

Operational Plan

Ignace Drinking Water System

IDWS-OP-3.4

Revision Date: January 3, 2018
Version: 3.4
Internal Reference: IDWS-OP-3.4
Page: 1 of 16



This document is considered uncontrolled when printed.

Table of Contents

0	DWQMS Matrix	Page 3
1	Quality Management System	Page 4
2	Quality Management System Policy	Page 4
3	Commitment and Endorsement	Page 4
4	Quality Management System Representative	Page 5
5	Document and Records Control	Page 5
6	Drinking-Water System	Pages 5 - 11
7	Risk Assessment	Page 12
8	Risk Assessment Outcomes	Pages 12 - 13
9	Organizational Structure, Roles, Responsibilities and Authorities	Page 13
10	Competencies	Page 13
11	Personnel Coverage	Page 13
12	Communications	Page 13
13	Essential Supplies and Services	Page 13
14	Review and Provision of Infrastructure	Page 13
15	Infrastructure Maintenance, Rehabilitation and Renewal	Pages 14 - 15
16	Sampling, Testing and Monitoring	Page 15
17	Measurement and Recording Equipment Calibration and Maintenance	Page 15
18	Emergency Management	Page 16
19	Internal Audits	Page 16
20	Management Review	Page 16
21	Continual Improvement	Page 16
22	Revision History	Page 16

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

0 DWQMS Matrix

The DWQMS Matrix provided below indicates how the PLAN requirements of Ontario's DWQMS are addressed by Northern Waterworks Incorporated. 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-3.4]
2 – QMS Policy	Operational Plan [IDWS-OP-3.4]
3 – Commitment and Endorsement	Operational Plan [IDWS-OP-3.4]
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-3.4]
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 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-3.4]
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 [IDWS-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 clean, safe, and reliable drinking water is 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 of the Environment's Drinking Water Quality Management Standard.

2 Quality Management System Policy

The Corporation of the Township of Ignace utilizes the services of Northern Waterworks Incorporated (NWI), an independent contracted operating authority, to operate, maintain, manage and administer the Ignace Drinking Water System (as per agreement). The Township of Ignace and Northern Waterworks Incorporated 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. All the undersigned persons hereby endorse this Operational Plan:

Name & Title:	Signature:	Date:
Marshalina Reader Acting CAO/Clerk/Treasurer Township of Ignace	DocuSigned by: <i>Marshalina Reader</i> F2F3A47D3AB84EF...	January 24, 2018
Lynda Colby Operations Supervisor Township of Ignace	DocuSigned by: <i>Lynda Colby</i> C5F9CB59C78D46D...	January 10, 2018
Jason LeBlanc Chief Administrative Officer Northern Waterworks Incorporated	DocuSigned by: <i>Jason LeBlanc</i> 88889B60117145B...	January 3, 2018
Gilles Vachon Northwest Regional Manager Northern Waterworks Incorporated	DocuSigned by: <i>Gilles Vachon</i> 1C255A37B8324B2...	January 3, 2018

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 General Process Description

The Ignace Drinking Water System provides a potable water supply to the community of Ignace and is composed of the Raw Water Pumping Station (RWPS), the Ignace Water Treatment Plant (IWTP, a Class II membrane filtration facility having an approved rated capacity of 2,730 m³/day) and the Ignace distribution system (a Class I water distribution system). The Ignace DWS is owned by the Corporation of the Township of Ignace and Northern Waterworks Incorporated 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 optional coagulation and flocculation processes, membrane filtration, and 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 supply (Kekwanzik Lake) are provided in the table below.

Parameter	Results Range (2011 - 2017)	Average (2011 - 2017)
Turbidity (NTU)	0.22 – 4.16	0.88
Colour (Pt/Co)	0 - 56	9
Temperature (°C)	2 - 24	10
pH	6.9 - 7.6	7.2
Alkalinity (mg/L as CaCO ₃)	12 - 23	15
E. Coli (MPN/100mL)	<1 - 3	---
Total Coliforms (MPN/100mL)	<1 - >2420	---

*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, 2017.

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

- (1) Algal blooms in the source water pose a recurring concern, whereby such events could interfere with membrane filtration and associated toxins may pose a risk of treated water contamination.

Monitoring processes, control measures and response procedures 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, colour, micro-organism counts, and the potential for taste and odour problems.

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

- (3) Increased source water turbidity and colour 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 chemical dosages.
- (4) A limited number of pollution sources are known to affect Kekwanzik Lake. The lake is influenced by some recreational activities and is susceptible to natural bacteriological contamination by wildlife.

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

- (5) Kekwanzik Lake is a headwater lake that is primarily spring fed with no identified inflows, and lake levels are closely monitored to determine the impact of municipal water takings. A minimum lake level has previously been established, and lake levels below this value initiate the implementation of a water conservation strategy.

Monitoring reports have previously concluded that municipal water takings do not appear to affect lake levels, and there have been no incidents where the lake level has fallen below the minimum value following the beginning of municipal water takings in 2009. Incidents when the lake level may fall below the minimum established value are infrequent.

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 located on the south shore. Water is gravity-fed into two 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. Operation of the low lift pumps is responsive to liquid level in the treated water storage reservoirs. When the level in the reservoirs reaches its upper set point, the flow of raw water will cease. The required rate of flow is determined by community demand, and controlled by an ultrasonic level sensor located in each of the treated water reservoir cells. The RWPS also includes a disinfectant chemical feed system for optional pre-chlorination.

6.3.2 Pre-Treatment Coagulation and pH Adjustment (Optional)

A coagulant (polyaluminum chloride) and a pH adjustment chemical (sulphuric acid) may be added to the incoming raw water upstream from the coagulation tanks at the Ignace Water Treatment Plant. The application of one or both chemicals will depend upon source water quality and other operational considerations, and the chemicals are intended to create a suitable floc that will facilitate membrane filtration processes. Rapid mixing of these chemicals with the raw water occurs as the raw water passes through an in-line static mixer.

Water then enters two coagulation tanks (each with a capacity of 7,500 L) each containing an electric mixer, where gentle mixing promotes the formation of floc (if coagulant has been applied).

6.3.3 Membrane Filtration

Water is directed from the coagulation tanks to the four membrane filtration units, each rated at 910 m³/day and consisting of 24 cassettes of GE ZeeWeed ZW1000 ultrafiltration modules. The filter modules 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 m³/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 (in a similar way to a conventional sand filter). 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.

6.3.5 Treated Water Storage and Delivery

Following disinfection filtrate is directed to the two-celled interconnected in-ground reservoir, with a total volume of approximately 1,800 m³. 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 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.

6.3.6 Post-Filtration Disinfection and pH Adjustment (Optional)

The primary coagulant used at the Ignace Water Treatment Plant may reduce the pH of treated water. A pH adjustment chemical (sodium hydroxide) can be used to adjust the pH of treated water to a level that will not facilitate corrosion in the distribution system. Sodium hypochlorite (disinfectant) can also be added to boost the chlorine residual entering the distribution system. The optional injection points for sodium hypochlorite (trim chlorination) and sodium hydroxide (pH/alkalinity adjustment) are located on the high lift pump common discharge header (i.e. downstream from the reservoir but prior to entry to the distribution system).

6.3.7 Instrumentation and Emergency Power

The Ignace WTP includes PLCs complete with a SCADA system for process monitoring and control. Critical process instruments include one raw water flow measuring device, four filtrate turbidity analyzers, one combined filtrate free chlorine residual analyzer, four filtrate flow measuring devices, one treated water flow measuring device, one treated water turbidity analyzer, and two treated water free chlorine residual analyzers (one for monitoring primary disinfection and one for monitoring secondary disinfection).

A 200-kW standby diesel generator is available to supply emergency power to the water treatment facility, while a 60-kW standby diesel generator is available to supply emergency power to the raw water pumping station.

6.3.8 Process Waste Residuals Management

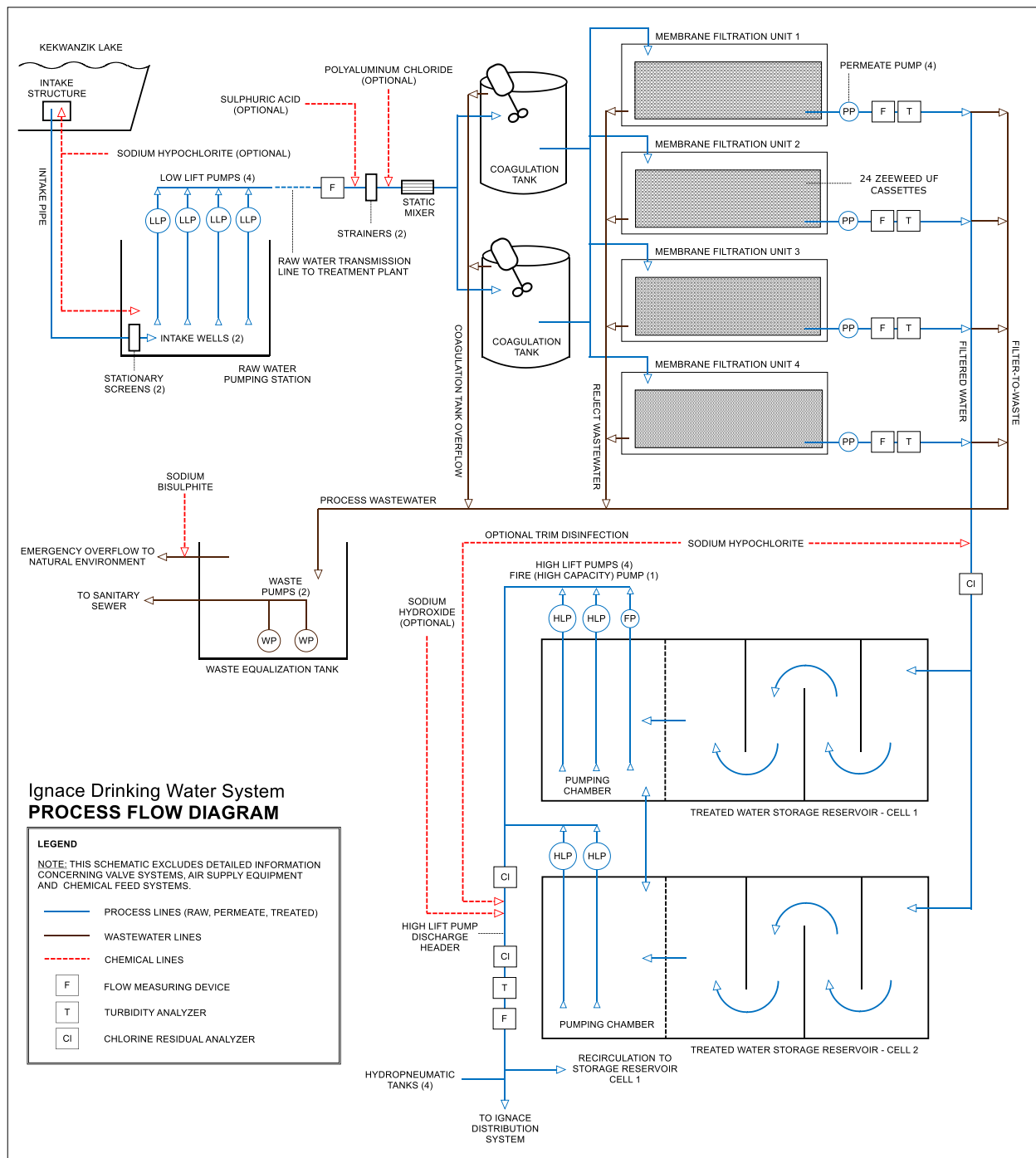
Backpulse and wastewater from the membrane filtration units is directed to a waste equalization tank at the water treatment plant. From the tank, process wastewater is pumped directly to the sanitary sewer system. A level sensor monitors the level in the waste equalization tank, which in turn controls pump operation. An overflow line is equipped with a dechlorination system, in the event of pump failure.

6.4 Distribution System Components

Treated water enters the distribution system through a 330 m (350 mm diameter) water main supply line. This supply line runs from the IWTP to Pine Street, south of Highway 17 in the Township of Ignace. The Ignace 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.



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 (i.e. analyzers and trending associated with filtrate turbidity, free chlorine residual, flow, pressure, etc.). Alarm systems notify operators when critical control limits or other alarm set points have been breached;
- (2) Routine regulatory sampling (i.e. weekly microbiological analyses, quarterly chemical analyses, annual chemical analyses, etc.);
- (3) Routine water quality tests (i.e. daily tests for free chlorine and turbidity, routine process water quality tests);
- (4) Operational checks, where operators collect and interpret data (i.e. pump hours, flows, analyzer readings, compliance data) and inspect facilities on a daily basis;

- (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 (i.e. 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 Limits 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 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

Major components of the infrastructure maintenance, rehabilitation and renewal programs in place for the Ignace Drinking Water System include the following:

- (1) The *Planned Maintenance Activities* Standard Operating Procedure [IDWS-SOP-1] documents a comprehensive planned maintenance program that is carried out by Operators 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. Records of planned maintenance activities are controlled in accordance with NWI's *Document and Records Control Procedure* [NWI-QMS-5].

- (2) The *Measurement and Recording Equipment Calibration and Maintenance Procedure* [IDWS-QMS-17] 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 Operators at the Ignace WTP on a monthly or quarterly basis. Calibration and maintenance records are controlled in accordance with NWI's *Document and Records Control Procedure* [NWI-QMS-5].
- (3) Maintenance is performed on each of the four membrane filtration units depending upon various operational indicators. 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 filter cleaning are recorded in the operational spreadsheets.
- (4) The Ignace distribution system is flushed, and hydrants are operated, inspected and 'winterized' on an annual basis. Major distribution system and hydrant deficiencies identified during this program are used to plan for future maintenance activities. Records of such distribution maintenance activities are available at the Ignace Water Treatment Plant.

- (5) 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 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.
- (6) NWI tracks and oversees additional maintenance activities that include infrastructure inspection, maintenance or servicing that occur on a less frequent basis. These activities may be performed by third parties and may include a) flow meter verifications, b) hoist inspections, c) fire extinguisher inspections, d) backflow prevention device testing, e) thermal imaging inspections, f) emergency generator inspection and servicing, g) generator battery replacement, h) UPS and UPS component replacement, i) reservoir cleaning and inspections, and j) the inspection of intake structures and standpipes.

15.2 Unplanned Maintenance

Unplanned maintenance tasks related to the treatment component of the Ignace Drinking Water System result from equipment malfunction or breakage. Unplanned maintenance is authorized by the Operations Manager, Northwestern Regional Manager, or the Overall Responsible Operator. Documentation of these unplanned maintenance tasks are recorded in the facility logbooks. 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 infrastructure renewal related to distribution system components of the Ignace Drinking Water System are typically performed by the Township of Ignace, in conjunction 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.

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* for the Ignace Drinking Water System [IDWS-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

Northern Waterworks Incorporated is committed to continually improving the effectiveness of its Quality Management System. Continual improvement is facilitated by the management review and internal auditing processes, which include the identification of QMS deficiencies and the assignment of preventive and corrective actions.

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

22 Revision History

Date	Version	Comments
01-Dec-2009	1.0	Initial publication of Operational Plan
01-Jul-2011	2.0	Revisions to address external audit results.
20-Sep-2012	3.0	Publication of new version following QMS restructuring.
03-Jan-2013	3.1	Revisions to address management review findings.
28-Oct-2013	3.2	Section 3 (Commitment and Endorsement) was amended to include NWI's current Top Management with respect to the Standard.
29-Apr-2014	3.3	Updates to section 15 (Infrastructure Maintenance, Rehabilitation, and Renewal); section 13 (Essential Supplies and Services) removed following replacement with corporate procedure.
03-Jan-2018	3.4	Updates to sections 2 (QMS Policy), 3 (Commitment and Endorsement), 6 (Drinking-Water System), 15 (Infrastructure Maintenance, Rehabilitation, and Renewal) and 21 (Continual Improvement).

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 Township of Ignace

Name of Municipal Residential Drinking Water System *

Ignace Drinking Water System

Subject Systems

Check here if the Municipal Residential Drinking Water System is operated by one operating authority. Enter the name of the operating authority in the below table.

	Name of Operational Subsystems(if Applicable)	Name of Operating Authority *	DWS Number(s) *
1		Northern Waterworks Incorporated	260091338

Provide the information outlined in the 'Contact Information' section for **each** Operational Subsystem.

Contact Information 1

Last Name *

Kyle

First Name *

Nicholas

Middle Initial

Title *

Compliance Coordinator - NWI

Phone Number *

807 728-1824

Email Address *

nicholas.kyle@nwi.ca

Contact Information 2

Last Name *

LeBlanc

First Name *

Jason

Middle Initial

Title *

Chief Administrative Officer - NWI

Phone Number *

807 728-3323

Email Address *

jason.leblanc@nwi.ca