



Atikokan Public Works Department
Drinking Water Distribution System

PROCEDURE TITLE: Operational Plan

QMS REFERENCE: N/A

TO BE REVISED: Annually or when QMS changes

QMS REPRESENTATIVE Peter Burbeck

Drinking Water Quality Management System

Operational Plan



Atikokan Drinking Water Distribution System

Atikokan, Ontario
P0T 1C0

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List of Appendices and Internal Documents

APPENDICES		
Title	QMS Reference	Revision Date
Appendix A - Document Control Procedure	GEN-P1	May 8, 2013
Appendix B – Record Control Procedure	GEN-P2	May 8, 2013
Appendix C – Hazard Analysis Procedure	GEN-P4	May 8, 2013
Appendix D – System Pressure critical limit response	Atikokan DS	May 8, 2013
Appendix E – Secondary Disinfection Critical Limit Response Instructions	Atikokan WD	May 8, 2013
Appendix F – Infrastructure Review Procedure	GEN-P8	May 8, 2013
Appendix G – Maintenance Procedure	GEN-P3	May 8, 2013
Appendix H –Emergency Conditions Procedure	Atikokan WD-P1	May 8, 2013
Appendix I – Sampling, Monitoring and Analysis Procedure	Atikokan WD-P2	May 8, 2013
Appendix J – Internal Audit Procedure	GEN-P6	May 8, 2013
Appendix K – Management Review Procedure	GEN-P7	May 8, 2013

INTERNAL DOCUMENTS		
Operational Plan	Not Applicable	May 8, 2013
Emergency Response Plan for Drinking Water	Not Applicable	August 2009
Standard Operating Procedures	Not Applicable	January 23, 2013
Management Review Reports	Not Applicable	Not Applicable
Review and Provision of Infrastructure Reports	Not Applicable	Not Applicable
Internal Audits	Not Applicable	Not Applicable

1 Introduction

Quality Management can be defined as the policy and associated organizational structures, procedures, responsibilities, and evaluation measures that ensure the capability of delivering a product to specified standards. The use of Quality Management systems by modern industry has steadily increased over the last 30 years, since the development of the first ISO standard in 1986. Whether implemented voluntarily or as a requirement of suppliers to larger manufacturers, Quality Management has repeatedly proven beneficial in terms of accountability, quality control, efficiency, and productivity.

Although historically used on a voluntary basis by some progressive water utilities, the idea of mandated province-wide implementation of a Quality Management Standard by drinking water system owners originated as a recommendation in the Part Two Report of the Walkerton Inquiry. In brief, Recommendations 51 through 57 from the report state the following:

- Drinking water systems should be operated by authorities that are accredited based on successful third party audits conducted by a certified accrediting body.
- The Ministry of the Environment, in partnership with other relevant stakeholders, should develop a Drinking Water Quality Management Standard against which the third party audits will be conducted.
- All municipalities should prepare Operational Plans describing how the requirements of the Quality Management Standard are achieved.

The Provincial Government has committed to implementing all recommendations tabled by the report author, The Honourable Dennis R. O'Connor.

In accordance with those recommendations, this Operational Plan serves as a Quality Management System Guidance Manual that describes the methods by which Atikokan Public Works Department implements Quality Management. The Plan is written to meet or exceed the requirements of the Ministry of the Environment prescribed standard and is applicable to the management and operation of those works described in Section 6.

2 Quality Management System Policy

Atikokan Public Works Department (APWD), on behalf of the Town of Atikokan, is committed to providing consumers with a continuous supply of safe drinking water while maintaining strict compliance with all applicable drinking water legislation and regulations. We strive to achieve these goals through the implementation of a management system comprised of policies, procedures, instructions, and forms that demonstrate risk-based treatment process evaluation, staff competency, open communications, workplace safety, and appropriate contingency / incident response measures.

The managers and employees of APWD who are directly involved in the supply of drinking water, share in the responsibilities of implementing, maintaining, and contributing to the continual improvement of the Drinking Water Quality Management System.

3 Commitment and Endorsement

The system owner, the Town of Atikokan, and the operating authority, the Atikokan Public Works Department, support the implementation, maintenance, and continual improvement of a Drinking Water Quality Management System (DWQMS) for the Atikokan Drinking Water Distribution System, as documented in this Operational Plan. Endorsement by the owner, (represented by the Mayor of the Town of Atikokan), and top management, (represented by the CAO/Clerk), acknowledges the need for, and supports the provision of sufficient resources to maintain and continually improve the DWQMS.

The Designated DWQMS Representative and alternate acknowledge the roles and responsibilities of that appointment.

Nov. 24/14
Date

Dennis Brown
Town of Atikokan-Mayor
Dennis Brown

Nov 24/14
Date

Angela Sharbot
Angela Sharbot – CAO/Clerk

Nov 21/14
Date

Peter Burbeck
Designated DWQMS Representative
Peter Burbeck – Public Works Director

4 DWQMS Representation

Designated DWQMS Representative and Committee Participants

Title	DWQMS Roles
Designated DWQMS Representative (Public Works Director or Public Works Project Manager)	<ul style="list-style-type: none"> ▪ prepares DWQMS documentation ▪ provides all staff with technical and administrative consultation related to DWQMS document preparation and implementation ▪ reviews and approves DWQMS documentation ▪ implementation and oversight of document control procedure ▪ internal auditing, and external audit liaison ▪ staff and supplier DWQMS communications and training ▪ reporting of DWQMS results to staff and top management
Designated DWQMS Representative alternate (Documentation/Engineer Technician)	<ul style="list-style-type: none"> ▪ performs all roles of Designated DWQMS Representative with the exception of document approval
Chief Administrative Officer/Clerk	<ul style="list-style-type: none"> ▪ appoints DWQMS Designated Representative and alternate ▪ provides administrative consultation related to DWQMS document preparation ▪ reviews DWQMS documentation ▪ endorses DWQMS as Top Management representative
Public Works Foreman	<ul style="list-style-type: none"> ▪ assists with DWQMS technical document preparation ▪ provides technical and risk assessment consultation to others preparing DWQMS documentation ▪ maintains awareness of Operational Plan requirements and consistently implements the DWQMS at the treatment facilities ▪ Overall Responsible Operator in accordance with O.Reg. 128/04
Deputy Clerk	<ul style="list-style-type: none"> ▪ Document and record control

5 DWQMS Document and Records Control

Details regarding QMS document identification, retention, storage and disposal are contained within the Document Control Procedure, attached as Appendix A. QMS records are retained according to the Record Control Procedure attached as Appendix B.

6 Drinking Water System Process Description

General

The Atikokan Drinking Water System is comprised of two subsystems:

- Atikokan Water Treatment Plant (including raw water supply)
- Atikokan Water Distribution System

Operation of the Atikokan Water Treatment Plant is outsourced by the Township of Atikokan to a third party Operating Authority (currently Northern Waterworks Incorporated). The Atikokan Water Distribution System is operated by the Township of Atikokan (Atikokan Public Works Department).

A general description of both subsystems (from source to tap) is provided below.

Water Treatment Subsystem

Water Intake and Supply

There is an Intake Crib, consisting of two (2) intake cells, located on the bank of the Atikokan River just upstream of the Little Falls having a top intake elevation approximately 3.0 m below river surface elevation; each cell consisting of a 5.6 m by 1.06 m stainless steel screen with 6mm by 6 mm openings complete with lifting chain, and 610 mm by 610 mm intake and outlet sluice gates. There is a raw water intake pipe, ductile iron, approximately 70 m long, 450 mm diameter extending from the intake crib to the low lift facilities described below.

Low Lift Facilities

There is an installation of one (1) 80 kW diesel Engine standby power generator set complete with weather enclosure, located adjacent to the Low Lift Building. With installation of one (1) automatic transfer switch complete with fully programmable time delays for standby generator start-up and transfer to emergency power supply and transfer to utility power supply. Inside the Low lift is an installation of two (2) basket strainers, two (2) basket strainer backwash pumps and backwash discharge lines to discharge screenings to the existing overflow pipe to the Atikokan River. There are three (3) Low Lift Pumps on site.

Water Treatment Plant

A plant enclosure building, 32m long by 30 m wide, located at 101 little Falls Road, Atikokan, rated at 6,048 m³/day, housing all processes described below:

Actiflo Clarifiers

There is a installation of two (2) high rate clarifiers (Actiflo process) , each 6.6 m diameter x 2.5 m, each rated at 35 L/sec, (3,000 m³/day) equipped with coagulation basin, injection basin, mixers, settling zone, sludge scraper assembly, microsand recirculation system.

Coagulant system

The flow paced coagulant feed system consisting of two (2) feed pumps, (one duty and one standby), with automatic switchover, storage tank and secondary containment tank.

Coagulant Aid dosing system

The flow paced coagulant aid feed system consisting of two (2) feed pumps per Actiflo clarifier 4 total, (two duty and two standby), with automatic switchover, storage tank and secondary containment tank.

Alkalinity/PH Adjustment system (Not Used at this time)

The flow paced pre-soda ash feed system consisting of two (2) feed pumps, (one duty and one standby), with automatic switchover, storage tank, mixer and secondary containment tank.

Rapid Gravity Dual Media Filters

There are four (4) Rapid Gravity dual media filters, each 3.05 m diameter, containing sand and anthracite filter media, with an approach velocity of 8.6 m/hour at design flows or a corresponding firm filtration velocity of 11.5 m/hour, each complete with rotary surface wash system, filter to waste piping and associated valving on the filter effluent lines, appurtenances and controls.

Filter Backwash Pumps

There are two vertical turbine backwash pumps, (one duty and one standby) both rated at (25 L/Sec), each at a TDH of 52.8 m

Post-Soda Ash PH Adjustment system

The flow paced post-soda ash feed system consisting of two (2) feed pumps, (one duty and one standby), with automatic switchover, storage tank, mixer and secondary containment tank.

Fluoride system

The Fluoride feed system consists of two (2) feed pumps, and One (1) 450 L storage tank complete with spill containment.

Disinfection Gas Chlorination System

A gas chlorine disinfection system consisting of three (3) automatic controller operated chlorinators, each with 45 kg/day rotometer, all chlorinators outfitted with process control modules, complete with all associated piping, appurtenances, and controls to enable the chlorinators to discharge at either the pre or post chlorination injection points, a cylinder weight scales accommodating two (2) 68 kg chlorine cylinders, an automatic cylinder switch-over system, a gas flow meter, instrumentation, controls including vacuum regulators, gas detectors and alarm system.

Primary Chlorination system

A gas chlorination system applying chlorine to the header feeding the clear wells, automatic switch over, a cylinder weight scales accommodating two (2) 68 kg chlorine cylinders, an automatic cylinder switch-over system, a gas flow meter, instrumentation, controls including vacuum regulators, gas detectors and alarm system.

Secondary Chlorination system

A gas chlorination system applying chlorine to the header feeding the clear wells, automatic switch over, a cylinder weight scales accommodating two (2) 68 kg chlorine cylinders, an automatic cylinder switch-over system, a gas flow meter, instrumentation, controls including vacuum regulators, gas detectors and alarm system.

High Lift Pumps

There are Four (4) vertical turbine High Lift Pumps, with a rated capacities, (63 L/sec), (63 L/sec), (140 L/Sec) and (140 L/Sec) each at a TDH of 52.8 m. The two (2) largest are the fire pumps.

Residual Management system

There is one (1) process to waste settling tank with a usable volume of 108 m³, supernatant gravity overflow to neighboring creek, and an automatic sludge transfer system from the decant tank equipped with two (2) submersible pumps, to the site Sewage Lift Station attached to the decant system.

Sewage Lift Station

There is a sewage system attached to the residual management system equipped with two (2) submersible sewage pumps which then pumps to the collection system for the sewage plant in the township of Atikokan.

Standby back-up power system

There is a 375 kW diesel engine standby power generator set and associated equipment located in a separate building beside the facility enclosed in a separate building.

Distribution Subsystem

The Town of Atikokan distribution system contains approximately 26 kilometres of water mains that are between 150 mm and 450 mm in diameter. Much of the water system mains are cast iron which were built between 1947 and 1960 are still in service today. A small amount of the mains are ductile iron and since 1995 are polyvinyl chloride. The water mains are generally buried in the Town's public right of ways about 2.4 metres below ground surface. The Atikokan Drinking Water Distribution System has been classified as Class I.

The water mains have valves incorporated into them whose purpose is to stop or divert the flow, control and isolate main sections.

Also incorporated within the distribution system are fire hydrants which are used to provide fire protection and to assist in the maintenance of the system. There are approximately 179 fire hydrants within its system.

The Atikokan Public Works Department is responsible for maintenance of the water distribution system. They are also responsible for providing and delivering potable water directly to their residential, commercial, and industrial customers within its community. Northern Waterworks is responsible for treating the water, ensuring adequate water pressure and water quality leaving the

Water Treatment Plant. The treated water is being delivered to the distribution system by the high lift pumps: two rated at 63 L/sec and two rated at 140 L/sec. Typical system pressure ranges from 45 P.S.I. to 65 P.S.I.

Source Water

The Raw Water supply comes from Atikokan River in the Township of Atikokan. Critical upstream processes include:

- *Plateau Lake control dam: Provides an additional source of raw water supply in the event that Atikokan River flow rates are inadequate to meet community demand.*

There are no critical downstream processes relied upon to ensure the provisions of safe drinking water.

General Characteristics

The raw water source for the treatment plant is the Atikokan River. The water from the Atikokan River is typically low in turbidity, slightly basic and high in colour. Temperature fluctuates significantly through the seasons ranging from approximately 2 °C in the winter to as high as 22 °C during the summer. Bacteriological analysis of the raw water indicates a source of relatively good quality and does have Clostridium in the water samples

Raw Water Characteristics at Intake (based on 2008 data)

Characteristic	Minimum	Maximum	Annual Average
Temperature (°C)	1.0	23.5	8.7
Turbidity (NTU)	0.574	3.13	1.025
Colour	20	100	34
pH	5.0	8.16	6.83
Raw Water Characteristics (based on 2012 Annual Report Data)			
Characteristic	Minimum	Maximum	Number of Samples
Total Coliforms	30	< 2,420	52
E. coli (MPN/100 mL)	0	32	52

Common Fluctuations

Raw water turbidity increases during spring runoff and significant rainfall events. Raw water color also becomes extremely high and process upsets may occur.

Water temperature changes significantly from winter to summer. Coagulant and Coagulant Aid is added and chemical dosages are adjusted seasonally in response to high colour, turbidity and temperature changes.

Threats

Potential threats or sources of raw water contamination include:

- Normal runoff due to extreme weather events and snow melt
- Derailment upstream of the raw water intake structure
- Application of herbicides/pesticides upstream of the raw water intake structure

Availability of water supply may be an issue during extended periods of dry weather, or due to the intake screens becoming plugged with debris.

Operational Challenges

Under normal operating conditions there are two (2) intake feed lines to the Water Treatment Facility, if they were to fail then alternative measures must be taken.

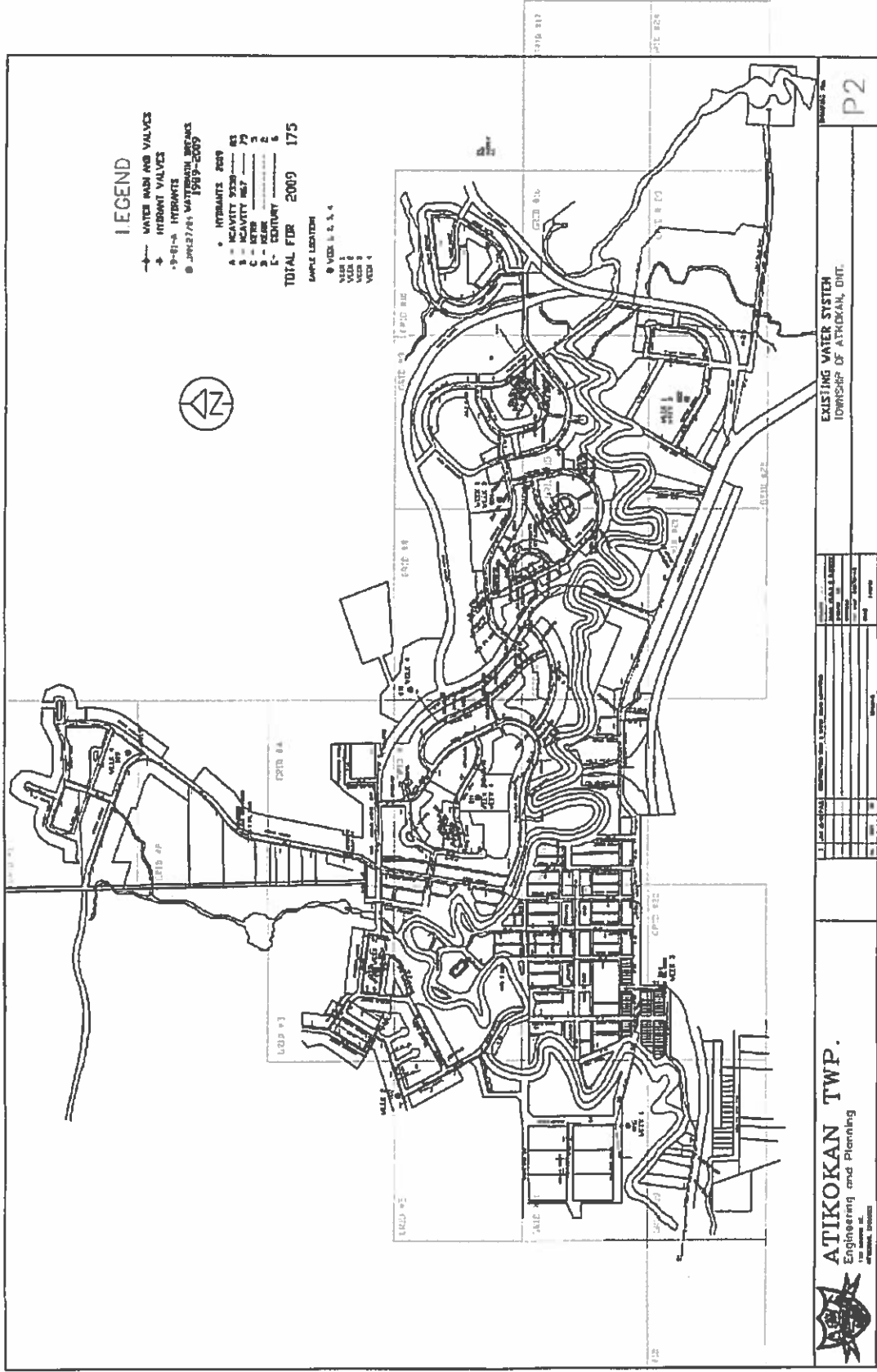
In the unlikely event that both screens become blocked by ice, they cannot be bypassed. During these periods, the screens are operated and washed manually to prevent blockages.

On the occasions that the plant experiences a high raw water turbidity or color event for an extended period of time, the filter run times become reduced and backwash frequency increases. This reduces filter efficiencies causing an increased use of process water and therefore, a decrease in water production capacity if the situation is prolonged. Standard Operating Procedures (SOPs) have been developed to address these reduced filter capacity situations.

Sample Analysis

Provincial regulations dictate the sampling and monitoring requirements for the system. Water quality is tested throughout the treatment process and from dedicated sampling hydrants located at the extremities of the distribution system. Where required by regulation, samples are submitted to an accredited laboratory for analyses.

Atikokan Drinking Water Distribution System



7 Risk Assessment

The procedure entitled Hazard Analysis, attached as Appendix C, describes the method of hazard identification, risk assessment, and critical control point determination for the Atikokan drinking water system. The procedure consists of four main exercises: hazard identification, risk assessment, critical control point determination, and critical limit identification.

Date risk assessment revised:

November 17, 2014 by the following party:

Jim Hogan, O.R.O. & Public Works Foreman

Peter Burbeck, Public Works Director

Joe Lecuyer, Engineering Tech.

Garth Dyck, Fire Chief and Chief Building Inspector

8 Risk Assessment Outcomes

The following table documents the initial hazard identification exercise conducted for the Atikokan Drinking Water Distribution System. All hazards were identified and categorized according to the Hazard Analysis procedure.

The initial risk assessment and critical control point determination exercises, also described in the Hazard Analysis procedure are recorded in the following table.

Summary of Risk Assessment and Critical Control Point Determination

Process Step	Description of Hazard	Result	Available Control Measures	Detectability	Severity	Likelihood	Total	Critical
Distribution	High lift pump failure (mech. or elec.)	Possible loss of system pressure, possible contamination of drinking water through backflow, loss of fire protection	Redundancy; preventative maintenance; alarms	1	4	2	8	No
	Low pressure in distribution system	Possible contamination of drinking water through backflow (back siphonage or back pressure), loss fire protection	alarms; residents' complaint	1	4	4	16	Yes
	Low Free Chlorine Residual	Inadequate Secondary Disinfection; possible contamination of drinking water	Periodic testing (chlorine residual), bacteriological samples, upstream (WTP) processes	3	4	3	36	Yes
	Minor Distribution Leak	Possible contamination during periods of low or no distribution pressure	Monitoring of treated water flows and long-term production data from WTP	2	1	4	8	No
	Major Distribution Leak	Possible low distribution pressure or depletion of storage reservoirs; possible contamination of drinking water through backflow; loss of fire protection	Monitoring of treated water flows, monitoring of treated water discharge pressure, alarms for both	1	4	4	16	Yes
	Major Fire in the Community	Possible loss of system pressure and/or water supply	In-house fire suppression systems; fire alarms (early warning)	1	3	1	3	No
Security	Cross-Connection	Contamination of water supply	Municipal By-Law; Building Code	4	3	2	24	Yes
	Vandalism; tampering	Contamination of drinking water; damage to equipment	Periodic inspection; locks	3	2	1	6	No
Suppliers	Loss of critical supplies	Unable to maintain water supply	Written communications/agreements; inventory supplies	2	3	1	6	No

Controlled Conditions for Critical Control Points

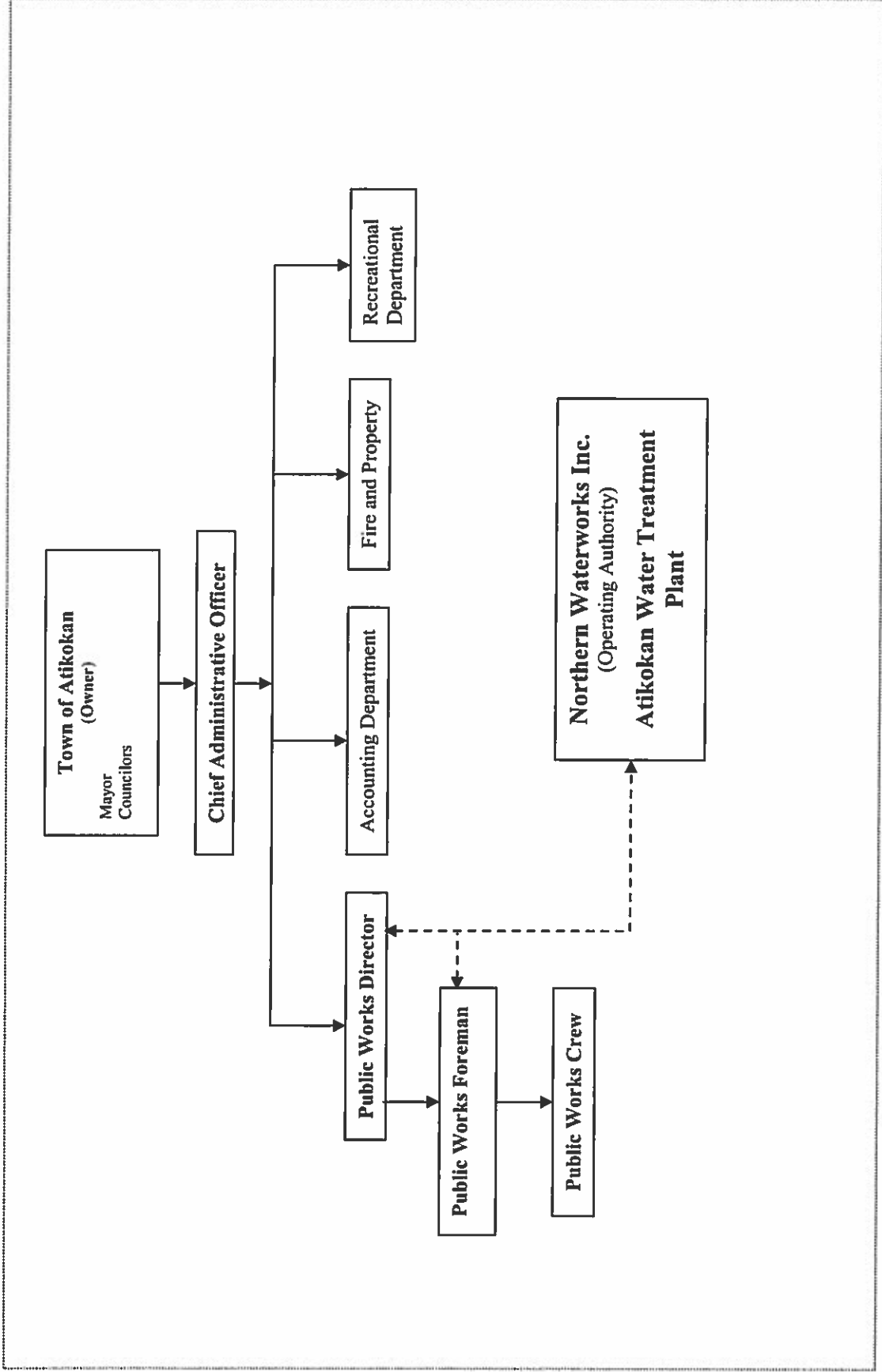
Controlled conditions for each critical control point identified in the summary table are described in detail in the following sets of instructions:

Distribution System Pressure Critical Limit Response, attached as Appendix D

Secondary Disinfection Critical Limit Response, attached as Appendix E

In addition to a detailed response procedure, each instructional document includes the considerations and rationale for establishing the critical limits, as well as a listing of the operational safeguards currently in place to prevent a breach of the critical limit.

9 Organizational Structure, Roles, Responsibilities and Authorities Organization Chart



Town of Atikokan Council and Staff (owner)

Responsibilities	Authorities
<p>In addition to ensuring the provision of safe and reliable municipal water supply to the serviced areas of the Town of Atikokan, the owner is also responsible for:</p> <ul style="list-style-type: none"> ▪ municipal bylaw enforcement ▪ municipal taxation ▪ building permits and inspection ▪ planning ▪ public works (roads and storm sewers), ▪ parks and recreation ▪ fire services ▪ endorsing the DWQMS. 	<p>On behalf of the electorate of the Town of Atikokan, the owner is authorized to:</p> <ul style="list-style-type: none"> ▪ manage or delegate management of utility assets ▪ review, revise and approve proposed and existing bylaws, expenditures, user fees, and taxation rates ▪ provide / review / approve administrative policy direction ▪ hire, discipline or terminate Town staff or contracted service providers.

Atikokan Public Works Department (operating authority)

Responsibilities	Authorities
<p>Atikokan Public Works Department is delegated by the respective system owners the responsibility of providing safe, compliant, and reliable water and wastewater services to properties in the Town of Atikokan that are connected to a municipal treatment system.</p> <p>The department responsibilities include safety, fiscal responsibility, and compliance with all applicable legislation.</p> <p>The department is also responsible for the ongoing development of the DWQMS.</p>	<p>Authorities delegated to the Public Works Department by the owner include:</p> <ul style="list-style-type: none"> ▪ planning of expenditures ▪ to provide / review APWD administrative policy direction

Town of Atikokan Administration and Temporary Staff

The following roles do not impact drinking water quality and therefore have no responsibilities or authorities under the scope of the DWQMS: Receptionist / Payroll, Property Tax Clerk / Bookkeeper, Accounts Payable, as well as temporary staff including summer students and others hired to perform general labour.

Public Works Director (top management)

Responsibilities	Authorities
<p>The Public Works Director is responsible for ensuring safe, reliable, and compliant operation of distribution system</p> <p>The Public Works Director is also responsible for:</p> <ul style="list-style-type: none"> ▪ preparing budgets ▪ maintaining communications with the Council and Water Treatment Plant Operating Authority ▪ communicating with regulatory authorities, other utilities, and various professional organizations on behalf of the town ▪ advising the town on water and wastewater policies ▪ providing direct supervision of all public works staff ▪ developing strategic efficiencies ▪ developing management procedures for environmental services ▪ managing and administering capital projects ▪ developing and reviewing maintenance plans ▪ assisting the Public Works Foreman with the day-to-day operations of the Public Works department as required ▪ providing acting-Foreman duties as required 	<p>The Public Works Director is authorized by the Commission to:</p> <ul style="list-style-type: none"> ▪ evaluate and prioritize long-term utility needs ▪ prepare, review, and approve design specifications ▪ select contractors, and equipment ▪ develop and implement administrative and technical policy ▪ hire, discipline, or terminate management and union staff ▪ communicate with regulatory agencies, public, and liaise with NWI and Council ▪ ensure the Town meet all relevant Ministry of Environment regulations ▪ manage and administer ongoing and new Public Works special projects ▪ review and develop various maintenance plans ▪ Supervise the Engineering Technician ▪ Provide strategic guidance and management to the Town with respect to Environmental Services; namely Waste Management and Water and Wastewater Services

Public Works Foreman (see also Operator)

Responsibilities	Authorities
<p>the responsibilities of the foreman include:</p> <ul style="list-style-type: none"> ▪ evaluation and optimization of distribution system to provide safe, compliant, reliable drinking water ▪ regulatory reporting ▪ assisting Public Works Director with budgeting and long-term planning ▪ reporting operating conditions and activities to the Public Works Director, the town, members of the public, and regulatory authorities ▪ supervision and providing technical direction to operations staff ▪ the duties of Public Works Director, in his absence. ▪ maintenance of the of the water distribution system ▪ supervision and providing technical direction to maintenance staff ▪ preparation and supervision of contracts for distribution system repair / replacement / rehabilitation as well as for major plant equipment repair or installation ▪ reporting maintenance activities to the Manager, the Commission, and to the owner, members of the public, and regulatory authorities on behalf of Commission 	<p>The Public Works Foreman is authorized to:</p> <ul style="list-style-type: none"> ▪ develop, approve, and implement maintenance and safety practices / policies and procedures ▪ communicate with regulatory agencies, on behalf of the town ▪ inspect and approve in-ground water and sewer infrastructure installations and repairs ▪ evaluate and prioritize long-term rehabilitation and upgrading needs ▪ participate in hiring and discipline of union staff ▪ review and provide comment on technical reports and proposals, ▪ evaluate and select contractors, construction materials, and maintenance equipment ▪ approve payment for goods and services received

10 Competencies

The following table lists the minimum levels of competencies required of trained APWD staff whose performance may have a direct impact on drinking water quality.

Notes:	Owner	Public Works Foreman	Public Works Director
- Roman numerals denote required operator certification			
- "0" indicates competency not required			
- "1" indicates basic level of competence			
- "2" indicates intermediate level of competence			
- "3" indicates advanced level of competence			
Supervisory Skills	0	3	3
Presentations / Training	0	1	2
Verbal Communications	1	2	3
Written Communications	1	2	3
Technical Writing	0	1	2
Research Skills	1	2	3
Budget Preparation / Analysis	2	2	3
Long-term Planning	1	2	3
Scheduling / Work Planning	0	3	3
Contract Management	1	2	3
Record Keeping	0	3	3
Regulatory Requirements	1	3	3
Emergency Procedures	1	3	3
WD Certification	0	1	1
Technical mathematics	0	1	2
Chemistry	0	1	2
Biology	0	1	2
Fluid Mechanics	0	2	2
Laboratory techniques	0	1	2
Sampling / preservation	0	2	2
Pumps / valves / piping maintenance	0	3	3
Interpreting plans / blue-prints	0	2	3
Computer - spreadsheets and word processing	0	1	2
Computer aided design	0	0	2

IMPORTANT NOTE – different competencies are not considered equivalent, therefore cumulative totals are not appropriate for overall skill level comparison

Levels of Competency

The competency identification table on the previous page indicates the skill level required for each position whose actions may have a direct impact on water quality.

At competency level 1, a basic, theoretical level of understanding is required. Level 1 understanding is normally acquired through a combination of theoretical instruction, on-the-job training, review of journal articles, and specialty seminar attendance.

Level 2 indicates an intermediate, theoretical and working knowledge of a skill, typically

acquired through post-secondary theoretical and practical instruction, on-the-job experience, and participation in specialty workshops and courses.

Level 3 indicates advanced theoretical and working understanding of a particular subject area, particularly as it pertains to the person's responsibilities in the water treatment process. Level 3 is achieved through a combination of successful completion of a post-secondary degree or diploma in engineering, science, or technology, at least 10 years of directly related experience and training, as well as regular participation at specialty seminars and courses.

Satisfying Competencies

Identified competency requirements for APWD staff are satisfied by the following:

- Candidates considered for hire must submit proof of relevant education and must demonstrate technical competency and communications skills to an interview panel of APWD staff.
- New employees undergo comprehensive on-the-job training, conducted and documented by experienced staff. Training documentation is signed by the employee and trainer, acknowledging successful information transfer. Training files are maintained for all APWD staff.
- All employees receive a minimum training as per O.Reg. 128/04 in various topics including safety, treatment process operations, contingency plans, regulatory requirements, equipment operation, and new technologies. The training is provided by experienced utility staff, technical experts, or contracted professional trainers. Training provision and certification levels shall meet or exceed those required by legislation.
- The town is provided copies of all meeting minutes, all correspondence with the regulatory authorities, and annual operating reports.
- APWD provides reimbursement to staff wishing to independently upgrade their education, provided the training is related to job duties.

11 Personnel Coverage

The Town of Atikokan employs licensed operators for water distribution. They are employed according to the terms and conditions of a collective agreement between the Town of Atikokan and CUPE, Local 752. Except for the foreman, all other positions are unionized within the public works crew.

The foreman is permanently designated as the Overall-Responsible-Operator (ORO) for the Atikokan Drinking Water System. In the event of the absence of the foreman, the acting foreman will be the ORO and named on logbook. There is an annual schedule in place that covers the position 24/7 (Foreman On-call). The Foreman On-call is available over the phone and depending on the situation he will call out the required unionized operators.

Rationale

The work is organized so, during the regular working hours, all the regular maintenance and repairs are performed. Therefore, there is no need to perform any job in weekends, unless it is an emergency. The required emergency response time of 30 minutes is considered reasonable based on past experience.

12 DWQMS Communications

Target Audience	Method of DWQMS Communication
Owner – Town of Atikokan Mayor & Council	Internal and external audit results, Operational Plan revisions / updates are provided in writing from the Designated DWQMS Representative to the CAO. Hard copies of all correspondence are retained in the deputy clerk's file registry in accordance with the records control procedure.
Atikokan Public Works Department	Hard copies of any audit reports or Operational Plan revisions / updates are included within the written agenda for the Public Works Committee Meetings. The DWQMS Representative is present at meetings to supplement the hard copies with brief verbal presentations and to answer questions. Meeting minutes are archived in the APWD file registry.
Atikokan Public Works Staff	A formal presentation of the Operational Plan is provided each year to all staff. New permanent or temporary employees are provided an overview of the Operational Plan during orientation. Similarly, as substantial revisions / additions are required, or if audits have been conducted, a general staff meeting will be called to inform all staff of the changes or audit results. Details of DWQMS meetings will be documented in each staff persons training file. Minor modifications / revisions are communicated to staff by memorandum, copies of which are filed in the APWD file registry.
Public	The Operational Plan is available on the town website.
External Communications	Communications with external organizations (receiving and responding) is typically through the Public Works Director or Public Works Foreman, as identified in Section 9 – Organizational Structure, Roles, Responsibilities and Authorities. Such communications include those from: <ul style="list-style-type: none"> - Water Treatment Plant Operating Authority - Accredited Laboratory - Utilities - Suppliers - Regulatory Agencies

13 Essential Supplies and Services

Supply or Service	Supplier
<p>Accredited Laboratory Services</p>	<p>ALS Laboratories 1081 Barton St, Thunder Bay, ON P7B 5N3 807-623-6463</p> <p>ALS Waterloo 60 Northland Road Unit #1 Waterloo, ON N2V 2B8</p>
<p>Local Contractors Construction</p>	<p>Atikokan Equipment Rentals Sand & Gravel (Paul Gronski) 597-5896 Stan Bates Construction Ltd. (Stan Bates) 597-4574 B.R. Davidson Mining and Development Ltd. (Blain Davidson) (Bruce Davidson) 597-3468</p>
<p>Local Suppliers Plumbing:</p>	<p>Cain Plumbing & Heating (Ken and Kevin Cain) Home 597-4259; 597-1128 Placken's Heating Service 597-6629</p>
<p>Pipes, Valves and Disinfection supplies</p>	<p>Western Supplies: 1-807-345- 6543 Canada Valve (Yves Landry) 560-2111 Emco (Richard) 1-800-268-9060 or 673-9584 Emco (North Bay) 476-0701 Grinells 671-9600 Ground Control 673-3020 Sudbury Valves 692-5863 Westburne (Division of Canada Valve) - Phone 1-800-465-7734 or 1-905712-4004 Westburne (Division of Canada Valve) - Fax 1-905-568-3519 Wamco(Gaston Beaulieu)(Sudbury) res 560-3698 office 525-5000 or 1 800 567-0100 Wamco (Mark Beaudry) 525-5000</p>
<p>Pumps</p>	<p>Honda 682-4463 Impel 694-0222 ITT Flygt (Thunder Bay) 560-2141 Ramsey Lake Ind (Sudbury) 692-4734</p>
<p>Safety</p>	<p>Safety Supply 1-800-387-5744 Acklands 705-474-2220</p>

Supplies and services are procured on an “as needed” basis or to replace inventory used following the Township’s procurement and purchasing policies. Suppliers are selected based on their ability to meet the Township’s needs in a variety of areas (cost, availability, reliability, quality of product or service).

Product or service quality will be assessed by the individual receiving the product or service. Product or service quality must meet industry best practices or requirements, as follows:

Laboratory Services	Laboratory must be accredited, as required by Provincial legislation.
Chemicals	Chemicals must be NSF 60 certified for use in potable water.
Pipes, Valves and Appurtenances	Must be NSF 61 certified for any material in contact with potable water.
General/Other	Will be inspected upon receipt for damage and general quality of product.

14 Review and Provision of Infrastructure and Resources

Annual “Review and Provision of Infrastructure Reports”, prepared each February by the Public Works Director, include all elements required by the Drinking Water Quality Management Standard. Commencing February 2011, the report also contains documentation of the condition of the distribution system infrastructure components based on performance and maintenance records from the previous year. The condition assessment includes comments on available capacity and recommendations for future upgrading or replacement.

The Annual “Review and Provision of Infrastructure Report” is presented to the town council.

The Infrastructure Review Procedure GEN-P8 is attached as Appendix F.

15 Infrastructure Maintenance, Rehabilitation and Renewal

Infrastructure maintenance, rehabilitation, and renewal are addressed by the following:

Planned Maintenance: Planned maintenance is scheduled on an electronic spreadsheet stored on the central office computer server. Server files are backed up daily. Scheduled tasks are typically defined by manufacturer's literature when available and revised (or created) as needed according to operator experience / observations. Planned maintenance tasks are communicated to the person responsible through daily worksheet schedule from the Public Works Foreman.

Unplanned Maintenance: Unplanned maintenance tasks result from equipment malfunction or breakage.

Unplanned maintenance is organized by the Public Works Foreman. The Overall Responsible Operator typically responds to unplanned maintenance during normal working hours while the on-call foreman responds during off-hours. Documentation of unplanned maintenance tasks is recorded on records (ie. water break/incident reports) and/or facility log book.

Measures to prepare for and expedite unplanned maintenance include equipment redundancy (back-up units), spare parts inventory, availability of updated plans / water and sewer atlas, as well as documented repair and safety procedures.

Renewal / Capital Upgrades: Replacement of aging fixed heavy equipment, as well as upgrades, expansions, and in-ground systems improvements are planned by the Public Works Director, Public Works Foreman, and CAO. All major expenses are identified in the budget and require approval by the town council.

Where practical, replacement of aging in-ground infrastructure is coordinated with road reconstruction.

Infrastructure maintenance, rehabilitation, and renewal are described in greater detail in Procedure Atikokan GEN-P3, attached as Appendix G.

16 Sampling and Monitoring

Atikokan Public Works Department uses a sampling program for the Water Distribution System, based on legislative requirements and it is outlined within an SOP. This program is described in detail in the procedure entitled Sampling, Monitoring and Analysis Atikokan WD-P1, attached as Appendix I. Operators sample according to the AWWA Standards for Disinfecting Water Mains throughout any maintenance project undertaken within the Atikokan Water Distribution System.

Laboratory results are acquired from a selected accredited laboratory. Bacteriological and chemical results from the accredited laboratory are e-mailed by the laboratory simultaneously to the Deputy Clerk (Owner Representative), Public Works Director (Distribution Subsystem Operating Authority Representative) and Northern Waterworks (Treatment Subsystem Operating Authority).

Copies of bacteriological and chemical analytical results are provided to members of the public in the “Lab Results” binder located in the APWD office. In-house laboratory results may also be provided upon request.

The most challenging conditions in the Distribution Subsystem are posed by areas:

- that serve the extremities of the subsystem (low water use, dead ends)
- that serve sensitive populations (daycares, schools)
- that are served by aging infrastructure

Weekly bacteriological and free chlorine residual sampling sites, quarterly trihalomethane sampling sites, and lead sampling sites (as required by O.Reg. 170/03) are selected to ensure that sampling is representative of the water quality delivered to these most challenging areas served.

17 Emergency Management

Appendix L – Emergency Response Plan for Drinking Water contains detailed information about dealing with emergency situations, including responsibilities and contact numbers

Specific instructions for responding to emergencies, including emergency situations that have the potential to result in acute drinking water health risks, are included in the plant and distribution system operations manuals. Both operating authorities (distribution and treatment) are required to review the written emergency procedures and contingency plans annually. When practical, emergency procedures are tested on an annual basis.

Emergency Contact List

Name and title	Responsibilities during an emergency	Contact numbers
Jim Hogan (Hugh White) (Larry Gashinski)	Responsible for overall management and decision making for the drinking water distribution system. The ORO is the lead for managing the emergency, providing information to regulatory agencies, the public and news media. All communications to external parties are to be approved by the water system manager.	On-Call (24/7) Phone: (807) 597-2135 Daytime Cell: (807) 597-8136
Phil Decorte Chris Wysman Water Treatment Plant Operators	In charge of operating the water system, performing inspections, maintenance and sampling and relaying critical information, assessing facilities, and providing recommendations to the water system manager.	Phone: (807) 597-4542 Cell: (807) 598-0482
Henry Caouette NWI Supervisor Gilles Vachon Robert Lariviere Jason LeBlanc NWI Managers	In charge of running water treatment plant, performing inspections, maintenance and sampling and relaying critical information, assessing facilities, and providing recommendations to the water system operator or manager.	Phone: (807) 597-4542 Cell: (807) 598-1234 (807) 728-1118 (807) 728-0588 (647) 668-2036
Pat Halwachs Office Administrator	Responsible for administrative functions in the office including receiving phone calls and keeping a log of events. This person will provide a standard carefully pre-scripted message to those who call with general questions.	Phone: (807) 597-1234 ext. 234

Name and title	Responsibilities during an emergency	Contact numbers
Peter Burbeck, Public Works Director	Liaison for town, different agencies and public	(807) 597-1234 ext 230

18 Internal Audits and Management Reviews

Internal Audits and Management Reviews are conducted at least once each year to determine the effectiveness of the Drinking Water Quality Management Standard and the adequacy of the Atikokan DWQMS Operational Plan in meeting its requirements. Internal Audits and Management Reviews will also serve to explore opportunities for improvement. Internal Audits and Management Reviews, in addition to Third-party Audits, are mechanisms used to fulfill the “check” and “improve” imperatives of the Drinking Water Quality Management Standard.

Detailed procedures for conducting internal audits, and management reviews are attached as Appendices J and K respectively.