



## Atikokan Public Works Department Drinking Water Distribution System

**PROCEDURE TITLE:** Appendix A

**QMS REFERENCE:** GEN - PI

**TO BE REVISED:** Annually or when QMS changes

**QMS REPRESENTATIVE:** Peter Burbeck

A handwritten signature in black ink, appearing to read 'Peter Burbeck', written over the QMS Representative field.

### Document Control

#### 1.0 Procedure Description

This procedure outlines the methods used by Atikokan Public Works Department (APWD) to control the creation, approval, distribution, and revision of all documents related to the Quality Management System (QMS).

#### 2.0 Reason for Procedure

Consistent control ensures the currency, accuracy, and ease of retrieval of each QMS document. Proper maintenance of documents is critical for conformance with the Drinking Water Quality Management Standard, and also for compliance with drinking water legislation.

#### 3.0 Responsibility

The designated QMS Representative, (or the alternate), shall be responsible for the control of all QMS documents. All documents must meet the approval of the QMS Representative before initial or revision issuance. The presence of a signature in the QMS header on the first page of a controlled Internal Document indicates this approval.

#### 4.0 Procedure

##### 4.1 Documents requiring control by the QMS include:

- Internal Documents
  - Operational Plan
  - Procedures/Instructions
  - Forms (excluding work orders)
- External Documents
  - Applicable Drinking Water Regulations
  - Applicable Municipal Bylaws
  - Applicable Industry Standards
  - Equipment Manuals



## Atikokan Public Works Department Drinking Water Distribution System

**PROCEDURE TITLE:** Appendix A

**QMS REFERENCE:** GEN – P1

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**QMS REPRESENTATIVE:** Peter Burbeck

The methods by which control over records will be exercised are described in the Record Control Procedure (GEN-P2).

- 4.2 The QMS Representative shall maintain a current list of all internal documents. This list consists of the document title, QMS reference and date of last revision for each document.
- 4.3 Internal Documents
- 4.3.1 A standard header shall identify all QMS internal documents. This header contains the title of the document, QMS reference, indication of revision frequency, and signature of approval from the QMS Representative (in the header of the first page only).
- 4.3.2 All original QMS internal documentation shall be stored at the APWD office on the central computer (common drive) and in hard copy. The electronic version shall be password protected to restrict access. The hard copy shall display the original signature of approval.
- 4.3.3 The currency of each internal document is ensured by comparison of the revision date in the document footer to that of the original stored at the APWD office.
- 4.3.4 A document change request form shall be used at any time changes to internal documents are required.
- 4.3.5 New or changed internal documents will be presented to all affected employees.



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### 4.4 External Documents

4.4.1 Each external document affected by the QMS shall be clearly marked as “Controlled Copy” and initialed by the QMS Representative, excluding By-Laws which receive official approval of Council only.

4.4.2 All controlled copies of external QMS documents shall be stored at the APWD office.

4.4.3 Current equipment manuals shall be located in the equipment files at the APWD garage.

4.5 Obsolete internal and external QMS documents are promptly removed from use. These documents may be archived by clearly labeling it as such, or identified for disposal.

4.6 Internal and external documents shall be reviewed at least annually, as a component of the annual internal audit and management review. A review may also take place when a significant change occurs in operations, such as a change in the type of process chemical or a change of equipment.

### 5.0 Disposal

5.1 Hard copies of documents identified for disposal shall be disposed of by shredding. Electronic copies of records identified for disposal shall be deleted.

### 6.0 Associated Documents

- *Document Change Request (DCR)*      *GEN-F1*
- *Record Control Procedure*              *GEN-P2*



## Atikokan Public Works Department Drinking Water Distribution System

**PROCEDURE TITLE:** Appendix B

**QMS REFERENCE:** GEN – P2

**TO BE REVISED:** Annually or when QMS changes

**QMS REPRESENTATIVE:** Peter Burbeck

## Record Control

### 1.0 Procedure Description

This procedure provides guidance for the identification, use, retention, storage and protection of all records generated that are related to the Quality Management System (QMS).

### 2.0 Reason for Procedure

Consistent control ensures the ease of retrieval of each record generated by Atikokan Public Works Department (APWD) employees. Proper maintenance of records is critical for conformance with the Drinking Water Quality Management Standard (the Standard) and also for compliance with drinking water legislation.

### 3.0 Responsibility

The designated QMS Representative, (or the alternate), shall be responsible for ensuring that an effective method for controlling all QMS records exists.

### 4.0 Procedure

- 4.1 Records may be retained electronically and/or in hard copy.
- 4.2 Minimum retention times for all Ministry of the Environment required records shall be as per the relevant regulations.
- 4.3 In those cases where a minimum record retention time is not specified by a regulation, including those required to demonstrate conformance to the DWQMS, records shall be retained for a minimum of 5 years.
- 4.4 Filing and storage of paper records shall be such that they are protected from damage and are readily retrievable. Records from the current year and the previous year are kept in filing cabinets. All records older than two years are stored in bankers boxes or three-ring binders, clearly marked with the dates and



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types of records contained within, either at the APWD garage or at the APWD office.

- 4.5 Electronic records are stored on the APWD office central computer and are backed up each day.
- 4.6 Records may be retained beyond 5 years, depending on storage capabilities.
- 4.7 Records shall be made available to the public where required by legislation.

### 5.0 Disposal

- 5.1 Hard copies of records identified for disposal shall be disposed of by shredding.  
Electronic copies of records identified for disposal shall be deleted.

### 6.0 Associated Documents

- *Ontario Regulation 169/03 amended to O. Reg. 248/06*
- *Ontario Regulation 170/03 amended to O. Reg. 247/06*
- *Ontario Regulation 128/04*



## Atikokan Public Works Department Drinking Water Distribution System

**PROCEDURE TITLE:** Appendix C

**QMS REFERENCE:** GEN - P4

**TO BE REVISED:** Annually or when QMS changes

**QMS REPRESENTATIVE :** Peter Burbeck

# Drinking Water Hazard Analysis and Critical Control Point Determination

## 1.0 Procedure Description

This procedure describes the method of hazard identification, risk assessment, and critical control point determination used by Atikokan Public Works. The procedure consists of four main exercises: hazard identification, risk assessment, critical control point determination, and critical limit identification. Each exercise is described in detail below.

## 2.0 Reason for Procedure

The systematic approach used for risk identification and assessment lessens the likelihood of overlooking potential treatment process hazards and associated risks to drinking water quality and public health. Hazard analysis, identifying critical control points, establishing critical limits and control instructions provides all operators with consistent direction for responding to conditions that pose a risk of jeopardizing drinking water quality.

## 3.0 Responsibility

The designated QMS representative with the assistance of the Overall Responsible Operator, form a committee consisting of at least four persons who are familiar with the drinking water distribution system. The Hazard Assessment Committee is responsible for identifying all actual and potential hazards, assessing the associated risks, determining critical control points, and setting critical limits. The committee communicates all associated procedures to the remainder of APW operators through training sessions and documentation.



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**PROCEDURE TITLE:** Appendix C

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**QMS REPRESENTATIVE :** Peter Burbeck

### 4.0 Procedure

The hazard analysis procedure is conducted at least annually, prior to the annual management review. These exercises may also be completed when a significant change occurs in operations, such as a change in the type of process or a change of equipment.

#### 4.1 Hazard Identification

Using a process flow diagram as a guide, the committee studies the water distribution process from the water treatment plant to the point of use. While studying the diagram, the committee reviews the existing list of hazards and identifies any new potential hazards. Special attention is given to areas within the process where changes have occurred since conducting the previous hazard identification exercise.

#### 4.2 Risk Assessment

A risk assessment is performed for all events that are deemed to be controllable and the hazardous results of which are measurable. Controllable events are those that may be prevented through the actions of an operator. All other events are considered “emergency situations” and require the development of a contingency plan.

The risk assessment is to be reviewed annually when the Operational Plan is being reviewed. Every 36 months the risk assessment is to be reviewed in its entirety by at least four persons including the Public Works Foreman, QMS representative and QMS representative alternate.

Each controllable event is assigned a numeric value ranging from 1 to 5 in three different categories: likelihood, severity, and detectability (Table 1). The three assigned numbers for each event are then multiplied to determine overall risk value.



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**Table 1: Description of risk assessment criteria**

Assigned Number	Likelihood	Severity	Detectability
1	Rare	Insignificant	Immediate
2	Unlikely	Minor	High
3	Possible	Moderate	Moderate
4	Likely	Major	Low
5	Almost Certain	Catastrophic	Undetectable

The highest risk values are typically indicators of critical events; however, discretion may be used when determining which events are indeed critical, regardless of the calculated risk. Careful evaluation is therefore required for each hazard event. A combined calculated risk threshold of 10 or higher will be used to determine Critical Control Points.

In the case where an event having a higher calculated risk value is not determined by the committee to be critical, an explanation of the reasoning for this distinction is required. An explanation of the reasoning is also required when the committee deems an event with a lower calculated risk critical.

Note that there are three events that are always critically hazardous to water quality: high turbidity, inadequate primary disinfection, and low system pressure.

### **4.3 Critical Control Point Determination**

From the identified critical events, the committee then traces backwards through the water treatment process to determine the specific points where each critically hazardous event





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originates. These points then become control points. The final point in a series that leads to a critical event is identified as the critical control point.

Critical control points require the establishment of controlled conditions, including: critical control limits, equipment reliability and redundancy, and control and recovery procedures.

#### **4.4 Critical Limits**

Critical limits are established for values that measure critical events. The limits provide operators with a range of acceptable values within which no preventive or corrective actions are required. Critical limits define the point at which an operator must take action to prevent escalation of the critical event or to correct the critical event.

Critical limits are determined based on regulatory requirements, process monitoring capabilities, off-hours response time, and historical plant performance. Process alarms (if available) are normally set at, or near critical limits. Responses to breached critical limits are detailed in the Emergency Response Plan.

#### **5.0 Associated Documents**

Refer to the following Emergency Response Plan documents, which are also attached to this procedure:

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**Atikokan Public Works Department  
Drinking Water Distribution System**

**PROCEDURE TITLE:** Appendix D

**QMS REFERENCE:** Atikokan DS

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**Critical Limit Values:**

**High Lift Pump Discharge Header Minimum Pressure = 40 psi**

**Distribution System Watermain Minimum Pressure = 20 psi**

**WTP Power Interruption**

**Critical Limit Response Instructions:**

The following are instructions for operators responding to a distribution system pressure critical limit alarm. If any circumstances are encountered that are not addressed by the instructions below, the Overall-Responsible Operator and or the Public Works Director must be immediately notified.

**High Lift Pump Low Discharge Pressure**

1. Check the operation of the high lift pumps by noting the distribution system flow. If needed, start a high lift pump.

**Power Interruption at WTP**

1. The WTP is equipped with a backup diesel powered generator, capable of running all instrumentation, metering pumps, and one high lift pump. The generator will start automatically following a short delay when power is interrupted. The operator must monitor all necessary treatment equipment and make arrangements for refilling the fuel tank if needed. The operator must also contact Atikokan Hydro to determine the anticipated duration of the interruption so that alternate staffing can be scheduled as needed. If the diesel generator fails to start, immediately notify a staff maintenance electrician or the contractor responsible for generator maintenance.



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**PROCEDURE TITLE:** Appendix D

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### **Rationale:**

Positive pressure must be continuously maintained throughout the distribution system to prevent potential incidents of backflow. Backflow occurs when potentially contaminated liquid reverses flow through a private connection and enters the municipal system creating a potentially high health risk to other users.



## Atikokan Public Works Department Drinking Water Distribution System

**PROCEDURE TITLE:** Appendix E

**QMS REFERENCE:** Atikokan WD

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**Critical Limit = 0.5 mg/L free Cl<sub>2</sub>**

### Critical Limit Response Instructions:

The following provides instruction to operators responding to a distribution system low chlorine residual (secondary disinfection). If circumstances like this are encountered the Overall-Responsible Operator and/or the NWI Atikokan Project Supervisor must be immediately notified.

1. Using the portable chlorine residual analyzer kit, repeat the measurement of free residual in a grab sample collected at the site of the critical limit. If the reading confirms the condition, proceed to step 2. If the reading does not confirm the condition, repeat the analysis to make sure the results are accurate.

**NOTE: If the distribution free chlorine residual is measured below 0.05mg/L after the appropriate flushing time, the operator must immediately follow the procedures for reporting adverse water quality (Schedule 17) and for corrective actions (Schedule 18) in accordance with Ontario Regulation 170/03 as amended. The Overall-responsible Operator and / or the NWI Atikokan Project Supervisor must be promptly notified.**

2. Ensure that the residual of treated water leaving the plant is consistent with recent operating values. If not, determine the cause and make the appropriate repair / correction.
3. Open the nearest downstream hydrant from alarm condition location and continue flushing until the measured chlorine residual is restored above the alarm condition limit.



## Atikokan Public Works Department Drinking Water Distribution System

**PROCEDURE TITLE:** Appendix E

**QMS REFERENCE:** Atikokan WD

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4. If the cause of low distribution system chlorine residual cannot be determined and rectified by the above actions, the Overall-responsible-operator and the NWI Atikokan Project Supervisor must be immediately notified.
5. All observations and corrective actions directly and indirectly related to the alarm condition must be detailed in the log book in accordance with Ontario Regulation 128/04.

### **Rationale:**

The critical limit of 0.5 mg/L free chlorine residual is a conservative value, significantly higher than the applicable regulatory and guideline limits. The limit is set at 0.5 mg/L free chlorine residual to allow adequate time for a corrective response before the regulatory limit is reached. Although much higher than the regulatory minimum, the control limit is approximately half the normal historical average, and is indicative of an abnormal condition that requires further investigation and possible control actions.

### **Considerations:**

- Regulatory limit: 0.05 mg/L as free chlorine residual
- Guideline limit: 0.2 mg/L as free chlorine residual
- Operator response time: 30 minutes
- Historical (normal) performance: >0.2 mg/L free chlorine residual

### **Safeguards:**

The following safeguards are currently in place to prevent the failure of the secondary disinfection process.

- Primary disinfection is continuously monitored and controlled to ensure that treated water leaving the WTP enters the distribution system containing a free chlorine residual above



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the critical control limit for primary disinfection, and well above the secondary disinfection regulatory minimum.

- Chlorine residuals are measured in grab samples collected weekly from dedicated sample locations associated with critical points within the distribution system. Residuals measured at those “worst case” locations are trended and adjustments are made at the WTP as necessary.
- Bi-annual flushing of distribution system hydrants removes debris that limits the effectiveness of secondary disinfection and lowers free residuals.
- Duty and standby chlorinators with automatic switching ensure the availability of a backup system in the event of a failure. Flow sensors activate an alarm if disinfectant delivery is interrupted.
- Chlorine analyzers are routinely calibrated in accordance with manufacturer’s instructions and spare parts are immediately available.



## Atikokan Public Works Department Drinking Water Distribution System

**PROCEDURE TITLE:** Appendix F

**QMS REFERENCE:** GEN - P8

**TO BE REVISED:** Annually or when QMS changes

**QMS REPRESENTATIVE:** Peter Burbeck

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### Infrastructure Review

#### 1.0 Procedure Description

This procedure defines the process used by Atikokan Public Works Department (APWD) to review the adequacy of the infrastructure and resources necessary to operate and maintain the drinking water distribution system safely and effectively.

#### 2.0 Reason for Procedure

The Infrastructure Review Procedure ensures periodic evaluation of the condition and capacity of infrastructure components. The results of the evaluation are used to prioritize future resource allocation.

#### 3.0 Responsibility

The Public Works Director in consultation with the Public Works Foreman, and the Town Treasurer shall prepare the Infrastructure Review Report.

#### 4.0 Procedure

- 4.1 This procedure is applicable to all Atikokan Public Works Department infrastructure components that fall under the scope of the DWQMS.
- 4.2 Infrastructure review is conducted at least once each year.
- 4.3 The above named managers shall consider previous Infrastructure Review Reports, input from union staff, MOE Compliance Inspection Reports, flow data trends, water quality reports, and maintenance records to determine priority needs.
- 4.4 The Infrastructure Review Report shall be presented along with the Annual Report and presented at a Public Works Committee Meeting. The Annual Report



## Atikokan Public Works Department Drinking Water Distribution System

**PROCEDURE TITLE:** Appendix F

**QMS REFERENCE:** GEN – P8

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**QMS REPRESENTATIVE:** Peter Burbeck

shall be forwarded to the Council and made available to any member of the public in accordance with legislation.

- 4.5 The Infrastructure Review Report shall be revisited and revised (if deemed necessary) by management during the preparation of the proposed annual budget.

### 5.0 Associated Documents

- *MOE Compliance Inspection Reports*
- *Distribution System records*
- *Laboratory records*
- *Drinking Water Quality Management Standard*





## Atikokan Public Works Department Drinking Water Distribution System

**PROCEDURE TITLE:** Appendix G

**QMS REFERENCE:** GEN - P3

**TO BE REVISED:** Annually or when QMS changes

**QMS REPRESENTATIVE:** Peter Burbeck

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## Maintenance

### 1.0 Procedure Description

This procedure describes the maintenance activities performed within the drinking water distribution system operated by Atikokan Public Works Department, including preventative maintenance, unscheduled maintenance, and system rehabilitation and renewal.

### 2.0 Reason for Procedure

Maintenance activities may significantly impact the quality of drinking water produced and/or delivered to the customers. Pre-planning and a documented systematic approach to addressing maintenance activities, where possible, can minimize this impact.

### 3.0 Responsibility

The following are responsible for maintenance and renewal activities depending on the urgency of the task, risk to public health, and financial requirements:

- Public Works Director
- CAO
- Public Works Foreman
- Overall Responsible Operators for the distribution subsystem

### 4.0 Procedure

4.1 All maintenance activities shall be associated with a daily worksheet. The ORO is responsible for assigning work activities.

4.1.1 Regular work orders will be made in three copies.

4.1.2 Completed daily worksheets are kept in binders at the Atikokan Public Works Garage.



## Atikokan Public Works Department Drinking Water Distribution System

**PROCEDURE TITLE:** Appendix G

**QMS REFERENCE:** GEN – P3

**TO BE REVISED:** Annually or when QMS changes

**QMS REPRESENTATIVE :** Peter Burbeck

- 4.1.3 If the work was associated with a customer, a work request form is received and signed by the ORO or Director of Public Works.
- 4.2 Duties listed on the daily worksheet for regular preventative maintenance shall be assigned according to a schedule.
- 4.2.1 The ORO assigns preventative maintenance tasks. Preventive maintenance tasks are typically defined by manufacturer's literature when available and revised (or created) as needed according to operator experience / observations.
- 4.3 Routine system rehabilitation and renewal shall be addressed annually during budget preparation, typically one to two months prior to the calendar year end for the budget applying to the following year. A list of required replacement or desired new equipment is compiled and prioritized by the Public Works Director along with the Public Works Foreman and the Engineering Technician. A proposed budget is presented by the Council with justification provided for the requested maintenance and capital projects. If the Council does not approve the proposed budget, the management team prepares a revised, reduced version by deferring lower priority items.
- 4.4 Major upgrades and expansion are addressed as needed based on regulatory requirements, assessment of risk to public health, development review, reserve account balances, and grant or loan availability.
- 4.5 If feasible, rehabilitation or replacement of water distribution piping is coordinated to coincide with scheduled road resurfacing projects.

### 5.0 Associated Documents



## Atikokan Public Works Department Drinking Water Distribution System

**PROCEDURE TITLE:** Appendix H

**QMS REFERENCE:** Atikokan WD-P1

**TO BE REVISED:** Annually or when QMS changes

**QMS REPRESENTATIVE:** Peter Burbeck

A handwritten signature in black ink, appearing to read 'Peter Burbeck', written over the signature line of the header table.

## Emergency Conditions

### 1.0 Procedure Description

This procedure describes conditions within the Atikokan Drinking Water Distribution System that are considered to be emergencies, as well as those persons responsible for initiating the response and recovery measures.

### 2.0 Reason for Procedure

Establishing a procedure for emergency conditions indicates a level of preparedness, promotes an efficient response, and supports a rapid recovery.

### 3.0 Responsibility

The certified operator on duty must be capable of identifying and be prepared for responding to any emergency condition that may arise at the water treatment plant or within the distribution system. Operator training is conducted regularly to ensure the safe and timely response to emergencies.

### 4.0 Procedure

#### 4.1 Major Emergencies

- Adverse Water Quality
- Major Power Failure
- River Raw Water Source Required



## Atikokan Public Works Department Drinking Water Distribution System

**PROCEDURE TITLE:** Appendix H

**QMS REFERENCE:** Atikokan WD-P1

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### 4.2 Response

4.2.1 In the event of an identified emergency, the Overall Responsible Operator for both water treatment and distribution shall be contacted immediately.

4.2.2 Officials from the Town of Atikokan shall only be notified in the event that water cannot be supplied to the town in sufficient amounts for fire protection, or that water quality poses an acute health risk to customers and a boil water advisory must be issued.

### 5.0 Associated Documents

Refer to the following O & M Manual documents:

- *Response to Adverse Water Quality*
- *Power Failure*
- *River Water*
- *Issuing A Boil Water Advisory*



## Atikokan Public Works Department Drinking Water Distribution System

**PROCEDURE TITLE:** Appendix I

**QMS REFERENCE:** Atikokan WD-P2

**TO BE REVISED:** Annually or when QMS changes

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## Sampling, Monitoring and Analysis

### 1.0 Procedure Description

This procedure describes the sampling schedule within the Atikokan Drinking Water Distribution Subsystem. It also outlines the responsibilities of operators and outside agencies in regards to analyses performed and reporting duties.

### 2.0 Reason for Procedure

Regular and strict adherence to a schedule is required to meet legislated requirements and to ensure that all operators involved are aware of their responsibilities and the required timing. All sampling and analysis is performed to comply with Ontario Regulation 170/03 as amended or to monitor additional parameters that affect water quality monitoring or aid in process control.

### 3.0 Responsibility

Only those operators who have been issued a valid Water Treatment or Water Distribution Operator Certificate are permitted to carry out drinking water sampling. The operator on duty performs all drinking water sampling, as well as the chlorine residual analyses. All other analyses must be performed by the staff of an accredited laboratory.

Upstream monitoring is performed by the Operating Authority of the Water Treatment Subsystem (Northern Waterworks). Accredited laboratory results of upstream monitoring are simultaneously forwarded by the laboratory (ALS Laboratories) to the Water Treatment Subsystem Operating Authority (Northern Waterworks), Distribution Subsystem Operating Authority (Atikokan Public Works) and the Owner (Township of Atikokan). Records of all accredited laboratory sample results are kept at the Town Office, Public Works and Water Treatment Plant.

A summary of additional in-house upstream monitoring, sampling and analysis is provided by the Operating Authority of the Water Treatment Plant (Northern Waterworks) to the Owner (Township of Atikokan) in the form of a monthly report.



## Atikokan Public Works Department Drinking Water Distribution System

**PROCEDURE TITLE:** Appendix I

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### 4.0 Procedure

#### 4.1 Weekly Sampling and Analysis (by Northern Waterworks)

4.1.1 Distribution bacteriological samples shall be collected according to the sampling requirements (ie. number of sites and frequency of sampling) of O.Reg. 170/03.

4.1.2 Bacteriological samples shall be delivered in designated coolers to the accredited laboratory on the same day that they are collected.

4.1.3 A Chain of Custody form shall be completed and submitted to the laboratory with the samples.

#### 4.2 Quarterly Sampling and Analysis (by Northern Waterworks)

4.2.1 Distribution trihalomethane samples shall be collected according to the sampling requirements (ie. location and frequency of sampling) of O.Reg. 170/03.

4.2.2 Trihalomethane samples shall be delivered in designated coolers to the accredited laboratory on the same day that they are collected.

4.2.3 A Chain of Custody form shall be completed and submitted to the laboratory with the samples.



## Atikokan Public Works Department Drinking Water Distribution System

**PROCEDURE TITLE:** Appendix I

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### 4.3 Lead Sampling and Analysis (by Atikokan Public Works)

4.3.1 Distribution lead and alkalinity samples shall be collected from the specific locations according to the Standard Operating Procedures-Samples and O.Reg. 170/03.

4.3.2 Lead and alkalinity samples shall be delivered in designated coolers to the accredited laboratory on the same day that they are collected.

4.3.3 A Chain of Custody form shall be completed and submitted to the laboratory with the samples.

### 4.4 Calibration and Maintenance Requirements

All instruments in use at the Atikokan Public Works Department shall be calibrated and maintained as per manufacturer's recommendation. Such instruments include those used to determine free chlorine residual (for chlorine residual monitoring) and those used to determine pH (for lead sampling).

Refer to specific equipment Operations Manuals for detailed calibration and maintenance requirements.

### 4.5 Adverse Results

If the accredited laboratory discovers adverse water quality in a sample, they are obligated to notify someone at Atikokan town office within 24 hours.

\* Refer to the procedure entitled Adverse Water Quality Reporting.



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### 5.0 Upstream Monitoring Processes

Water quality parameters of water pumped into the Distribution Subsystem are monitored by the Operating Authority of the Water Treatment Subsystem. These parameters are all measured at the point of entry into the distribution system. These parameters include:

<b>Continuous Monitoring</b>		
<b>Parameter</b>	<b>Sampling Type</b>	<b>Minimum Frequency</b>
Free Chlorine Residual	Continuous	Every 5 Minutes
Turbidity	Continuous	Every 15 Minutes
Fluoride	Continuous	None Specified by Regulation
Pressure	Continuous	None Specified by Regulation
<b>In-House Monitoring</b>		
Free Chlorine Residual	Grab	Daily
Turbidity	Grab	Daily
Fluoride	Grab	Daily
pH	Grab	As required
Colour	Grab	As required
Alkalinity	Grab	As required
Aluminum Residual	Grab	As required
<b>Accredited Laboratory Monitoring</b>		
Bacteriological	Grab	Weekly
Nitrate/Nitrite, Trihalomethanes	Grab	Quarterly
Schedule 23 Inorganics	Grab	Annually
Schedule 24 Organics	Grab	Annually
Sodium	Grab	Every 60 Months
Fluoride	Grab	Every 60 Months

Continuous monitoring sample results are recorded and stored on the Atikokan Water Treatment Plant SCADA computer.

In-house monitoring sample results are submitted to the Owner and Distribution Subsystem Operating Authority in a monthly report.





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Accredited laboratory sample results are simultaneously e-mailed to the Owner, Distribution Subsystem Operating Authority and Water Treatment Subsystem Operating Authority.

Upstream continuous monitoring equipment and upstream in-house monitoring equipment is maintained and calibrated according to manufacturer's recommendations, as identified in the Water Treatment Subsystem Operational Plan.

### 6.0 Associated Documents

*Procedures:* Adverse Water Quality Reporting  
*Instructions:* Bacteriological Testing of Mainlines  
 Water Distribution Sampling



## Atikokan Public Works Department Drinking Water Distribution System

**PROCEDURE TITLE:** Appendix J

**QMS REFERENCE:** GEN - P6

**TO BE REVISED:** Annually or when QMS changes

**QMS REPRESENTATIVE:** Peter Burbeck

### Internal Audit

#### 1.0 Procedure Description

This procedure defines the process used by Atikokan Public Works Department (APWD) to conduct internal audits of the Drinking Water Quality Management System (DWQMS).

#### 2.0 Reason for Procedure

Internal audits are conducted to confirm that the DWQMS and Atikokan DWQMS Operational Plan are effectively implemented and meet or exceed the requirements of the DWQMS Standard.

#### 3.0 Responsibility

Internal audits shall only be conducted by persons approved by the DWQMS Representative and having the following qualifications:

- Town of Atikokan Staff appointed by the DWQMS Representative
- Employees of other operating authorities who have completed a minimum of two internal audits of quality management systems within their own organizations.

#### 4.0 Procedure

- 4.1 This procedure is applicable to Atikokan Public Works Department pertaining to distribution activities that fall under the scope of the DWQMS.
- 4.2 Internal audits are conducted at least annually.
- 4.3 Internal auditors will be selected by the DWQMS Representative.
- 4.4 Internal auditors shall review DWQMS Standard and previous internal and third-party audit reports in preparation for the audit.



## Atikokan Public Works Department Drinking Water Distribution System

**PROCEDURE TITLE:** Appendix J

**QMS REFERENCE:** GEN – P6

**TO BE REVISED:** Annually or when QMS changes

**QMS REPRESENTATIVE:** Peter Burbeck

- 4.5 The audit checklist created and maintained by the DWQMS Representative shall be used by the internal auditor as a guideline for conducting the interviews and document review during the audit.
- 4.6 The audit report shall be in the form of a completed audit checklist.
- 4.7 The internal audit checklist shall include a review of procedures and records as audit criteria. The checklist shall include an assessment of DWS documents, records, policies and procedures versus DWS requirements.
- 4.8 Non-conformances identified by the internal audit will be reported to the Public Works Director. The Public Works Director will prepare an action plan to resolve the non-conformance which will include actions required, allocate responsibility to an individual(s) and proposed resolution date.
- 4.9 The internal audit shall be considered closed upon resolution of all non-conformances identified by the internal audit and submission of the audit report to the Management Review Committee.
- 4.10 Closed internal audit reports shall be retained for a minimum period of 5 years from the date the internal audit is closed.

### 5.0 Associated Documents

- *Management Review Procedure (GEN-P7)*
- *Internal Audit Checklist*
- *Drinking Water Quality Management Standard*



## Atikokan Public Works Department Drinking Water Distribution System

**PROCEDURE TITLE:** Appendix K

**QMS REFERENCE:** GEN - P7

**TO BE REVISED:** Annually or when QMS changes

**QMS REPRESENTATIVE:** Peter Burbeck

## Management Review

### 1.0 Procedure Description

This procedure defines the process for the review of the effectiveness of the Drinking Water Quality Management System (DWQMS) by the Management Review Committee.

### 2.0 Reason for Procedure

Management reviews are conducted to assess and ensure the continuing suitability, adequacy, and effectiveness of the DWQMS and Atikokan DWQMS Operational Plan in meeting the requirements of the DWQMS Standard.

### 3.0 Responsibility

Management reviews shall be conducted during a meeting of the following participants:

- Peter R. Burbeck, Public Works Director
- Joe Lecuyer, Engineering Tech./QMS Representative Alternate
- Jim Hogan, Public Works Foreman

Other participants may be added at the discretion of the Public Works Committee. The meeting is chaired by QMS Representative or Alternate.

The Management Review Report will be presented to the Public Works Committee during a meeting of the following participants:

- Angela Sharbot, CAO
- Pat Halwachs, Deputy Clerk
- Peter R. Burbeck, Public Works Director
- Joe Lecuyer, QMS Representative Alternate
- Jim Hogan, Public Works Foreman



## Atikokan Public Works Department Drinking Water Distribution System

**PROCEDURE TITLE:** Appendix K

**QMS REFERENCE:** GEN - P7

**TO BE REVISED:** Annually or when QMS changes

**QMS REPRESENTATIVE:** Peter Burbeck

### 4.0 Procedure

- 4.1 This procedure is applicable to Atikokan Public Works Department pertaining to activities that fall under the scope of the QMS.
- 4.2 A management review shall be conducted at least once per year following completion and documentation of an internal audit and prior to the next scheduled third-party audit.
- 4.3 Prior to the Management Review Meeting, the QMS Representative or Alternate shall provide a meeting agenda and summaries of the following information to the Management Review Committee:
  - a) Incidents of regulatory non-compliance,
  - b) Incidents of adverse drinking-water tests,
  - c) Deviations from critical control point limits and response actions,
  - d) The efficacy of the risk assessment process,
  - e) Internal and third-party audit results,
  - f) Results of emergency response training,
  - g) Operational performance,
  - h) Raw water supply and drinking water quality trends,
  - i) Follow-up on action items from previous management reviews,
  - j) The status of management action items identified between reviews,
  - k) Changes that could affect the Quality Management System,
  - l) Consumer feedback,
  - m) The resources needed to maintain the Quality Management System,
  - n) The results of the infrastructure review,
  - o) Operational Plan currency, content and updates, and



## Atikokan Public Works Department Drinking Water Distribution System

**PROCEDURE TITLE:** Appendix K

**QMS REFERENCE:** GEN – P7

**TO BE REVISED:** Annually or when QMS changes

**QMS REPRESENTATIVE:** Peter Burbeck

### p) Staff suggestions

- 4.4 The Management Review Committee shall review and discuss all information presented. The Committee shall make recommendations and initiate action, as appropriate, to improve the content and implementation of the Operational Plan and related procedures, and to ensure the provision of adequate resources.
- 4.5 Minutes of management review meetings shall be maintained by the QMS Representative or Alternate. The minutes shall document all new and outstanding action items as well as any decisions made by the Committee.
- 4.6 The QMS Representative and Alternate shall be responsible for communication and implementation of the management review action items.
- 4.7 Minutes of the Management Review meeting, including all new and outstanding action items and decisions made by the Committee, shall be retained for a minimum period of 5 years from the date of the Management Review Meeting.

### 5.0 Associated Documents

- *Internal Audit Procedure GEN-P6*
- *Drinking Water Quality Management Standard*