OPERATIONAL PLAN

Ignace Drinking Water System

Revision 9

NORTHERN WATERWORKS INC.

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DWQMS Matrix

The DWQMS Matrix provided below indicates how the PLAN requirements of Ontario's DWQMS are addressed by Northern Waterworks Inc. DWQMS Elements are addressed through a combination of documentation which includes Operational Plans, corporate procedures and system-specific procedures. This matrix is intended to facilitate the understanding of the reader with respect to the structure of NWI's QMS. Additionally, this matrix will act to facilitate internal and external auditing processes.

DWQMS Element	Document Title
1 – Quality Management System	Operational Plan [IDWS-OP]
2 – QMS Policy	Operational Plan [IDWS-OP]
3 – Commitment and Endorsement	Operational Plan [IDWS-OP]
4 – QMS Representative	QMS Representative Policy [NWI-QMS-4]
5 – Document & Records Control	Document & Records Control Procedure [NWI-QMS-5]
6 – Drinking-Water System	Operational Plan [IDWS-OP]
7 – Risk Assessment	Risk Assessment Procedure [NWI-QMS-7]
8 – Risk Assessment Outcomes	Risk Assessment Outcomes [IDWS-QMS-8]
9 – Organizational Structure, Roles, Responsibilities and Authorities	Organizational Structure, Roles, Responsibilities & Authorities Policy [NWI-QMS-9]
10 – Competencies	Competencies Policy [NWI-QMS-10]
11 – Personnel Coverage	Personnel Coverage Policy [NWI-QMS-11]
12 – Communications	QMS Communication Procedure [NWI-QMS-12]
13 – Essential Supplies and Services	Essential Supplies and Services Procedure [NWI-QMS-13]
14 – Review and Provision of Infrastructure	Review and Provision of Infrastructure Procedure [NWI-QMS-14]
15 – Infrastructure Maintenance, Rehabilitation and Renewal	Operational Plan [IDWS-OP]
16 – Sampling, Testing and Monitoring	Sampling, Testing and Monitoring Procedure [IDWS-QMS-16]
17 – Measurement and Recording Equipment Calibration and Maintenance	Measurement and Recording Equipment Calibration and Maintenance Procedure [NWI-QMS-17]
18 – Emergency Management	Emergency Management Procedure [NWI-QMS-18]
19 – Internal Audits	Internal Audit Procedure [NWI-QMS-19]
20 – Management Review	Management Review Procedure [NWI-QMS-20]
21 – Continual Improvement	Continual Improvement Procedure [NWI-QMS-21]

1 Quality Management System

The Drinking Water Quality Management System (QMS) for the Ignace Drinking Water System is documented in this Operational Plan as part of NWI's efforts to ensure that safe and clean drinking water is reliably supplied to all customers served by this system. The development and continual improvement of the Operational Plan will help to ensure that all regulatory requirements are met and that consumers can be confident that their drinking water will be protected through the effective application of the QMS. This Operational Plan was developed to meet the Ministry's Drinking Water Quality Management Standard.

2 Quality Management System Policy

The Corporation of the Township of Ignace utilizes the services of Northern Waterworks Inc. (NWI), an independent contracted operating authority, to operate, maintain and manage the Ignace Drinking Water System (as per agreement). The Township of Ignace and Northern Waterworks Inc. are committed to the following:

1) Providing the consumer with clean, safe drinking water.

2) Meeting or exceeding all applicable legislative and regulatory requirements; and,

3) Maintaining and continually improving our quality management system.

3 Commitment and Endorsement

The Township of Ignace and NWI support the implementation, maintenance and continual improvement of a drinking water Quality Management System for the Ignace DWS, as documented in this Operational Plan. The Township and NWI acknowledge the need for and support the provision of sufficient resources to maintain and continually improve the QMS. For the purposes of the QMS, the persons in the undersigned authorized positions shall represent the Township of Ignace as the system Owner and NWI as the accredited operating authority, respectively. The undersigned hereby endorse this Operational Plan:

Name & Title:	Signature:	Date:
Aaron Gullins Chief Administrative Officer The Township of Ignace	Signed by: Aaron Gullins F7D43276BE8B472...	19 August 2024 | 10:29 EDT
Robert Lariviere Chief Operating Officer Northern Waterworks Inc.	Signed by: Robert Lariviere 15ABA365FB3E472...	21 August 2024 | 13:57 PDT

Endorsement of the QMS shall be updated when there are changes to the Operational Plan (OP) document or the authorized representative positions. New signatures are not required when the person in an authorized signatory position changes

4 QMS Representative

Refer to the *QMS Representative Policy* [NWI-QMS-4].

5 Document & Records Control

Refer to the *Document and Records Control Procedure* [NWI-QMS-5].

6 Drinking-Water System

6.1 System Overview

The Ignace Drinking Water System (DWS) provides a potable water supply to the community of Ignace. The system is composed of the Raw Water Pumping Station (RWPS), the Ignace Water Treatment Plant (IWTP, a Class II membrane filtration facility with a rated capacity of 2,730 m^3/day) and the Ignace water distribution system (a Class I water distribution system). The Ignace DWS is owned by the Corporation of the Township of Ignace and Northern Waterworks Inc. serves as the accredited operating authority.

The source water for the treatment process is drawn from a surface water source (Kekwanzik Lake) located within the Township. Potential pathogenic organisms are removed from the raw water by coagulation, membrane ultrafiltration and free chlorine disinfection processes. This multiple barrier approach helps to ensure consistently safe and clean drinking water.

6.2 Source Water Characteristics and Event-Driven Fluctuations

General characteristics for the source water (Kekwanzik Lake) are provided below:

Parameter	Results Range[1] (2011 - 2021)	Average (2011 - 2021)
Turbidity (NTU)	0.22 – 4.16	0.64
UV Transmittance (%)[2]	81.7 – 88.6	84.1
Temperature (°C)	2 - 24	9
pH	6.9 - 7.7	7.2
Alkalinity (mg/L $CaCO_3$)	10 - 23	13
E. Coli (MPN/100mL)	0 - 9	---
Total Coliforms (MPN/100mL)	0 - >2420	---

1. The minimum and maximum values for the results range are expressed as minimum and maximum monthly averages. Results in the table were compiled from water quality data collected between January 1, 2011, and December 31, 2021.
2. Raw water UVT testing commenced in 2019.

Event-driven fluctuations in the source water and subsequent operational challenges are summarized as follows:

(1) Algal blooms in the source water are a perennial concern, whereby such events could interfere with membrane filtration treatment processes and associated toxins may pose a risk of treated water contamination. Monitoring processes, control measures and contingency plans are available to minimize the operational challenges posed by algal blooms.

(2) Seasonal changes in water temperature may impact treatment performance as it concerns membrane filtration and disinfection processes. Higher water temperatures are also associated with increased biological activity in the source water, resulting in high turbidity, natural organic matter concentrations, micro-organism counts, and the potential for taste and odour problems.

Generally, these seasonal changes pose only minor challenges and can be anticipated. These seasonal changes may require adjustments to treatment processes or chemical dosages.

(3) A deterioration in source water quality may be associated with annual spring run-off, significant rainfall events, and/or sustained winds. Such situations may require timely adjustments to treatment processes and dosages.

(4) Kekwanzik Lake is a headwater lake that is primarily spring fed with no inflows, and lake levels are closely monitored to determine the impact of municipal water takings. A minimum lake level of 437.11 m above sea level was established in 2016. Water levels below this value trigger water conservation measures, which are intended to mitigate potential environmental concerns in the source water including, but not limited to, protecting fish spawning habitats (i.e., low lake levels do not impact the supply of safe drinking-water to the community).

Monitoring reports have concluded that environmental factors rather than municipal water takings have the most significant impact on water levels. Notably, lake elevation most recently fell below the established minimum value in 2018, and future excursions below this value are expected. Monitoring processes, control measures (e.g., water conservation measures and treatment modifications) and contingency plans are available to manage low lake level events.

(5) A limited number of potential pollution sources are known to affect Kekwanzik Lake. The area is influenced by some recreational activities and is susceptible to natural bacteriological contamination by wildlife.

Monitoring processes (e.g., routine or additional regulatory sampling and water quality testing, continuous monitoring), control measures (including normal treatment barriers) and contingency plans are available to minimize the operational challenges posed by a source water contamination event.

6.3 Treatment Processes

6.3.1 Source Water Intake & Pumping

Source water is obtained from Kekwanzik (Michel) Lake, which is a spring fed lake with no known inflows and a single outlet stream. Water is drawn through a 300 mm diameter by 440 m long HDPE intake pipe terminating at the Raw Water Pumping Station (RWPS) located on the south shore. Water is gravity-fed into two (2) intake wells (reservoirs), each of which is equipped with a stationary screen. Four low lift pumps located at the RWPS are available to transfer source water directly to the coagulation tanks at the Ignace Water Treatment Plant. Source water is transferred through a 250 mm diameter by 3,100 m long transmission line extending from the pumping station to the treatment facility.

Water production and the operation of the raw water pumps are responsive to the water level in the treated water reservoir. When the level in the reservoir reaches a predetermined lower set point, water production commences; when the upper set point is reached, the flow of raw water ceases. The rate of water production and flow is determined by community demand and the capacity of the facility.

6.3.2 Coagulation

At the treatment facility, raw water passes through two (2) water strainers for the physical removal of debris. A primary coagulant is then added to the incoming raw water upstream from two (2) 7,500 L coagulation tanks, each equipped with an electric mixer. Rapid mixing of the primary coagulant chemical with the raw water occurs as the raw water passes through a common in-line static mixer. In the coagulation tanks, gentle mixing promotes the formation of an insoluble floc that will facilitate downstream membrane filtration processes.

The coagulant chemical feed system at the facility consists of two (2) 1,512 L chemical storage tanks and two (2) chemical metering pumps in a duty/standby configuration with automatic switchover capability. The chemical storage tanks are equipped with spill containment. Coagulant is applied year-round to maximize the removal of natural organic matter and to minimize disinfection by-product formation.

6.3.3 Membrane Filtration

Water is directed from the coagulation tanks to the four available membrane filtration units, each rated at 910 m^3/day and consisting of 24 ultrafiltration cassettes. The filters are immersed in process water and operate under a low vacuum created within the hollow fibers by a permeate pump (one pump per filtration unit, each rated at 63 m^3/hour). During production, water (permeate) is drawn through the membrane by the applied vacuum, effectively filtering impurities from the water. Permeate is then collected and transferred to the treated water storage reservoir. Each membrane filtration unit is equipped with one flowmeter and one turbidimeter.

The integrity of the membrane ultrafilters is monitored using a fully automated Membrane Integrity Test system (i.e., pressure decay tests) and turbidity analyzers connected to each

of the four process-train permeate discharge lines. The results of pressure decay tests are used to determine the pathogen log removal values achieved by the membrane ultrafilters.

The flow through the membranes is monitored, as is the vacuum pressure applied to the membranes. As the water is drawn through the membranes during filtration, solids accumulate on the membrane surface. As the solids accumulate, they restrict the flow through the membranes and eventually membrane cleaning is required to maintain the filtered water flow rate.

Regular automatic air scour and backwash (backpulse) processes are used to remove accumulated solids from the filter units. The backwash process uses the dedicated permeate pumps and filtered water stored in backpulse tanks to reverse the flow of water through the membrane filters. Following an automatic backwash, filtrate is directed to the backpulse tank; once the tank is full, filtrate is once again directed to the treated water storage reservoir. Backwashes can also be completed manually under operator control.

Additional chemical feed systems are used for periodic membrane filter cleaning and neutralization procedures, including sodium hypochlorite, citric acid, sodium bisulphite, and sodium hydroxide. These less frequent cleaning procedures are used to control organic and inorganic fouling of the membrane filters.

6.3.4 Disinfection

Sodium hypochlorite addition is used to achieve both primary and secondary disinfection at the Ignace Water Treatment Plant. Primary disinfection ensures that any potentially pathogenic organisms that remain after previous treatment processes are destroyed or inactivated. To achieve primary disinfection, sodium hypochlorite solution is applied to the filtrate upstream from the treated water storage reservoirs. Consistent disinfection is ensured by continuous monitoring of the disinfectant residual in filtrate and in treated water leaving the facility.

Secondary disinfection requirements are achieved by adding a sufficient amount of free chlorine at the water treatment plant to maintain a residual throughout the distribution system. The purpose of this procedure is to prevent the growth of biofilm within the distribution system and to protect the water from re-contamination as it flows through the community.

The sodium hypochlorite disinfection system at the Ignace WTP consists of one (1) 1,060 L sodium hypochlorite storage tank with spill containment, two (2) metering pumps in duty/standby configuration with a primary disinfection feed point on the filtrate line prior to discharge to the clear wells, and two (2) metering pumps in duty/standby configuration with a secondary disinfection point on the high lift pump discharge header. The metering pumps associated with the primary disinfection system are configured with automatic switchover capability and alarms.

6.3.5 Treated Water Storage and Delivery

Following filtration and the application of disinfectant, filtrate is directed to the two-celled interconnected in-ground reservoir, with a total volume of approximately 1,800 m^3. The reservoir uses a baffling system to allow the disinfectant to mix adequately with the water. Disinfected water is then held in the reservoir for a sufficient amount of time to achieve primary disinfection.

Five high lift pumps are available to transfer treated water from the reservoirs to the Ignace water distribution system. Four of the pumps are rated at 15.8 L/s at a total dynamic head of 60 m. The fifth pump is a high-capacity pump rated at 95 L/s at a total dynamic head of 60 m. The high lift pumps are connected with separate suction lines to a common treated water discharge header, complete with a flowmeter. During operation, the pumps pressurize four pneumatic pressure tanks. These tanks provide pressure and flow to the distribution system while the pumps are off, in addition to assisting with pump cycling. Operation of the high lift pumps is controlled by a pressure switch located on the distribution header inside the water treatment plant. The flow and disinfectant residual are continuously monitored in treated water leaving the facility.

6.3.6 pH Adjustment

A pH adjustment chemical (sodium hydroxide) is available to adjust the pH of treated water to a level that will help prevent corrosion in the water distribution system. The sodium hydroxide chemical feed system consists of two (2) 379 L chemical storage tanks with spill containment, two (2) chemical metering pumps in a duty/standby configuration with automatic switchover capability, and a feed point on the high lift pump discharge header. Generally, treated water pH is maintained between 7.2 to 7.6.

6.3.7 Process Waste Residuals Management

Backpulse and wastewater from the membrane filtration units is directed to a waste equalization tank with a storage volume of 186 m^3. Two (2) waste discharge pumps are available to transfer process wastewater from the tank to the sanitary sewer system. A level sensor monitors the level in the waste equalization tank, which in turn controls pump operation.

6.3.8 Instrumentation and Emergency Power

Critical process instrumentation at the Ignace Water Treatment Plant includes one (1) raw water flow measuring device, four (4) filtered water flow measuring devices (one for each filter unit), one (1) treated water flow measuring device, four (4) online filtrate turbidimeters (one for each filter unit), one (1) filtrate free chlorine residual analyzer, one (1) treated water pH and free chlorine residual analyzer and two (2) water level indicators for measuring the water level in the treated water reservoirs. These instruments are integrated with two (2) programmable logic controllers (one of which is devoted to the control of filter operations) and the facility's SCADA system. Alarm conditions are routed by the SCADA system to a programmable autodialer for transmission.

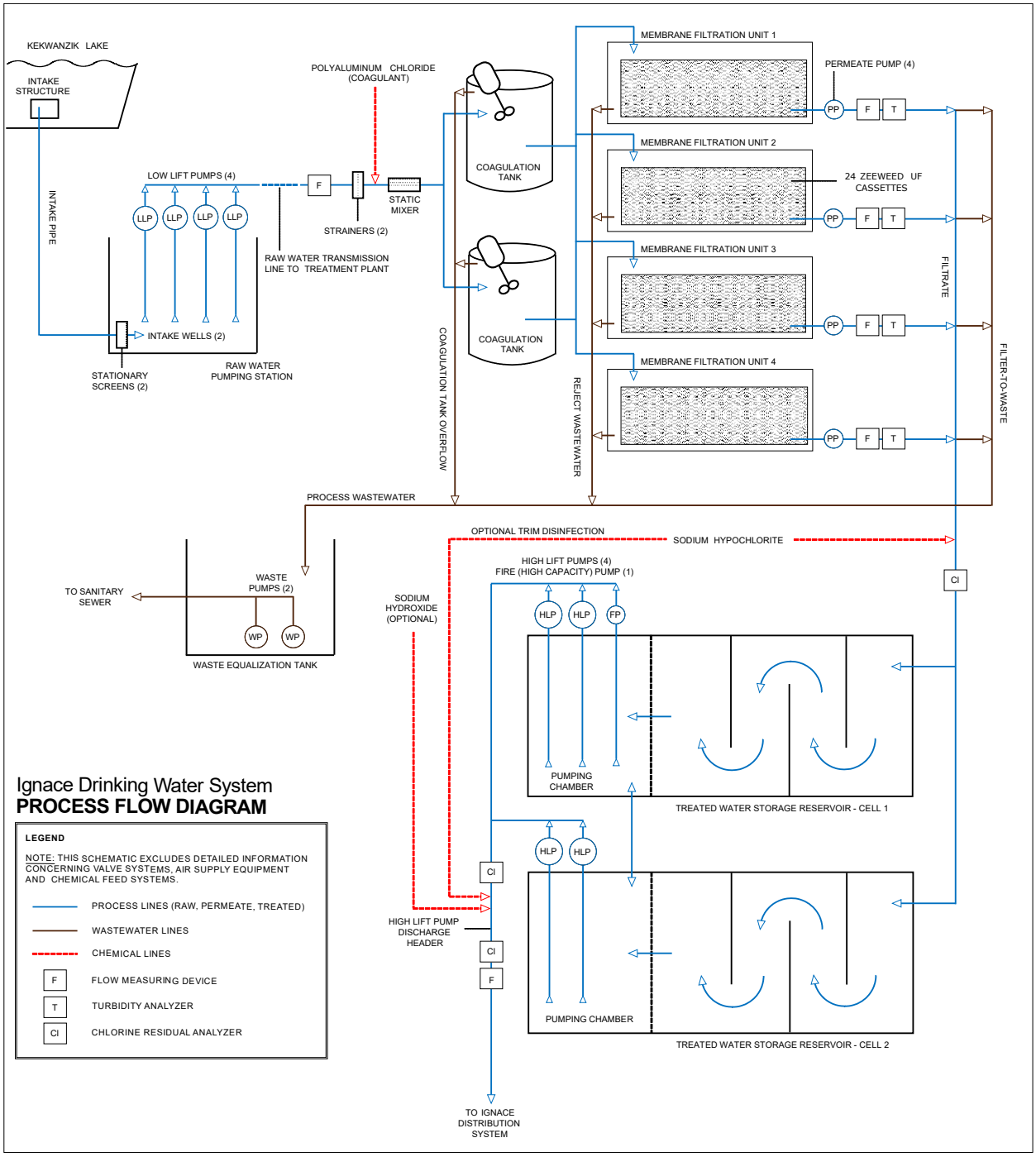
One (1) 200 kW standby diesel generator set is available to supply emergency power to the treatment facility. Another 60-kW standby diesel generator set is available to supply emergency power to the raw water pumping station.

6.4 Distribution System Components

Treated water enters the water distribution system through a 330 m (350 mm diameter) water main supply line. This supply line runs from the water treatment plant to Pine Street, south of Highway 17. The Ignace water distribution system consists of approximately 20.4 km of watermain, 140 watermain gate valves and 142 hydrants. Watermain materials consist of cast iron, PVC, and asbestos-cement; watermain sizes consist mostly of 6-inch diameter pipe, but also include 8-inch and 10-inch sections. The vast majority of distribution system components were installed in the 1970s.

6.5 Process Flow Diagram

A process flow diagram for the system is provided on the following page.



Ignace Drinking Water System
PROCESS FLOW DIAGRAM

LEGEND

NOTE: THIS SCHEMATIC EXCLUDES DETAILED INFORMATION CONCERNING VALVE SYSTEMS, AIR SUPPLY EQUIPMENT AND CHEMICAL FEED SYSTEMS.

- PROCESS LINES (RAW, PERMEATE, TREATED)
- WASTEWATER LINES
- CHEMICAL LINES
- F — FLOW MEASURING DEVICE
- T — TURBIDITY ANALYZER
- CI — CHLORINE RESIDUAL ANALYZER

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7 Risk Assessment

Refer to the *Risk Assessment Procedure* [NWI-QMS-7].

8 Risk Assessment Outcomes

8.1 Interpretation of the Risk Assessment Outcomes

The risk assessment outcomes were developed using the *Risk Assessment Procedure* [NWI-QMS-7]. This procedure contains all the information necessary to interpret the *Risk Assessment Outcomes* for the Ignace Drinking Water System [IDWS-QMS-8]. The risk assessment outcomes include the following:

(1) Potential hazardous events and associated hazards.

(2) Assessed risks associated with the occurrence of hazardous events, including considering the likelihood, severity, and detectability of the event.

(3) Ranked hazardous events.

(4) Monitoring processes and control measures associated with each hazardous event.

(5) Critical control points and their respective critical control limits; and,

(6) Response procedures for hazardous events.

8.2 Monitoring Critical Control Limits

Various monitoring processes are in place to monitor critical control limits and to identify deviations from those limits. Critical control limits and other parameters associated with critical control limits are monitored by the following processes:

(1) Continuous monitoring and alarm systems (e.g., instrumentation and trending associated with filtrate turbidity, free chlorine residual, flow, etc.). Alarm systems notify operators when critical control limits or other alarm set points have been breached.

(2) Routine regulatory sampling (e.g., weekly microbiological analyses, quarterly chemical analyses, annual chemical analyses, etc.).

(3) Routine water quality testing (e.g., daily tests for free chlorine and turbidity, raw and process water quality tests, etc.).

(4) Operational checks, where operators inspect facilities on a daily basis and collect and interpret data such as pump hours, flows, instrumentation readings and compliance information.

(5) Additional operational checks associated with planned maintenance, where certified operators conduct more detailed inspections of facilities on a monthly basis; and,

(6) Notification from external parties (e.g., notification that a chemical contamination event has occurred, notification of a large fire in the community, a water quality complaint that results in the identification of a cross-connection, etc.).

8.3 Critical Control Limit Deviations

Procedures outlining how to respond to, report and record deviations from critical control limits exist as a series of *Emergency Response Procedures*. Specifically, *Emergency Response Procedures* contain step-by-step response instructions, including instructions related to communication protocols and recordkeeping requirements.

All critical control limit deviations are recorded in the facility logbook but may also be recorded within Adverse Water Quality Incident documentation, call-out records, customer complaint records and operational spreadsheets.

9 Organizational Structure, Roles, Responsibilities and Authorities

Refer to the *Organizational Structure, Roles, Responsibilities & Authorities Policy* [NWI-QMS-9].

10 Competencies

Refer to the *Competencies Policy* [NWI-QMS-10].

11 Personnel Coverage

Refer to the *Personnel Coverage Policy* [NWI-QMS-11].

12 Communications

Refer to the *QMS Communication Procedure* [NWI-QMS-12].

13 Essential Supplies and Services

Refer to the *Essential Supplies and Services Procedure* [NWI-QMS-13].

14 Review and Provision of Infrastructure

Refer to the *Review and Provision of Infrastructure Procedure* [NWI-QMS-14].

15 Infrastructure Maintenance, Rehabilitation, & Renewal

15.1 Planned Maintenance, Rehabilitation, & Renewal

NWI, under contract with the owner, maintains a program of scheduled inspection and maintenance of infrastructure for which it is operationally responsible. Maintenance activities are developed according to manufacturer instructions, regulatory requirements, industry standards and/or client service requirements. Records of planned maintenance activities are controlled in accordance with NWI's *Document and Records Control Procedure* [NWI-QMS-5]. The major components of the infrastructure maintenance, rehabilitation and renewal programs in place for the Ignace Drinking Water System are described below.

(1) The *Planned Maintenance Activities* Standard Operating Procedure documents a comprehensive program that is carried out by operations staff at the Ignace Drinking Water System on a monthly or less frequent basis. This procedure dictates planned inspection and maintenance activities associated with infrastructure components including pumps, valves, chemical feed systems, treatment equipment, emergency response equipment, standby power systems, heating systems, lighting and other components necessary to ensure a safe and reliable supply of drinking-water.

This procedure also facilitates infrastructure rehabilitation and renewal, as it requires the identification and reporting of deficiencies. Identified deficiencies may be addressed through operational budgets, particularly as it concerns the rehabilitation and renewal of smaller infrastructure components such as chemical feed systems and valves.

(2) The *Measurement and Recording Equipment Calibration and Maintenance Procedure* documents certain planned calibration and maintenance activities that are specific to instrumentation. The associated *Calibration and Maintenance Records* are used to indicate a variety of maintenance activities, such as instrument inspection, cleaning and quality assurance. Generally, such activities are carried out by operations staff on a monthly basis.

(3) Additional maintenance is performed on each of the four membrane filtration units depending upon various operational indicators and in accordance with established Standard Operating Procedures. Such maintenance tasks include performing manual backwashes, recovery cleans and repairs. Membrane filter cleans utilizing sodium hypochlorite are typically conducted twice a year, in order to remove organic buildup. Citric acid cleans are conducted as required based upon transmembrane pressure results. These cleans are designed to removed inorganic buildup. Maintenance activities related to the membrane filters are recorded in the operational spreadsheets.

(4) Concerning distribution system components, the water distribution system is flushed, and hydrants are operated and inspected on an annual basis. Major distribution system and hydrant deficiencies identified during this program are used to plan for future maintenance activities.

(5) NWI monitors and coordinates additional maintenance activities that include infrastructure inspection, maintenance or servicing that occur on a recurring but less frequent basis. Examples of such activities include flow meter calibration verification, backflow prevention device testing, reservoir cleaning and inspections, thermal imaging inspections, emergency generator servicing and load testing, the replacement of various critical components, etc.

(6) The *Review and Provision of Infrastructure Procedure* [NWI-QMS-14] and annual budgeting procedures are the main methods through which infrastructure rehabilitation and renewal occurs. Specifically, the annual infrastructure review process evaluates overall infrastructure adequacy and provision. This process also requires the identification of deficiencies and the application of recommendations to address those deficiencies. The outcomes of the infrastructure review represent the main inputs into annual capital expenditure budgets prepared by NWI for consideration and approval by the Township of Ignace. The integration of annual budgeting and infrastructure review processes represents a continuous and cohesive effort to identify deficiencies and plan for infrastructure rehabilitation and renewal.

15.2 Unplanned Maintenance

Unplanned maintenance tasks related to the treatment component of the Ignace Drinking Water System result from equipment or infrastructure failures. Unplanned maintenance is authorized by the Operations Manager or the Overall Responsible Operator. Documentation of these unplanned maintenance tasks are recorded in the facility logbook. Measures to prepare for and expedite unplanned maintenance tasks in these scenarios include equipment interchangeability and redundancy, spare parts inventories and the availability of relevant operations and maintenance manuals.

Unplanned maintenance tasks, infrastructure repair and renewal related to distribution system components of the Ignace Drinking Water System are typically performed by the Township of Ignace with representation from Northern Waterworks Inc. Measures to prepare for and expedite unplanned maintenance tasks include the cataloguing of the distribution system, maintaining a parts inventory and having access to repair procedures.

15.3 Program Monitoring

To ensure that the planned maintenance program remains effective, the *Planned Maintenance Activities* SOP and the *Measurement and Recording Equipment Calibration and Maintenance Procedure* are reviewed and updated annually. This review is facilitated by Compliance and includes Operations Managers and Operators. The review accounts for changes to infrastructure and allows an opportunity to refine and continually improve the maintenance program, particularly as it involves incorporating new best practices.

15.4 Program Communication

NWI's infrastructure maintenance, rehabilitation and renewal programs for the Ignace DWS are communicated to the Township of Ignace on annual basis as a component of the communication of management review results. Significant planned and unplanned infrastructure maintenance, rehabilitation and renewal activities are also described in monthly operational reports submitted to the Township.

16 Sampling, Testing & Monitoring

Refer to the *Sampling, Testing, & Monitoring Procedure* for the Ignace Drinking Water System [IDWS-QMS-16].

17 Measurement and Recording Equipment Calibration and Maintenance

Refer to the *Measurement and Recording Equipment Calibration and Maintenance Procedure* [NWI-QMS-17].

18 Emergency Management

Refer to the *Emergency Management Procedure* [NWI-QMS-18].

19 Internal Audits

Refer to the *Internal Audit Procedure* [NWI-QMS-19].

20 Management Review

Refer to the *Management Review Procedure* [NWI-QMS-20].

21 Continual Improvement

Refer to the *Continual Improvement Procedure* [NWI-QMS-21].

22 Revision History

Date	Revision	Comments
1-Dec-2009	1	Initial publication of Operational Plan
1-Jul-2011	2	Revisions to address external audit results.
20-Sep-2012	3	Publication of new version following QMS restructuring.
3-Jan-2013	4	Update to section 6 (Drinking-Water System).
28-Oct-2013	5	Update to Section 3 (Commitment and Endorsement).
29-Apr-2014	6	Updates to section 15 (Infrastructure Maintenance, Rehabilitation, and Renewal); section 13 (Essential Supplies and Services) removed following replacement with corporate procedure.
3-Jan-2018	7	Updates to sections 2 (QMS Policy), 3 (Commitment and Endorsement), 6 (Drinking-Water System), 15 (Infrastructure Maintenance, Rehabilitation, and Renewal) and 21 (Continual Improvement).
3-Oct-2022	8	Updates to sections 3 (Commitment and Endorsement), 6 (Drinking-Water System), and 15 (Infrastructure Maintenance, Rehabilitation, and Renewal).
9-Aug-2024	9	Updated to include new NWI Chief Operating Officer and new Township CAO, Update to section 3 (Commitment and Endorsement)

Ontario

Ministry of the Environment, Conservation and Parks

Schedule C – Director's Directions for Operational Plans (Subject System Description Form)

Municipal Residential Drinking Water System

Fields marked with an asterisk (*) are mandatory.

Owner of Municipal Residential Drinking Water System *

The Corporation of the Town of Ignace

Subject Systems

Name of Drinking Water System (DWS) *	Licence Number *	Name of Operating Subsystems (if applicable)	Name of Operating Authority *	DWS Number(s) *
1. Ignace Drinking Water System	227-101		Northern Waterworks Inc.	260091338

Contact Information for Questions Regarding the Operational Plan

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