitted its bypass design to the CPHO, whose regulatory approval would be required to lift the Do Not Consume Advisory.

On **November 16**, CGS presented the City with a detailed technical memorandum, prepared by an engineering firm, describing a process to systematically flush the piped drinking-water distribution system to remove hydrocarbon-based contaminants and minimize wastage of source water. The City declined to implement the flushing protocol at that time. Additionally, the City [extended the Local State of Emergency in Iqaluit](#).

On **November 18**, CGS abandoned efforts to bring its MWTP online as inconsistencies between the design and construction of the MWTP proved too numerous to overcome without on-site support from the manufacturer. CGS inquired about the condition of the high output reverse-osmosis unit provided to the City in 2019. The City declined to commission this unit, citing high commissioning and operating costs. Additionally, after a technical review by a third-party contractor, the CPHO completed its review and the City was provided with the CPHO's feedback. It is not clear whether the CPHO's eventual approval of the bypass design was relayed to the City until it was confirmed by the CPHO and CGS on November 24.

On **November 19**, following the selection of Cabinet, David Joanasie, Member of the Legislative Assembly representing South Baffin, was appointed Minister of CGS and Minister responsible for the *Emergency Measures Act*.

On **November 23**, a winter storm forced JTFN to suspend Operation LENTUS for a second time. To prevent further damage to its equipment, JTFN shut down its ROWPU unit and moved its operations to a forward operating facility at the Iqaluit airport. Additionally, the City [extended the Local State of Emergency in Iqaluit](#), and CGS Minister David Joanasie [extended the Territorial State of Emergency in Iqaluit](#).

On **November 24**, in a meeting with CGS, the City indicated that it had not yet received approval from the CPHO for its bypass design. CGS followed up with the office of the CPHO who confirmed the City's bypass design had been approved and the City was clear to proceed.

On **November 29**, the City confirmed that construction of a bypass at the Iqaluit WTP was underway. Due to contractor and supply chain issues, however, the bypass would not be completed until January 2022.

On **November 30**, the City [extended the Local State of Emergency in Iqaluit](#).

On **December 2**, Operation LENTUS was once again distributing treated water through the City's water trucks and secondary distribution sites from JTFN's new, indoor base of operations at the Iqaluit airport.

On **December 7**, the City [extended the Local State of Emergency in Iqaluit](#), and CGS Minister David Joanasie [extended the Territorial State of Emergency in Iqaluit](#).

On **December 10**, the CPHO, having been satisfied that the City adequately addressed the seven items identified on October 27, lifted the Do Not Consume Advisory on December 10. Though a second contamination event occurred in January 2022, the implementation of the system bypass meant that this led to a Boil Water Advisory rather than a second Do Not Consume Advisory. At the time of writing, remediation efforts at the Iqaluit WTP are ongoing with the City providing regular updates on its progress and workplan to the CPHO.

2.2 Interview Themes

This section provides an overview of the themes to emerge over the course of engagement with key informants. It is important to note that these themes are drawn from interviews and written responses provided by individuals who participated in the emergency response. As such, these themes should be considered an integrated set of individual perspectives on, and experiences during, the Iqaluit Water Emergency. These themes offer key insights that are relevant to improving future emergency responses.

In total, 3 overarching themes and 11 subthemes emerged from the analysis of data collected from interviews with, and written responses from, key informants from the GN (CGS and HEA), the City of Iqaluit, Canadian Armed Forces, Nunavut Water Board, and contractors. These themes and subthemes characterize key elements of the emergency response across all stakeholders, as well as associated organizational and operational challenges and areas for improvement. In the sections that follow, a description of each overarching theme is provided as well as a summary of 'what we heard' from each of the relevant stakeholder groups. An overview of the themes and subthemes is provided below:

- **Theme 1: Need for Defined Roles & Responsibilities and Shared Risk Management Framework**
 - *Need for Clearly Defined Roles and Responsibilities*
 - *Need for a Shared Risk Management Framework*
 - *Emergency Preparedness Planning*

- **Theme 2: Need for Streamlined Coordination / Communications**
 - *Coordination / Communication Between CGS and the City*
 - *Coordination with Contractors*
 - *Communication with the Public*

- **Theme 3: Logistical Challenges and Response Barriers (downstream issues associated with the preceding two themes)**
 - *Water Storage / Delivery Challenges*
 - *Impact of COVID-19 / Fatigue*
 - *Weather Challenges*
 - *Site Selection / Approvals*
 - *2021 Nunavut General Election; CGS Minister Changeover*

2.2.1 Need for Defined Roles & Responsibilities and Shared Risk Management Framework

A common thread among all stakeholders was the need for clearly defined roles and responsibilities in advance of, and during, an emergency situation. The need to establish clearly defined roles and responsibilities at the onset of an emergency was highlighted by informants from both the GN and the City, several of whom expressed confusion surrounding jurisdictional accountability. Some confusion around the lines of municipal and territorial responsibility were experienced by staff from both CGS and the City, which led to uncertainty about which stakeholders should lead certain response actions. Furthermore, the lack of clarity of responsibility may have led to some degree of duplication of effort or missed opportunities for action as some stakeholders felt uncertain about their obligations in relation to the *Emergency Measures Act* and/or had differing interpretations of the level of risk and appropriate response. It was suggested that more clearly delineated roles and responsibilities be incorporated into future emergency preparedness planning, which would outline separate roles and responsibilities for CGS, HEA, and municipalities. Such planning could also establish the appropriate interdepartmental and intergovernmental reporting structure, risk assessment criteria, and operating procedures application to various emergency event scenarios.

Need for Clearly Defined Roles and Responsibilities

The working relationship between the City and CGS was strained during the emergency response. The City may have perceived CGS as acting in the function of a regulator, whereas CGS saw itself as providing complementary technical support and risk mitigation to free up the City to focus on remediation efforts at the Iqaluit WTP. It may have been beneficial at the start of the emergency to clarify the two different roles that GN departments were playing, including (a) regulatory function via HEA and (b) a function of providing complementary technical support, risk mitigation, and resources via CGS. A more clearly defined division of responsibilities would also have been helpful.

Roles and responsibilities could perhaps have been more clearly defined in the declaration of the Territorial State of Emergency. There was a need to clearly identify the stakeholder that was ultimately accountable for the emergency response across different levels of government. In the future, there is a need for greater clarity with respect to *Emergency Measures Act* in terms who is in charge of what during an emergency. While it is understood that CGS's aim in such circumstances is to oversee the response, and to supplement the capacity of the work being undertaken by municipal governments, there should be a mechanism to formalize this role at the start of an emergency to ensure that everyone is on the same page with respect to the roles and responsibilities of each level of government. Stakeholders noted that CGS could have assumed control over the planning and oversight of remediation efforts at the Iqaluit WTP under the direction of the EMO; however, CGS opted to pursue complementary measures in support of the City's response. Nonetheless, staff from the City may have at times been unclear as to whether CGS sought to support the City's response or take on a more prescriptive role. As such, stakeholders have suggested that such perceptions may have led the City to adopt a more guarded approach to collaboration.

Need for a Shared Risk Management Framework

Accounts from stakeholders point to the need for a shared risk-management framework in which all those involved in an emergency response adopt a shared understanding of how risks are identified; how to assess the relative magnitude of these risks; and how risk-mitigation measures are identified prioritized, and implemented. Throughout the Iqaluit Water Emergency, GN (CGS and HEA) and City staff had differing assessments of the magnitude of risk involved in various aspects of the response. This was particularly evident with how the City's assessment of the extent of the remediation work required at, and the risk of re-contamination of, the Iqaluit WTP differed from that of CGS and HEA. These differing assessments drove a divergence in priorities. CGS and HEA staff considered the risk of recontamination sufficiently high to prioritize the installation of a bypass and implementation of a flushing program. From the perspective of City staff, for whom the risk of re-contamination was assessed to be lower, these initiatives were perceived as lower priorities as compared to remediation efforts at the Iqaluit WTP. Under a shared risk-management framework, which would codify a rationale and collaborative process for risk assessment and mitigation measures, it is possible that this divergence in priorities might not have occurred.

Emergency Preparedness Planning

There is a need for more robust emergency response planning which would support stakeholders in terms of understanding the operations and the structure of the response team. Informants suggested that interdepartmental and intergovernmental emergency-response exercises would be helpful in preparing for future emergencies. At various points, stakeholders from all levels of government were involved in the response, and there should be frequent exercises that reflects this sort of collaboration across the territory. CGS currently funds Community Emergency Response Preparedness (CERP) training that is administered by the Municipal Training Organization (MTO). Training was recently provided (at the time of writing) to the City of Iqaluit from February 6th to 10th 2023. It was suggested that the COVID-19 pandemic response provides an effective model for a collaboration involving GN departments, municipalities, and Inuit organizations. Additionally, it was noted that the City is required by the Nunavut Water Board to plan for water emergencies, including designating an alternative water source.

2.2.2 Need for Streamlined Coordination / Communication

Another common theme that emerged through the engagement was the need for streamlined coordination and communication amongst all stakeholders. This theme is intertwined with the previous theme of the *Need for Defined Roles & Responsibilities and a Shared Risk Management Framework*, as establishing clearly defined roles and responsibilities and a clear set of criteria for assessing risk would have allowed for more straightforward channels of communication within the GN and between GN departments and the City. More streamlined coordination efforts would be supported by more clearly delineated communication channels. Stakeholders spoke about missing communications materials or misinterpretation of information, the need for frequent update meetings with all stakeholders present, and other inefficiencies to a joint response which at times could be attributed to a lack of coordination. Further, it appeared the coordination challenges between the various stakeholders may have been a barrier to effective public communications.

Several informants attributed delays in completing tasks to a lack of information sharing and, to some extent, divergent priorities between CGS and the City. As noted above, this divergence in priorities appears to have been driven by differing assessments of the risks involved. However, informants from both CGS and the City reported positive experiences working with their respective contractors, particularly given the difficult circumstances noted above. Similar issues impacted JTFN, which delayed the activation of Operation LENTUS while CGS and the City reached a consensus concerning where best to situate the ROWPU.

Coordination / Communication Between CGS and the City

Stakeholders generally reported that information sharing between CGS and the City was not particularly fluid. Regular meetings were held throughout the Iqaluit Water Emergency, but some informants expressed that meeting participation could have been more consistent, particularly early in the response. Additionally, though CGS's emergency-response objectives were specifically designed to support and complement the City's emergency response, stakeholders from the City may have prioritized the objectives differently. These differing views may have been partially rooted in differing risk assessments, and likely contributed to ongoing communication and coordination challenges.

Coordination with Contractors

GN informants indicated that there was a clear collective goal across government and contracted resources to identify the source of the problem and address it. Contractors were organized through Nunavut Emergency Management, making it simple for actioning items. As such, specific tasks were given to each of the contractors that were involved in developing various solutions for water treatment and remediation, allowing them to efficiently focus their energies. Most stakeholders indicated that the allocation of responsibilities seemed to work well and that not many issues reportedly arose with contracted resources, though some contractors were more responsive than others. Indeed, there were agile responses from different contractors to get bottled water in place and identify more robust solutions. Contractors were also able to source necessary equipment and support inventory management.

Stakeholders from the City indicated that the City worked very effectively with its contractors to rapidly mobilize personnel, equipment, and water quality experts. Contracted water quality experts were on site within a few days of the request and they were viewed as immeasurably helpful to the response. This allowed the City to assess the problem at hand, understand what needed to be completed, and action a fulsome response.

Communication with the Public

According to stakeholders, the timeliness and quality of public communications were not ideal, which may have contributed anxiety in the community regarding water quality. Throughout the entire response there were challenges to the provision of regular and consistent messaging, though communication improved over time. Getting information out to the public was inhibited, in part, due to some of the barriers to information sharing between stakeholders involved in the response, addressed above. There were also challenges in meeting trilingual of communication requirements. A clear protocol for public communications standards and approvals, pertaining to a collaborative response across multiple levels of government, may be needed in the future to avoid inconsistent communication.

2.2.3 Logistical Challenges and Response Barriers (downstream issues associated with the preceding two themes)

The theme of logistical challenges and response barriers was also prominent given the unique nature of an emergency situation in the North during winter. This theme is also interconnected with the above two themes given that 1) the lack of clearly defined roles and responsibilities and, 2) the need for a streamlined approach to coordination between CGS and the City may have contributed to delays in procurement, as well as in mobilizing Canadian Armed Forces and contractors.

Moreover, the geographic and weather-related challenges of the Iqaluit winter contributed to the water and equipment storage, delivery, and procurement difficulties for all stakeholders. The City had to contend with a lack of heated storage spaces for water and the icy road conditions for water transportation and delivery, while CGS was working to procure bottled water during a time when COVID-19 had severely impacted the air transportation industry and supply chains in general. Winter weather also contributed to CGS and City contractors' struggles to find a suitable water collection point and to maintain equipment without it freezing.

Water Storage / Delivery Challenges

For the response, there was a need for key assets and specialized equipment that are less accessible in the North, such as heated, flexible storage space to store water so that it would not freeze (it was noted that CGS should consider procuring such a heated space going forward). Further, the MWTP recently procured by CGS is still not operational. This MWTP should be brought online as soon as possible so that it can be of use in future emergency responses. The ability to offload and store freight was another major difficulty during the response. Transportation and storage space needed to be coordinated to get water containers to residents to take home. As such, one of the main challenges in the response was getting water directly to residents. This challenge was exacerbated by disagreements between the City and CGS regarding the appropriate siting of the MWTP, where water trucks could be loaded safely.

Impact of COVID-19 / Fatigue

Though Iqaluit residents had access to clean drinking water and the community continued to function throughout the emergency, supply chain issues as a result of the COVID-19 pandemic were an obstacle to navigate. Pandemic-related supply chain issues posed a challenge in accessing and shipping materials to Iqaluit. Airline cargo staff were often off because of infections, which limited the capacity to ship cargo. As COVID-related travel restrictions and vaccine mandates remained in place, moreover, the pool of contractors who could be flown in was limited further. Additionally, this made it difficult to procure equipment and parts. As a focal example, CGS's MWTP was unable to be commissioned on short notice. CGS was unable to have staff trained for the equipment, in part because of the pandemic. The pandemic also made it difficult to access resources to support commissioning at the time of the water emergency.

Stakeholders from CGS, the City, and Nunavut Water Board reported working long hours throughout the Iqaluit Water Emergency, resulting in significant fatigue. Fatigue and turnover were particularly acute challenges for water distribution in the community. Staff fatigue was exacerbated by dealing with the ongoing pandemic response simultaneously.

Weather Challenges

Weather challenges significantly affected Operation LENTUS. Sylvia Grinnell River had frozen over within two weeks, as such there were significant technical issues in setting up the ROWPU, which cannot handle frozen water. Two severe windstorms disrupted water-treatment operations and caused damage to equipment, and efforts were taken to safeguard equipment against additional damage. At one point there was a need for JTFN to relocate to a forward operating facility at the Iqaluit airport to safeguard equipment from the elements. It was then necessary to truck water from the river to the forward operating facility, which created additional logistical challenges.

Winter weather also exacerbated supply chain challenges. For Iqaluit, and other remote communities in the North resourcing is a huge challenge and when winter sets in, resources become even more difficult to procure. The

response involved dealing with skeleton crews who were working long hours to address the issue. These circumstances created bottlenecks when waiting for parts and sourcing materials from the south.

Site Selection / Approvals

Coordination and communication challenges between CGS and the City impacted site selection for water treatment operations. Permission from the City was required regarding the land use agreement, water use license, and other environment considerations. Permission and lease of the site were also required to draw water. Five sites were considered for the ROWPU. At various stages in this process, there were delays in determining which sites to use, which appeared to stem from a disagreement between CGS and the City.

2021 Nunavut General Election, CGS Minister Changeover

As the incumbent CGS Minister, Jeannie Ehaloak, was not re-elected during the Nunavut General Election that was held on October 25, 2021, CGS staff had to navigate the various administrative challenges associated with a ministerial transition in the midst of the Iqaluit Water Emergency.

2.3 Actions and Responses by Objective

This section offers a detailed summary of the actions and responses of CGS and related stakeholders in relation to each of the emergency-response objectives. This section was informed by a review of relevant documents and engagement with key informants. Table 4 summarizes the costs attributable to each emergency-response objective.

Table 4: Total costs incurred by CGS in relation to each of the emergency response objectives.

Objective	Cost
Objective I: Bottled Water	\$6,967,998.80
Objective II: Mobile Water Treatment Plant	\$804,001.82
Objective II: Operation LENTUS	\$148,803.77
Objectives III & IV: Bypass and Flushing	\$774,135.49
Objective V: Communications	\$0.00
Total	\$8,694,939.88

2.3.1 Objective I: Address Short-Term Needs by Providing Bottled Water

Table 5: Total costs incurred by CGS in relation to Objective I.

Objective	Cost
Objective I: Bottled Water	\$6,967,998.80

Key Actions

When the Do Not Consume Advisory was issued by HEA on October 12, 2021, Iqaluit residents were effectively cut off from their only source of treated drinking water. Though the City dispatched its water trucks to the Sylvia Grinnell River, where truck-fill stations were established, this water needed to be boiled before it could be considered potable. Accordingly, at an emergency City Council meeting attended by City Councillors, City staff, and

staff from several CGS departments, CGS offered to procure bottled water from southern Canada. Despite initially suggesting that this would not be necessary, the City agreed after further discussion. Under the resulting arrangement, CGS assumed primary responsibility for procurement and logistics including the purchasing of bottled water, chartering aircrafts to fly in the water, securing a heated storage warehouse in which to store the water, and arranging for ground transportation. In turn, the City assumed primary responsibility for the distribution of bottled water to Iqaluit residents, and CGS was responsible for distributing bottled water to GN offices and institutions in Iqaluit.

To establish what was effectively a temporary supply chain for bottled water (see Figure 2), CGS Procurement established agreements with a number of key partners and contractors, one of which assisted with available aircraft, water storage in the south, and coordination of flights; another which supplied water and cargo aircraft; and a third which provided ground logistics services in Iqaluit. In addition, Nunavut Emergency Management was responsible for operating the heated warehouses in which the water was stored, managing bottled water inventory, and liaising with the City to arrange for the distribution of bottled water to Iqaluit residents.

Figure 2: Temporary supply chain established to provide bottled water.



To facilitate the distribution of bottled water, a range of distribution scenarios were employed throughout the Iqaluit Water Emergency. Initially, the City distributed bottled water in front of the Nakasuk School and the Arctic Winter Games Arena. Shortly thereafter, the City established the Iqaluit Curling Rink as a staging area and additional distribution point (see Figure 3). Under this distribution scenario, City staff at the Iqaluit Curling Rink received deliveries of bottled water from the heated warehouses and prepared these deliveries for direct distribution to Elders and residents with disabilities and for transport to secondary distribution sites at the Elder’s Qammaq and Abe Okpik Hall. Iqaluit residents were invited to pick up bottled water from Abe Okpik Hall and the Elders’ Qammaq seven days per week from 11am to 6pm, and the Iqaluit Curling Rink on Tuesdays, Thursdays, and Fridays from 10am to 12:30pm and on Sundays from 1pm to 3pm. The City relied on volunteers to facilitate direct distribution to Elders and residents with disabilities, which required approximately 50 hours of labour per day.

Figure 3: One of the bottled water distribution scenarios used prior to the activation of Operation LENTUS.

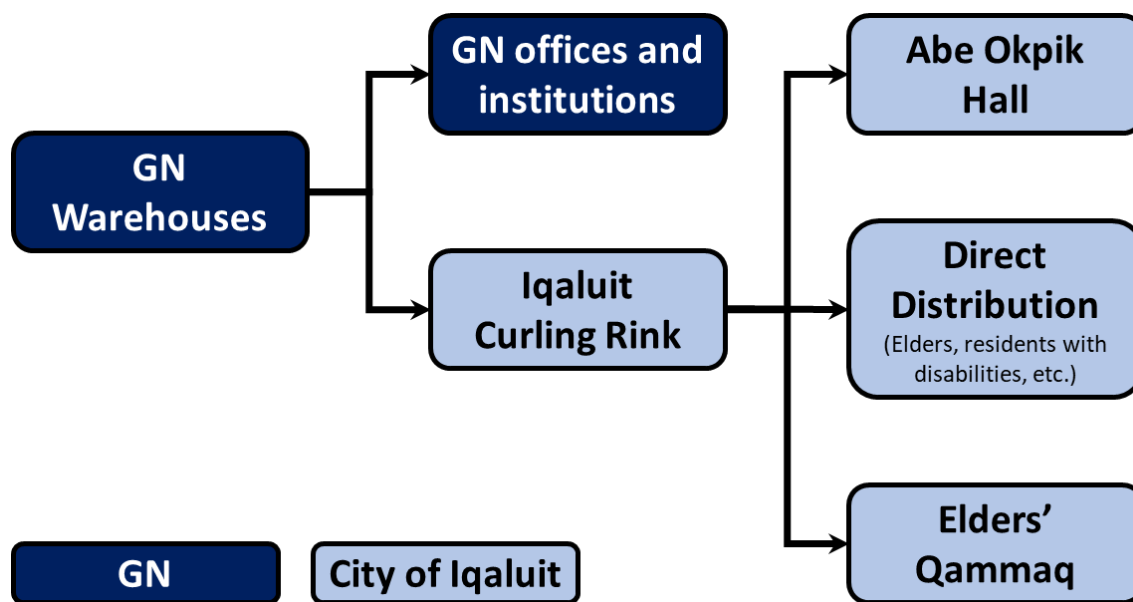


Table 6: Summary of expenditures incurred by CGS in relation to Objective I.

Expenditure type	Cost
Bottled water	2,712,755.79
Freight	4,147,409.08
Ground logistics	100,836.25
Miscellaneous	3,697.68
Storage for bottled water	3,300.00
Total for Objective I	\$6,967,998.80

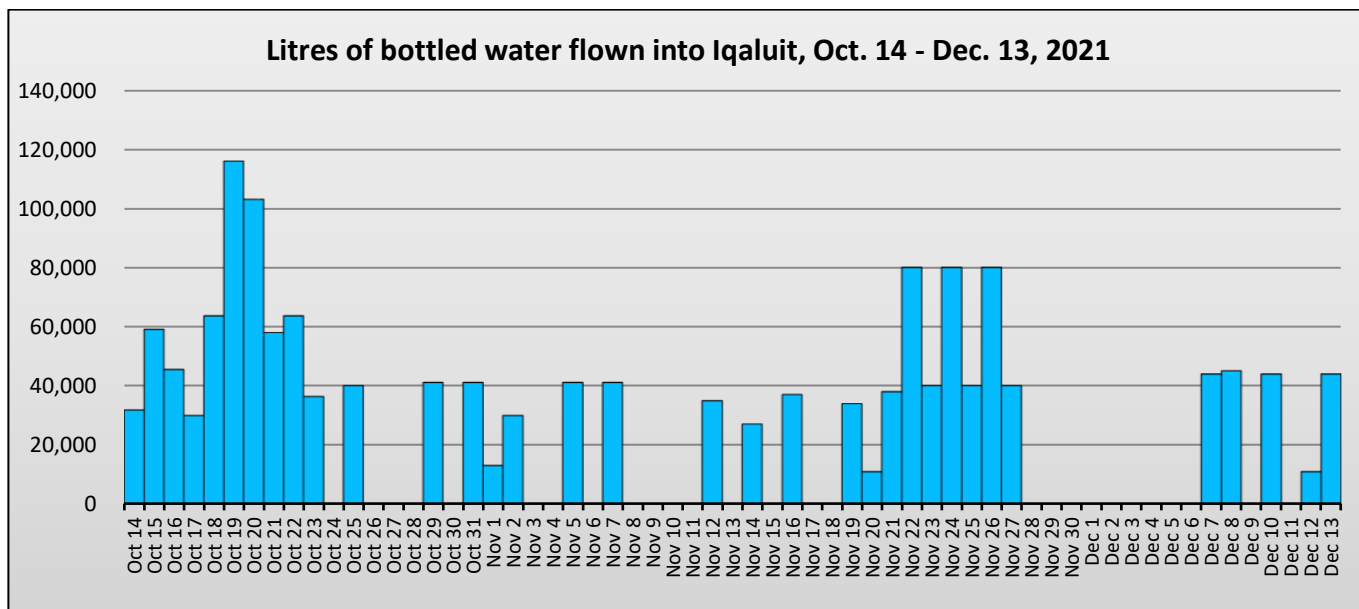
Analysis of Challenges

In procuring and distributing bottled water over the course of more than eight weeks, a number of significant challenges had to be overcome. First, on the advice of the CPHO, CGS endeavoured to maintain a three-day supply (estimated at 200,000L) of bottled water at all times. This initially proved challenging, as it would take at least two weeks to reliably determine the average daily rate of consumption. To produce an initial estimate, CGS used the national guidelines to estimate the daily consumption rate. This estimate had to be balanced against a variety of additional considerations, including the potential for hoarding, public anxiety regarding the interruption of the water supply, the availability of bottled water in the south, access to heated storage facilities, minimum order quantities, and minimum contract durations with contractors. These considerations had to be balanced, in turn, against the need to maintain the trust and confidence of Iqaluit residents so as to prevent hoarding, or a ‘run on the water’.

The ongoing COVID-19 pandemic introduced a variety of additional challenges. Factors associated with the pandemic were disruptive from a distribution standpoint, as the City relied on volunteers for the direct distribution of water to Elders and residents with disabilities. Consequently, when the Omicron variant of COVID-19 started spreading throughout Canada, it became increasingly difficult for the City to find volunteers willing to deliver water door-to-door, particularly as temperatures dropped and the risk of infection increased. From a procurement standpoint, bottled water and chartered flights proved to be more difficult to secure as a result of ongoing issues with the global supply chain. Beginning in mid November, these issues were compounded further by the flooding experienced in British Columbia. This increased demand for bottled water and cargo aircraft, adding to seasonal increases in demand for cargo aircraft, making it still more difficult for CGS Procurement to secure the requisite bottled water.

The distribution of bottled water in the community was a tremendous logistical undertaking, the significance of which cannot be overstated, particularly as COVID-19 cases increased and temperatures plummeted. As this distribution plan outstripped the capacity of City staff, it was deemed unsustainable. Remarkably, however, City staff somehow managed to sustain the distribution of bottled water throughout the Iqaluit Water Emergency. In an attempt to further reduce dependency on bottled water, CGS purchased stainless-steel water tanks to facilitate the distribution of treated water, as described below in relation to Objective II. As the emergency wore on, fatigue became a concern for staff and volunteers at every point in the bottled water supply chain. Initially, many of those involved in the procurement and distribution of bottled water believed the Iqaluit Water Emergency would not last much longer than a week. Ultimately, however, the emergency lasted almost nine weeks. It was perhaps as a result of this fatigue that the City occasionally struggled to staff secondary distribution points. Fatigue may have also contributed to lapses in communication between the City and Nunavut Emergency Management.

Figure 4: Litres of bottled water flown into Iqaluit between October 14 and December 13.



In spite of the numerous challenges outlined above, the emergency response in relation to this objective was a resounding success. Due to the combined efforts of all those involved in the procurement and distribution of bottled water, sufficient bottled water was available to Iqaluit residents throughout the Iqaluit Water Emergency. Perhaps most importantly, at no point did Iqaluit residents commit a 'run on the water', and hoarding did not appear to be an issue. In total, more than 1.5 million litres of bottled water was procured and chartered to Iqaluit on 39 flights between October 14 and December 13 (see Figure 4) at a cost of approximately \$9 million.

Finally, it should also be noted that, when the Do Not Consume Advisory was lifted on December 10, CGS had approximately 180,000 litres of bottled water remaining. On the advice of the CPHO, CGS kept this surplus water in storage for several months. Initially, this water served as a safeguard against the possibility that another Do Not Consume Advisory could be required in Iqaluit. This surplus later served as a backup source of drinking water for communities experiencing water emergencies elsewhere in Nunavut during 2022. In October 2022, with the CPHO's approval, CGS distributed this water to other government agencies, including medical boarding homes, correctional institutions, schools, and fire departments.

Summary of Themes Relevant to Objective I

Table 7 identifies the relevant themes from the interview findings that are applicable to understanding the actions taken in response to Objective I.

Table 7: Relevant Themes of Objective I

Theme / Sub-Theme	Relevance to Objective I
<i>Need for Streamlined Coordination / Communication</i>	
<i>Coordination with Contractors</i>	CGS leveraged existing relationships with contractors to procure bottled water, secure cargo planes, and arrange for ground-logistics services.
<i>Logistical Challenges and Response Barriers</i>	
<i>Water Storage / Delivery Challenges</i>	Despite significant logistical challenges which worsened as COVID-19 cases rose and temperatures plummeted, City staff were able to sustain distribution of bottled water.
	Bottled water storage posed an issue as a heated storage facility was required to ensure the bottles would not freeze. This heated storage was difficult to procure on short notice.
<i>Impact of COVID-19 / Fatigue</i>	Despite COVID-19 related staff shortages, supply chain issues, and air travel restrictions that made it difficult to procure, transport, and store bottled water, CGS staff maintained a sufficient supply of bottled water throughout the Iqaluit Water Emergency.
<i>Weather Challenges</i>	CGS had to procure heated indoor storage space for bottled water to keep bottled water from freezing.
	As temperatures plummeted, secondary distribution sites for bottled water had to be moved indoors, and direct distribution of bottled water to Elders and residents with disabilities became more difficult.

2.3.2 Objective II: Produce Treated Water to Reduce Dependency on Bottled Water

Table 8: Total costs incurred by CGS in relation to Objective II.

Objective	Cost
Objective II: Mobile Water Treatment Plant	\$804,001.82
Objective II: Operation LENTUS	\$148,803.77
Total for Objective II	\$952,805.59

Key Actions

The provision of bottled water was initially intended to be a temporary, stop-gap measure until a more sustainable approach to providing potable water could be established. As such CGS also set in motion a parallel plan to produce treated drinking water in the community by commissioning a MWTP. In doing so, CGS hoped to produce

enough treated water to fill approximately 500 residential water tanks on a daily basis. Successful execution of this plan was contingent upon significant coordination with the City, as any treated water produced by CGS's MWTP would need to be distributed through the City's water trucks. As the City had initially directed its water trucks to distribute untreated river water from the start of the emergency, this plan would require the City to modify its utilization of the water trucks. Furthermore, CGS could not establish a MWTP on City land without receiving a formal request from the City to do so. The City would also have to amend, and subsequently seek approval from the Nunavut Water Board for, its municipal water licence before the proposed MWTP could be brought online.

Coincidentally, CGS received delivery of a MWTP just prior to the Iqaluit Water Emergency. This water-treatment asset was intended to be purpose-built for use in the North. While the unit had been tested, it had not yet been deployed in the field. In preparing to commission this MWTP, however, CGS discovered a number of significant issues. First, despite having been purpose-built for use in the North, the MWTP arrived damaged as it was not properly winterized. Additionally, the MWTP was not equipped with a purpose-built generator, and ongoing global supply-chain issues meant that it was simply not possible to procure the requisite generator set on short notice. CGS was also not provided with an operator's manual, and CGS staff lacked the specialist knowledge needed to overcome these challenges without expert assistance.

In light of delays in bringing the MWTP online, outgoing CGS Minister Jeannie Ehaloak submitted a formal Request for Assistance to Public Safety Canada on October 20, requesting the deployment of federal water treatment assets and personnel. On October 21, Public Safety Canada responded to CGS's request through the Department of National Defence, which deployed the Canadian Armed Forces' JTFN and its ROWPU to Iqaluit for what became known as Operation LENTUS. JTFN immediately set about identifying an optimal site on which to set up and operate its ROWPU. In the ensuing days, JTFN and CGS surveyed five potential sites for establishing water-treatment operations, including three sites on Lake Geraldine, one on the Koojessee Inlet, and one on the Sylvia Grinnell River in Sylvia Grinnell Territorial Park. Based on this survey, JTFN identified the Lake Geraldine site on Plateau Hill, at the end of Saputi Road, as the optimal location for setting up and operating its ROWPU.

CGS, meanwhile, identified a site—behind the Iqaluit Water Treatment Plant, southeast of JTFN's proposed site—on which to set up its MWTP. To prepare the site, CGS retained a contractor to level out the site and extend the existing pad to make way for the MWTP. When City staff indicated that the City's water trucks would have difficulties accessing the proposed site via the existing access road, CGS constructed a new access road to the site. With the assistance of Qulliq Energy Corporation, CGS staff installed power lines at the site. In late October, the MWTP was moved to the site as work to commission the unit continued.

However, the City expressed a variety of concerns regarding both the proposed MWTP and ROWPU sites. In icy conditions, the City argued, water trucks are more likely to drift, slide, or tip, particularly when filled with water, while ascending or descending the Plateau Hill *en route* to or from the proposed sites. CGS asked the City for guidance on how best to address these concerns but did not receive this information. More generally, the City expressed concern regarding the potential for fuel spills; the logistical challenges associated with the need to hypochlorinate its water trucks when alternating water sources; the concentration of chemicals in, and means of disposing of, the waste water produced by the ROWPU. The City also expressed skepticism concerning the ROWPU's ability to produce enough treated water to fill the residential water tanks on a daily basis. In a letter dated October 26, JTFN attempted to address these concerns.

As the City's support and cooperation was required to bring the ROWPU online, progress towards this objective stalled for several days following JTFN's arrival in Iqaluit. In a letter dated October 28, CGS reiterated the importance of this initiative, and implored the City to reconsider its position. The following day, the City's replied the City's intention to support the establishment and operations of both the ROWPU and MWTP. To address the City's concerns regarding the proposed sites, the City suggested installing a water line to the bottom of Plateau Hill, where the City's water trucks could safely be filled with ROWPU water. As this was deemed impractical, all stakeholders later agreed to establish the ROWPU at the Sylvia Grinnell River (see Figure 5).

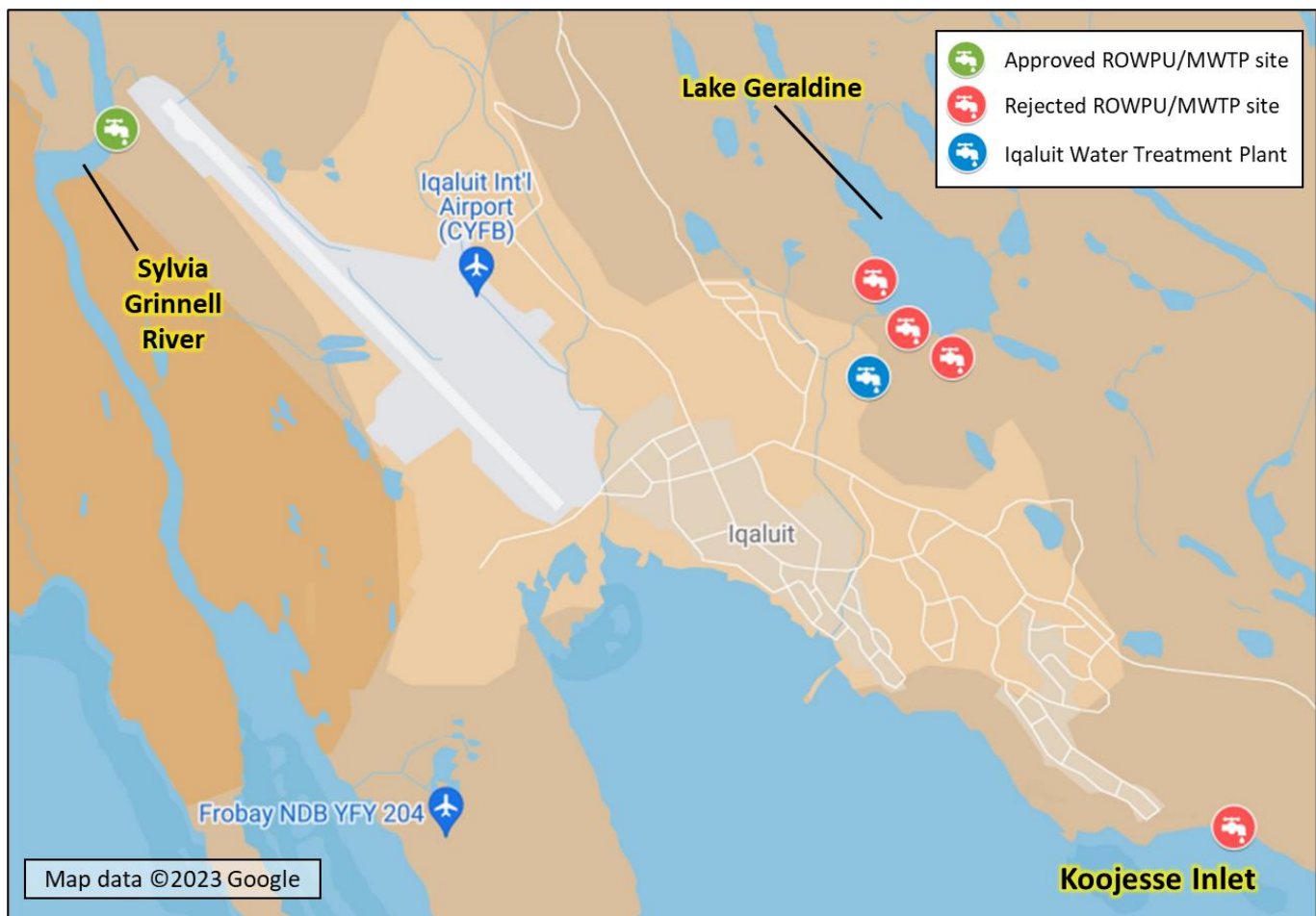
Table 9: Summary of expenditures incurred by CGS in relation to Objective II.

Initiative	Expenditure type	Cost
CGS Mobile Water Treatment Plant	MWTP equipment	162,427.82
	MWTP site preparation and electrical work	299,850.80
	MWTP supplies	6,817.64
	Freight	709,360.35
	Accounting adjustments to reflect actual costs incurred	-374,454.79
	Total for CGS Mobile Water Treatment Plant	\$804,001.82
JTFN Operation LENTUS	Pond charter	147,675.00
	Stainless steel water storage tanks	836.27
	Transport tent and supplies	180.00
	Miscellaneous	112.50
	Total for JTFN Operation LENTUS	\$148,803.77
Total for Objective II		\$952,805.59

In the meantime, CGS staff continued to work with contractors to construct and execute a plan to bring the MWTP online. This included working to procure a generator with the capacity to supply power to the MWTP's pre-treatment unit. CGS also flew in a GN employee with prior experience operating WTPs from Rankin Inlet to assist with commissioning efforts. After several attempts by contractors to commission the MTWP, by November 18, inconsistencies between the design and construction of the MWTP were deemed too numerous, and CGS abandoned efforts to bring the MWTP online until these issues could be addressed. Having transferred a ROWPU asset to the City in 2019, CGS contacted the City to inquire about the condition of the unit, and to offer assistance in commissioning the unit. Ultimately, however, the City declined to commission this ROWPU, citing high commissioning and operating costs.

On October 28, the City submitted a request to the Nunavut Water Board to amend the City's water licence to account for the temporary operations of JTFN's ROWPU. Given the ongoing territorial state of emergency, this request was not made available for public review in accordance with the *Emergency Management Act*. On October 30, the Nunavut Water Board approved the proposed amendment, permitting the ROWPU to draw water from the Sylvia Grinnell River for as long as the territorial state of emergency remained in effect. On October 31, the City confirmed that JTFN could commence operations at the Sylvia Grinnell River. On November 1, JTFN started setting up its ROWPU at the Sylvia Grinnell River. On November 2, however, Operation LENTUS had to be temporarily suspended due to high winds, which damaged JTFN equipment. On November 3, the ROWPU was brought back online.

Figure 5: Various sites considered for establishing the JTFN's ROWPU.



On November 7, Operation LENTUS distributed 27,000 litres of treated water through the City's water trucks. In the six days that followed, Operation LENTUS distributed an additional 74,000 litres, for a seven-day total of 101,000 litres. Though CGS had initially hoped to produce treated water to satisfy the daily requirements of the 500 residential water tanks typically served by the City's water trucks, the ROWPU did not have the requisite capacity to satisfy this level of demand. Accordingly, it was decided that the ROWPU water would be distributed at indoor, heated secondary distribution sites.

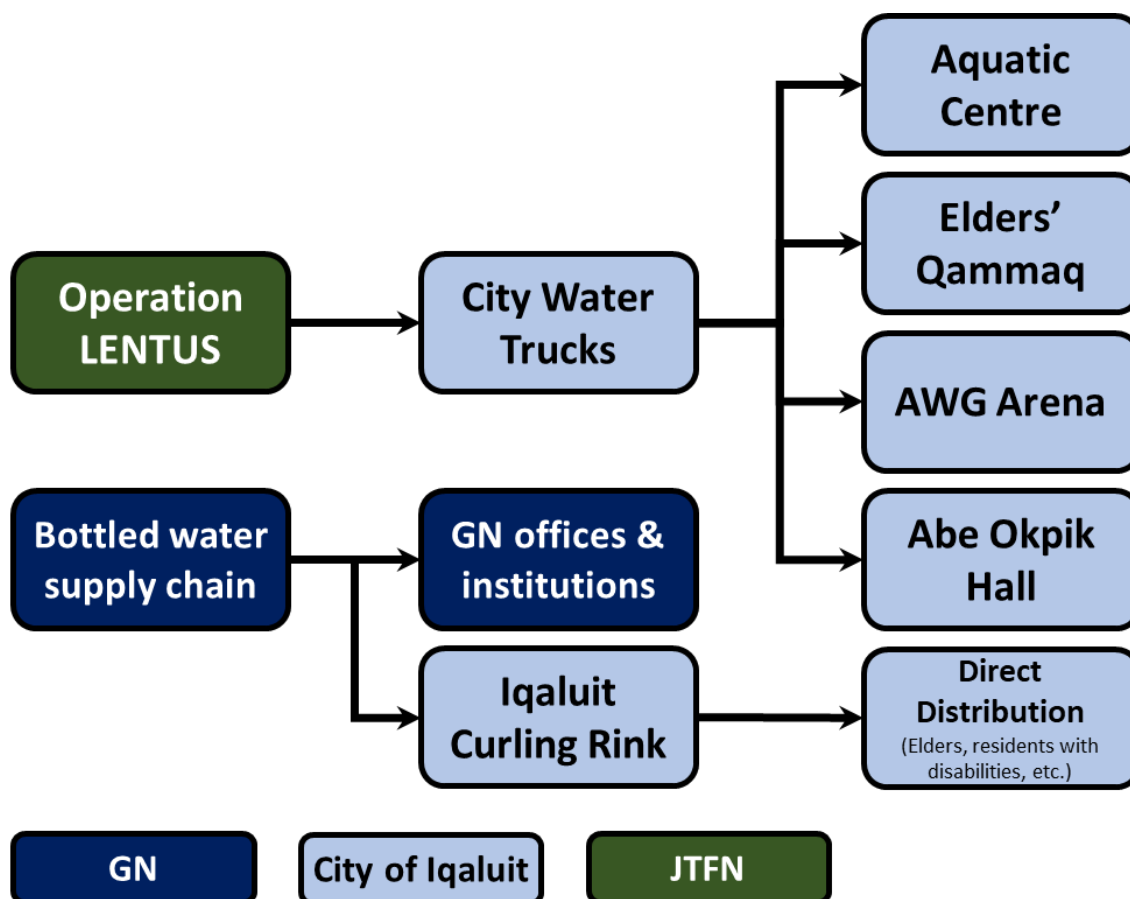
To facilitate the plan outlined above, CGS purchased ten 1,325-litre stainless-steel potable water storage tanks (see Figure 6). These tanks were installed at the indoor filling stations established at the Aquatic Centre, Elders' Qammaq, Arctic Winter Games Arena, and Abe Okpik Hall. The City's water trucks were responsible for transporting treated water from the Sylvia Grinnell River to these filling stations.

Figure 6: One of the 1,325-litre stainless-steel potable water storage tanks purchased by CGS.



The measures outlined above were not sufficient to completely eliminate the need for bottled water, but it was enough to allow CGS Procurement to reduce bottled water purchases. Under the revised treated-water distribution plan (see Figure 7), bottled water was now only being distributed to GN offices and institutions, and directly to vulnerable populations via the Iqaluit Curling Rink. In addition to facilitating the delivery of ROWPU water, the City was responsible for providing additional support for Operation LENTUS, including the disposal of approximately 30,000 litres of wash-water—produced during routine cleaning of the ROWPU—every 48 hours.

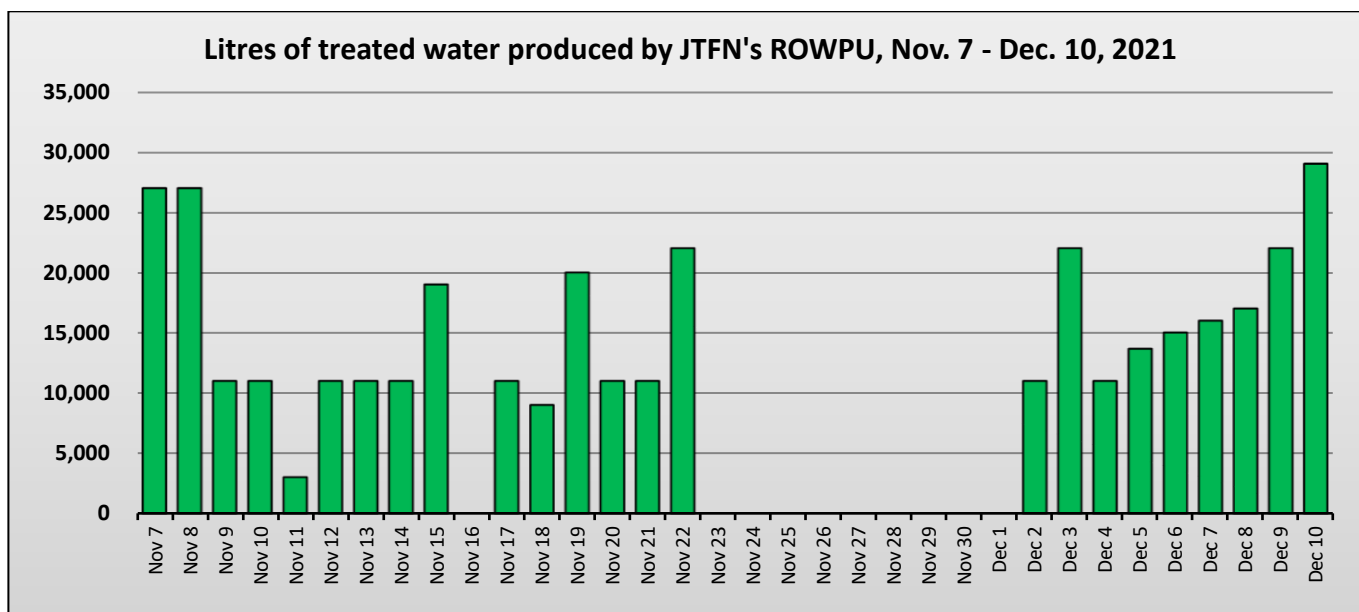
Figure 7: Treated-water distribution plan after the activation of Operation LENTUS.



On November 17, Operation LENTUS was extended to December 1. Operation LENTUS would continue to produce treated water until November 23, when a winter storm damaged some equipment and forced JTFN to suspend operations for a second time. Consequently, JTFN shut down its ROWPU unit and moved its operations to a forward operating facility at the Iqaluit airport. Rather than risking further equipment damage and additional interruptions, JTFN opted to operate the ROWPU from inside this facility. This meant transporting raw water from the Sylvia Grinnell River to the facility, where it would be warmed, purified, and stored for distribution. Ultimately, this allowed Operation LENTUS to produce treated water more consistently, albeit at with reduced production capacity. On November 30, the ROWPU was brought online inside the forward operating facility. On December 1, Operation LENTUS was extended for a second time. By December 2, Operation LENTUS was once again distributing treated water through the City's water trucks.

Operation LENTUS went on to distribute treated water through the City's water trucks without further interruption until December 10, when the Do Not Consume Advisory was lifted, at which point JTFN started packing up its equipment and preparing for withdrawal. Between November 7 and December 10, Operation LENTUS produced and distributed a total of 371,650 litres of treated water for Iqaluit residents through the City's water trucks.

Figure 8: Litres of treated water produced by Operation LENTUS between November 7 and December 10.



Analysis of Challenges

Though CGS ultimately succeeded in reducing Iqaluit residents' dependency on bottled water, progress towards this outcome stalled at various points due to disjointed communication and coordination between GN departments and the City. Underlying this challenge was a difference in opinion concerning the importance of producing treated drinking water in the short term and the perceived benefits in doing so. The City's outlook on the risk of re-contamination at the Iqaluit WTP was also considerably more optimistic than that of HEA. By contrast, HEA took a more risk-averse approach in keeping with its responsibilities as a regulator (as a function of the CPHO). That is, whereas the City was anticipating that the Do Not Consume Advisory would be lifted by October 28, the CPHO was not fully convinced that the root cause of the contamination had been adequately addressed. As a result of these differing risk assessments, the City perceived Operation LENTUS as an unnecessary distraction from remediation efforts at the Iqaluit WTP. The City preferred, instead, to continue filling its water trucks at the Sylvia Grinnell River. As CGS noted, however, this did not account for the risks associated with the river freezing over.

Additionally, some within the City perceived CGS as having taken a prescriptive approach to engaging with the City during the Iqaluit Water Emergency. From this perspective, Operation LENTUS may have been perceived as an example of CGS seeking to prescribe a particular approach for the City to take. As a result of this perception, City staff may have adopted a cautious or at times defensive approach to coordinating the response. Given these circumstances, it is possible that lapses in communication and coordination could have been avoided if the roles and responsibilities for both the territorial and municipal levels of government were more clearly defined.

Summary of Themes Relevant to Objective II

Table 10 identifies the relevant themes from the interview findings that are applicable to understanding the actions taken in response to Objective II.

Table 10: Relevant Themes of Objective II

Theme / Sub-Theme	Relevance to Objective II
Need for Defined Roles & Responsibilities and a Shared Risk Management Framework	
<i>Need for a Shared Risk Management Framework</i>	Differing risk assessments concerning the potential for re-contamination of the Iqaluit WTP and the likelihood that the Sylvia Grinnell River would freeze over led to differences of opinion regarding the importance of producing treated water.
	Differing risk assessments concerning the ability of the City's water trucks to ascend steep grades led to differences of opinion regarding the optimal site for establishing mobile water-treatment operations.
Logistical Challenges and Response Barriers	
<i>Water Storage / Delivery Challenges</i>	Despite having been purpose-built for use in the North, CGS's MWTP was not properly winterized by the manufacturer and arrived damaged as a result. Additionally, the MWTP manufacturer did not provide the required generator.
<i>Impact of COVID-19 / Fatigue</i>	Pandemic-related supply chain issues prevented CGS from being able to procure a generator for its MWTP on short notice.
<i>Weather Challenges</i>	The Sylvia Grinnell River froze over during Operation LENTUS, reducing the ROWPU's capacity to produce treated water, as water drawn from the river had to be brought up to the minimum temperature before being treated.
	High winds damaged JTFN equipment and forced JTFN to suspend water-treatment operations at the Sylvia Grinnell River and move to an indoor facility at the Iqaluit airport, reducing the production capacity of Operation LENTUS.
<i>Site Selection / Approvals</i>	Differing risk assessments and coordination/communication challenges between CGS and the City impacted site selection for water treatment operations.
<i>CGS Ministerial Changeover</i>	CGS had to coordinate with the deployment of federal water treatment assets in the midst of a territorial election and subsequent ministerial changeover.

2.3.3 Objective III: Bypass the Contaminated Sections of the Iqaluit Water Treatment Plant

Table 11: Total costs incurred by CGS in relation to Objective III and Objective IV.

Objective	Cost
Objectives III & IV: Bypass and Flushing	\$774,135.49

Key Actions

On October 19, 2021, one week after the Do Not Consume Advisory was issued, CGS started exploring the possibility of facilitating the installation of a utilidor capable of allowing the City to bypass the contaminated sections of the Iqaluit WTP. Consistent with the motivations underlying Objective I and Objective II, CGS identified this objective as a priority given its potential to further reduce Iqaluit residents' dependency on bottled water; bridge the gap to the end of the Do Not Consume Advisory; and create a contingency plan for future contamination events. With a bypass installed, the City would have the ability to pipe water from the Lake Geraldine reservoir directly to the piped drinking-water distribution system. Having bypassed the source of the contamination, in other words, this water would be subject to a Boil Water Advisory rather than a Do Not Consume Advisory. However, as the City has ultimate authority over the Iqaluit WTP, this outcome was contingent upon its support and cooperation. To this end, CGS advised the City that it was planning to commission bypass design work for the City to consider as part of its emergency response.

After sending off a Geraldine Lake water sample for testing to ensure that the water would be safe for consumption after being boiled, CGS established a task force to facilitate the technical work required to create a bypass plan that could be completed on a tight timeline despite the numerous constraints involved. Then, the task force created a project plan and list of tasks to organize the work involved in producing the bypass design. On October 20, test results indicated that water from the Geraldine Lake reservoir would be safe for consumption after being boiled. This confirmed for CGS that a bypass could upgrade piped water from Do Not Consume to Boil Water Advisory status. Accordingly, CGS met with City staff and officials to review planning and design options for the bypass. In addition, CGS retained a contractor to produce a bypass design, detailed parts list, and list of construction requirements for the City's consideration.

While CGS and a contractor organized design work for the bypass, the City was focusing its resources on remediation efforts at the Iqaluit WTP. In the days which followed the Do Not Consume Advisory issued on October 12, the City and its contractors were actively investigating potential sources of the contamination in the WTP, in addition to pumping out contaminated water. Over the course of this investigation, a long-unused, underground fuel storage tank was discovered in the 'void' situated between the WTP and the exposed bedrock beneath it. This fuel storage tank was identified by the City and its contractors as the probable source of the contamination. The City and its contractors removed the fuel storage tank from the 'void'; pumped out the contaminated, standing water found therein; and equipped the WTP with an online petroleum hydrocarbon monitoring system.

In light of the efforts described above, the City indicated in a letter dated October 25, 2021, that traces of hydrocarbons in the water had fallen below Health Canada's screening limits, according to a test conducted on October 19. Therefore, at this point the City was operating under the assumption that the problem at the Iqaluit WTP had been successfully remediated. Pending the results of an outstanding test, the City was preparing to ask the HEA and the CPHO to consider lifting the Do Not Consume Advisory. The City was anticipating that the Do Not Consume Advisory could be lifted as soon as October 28.

However, the CPHO identified the need for additional due diligence, given the importance of rebuilding and maintaining public confidence in the City's drinking water. Accordingly, on October 27, the CPHO provided the City with a list of eight criteria that must be addressed before the Do Not Consume Advisory could be lifted (see Table 12). Included among these requirements was an independent review of the City's remediation efforts at the WTP, and a contingency plan, such as a bypass, that can be activated during future contamination events. To facilitate the independent review requirement, HEA and CGS retained a contractor to conduct a review of remediation efforts at the Iqaluit WTP, and to complete a risk assessment with a view towards reducing the likelihood of future contamination events.

By November 1, CGS contractors completed the requisite design work, including a detailed parts list and construction requirements, for the WTP bypass system. The bypass design was subsequently approved by the CPHO and presented to the City on November 8. At this meeting, CGS indicated to the City that installation of the proposed bypass would contribute positively to the CPHO's assessment of whether to lift the Do Not Consume Advisory. After reviewing the proposal, the City expressed a variety of concerns regarding the proposed design, including its potential to introduce pressure- and flow-related risks; aesthetic concerns regarding the water coming out of end-user taps; and the potential for sediment to inflict long-term damage on the City's piped infrastructure. To address these concerns, the City commissioned a contractor to produce a design capable of bypassing the WTP's underground tanks and filters while retaining the existing disinfection processes and monitoring instrumentation.

Table 12: CPHO’s criteria for lifting the Do Not Consume order.

#	Criterion	Status
1	Serial sampling to confirm drinking water meets federal and territorial quality standards.	At a 10-Dec-2021 meeting with the City and CGS, the CPHO indicated that this criterion had been satisfied.
2	Independent review of the City’s engineering work at the Iqaluit WTP.	At a 3-Dec-2021 meeting with the City and CGS, the CPHO indicated that this criterion had been satisfied.
3	Evidence of recent bacterial testing.	At a 3-Dec-2021 meeting with the City and CGS, the CPHO indicated that this criterion had been satisfied.
4	Implementation of contingency plan, including a bypass and/or sufficient supply of treated water.	At a 3-Dec-2021 meeting with the City and CGS, the CPHO indicated that this criterion had been satisfied.
5	Implementation of a water quality monitoring and reporting plan.	At a 10-Dec-2021 meeting with the City and CGS, the CPHO indicated that this criterion had been satisfied.
6	Swabbing of the Distribution System	At a 3-Dec-2021 meeting with the City and CGS, the CPHO indicated that this criterion was no longer required.
7	Preparation of a timeline and project workplan for remediation efforts at the Iqaluit WTP.	At a 3-Dec-2021 meeting with the City and CGS, the CPHO indicated that this criterion was no longer a prerequisite.
8	Written Report	At a 3-Dec-2021 meeting with the City and CGS, the CPHO indicated that this criterion had been satisfied.

On November 15, the City submitted the contractor’s bypass design to CGS and the CPHO for review. On November 17, the contractor completed its review of the proposed design on behalf of the CPHO. On November 18, the CPHO sent its feedback on the bypass design to CGS, but the CPHO’s eventual approval does not appear to have been relayed to the City at this time. As a result of this apparent miscommunication, the City did not begin installing the bypass until the CPHO’s approval was confirmed by CGS on November 24. It was not until an intergovernmental meeting on November 24, when the City indicated that it was awaiting approval for its bypass design, that the City and CGS became aware of the miscommunication. The CPHO immediately confirmed approval of the bypass design, and the City agreed to begin work on the bypass right away. Two days later, the City announced a delay in work on the bypass when one of its contractors decided not to take on the project. On November 29, the City confirmed that construction was underway, but indicated that the bypass would not be completed until early 2022 due to supply chain and contractor issues.

Table 13: Summary of expenditures incurred by CGS in relation to Objective III and Objective IV.

Expenditure	Cost
Hired contractor to provide bypass design and parts list	59,024.00
Hired contractor to develop a comprehensive flushing and cleaning program	49,624.05
Funding provided to the City of Iqaluit to support its bypass design and flushing program	600,000.00
Hired contractor to conduct a third-party review of the City of Iqaluit’s remediation efforts, including the City’s bypass design and flushing program	65,487.44
Total for Objectives III & IV	\$774,135.49

Analysis of Challenges

Though the intended outcome of Objective III was eventually achieved when the bypass was completed in January 2022, progress towards the completion of this objective was delayed by barriers to effective communication and collaboration between CGS and the City. These barriers were initially driven by differing risk assessments concerning the risk of re-contamination at the Iqaluit WTP. However, it is possible that these differences could have been reconciled with greater clarity regarding the respective roles and responsibilities of all those involved in this aspect of the response. As a service provider, for instance, the City’s response was driven by its desire to restore a critical service for Iqaluit residents. As a regulator, HEA’s response was driven by a careful, risk-averse approach to safeguarding public health and maintaining public trust. CGS’s response was driven by the need to reconcile these approaches, supplementing the City’s limited resources on the one hand, and working with HEA and the CPHO to forge a path to lifting the Do Not Consume advisory on the other. In hindsight, these priorities and approaches appear straightforward. As these events unfolded, however, some stakeholders experienced a lack of clarity with respect to roles and responsibilities, resulting in miscommunications. However, it is worth noting that, despite being aware that CGS was developing a bypass design and flushing protocol for the City’s use, the City commissioned a bypass design of its own, to meet different technical specifications, after having been presented with a completed design and parts list.

In January 2022, a second contamination event necessitated the activation of the newly completed bypass, without which another Do Not Consume Advisory might have been necessary. This demonstrated the importance of balancing all three government functions—service provider, regulator, and facilitator—during an emergency response. These functions are complementary, and a shared understanding of responsibilities for these functions facilitates efficient communication and coordination. It is possible, to take one example, that a second bypass design might have been unnecessary had the City granted CGS full access to the Iqaluit WTP; or had the City conveyed its preferred bypass specifications to CGS earlier in the process. Information sharing might have been streamlined to a greater extent had CGS’s role been more clearly defined at the outset as that of a facilitator and not a regulator (which was actually the function of HEA).

Summary of Themes Relevant to Objective III

Table 14 identifies the relevant themes from the interview findings that are applicable to understanding the actions taken in response to Objective III.

Table 14: Relevant Themes of Objective III

Theme / Sub-Theme	Relevance to Objective III
<i>Need for Defined Roles & Responsibilities and a Shared Risk Management Framework</i>	
<i>Need for Clearly Defined Roles and Responsibilities</i>	Some stakeholders experienced a lack of clarity regarding the respective roles and responsibilities of all those involved in the response, delaying the completion of the bypass as the City did not perceive CGS’s role as a complementary one.
<i>Need for a Shared Risk Management Framework</i>	Differing risk assessments concerning the potential for re-contamination led to differences of opinion regarding the importance of installing a bypass at the Iqaluit WTP, delaying completion of the bypass as the City prioritized remediation efforts and did not review the bypass design commissioned by CGS until the installation of a bypass was mandated by the CPHO.
<i>Need for Streamlined Coordination / Communication</i>	
<i>Coordination / Communication Between CGS and the City</i>	Miscommunications arising from differing risk assessments and a lack of clarity regarding roles and responsibilities delayed the completion of the bypass, as the City did not provide CGS with its preferred technical specifications for the bypass, and subsequently opted to commission its own bypass design.
	Despite having received approval for its bypass design on November 18, the City did not begin construction on the bypass right away as a result of a miscommunication.

2.3.4 Objective IV: Identify Specialized Flushing and Cleaning Options

Table 15: Total costs incurred by CGS in relation to Objective III and Objective IV.

Objective	Cost
Objectives III & IV: Bypass and Flushing	\$774,135.49

Key Actions

Though bypassing the Iqaluit WTP under Objective III had the potential to upgrade the City of Iqaluit's drinking water from "Do Not Consume" to "Boil Water Advisory" status, this also had the potential to introduce contaminants to the distribution system. In order to mitigate this risk, CGS established its fourth emergency-response objective on October 20 by seeking specialist assistance to provide the City with a range of options for treating, cleaning, and flushing hydrocarbons from its piped distribution system. To that end, CGS Technical Services contacted a contractor to request a proposal for engineering services relating to a conceptual design to remove hydrocarbons from the water supply, and an engineering input for flushing hydrocarbons from the distribution system. The contractor provided CGS with the requested proposal on October 22, and the proposed work plan was approved shortly thereafter.

On November 2, a contractor provided CGS with the first of three technical memorandums, which offered an introductory discussion concerning the potential scope of the hydrocarbon contamination; water-treatment technologies for removing hydrocarbons; the development of a municipal framework for hydrocarbon removal; and process delivery to Iqaluit. The second technical memorandum, which was delivered on November 12, offered detailed considerations and guidance for systematically flushing the piped drinking-water distribution system to remove hydrocarbon-based contaminants. On November 16, CGS provided the City with this second technical memorandum via email.

On November 21, the City responded to the technical memorandum with a letter expressing a number of concerns with the proposed flushing plan, including its prescribed 124 hours of watermain flushing time and consumption of 2.4-million litres of water. The City suggested in the process that the flushing plan was based on assumptions that are no longer reflective of the current state of the Iqaluit Water Emergency. The City argued, for instance, that the flushing program's intended outcome—i.e., the elimination of hydrocarbons in the distribution system—had already been accomplished by virtue of the City's remediation efforts. For this reason, the City suggested that the proposed flushing program does not represent an appropriate response to what had effectively become an aesthetic problem with the City's drinking water.

The contractor provided CGS with a third technical memorandum on November 22. This memorandum, which offered a detailed protocol for cleaning two drinking-water reservoirs situated downstream from the Iqaluit WTP, was then forwarded to the City. Though the City acknowledged receipt of this technical memorandum, it is not clear whether this informed the City's approach to cleaning these reservoirs.

Analysis of Challenges

Consistent with the challenges associated with Objective III, the actions and responses associated with Objective IV were problematized as a result of confusion regarding the respective roles and responsibilities of CGS and the City in an emergency-response situation, as well as differing risk assessments and the resulting divergence in priorities. On the one hand, CGS saw itself as providing complementary technical support and risk mitigation to free up the City to focus on remediation efforts at the Iqaluit WTP. On the other hand, the City appears to have perceived the proposed flushing plan as a replacement for its system-level remediation efforts, and thus as an unnecessary use of its limited resources. These contradictory perceptions appear to have been rooted in differing

assessments concerning the risk of contaminants re-entering the distribution system from the Iqaluit WTP or Geraldine Lake via a bypass. As the City was confident that it had successfully identified the source of the contamination and subsequently flushed contaminants from the system, it considered the flushing protocol unnecessary. As CGS has a responsibility to mitigate risks which might cause serious harm to Iqaluit residents, it considered the flushing protocol a high priority.

Table 16: Summary of expenditures incurred by CGS in relation to Objective III and Objective IV.

Expenditure	Cost
Hired contractor to provide bypass design and parts list	59,024.00
Development of a comprehensive flushing and cleaning program	49,624.05
Funding provided to the City of Iqaluit to support its bypass design and flushing program	600,000.00
Third-party review of the City of Iqaluit’s remediation efforts, including the City’s bypass design and flushing program	65,487.44
Total for Objectives III & IV	\$774,135.49

Summary of Themes Relevant to Objective IV

Table 17 identifies the relevant themes from the interview findings that are applicable to understanding the actions taken in response to Objective IV.

Table 17: Relevant Themes of Objective IV

Theme / Sub-Theme	Relevance to Objective IV
<i>Need for Defined Roles & Responsibilities and a Shared Risk Management Framework</i>	
<i>Need for Clearly Defined Roles and Responsibilities</i>	Confusion regarding the respective roles and responsibilities of CGS and the City resulted in miscommunication regarding the intent of the flushing protocol, which was intended as a complementary risk-mitigation measure and not as a replacement for existing remediation efforts.
<i>Need for a Shared Risk Management Framework</i>	Differing assessments concerning the risk of contaminants re-entering the distribution system led to differences of opinion regarding the need for a flushing protocol.
<i>Need for Streamlined Coordination and Communication</i>	
<i>Coordination / Communication Between CGS and the City</i>	Differing risk assessments and confusion regarding the respective roles and responsibilities of CGS and the City led to a miscommunication concerning the intent of the flushing protocol.

2.3.5 Objective V: Maintain Public Confidence Through Intentional Communications

Table 18: Total costs incurred by CGS in relation to Objective V.

Objective	Cost
Objective V: Communications	\$0.00

Key Actions

Given the risk of harm to the public from mixed messaging with respect to water quality, CGS established its fifth objective—i.e., to maintain the public’s confidence through intentional communications—in collaboration with HEA and the CPHO on October 20, 2021. The need to establish this objective became increasingly apparent over the course of the first week of the Iqaluit Water Emergency. During this period, the public received mixed messages regarding water quality. Additionally, the City and CPHO held a joint press conference on October 15 to confirm the hydrocarbon-based contamination of the City’s supply of treated drinking water. As this press conference was held in English only, it did not meet trilingual language requirements. Though this language requirement was met at subsequent press conferences, this may have contributed to the initial confusion experienced by some Iqaluit residents with respect to the water quality.

In light of the above, HEA assigned a communications specialist to the City. This communications specialist sat in on meetings with the City for the remainder of the Iqaluit Water Emergency with a view towards better aligning the content and timing of territorial and municipal messaging. This specialist also assisted with the development of a variety of communication resources, including ‘FAQs’ to address community questions; a schedule to set aside time for engaging with the news-media; a public-service announcement to dispel misconceptions about the treated water produced through Operation LENTUS; and a 72-hour emergency-preparedness public-service announcement to encourage residents to stockpile sufficient water.

Table 19: Summary of expenditures incurred by CGS in relation to Objective V.

Expenditure	Cost
None	—
Total for Objective V	\$0.00

Analysis of Challenges

Consistent and timely messaging proved to be challenging throughout the Iqaluit Water Emergency. Though the secondment of a HEA communications specialist to the City appears to have resulted in more consistent messaging, this may also have compromised the timeliness of communications with the public. As this meant that HEA’s approval was required before any communications could be made public, some stakeholders argued that this hindered their ability to release information quickly. In light of the risk of harm associated with the release of inaccurate water-quality information, however, this was likely considered an appropriate trade-off. Additionally, the gaps in communication and coordination between the City and GN departments, as detailed in the preceding sections, may have had an impact on the information being shared with the public. It is possible that this may have contributed to some Iqaluit residents’ hesitation to consume treated water produced by Operation LENTUS.

Summary of Themes Relevant to Objective V

Table 20 identifies the relevant themes from the interview findings that are applicable to understanding the actions taken in response to Objective V.

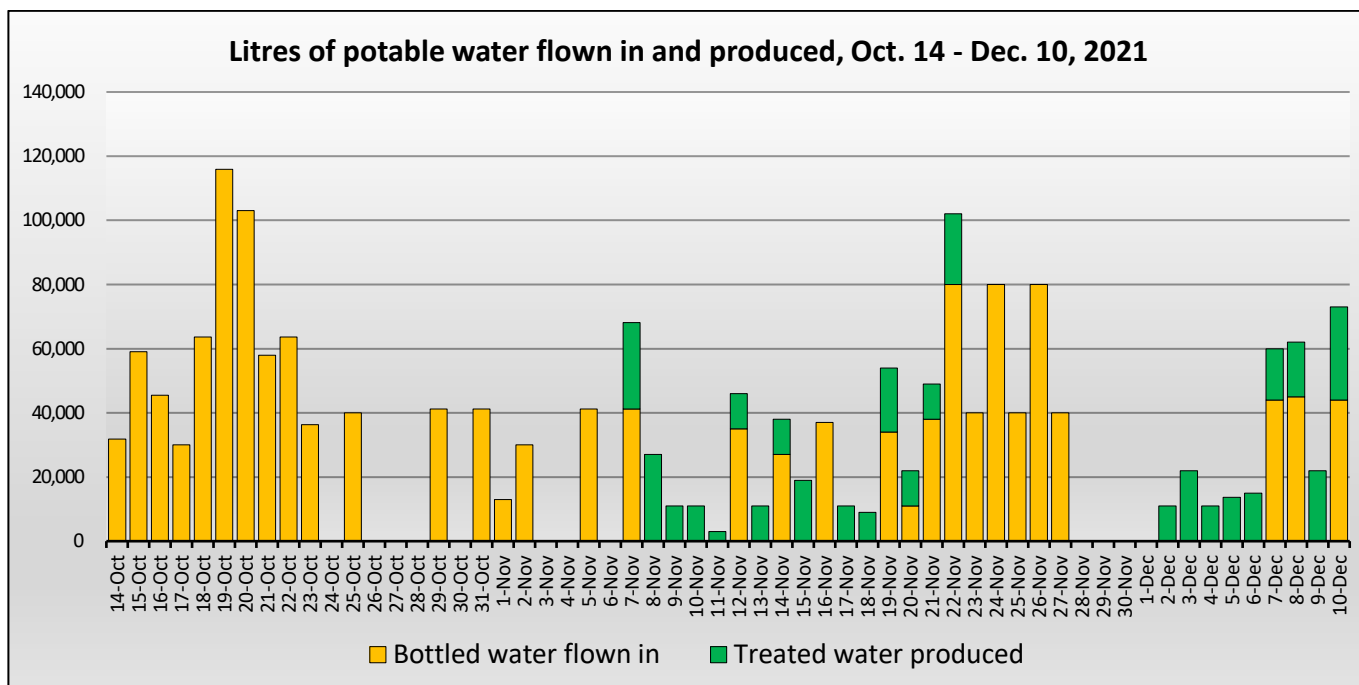
Table 20: Relevant Themes of Objective V

Theme / Sub-Theme	Relevance to Objective V
<i>Need for Streamlined Coordination / Communication</i>	
<i>Coordination / Communication Between CGS & the City</i>	Gaps in communication and coordination between the City and GN departments may have impacted the information being shared with the public, potentially undermining public confidence in the response as a result.
<i>Communication with the Public</i>	Iqaluit residents received mixed messages regarding water quality early in the Iqaluit Water Emergency.
	The timely release of information may also have been hindered by the requirement to meet trilingual communication requirements, and by the requirement that HEA approve all communications.

3 Conclusion

CGS succeeded in responding to the Iqaluit Water Emergency by helping to address the short-term drinking water needs of Iqaluit residents and developing an effective approach to mitigating a range of medium- and long-term risks. Together with the City, the Canadian Armed Forces' Joint Task Force North, as well as the numerous contractors, stakeholders, and volunteers who contributed to the emergency response, CGS succeeded in procuring, producing, and distributing a combined total of approximately 1.9 million litres of potable water during the Iqaluit Water Emergency (see Figure 9). The Iqaluit Water Emergency was not just an unprecedented crisis, but also an extremely difficult and challenging period for Iqaluit residents and all those who participated in the emergency response. This emergency response was made considerably more difficult by a general lack of clarity regarding the roles and responsibilities of all those involved in this response, and the gaps in communication and coordination which resulted from this confusion. In spite of the resulting challenges, however, the community continued to function throughout this nine-week crisis.

Figure 9: Litres of bottled water flow in, and treated water produced, during the Iqaluit Water Emergency.



Though CGS was ultimately successful in developing an emergency-response plan that prioritized and mitigated a variety of risks facing the City, its ability to pursue collaborative efforts to realize this plan was hindered not just by confusion regarding roles and responsibilities and the resulting communication gaps, but also by differing assessments of the magnitude of the risks involved. These differing risk assessments led to differing priorities for goals and actions. As the City believed the risk of re-contamination at the Iqaluit WTP was low, its efforts were focused almost entirely on remediation efforts. CGS and HEA, on the other hand, believed the risk of re-contamination was sufficiently high so as to prioritize the completion of complementary risk-mitigation measures, including the installation of a bypass. As a consequence of these differing risk assessments, however, the City perceived these risk-mitigation measures as lesser priorities as compared to remediation efforts at the Iqaluit WTP. However, once HEA established the bypass as a prerequisite to the lifting of the Do Not Consume advisory, the City prioritized the bypass installation.

In light of the above, there are likely opportunities to bolster CGS's capacity to respond to even the most unprecedented of emergencies in collaboration with other levels of government. To that end, this conclusion presents a summary of the most critical lessons learned over the course of the Iqaluit Water Emergency along with a series of recommendations designed to convert those lessons into tangible actions.

3.1 Lessons Learned

When formulating and pursuing emergency-response objectives, it is critically important to involve all relevant departments, governments, and stakeholders, and to ensure that there exists a shared understanding of the roles and responsibilities of all those involved, as well as a shared risk-management framework. In the context of Objective III, for instance, a shared understanding of the critical, complementary functions of the service provider (the City), regulator (HEA), and facilitator or coordinator (CGS) could have prevented the delays which pushed the completion of the system to bypass the Iqaluit Water Treatment Plant all the way to January 2022. That is, had the City and CGS been able to coordinate earlier on bypass design specifications, it is possible that construction on the bypass could have been underway in early November. As a result of differing risk assessments, however, the City only appears to have evaluated the bypass design commissioned by CGS after HEA mandated the bypass installation as a prerequisite to lifting the Do Not Consume advisory. After rejecting CGS's bypass design, the City commissioned its own design to meet certain technical specifications, which, along with supply chain issues, delayed the completion of the bypass.

In line with the above, it is vital that the stakeholder group with ultimate jurisdiction over the emergency response feels secure in its leadership role, and comfortable requesting additional resources when appropriate. Despite the undeniable merits associated with Objectives I & II, for instance, the City may have perceived these objectives as unnecessary interventions, compared to remediation efforts underway at the Iqaluit WTP, which placed additional burdens on the resources of the municipal government that was already stretched thin. The City perceived these initiatives as having limited its autonomy to address the emergency. As a result of this perception, City staff appear to have adopted a cautious or defensive approach to collaborative efforts with CGS. This perception likely emerged early in the emergency response and became more entrenched over time, accentuating the importance of ensuring that the responsible stakeholder feels secure in its role from the outset of the emergency response. This also points to the need for a shared risk-management framework, as the City's differing prioritization of these initiatives may have been rooted in the differing risk assessments underlying them.

It is critical to ensure that all agencies involved in a given emergency response are on the same page with respect to the various risks involved. However, the process of identifying, assessing, prioritizing, and mitigating risks is complex, requiring well-defined processes and decision-making criteria. Consequently, in the absence of a shared framework, each agency in an emergency situation may draw distinct conclusions with respect to the risks involved. During the Iqaluit Water Emergency, this divergence in risk assessments led to a divergence in priorities. By contrast, a shared risk-management framework which codifies a rationale and process for identifying, assessing, prioritizing, and mitigating risks has the potential to facilitate a joint approach to risk assessment, which integrates the priorities of multiple organizations involved in a response. Though a shared risk-management framework would not necessarily guarantee agreement on the magnitude of the risks involved, it would ensure that all parties have access to the same information and a shared understanding of how the information should be processed and assessed. As such a codified risk-management framework would support a visible, shared prioritization of risks and mitigation approaches, allowing for accountabilities to be clearly identified for all those involved in an emergency response.

Furthermore, it became clear during the Iqaluit Water Emergency that a timely and consistent interagency and public communications strategy is critical to interagency coordination and maintaining the public's trust and confidence. Communications must be consistent not only in terms of messaging between the two levels of government, but also in terms of the timeliness and availability of communications in each of Nunavut's official languages. In the absence of consistent and timely messaging in each of Nunavut's official languages, lapses in communication with the public may have a disproportionate impact on vulnerable populations. As a result of

disjointed communication during the Iqaluit Water Emergency, for instance, some Iqaluit residents may not have been fully informed about the treated water produced through Operation LENTUS. Still more Iqaluit residents may not have known that untreated water from Sylvia Grinnell River needed to be boiled before it could be considered potable. A more consistent, timely, and shared communications strategy engaging with Iqaluit residents across multiple media could have gone a long way towards addressing these issues.

3.2 Recommendations

Stemming from the findings and analysis of this review, the following recommendations are offered to strengthen response to future incidents which may require collaboration between multiple levels of government:

1. **Develop an Updated Territorial Emergency Management Plan to include a Risk Management Framework**

Develop an updated Territorial Emergency Management Plan which includes a clearly defined division of responsibilities and codifies a collaborative, interagency risk-management framework and decision-making process for assessing the most pressing risks and relevant emergency-response objectives for mitigation based on available information. This approach would help to ensure stronger alignment of emergency-response objectives and local circumstances. In addition a shared framework would support municipal governments to maintain a sense of ownership over responses involving multiple levels of government, with clearer frame of reference for the degree of external support needed for mitigation efforts. Such a plan would also prescribe a mechanism for finding an appropriate resolution in the event that CGS and/or municipal governments have differing opinions concerning emergency-response priorities or the magnitude of associated risks.

2. **Amend Territorial Legislation to Clarify Emergency-Response Roles and Responsibilities**

Amend territorial legislation, such as the *Emergency Measures Act*, *Hamlets Act*, and *Cities, Towns, and Villages Act*, to provide clarity regarding the roles and responsibilities of various levels of government when both a state of local emergency and territorial state of emergency are declared, and/or ensure that state of emergency orders include such specifications.

3. **Hold Annual or Biannual Emergency-Response Training**

Hold annual or biannual emergency-response training sessions and exercises with all levels of government to review the emergency management plan, review roles and responsibilities of key personnel, and to discuss whether any updates or modifications to the plan may be necessary. This would help to ensure that, regardless of turnover, all staff in pertinent positions would be kept up to date with the latest emergency plan, and that additional contingencies could be developed based on events/developments from the previous year. CGS currently funds Community Emergency Response Preparedness (CERP) training that is administered by the Nunavut Municipal Training Organization. The CERP training was most recently provided to the City of Iqaluit from February 6th to 10th 2023. It may be necessary to update the training materials used to account for the lessons learned during the Iqaluit Water Emergency, as outlined in this report.

4. **Develop a Fully Operational Mobile Water Treatment Plant**

To ensure its ability to quickly produce treated water in an emergency situation, CGS should develop a fully-operational mobile water treatment plant (MWTP) for rapid deployment in an emergency, in addition to developing more robust documentation to assist future CGS staff in commissioning the unit.

5. **Provide Onboarding Material to Staff**

Provide onboarding material to certain key personnel (in both territorial and municipal government roles), at the time of hiring, containing information on key responsibilities and duties pertinent to the legislated roles of each respective level of government in an emergency situation. This would allow staff to review and familiarize themselves with the material in their own time and would provide all personnel with a copy of the emergency management plan as it pertains to their individual role to ensure preparedness in the event that an emergency situation occurs.

6. Maintain Roster of Communications Staff

A roster of communications staff fluent in Nunavut's official languages should be maintained so that these individuals can be called upon during a territorial state of emergency. As required, these staff should also be seconded to the government leading the emergency response to enact a timely and consistent communications strategy in each of Nunavut's official languages.

7. Secure a Heated Storage Facility

Secure heated, waterproof, and/or water-resistant storage spaces in Iqaluit (and other strategic locations) in which to house bottled water, water-treatment equipment, stainless-steel water tanks, and other critical items that would otherwise be subject to damage if stored outdoors or in a non-climate-controlled storage facility. This would ensure that reserve supplies of bottled water are preserved for longer periods of time, in addition to reducing pressure to charter in bottled water in the early stages of an emergency, and ensuring that vital equipment, such as water-treatment assets, can be safely stored.

Appendix A.

Interview Guides

Master Interview Guide - City of Iqaluit and Other Stakeholders

Name(s):	
Organization:	
Position:	
Date/Time:	
Interviewer:	
Consent:	Do we have consent to use the information we gather through this engagement to inform research that will be presented to CGS? <input type="checkbox"/> Yes <input type="checkbox"/> No

Background

The Government of Nunavut’s Department of Community and Government Services (GN CGS) has initiated a review of its response to the 2021 Iqaluit Water Emergency. This review will endeavour to highlight the actions taken, challenges and successes, outcomes achieved, and lessons learned by the various stakeholders involved in the emergency response.

This review, and the report it will lead to, will be informed by a series of interviews with the individuals involved in the emergency response. This interview seeks to generate a deeper understanding of the emergency response from the perspective of those who led, or directly participated in, the response.

Several of the questions listed below are in reference to the following emergency-response objectives, as articulated by the GN’s emergency-management plan:

- I. Address short-term drinking-water needs by providing bottled water.
- II. Produce treated water in the community to meet drinking water needs and reduce dependency on bottled water supply plans.
- III. Ensure residents have access to water via utilidor via a by-pass Iqaluit Treatment Plant to move from “do not consume” to a Boil Water Advisory.
- IV. Identify specialized treatment and system flushing options.
- V. Maintain public confidence through intentional communications.

Questions

1. Could you briefly describe the position you held during the Iqaluit Water Emergency, and the role you played in supporting the emergency response?
2. From your perspective, regarding the coordination of the various stakeholders involved in the emergency response (e.g., City of Iqaluit, Government of Nunavut, contractors, etc.):
 - a. Which aspects of the coordination of the various stakeholders involved worked well?

- b. Can you think of any ways in which the coordination of the various stakeholders involved in the response could have been improved?
3. From your perspective, regarding the GN's emergency-response objectives (listed above):
 - a. To what extent were these objectives effective in directing the energies and resources of all those involved in the emergency response?
 - b. Were there any relevant factors that were not addressed by these objectives?
4. From your perspective, regarding your involvement in the emergency response:
 - a. What were your biggest successes in supporting the emergency response?
 - b. What were the most significant challenges you faced in supporting the emergency response?
 - c. What lessons can be drawn from your experience supporting the emergency response?
5. Do you have anything else to add?

Thank you for your time and input!

Master Interview Guide – GN and Contractors

Name(s):	
Organization:	
Position:	
Date/Time:	
Interviewer:	
Consent:	Do we have consent to use the information we gather through this engagement to inform research that will be presented to CGS? <input type="checkbox"/> Yes <input type="checkbox"/> No

Background

The Government of Nunavut’s Department of Community and Government Services (GN CGS) has initiated a review of its response to the 2021 Iqaluit Water Emergency. This review will endeavour to highlight the actions taken, challenges and successes, outcomes achieved, and lessons learned by the various stakeholders involved in the emergency response.

This review, and the report it will lead to, will be informed by a series of interviews with the individuals involved in the emergency response. This interview seeks to generate a deeper understanding of the emergency response from the perspective of those who led, or directly participated in, the response.

Several of the questions listed below are in reference to the following emergency-response objectives, as articulated by the GN’s emergency-management plan:

- I. Address short-term drinking-water needs by providing bottled water.
- II. Produce treated water in the community to meet drinking water needs and reduce dependency on bottled water supply plans.
- III. Ensure residents have access to water via utilidor via a by-pass Iqaluit Treatment Plant to move from “do not consume” to a Boil Water Advisory.
- IV. Identify specialized treatment and system flushing options.
- V. Maintain public confidence through intentional communications.

Questions

1. Could you provide a brief overview of the position you held during the Iqaluit Water Emergency, and the role that you played in the emergency response?
2. From your perspective, regarding coordination of the various stakeholders involved in the emergency response:
 - a. Which aspects of the coordination of the various stakeholders involved worked well?

- b. Can you think of any ways in which the coordination of the various stakeholders involved could have been improved?
3. Regarding the emergency-response objectives in general:
 - a. From your perspective, to what extent were these objectives effective in directing the energies and resources of all those involved in the emergency response?
 - b. From your perspective, were there any relevant factors that were not addressed by these objectives?
4. Which of the emergency-response objectives were you involved in addressing?
5. For each of the emergency-response objectives you were involved in addressing:
 - a. To what extent were you involved in this objective? What actions were you involved in?
 - b. From your perspective, to what extent were the actions that you were involved in effective in supporting this objective?
 - c. What were the most significant challenges you, your team, and/or your department faced in supporting this objective?
 - d. Considering all efforts directed toward this objective, what were the biggest successes in meeting this objective?
 - e. What were the key challenges in meeting this objective?
 - f. What lessons can be drawn from your experience working towards this objective as part of the emergency response?

Thank You for Your Time and Input!

Appendix B.

City of Iqaluit Letter in Response to the Review



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May 12, 2023

Re: CGS & City Engagement – Iqaluit Water Emergency Response

Good afternoon Mr. Seeley,

I would like to take this opportunity to acknowledge your commitment to the City of Iqaluit in respect to the sharing, open communication and engagement pertaining to the draft report received by Community and Government Services as it relates to the recent Emergency Response Review undertaken by the Government of Nunavut.

Upon completing a fulsome review of the draft report, I want to acknowledge that the emergency measures implemented, the noted key lessons learned as well as the recommendations noted within the draft report are not in dispute, and further does not present any concerns at this time.

The City of Iqaluit will continue collaborating and fostering its strong partnership and communication with the Government of Nunavut to ensure community supports for all Iqalummiut.

If you have any follow up comments, please feel free to contact me at your convenience.

Sincerely,

Rod Mygford
Acting Chief Administrative Officer

Cc Jessica Young, Assistant Deputy Minister – Local Government
Community and Government Services.

