

MOONBEAM

Water Treatment and Distribution

Drinking Water Quality Management System

Operational Plan



Table of Contents

| | |
|---|-----------|
| Table of Contents | 2 |
| List of Appendices | 3 |
| 1. QUALITY MANAGEMENT SYSTEM..... | 4 |
| 2. QUALITY MANAGEMENT SYSTEM POLICY | 4 |
| 3. COMMITMENT AND ENDORSEMENT | 6 |
| 4. QUALITY MANAGEMENT SYSTEM REPRESENTATIVE | 7 |
| 5. DOCUMENT AND RECORD CONTROL PROCEDURE | 8 |
| 6. DRINKING WATER SYSTEM | 12 |
| 7. RISK ASSESSMENT | 14 |
| 8. RISK ASSESSMENT OUTCOMES..... | 16 |
| 9. ORGANIZATIONAL STRUCTURE, ROLES, RESPONSABILITIES AND AUTHORITIES | 18 |
| 10. COMPETENCIES | 20 |
| 11. PERSONNEL COVERAGE | 23 |
| 12. COMMUNICATIONS..... | 24 |
| 13. ESSENTIAL SUPPLIES AND SERVICES..... | 25 |
| 14. REVIEW AND PROVISION OF INFRASTRUCTURE..... | 29 |
| 15. INFRASTRUCTURE MAINTENANCE, REHABILITATION AND RENEWAL..... | 30 |
| 16. SAMPLING, TESTING AND MONITORING | 31 |
| 17. MEASUREMENT AND RECORDING EQUIPMENT, CALIBRATION AND MAINTENANCE .. | 33 |
| 18. EMERGENCY MANAGEMENT..... | 33 |
| 19. INTERNAL AUDITS..... | 35 |
| 20. MANAGEMENT REVIEW | 36 |
| 21. CONTINUAL IMPROVEMENT..... | 37 |

List of Appendices

- Appendix A – Risk Assessment Outcomes**
- Appendix B – Internal Audit Report**
- Appendix C – Management Review Form**
- Appendix D – Review and Provision of Infrastructure Form**
- Appendix E – Standard Operating Procedures**
- Appendix F – Flow Chart**
- Appendix G – Water Distribution System**
- Appendix H – Emergency Preparedness and Contingency Plan**

1. QUALITY MANAGEMENT SYSTEM

Definition

A Quality Management System is a system which controls the operation and management of the plant.

Scope

A Quality Management System applies to every aspect of the Drinking Water System. It includes: document and record control for all aspects of water treatment and distribution; comprehensive risk assessment; organizational structure, roles, responsibilities and authorities; competencies; personnel coverage; communication; essential supplies and services; review and provision of infrastructure; infrastructure maintenance, rehabilitation and renewal; sampling, testing and monitoring; measurement and recording equipment, calibration and maintenance; and emergency maintenance.

Rationale

Having a Quality Management System in place for a drinking water system ensures that quality control is a top priority for the plant. This system will ensure that all parties involved, from suppliers to operating staff and management, concentrate fully on the safe and reliable provision of drinking water to the Township of Moonbeam.

The Township of Moonbeam Drinking Water Quality Management System is documented in this Operational Plan as part of our efforts to provide clean, safe and reliable drinking water to all consumers supplied by the Township of Moonbeam Water System. The Moonbeam Water Treatment and Distribution System is owned by the Township of Moonbeam and operated under contract and by municipal staff. The development and continual improvement of the plan will help ensure that all regulatory requirements are met and that consumers can be confident that their drinking water will be safe, clean and protected. This plan is written to meet or exceed all requirements laid down by the Ministry of the Environment, and is applicable to the management and operation of the water treatment and distribution system.

2. QUALITY MANAGEMENT SYSTEM POLICY

Definition

The Quality Management System Policy is the commitment to adhere to the Operational Plan in all aspects of operation and management of the Township of Moonbeam Water Treatment and Distribution System.

Scope

The quality management system policy applies to the owner and accredited operating authority of the water treatment plant and distribution system for the Township of Moonbeam.

Rationale

The quality management system policy is the commitment, by the Township of Moonbeam and the operating authority, to adhere to the DWQMS and operational plan for the Township of Moonbeam Water Treatment Plant and Distribution System.

The Township of Moonbeam understands that the supply of safe drinking water is essential to the continual growth, prosperity and well-being of the community and its citizens. The Township of Moonbeam is committed to manage the treatment and supply of clean, safe drinking water to all its consumers, and to consistently meet all applicable legislative and regulatory requirements, and consumer needs.

To achieve these goals the Township of Moonbeam commits to:

- Regularly monitor and test water to meet or exceed current regulatory requirements
- Manage water quality from source to consumer
- Continue to establish and upgrade current practices and policies
- Provide consistent and relevant training to operators to meet or exceed current training requirements
- Invest capital monies to provide upgrades and rehabilitations to treatment and distribution systems
- Provide water treatment plant annual reports, as per the Ministry of the Environment requirements

The Township of Moonbeam's Drinking Water Quality Management System Operational Plan will be available on the website. The URL to access it is <https://www.moonbeam.ca/water-sewage>.

The Township of Moonbeam will establish and maintain a Drinking Water Quality Management System that will be regularly reviewed, improved and upgraded. All personnel directly involved in the treatment and distribution of drinking water share the responsibility of implementing, maintaining and contributing to the continual improvement of the Quality Management System. The operating authority is committed to provide a consistent supply of high quality drinking water, meet or exceed all legislation and regulatory requirements.

The owner has reviewed and approved the policy on September 4, 2018.

The accredited operating authority has reviewed and approved the policy on September 4, 2018.

3. COMMITMENT AND ENDORSEMENT

Definition

Commitment and endorsement means that all parties involved in the water treatment system have read and fully understand the QMS, and they are committed and fully endorse the QMS.

Scope

The commitment and endorsement applies to all parties involved in the Drinking Water System, but is especially crucial to top management. The mayor and council must be fully committed to the QMS and must be aware that certain funding will be required to ensure the continued delivery of safe and reliable water to all residents of the Township of Moonbeam.

Rationale

The commitment ensures that the mayor, council and top management are aware that funding will be needed to provide the continued delivery of safe and reliable water.

The Quality Management System for the Township of Moonbeam, as required by the Drinking Water Quality Management Standard, is documented in this operational plan.

This is a blueprint for the plan, operation, and maintenance of the Township of Moonbeam Water Treatment and Distribution System. The Township of Moonbeam will strive to implement, maintain and foster improvements to the QMS through reviews of the operational plan.

The mayor and council acknowledge the need for and support the provision of sufficient resources to maintain and continually improve the Quality Management System.

Date

Mayor

Clerk Treasurer

QMS Representative

4. QUALITY MANAGEMENT SYSTEM REPRESENTATIVE

Definition

The Quality Management System (QMS) representative is the individual who is responsible for overseeing all aspects of the Quality Management System. This includes the creation, audits, any changes made to the plan, as well as continual improvement to the QMS.

Scope

The Quality Management System representative must be the individual who does all the changes and improvements, as well as represent the QMS in all audits, inspections, and queries. Any individual seeking to make changes to the QMS must go through the Quality Management System representative.

Rationale

The Quality Management System representative is essential to ensure consistency throughout the QMS and will ensure all changes made to the QMS are accurate, consistent, and meet all standards and legislation. Having a single individual representing the QMS will ensure QMS audits, as well as water treatment system inspections, go smoothly. Audits will be less time consuming for auditors, inspectors and staff, thus more cost efficient.

The Township of Moonbeam has designated one individual to be the Quality Management System representative.

Name: Luc Pelchat
Position: Class One Water Treatment Operator, Class One Water Distribution Operator
Backup QMS, Rep: Claire Gibson

The QMS representative will be responsible for the following:

- Develop, implement and maintain the QMS
- Ensure that processes and procedures needed for the QMS are established and maintained
- Report to the owner on the quality of the QMS and any need for improvement, as required, or during the management review meetings at minimum
- QMS document and record control
- Ensure that current revisions of the QMS are in use at all times
- Promote awareness of the QMS through the operating authority
- Ensure that personnel is aware of all current legislation and regulations that pertain to the operation of the drinking water system
- Report on the effectiveness of the QMS and on the need for improvement to the owner

5. DOCUMENT AND RECORD CONTROL PROCEDURE

5.1 Document Control

Definition

In this context documents are recorded information related to assisting the operating authority to deliver safe drinking water. They may be internal documents such as equipment manuals, operating procedures and SOP's, emergency procedures, etc., or external documents such as legislation, permits and certifications.

Scope

This document control procedure is applicable to all documents related to both the water treatment and distribution system in Moonbeam. This procedure concerns both management and operations of the Moonbeam Water System and will be thoroughly followed by all parties concerned.

Rationale

This procedure defines the method used to control the creation, revision, approval and circulation of all documents pertaining to the drinking water system. Proper maintenance of documents is critical to ensure consistent procedures and to facilitate training, as well as for conformance with the DWQMS and compliance with drinking water legislation.

General Procedure:

- When feasible, original documents required under the DWQMS will be kept in the office at the water treatment plant.
- The QMS representative shall be responsible for the control and distribution of all DWQMS documents.
- Whenever possible a back up copy will be made of all relevant documents and kept at the municipal office.

Creation and Provision of QMS documents

Any interested party may request a change to an existing procedure or the development of a new procedure. The requester shall develop the new or changed document and submit it to the QMS representative for review. The QMS representative shall review the document and make changes as required and approve it.

- Electronic versions of the new/changed documents will be created by the office assistant and approved by the QMS representative.
- The QMS representative shall be responsible for ensuring that copies of the new or changed internal documents show the document title,

the revision number, the date modified, and the approving signature, and that copies are placed in the QMS binder at the water plant office.

- The QMS representative ensures that new or changed documents are communicated and/or distributed to all interested parties.
- Obsolete documents shall be collected, archived in a binder and stored at the water treatment plant.

QMS Documents:

All documents pertaining to the QMS can be found in the office at the Moonbeam Water Treatment Plant.

All documents related to the operation of the water treatment plant will be kept at the water treatment plant office or filing area. All documents related to the distribution system will be located at the municipal garage or at the water treatment plant office, with backup copies being kept at the municipal office.

5.2 Record Control

Definition

Record control consists of logs, records that demonstrate proof of activities performed or results achieved, and refers to events that happened in the past.

Scope

This record control procedure is applicable to all records related to both the water treatment and distribution systems in Moonbeam. This procedure concerns both management and operation of the Moonbeam Water System.

Rationale

This procedure provides guidance for the retention, storage and protection of all records identified for compliance with legal requirements and conformance with the DWQMS. Consistent and proper maintenance of records ensures the ease of retrieval, provides accountability, and establishes due diligence.

Responsibility

The designated QMS representative shall be responsible for ensuring that an effective method for controlling all QMS records exists.

Procedure:

- Distribution records are kept for at least five years (O. Reg. 170/03)

and will be located at the water treatment plant office or at the municipal garage.

- Water treatment records will be kept for at least five years (O. Reg. 170/03) and will be found at the water treatment plant office or washroom filing cabinets.
- Filing and storage of paper records shall be such that they are protected from damage and retrievable within 24 hours.
- Records are disposed of as per legislation; they are shredded or placed as archive in the filing cabinet located in the washroom.
- Records shall be made available for inspection by MOE, and shall be made available upon public request where required by legislation.
- The current copy of the operational plan, procedures and associated documents are retained in the QMS binder at the water treatment plant office. Original sets of equipment manuals / specifications and drinking water regulations are also kept at the water treatment plant office.
- QMS records shall be filed at the water treatment plant office by type and by date.
- The record title shall be clearly visible and legible.
- Weekly sampling date, chlorine residuals, and daily information are entered into a log book at the water treatment plant. All manual records shall show the name or initials of the recorder and the date (and time if appropriate) the record was generated. Manual records shall be legible. Pencil or any other erasable marker shall not be used to record process, product information or data.

The basic required information is recorded in the "Moonbeam Water Plant Daily Log" binder which is made up of separate sheets for every calendar day. The entries are recorded by the operator in charge for each day and have a space to note details of operation and comments. Details such as those listed below are included in order to adequately cover the requirements for logs:

- The date, the time period, the shift covered and the number or designation of the shift;
- The names of all operators on duty during each shift;
- Abnormal and unusual observations and related conclusions and/or actions taken;
- A record of equipment taken out of service or ceased to operate, maintenance or repair carried out on the equipment, including the date and time when the equipment was repaired and returned to service.

Record Retention Time Table

| Type of Record | Minimum Retention Time | | |
|--|------------------------|--------|-----------|
| | | E COPY | HARD COPY |
| Log Book | 5 years | | ✓ |
| Organic and Inorganic Chemical Parameters | 15 years | ✓ | ✓ |
| Bacterial Results – E coli, Total Coliform | 5 years | ✓ | ✓ |
| Work Orders – Equipment Maintenance | 5 years | | ✓ |
| Distribution Breaks | 5 years | | ✓ |
| Hydrant Flushing Results | 5 years | | ✓ |
| Calibration Results | 2 years | | ✓ |
| Chlorine Results | 5 years | ✓ | ✓ |
| Training Records | 5 years | | ✓ |
| Meeting Minutes | 5 years | | ✓ |
| Corrective Action Requests | 5 years | | ✓ |
| Preventative Action Requests | 5 years | | ✓ |
| Consumer Complaints | 5 years | | ✓ |
| Annual Report and Summary Reports | 6 years | ✓ | ✓ |
| Turbidity Results | 2 years | ✓ | ✓ |
| Daily Flow Sheets | 5 Years | ✓ | ✓ |
| Trihalomethanes (THM's) | 6 Years | ✓ | ✓ |
| Nitrite and Nitrate | 6 Years | ✓ | ✓ |
| Lead | 6 Years | ✓ | ✓ |
| Pesticide | 6 Years | ✓ | ✓ |
| Sodium | 15 Years | ✓ | ✓ |
| Engineers' Report | 15 Years | ✓ | ✓ |
| Exceedance Resample | 15 Years | ✓ | ✓ |
| QMS Worksheet | 10 Years | ✓ | ✓ |
| Valve Operation Worksheet | 5 Years | | |
| Hydrant Operation Worksheet | 5 Years | | |
| Generator Log | 5 Years | | |

All records with 6 years and under retention time will be placed in a binder identified with the year they were produced. All records with 6 years and over retention time will be placed in a binder identified with a 15 years sticker and will be located in the office at the water plant.

6. DRINKING WATER SYSTEM

Definition

The drinking water system, part of the operational plan, describes in detail all treatment and distribution aspects of the Moonbeam Water Treatment Plant as well as the distribution system running through the town.

Scope

The drinking water system is applicable to source water, filtration, clear wells, distribution, waste water, and monitoring.

Rationale

Having the complete drinking water system documented in this operational plan ensures ease of retrieval of information for new employees, inspectors and top management.

The Moonbeam Water Treatment Plant, located at 8 Remi Lake Road, provides safe and reliable potable water supply to the residents and businesses of Township of Moonbeam. The treatment plant is a Class I conventional design water treatment plant. The water treatment plant is owned by the Township of Moonbeam and operated under contract by Claire Gibson. The Water Distribution System is rated a Class I and is owned by the Township of Moonbeam and operated under its own operating authority. The Drinking Water System is not attached or reliant on any other Drinking Water System. The Municipal Drinking License and Drinking Water Works Permit are in a binder at the water treatment plant office.

6.1 Source Water

The water supply for the Township of Moonbeam is drawn from two wells controlled by a Scada system situated inside of the Moonbeam Water Treatment Plant. Well one has an approved drawing capacity of 341 liters a minute or 491,000 liters per day, and well two has an approved drawing capacity of 568 liters per minute or 817,000 liters per day. Raw water from each well is injected with sodium hypochlorite at each well head through two separate chlorination systems. The water that is received at the treatment plant is groundwater that has been deemed non GUDI.

There is no big flux in the raw water quality with the season changes due to the fact that the water received at the Moonbeam Water Treatment Plant is from groundwater wells. Adequate distance has been allocated between Moonbeam source water and possible pollutants. In the Township of Moonbeam there is no application of nutrients allowed within 100 meters of the water treatment plant.

The raw water quality can be characterized as being neutral with a pH of roughly 7.5. The annual turbidity is on average .35 NTU. The water is characteristically high in hardness due to the fact that it is drawn out of the Canadian Shield. The hardness is usually about 350. The temperature of the water is typically 6.5 degrees Celsius.

6.2 Filtration

For filtration, the water is pumped through a four cell horizontal multi cell pressure filter. The filter utilizes anthracite as a media for filtration. The filter system is used for iron removal. The filter is backwashed on a weekly basis.

6.3 Disinfection

As for disinfection system, each well has a 90L/day capacity disinfection system, consisting of a 60L sodium hypochlorite solution tank, a 3.6L/hr metering pump and an injector diffuser. Each hypochlorite solution pump is rated at 3.6L/h at 125 TDH (total dynamic head) with an automatic switchover in case of failure.

6.4 Clear Wells

To meet the required contact time of 34.6 minutes, the Moonbeam Water Treatment Plant uses two interconnected in ground concrete storage reservoirs as contact chambers. The combined capacity of both underground wells is 545 cubic meters.

6.5 Distribution

Finished water is pumped out from the plant through 4.4 km of pipe to 660 residents at 225 connections with service pumps controlled by a Scada system. Two are 675 LPM for distribution and one is 2250 LPM (fire pump). One service pump will supply water to town if the demand increases and the second one will start if the demand increases even more. In case of fire, the fire pump will start. The older distribution piping is made out of cast iron and the new pipe is made of PVC. The distribution pipe is 6 inches in diameter. There are 24 fire hydrants and 41 valves hooked up to the Moonbeam Water Distribution System. The fire hydrants are flushed yearly and annual inspections are done during this flushing. The pressure in the distribution pipes is 520 KPA leaving the plant, and getting slightly lower further away from the plant. There is no storage tank in the distribution system. With the low population of Moonbeam and the two clear wells acting as storage, no outside storage tank is needed.

6.6 Waste Water

For treatment of waste water from the Moonbeam Water Treatment Plant, there is a settling tank inside the plant, where all the particulate in the water settles to the bottom. This is then pumped as needed with a vacuum

truck. The waste water is pumped from the settling tank through the municipal sewers to the lagoon.

6.7 Monitoring

The monitoring system for the Moonbeam Water Treatment Plant includes the logbook which contains the date, the time and the name of the person who performs work related to the Moonbeam Water Treatment System. Continuous monitoring is done for chlorine before going into the distribution system, and one online turbidity meter checks for treated water leaving plant. Continuous monitoring is done on raw water intake and the treated water at POE (point of Entry) in the form of a flow meter. These data are recorded on two chart recorders, one for the chlorine residuals and flow to distribution and the other is for raw water intake. The complete system includes monitoring for free chlorine residuals, turbidity levels in NTU, system pressure in KPA, water levels, pump operation, building security, and electrical power. Iron and chlorine residual in distribution are done with a Hach pocket colorimeter. We also have a Scada system. For afterhours there is an auto dialer system which automatically calls the ORO's home telephone and cell phone, and then calls the operator. A standby 100 KW generator outside the plant will start automatically when there is loss of power.

7. RISK ASSESSMENT

Definition

Risk assessment is a comprehensive study of the water treatment and distribution system to determine the location of the risk factors, their potential and when corrective measures should be taken.

Scope

The comprehensive risk assessment is done on all parts and processes of the water treatment and distribution system. This covers the risks to operators, consumers, the environment, and the public.

Rationale

A risk assessment done on the water treatment and distribution system is important for operators as it indicates which part is most likely to cause problems, and lets management know where future funds may need to be allocated.

Risk assessment is based on hazards, critical control limits and critical control points that have been thoroughly discussed and ranked by the operational authority, workers and management of the water treatment plant. Methods for monitoring and controlling hazards have been defined, as well as methods for reporting and recording deviations from CCP limits.

7.1 Risk Assessment Procedure

The QMS representative shall assemble a team to discuss and identify all hazards to the water works. Members of the team shall include the QMS representative, operating authority, management and town public work foreman for the distribution systems.

Each of the process areas within the plant and throughout the distribution system shall be reviewed to assess hazards and critical control points. The areas under review will include, but not be limited to, raw water intake/wells, filtration, clear well/contact chamber, backwash settling tanks, facility security and control systems, and reliability and redundancy of equipment and any risks that may be identified outside of the risk assessment cycle.

Once hazards have been identified, the next step is determining critical control points. This process involves a comprehensive risk assessment, done by the team, which will determine where points of control may be exerted to eliminate or minimize hazards and methods to monitor all. All hazards are to be ranked by likelihood, severity and detectability, on a scale of 1 to 5 for each. The values of these factors are to be added together to form a risk priority number. The team shall identify where procedures are needed to respond to any deviations. The QMS representative shall draft the response procedures for deviations to the critical control limits. The risk assessment shall be reviewed once every calendar year and redone completely every three years. All notes, actions and decisions shall be kept in a file at the water plant office in a binder (QMS REVISION). The QMS representative is responsible to ensure that relevant information is communicated to all members of the risk assessment team.

The Risk Assessment Team performs the risk assessment as follows:

Risk Assessment and Risk Assessment Outcomes are reviewed.

For each of the system's activities/process steps, potential hazardous event and associated hazards (possible outcomes) that could impact the system's ability to deliver safe drinking water identified. At a minimum, potential hazardous events and associated hazard as identified in the most current version of the Ministry of the Environment and Climate Change (MOECC) document titled "Potential Hazardous Events for the Municipal Residential Drinking Water Systems" (as applicable to the system type)

must be considered.

For each of the hazardous events, control measures currently in place at the system to eliminate the hazard or prevent it from becoming a threat to public health are specified. Control measures may include alarms, monitoring procedures, standard operating procedures/emergency procedures/contingency plans, preventive maintenance activities, backup equipment, engineering controls, etc.

To ensure that potential drinking water health hazards are addressed and minimum treatment requirements as regulated by SDWA O. Reg. 170/03 and the MOECC's "Procedure for Disinfection of Drinking Water in Ontario" are met.

Risk Assessment Determination Table

| Probability | | Severity | | Detectability | |
|-------------|--|----------|---|---------------|--|
| 1 | Rare – requires rare circumstances to occur | 1 | Insignificant – little operational disruptions | 1 | High – immediately detected, SCADA alarms |
| 2 | Unlikely – could occur at some point | 2 | Minor – impact on small population, easily managed | 2 | Moderate – indicated by alarm or lab tests |
| 3 | Possible – will occur at some point | 3 | Moderate – minor impact on large population, managed operationally | 3 | Detectable – visually detectable, rounds or regular maintenance |
| 4 | Probable – will occur during normal circumstances | 4 | Major – significant impact on population, difficult to manage | 4 | Poor – would not be detected until problem did occur |
| 5 | Certain – expected to occur in most circumstances | 5 | Catastrophic – major impact on population, complete system failure | 5 | Undetectable – cannot be detected under any circumstances |

8. RISK ASSESSMENT OUTCOMES

Definition

Risk assessment outcomes display the results of the risk assessment in a readable and concise manner.

Scope

Risk assessment outcomes cover the complete risk assessment process done covering the Moonbeam Water Treatment and Distribution Systems.

Rationale

Having the risk assessment outcomes outlined in this DWQMS and Operational Plan is important to be able to determine which risks are the most severe and need attention by operators, and which will be the most important financially for management. Some new threat like climate change, extreme weather and terrorist threat must be watched closely every year to be ready in case we need major change in our process or water management.

Risk Assessment Outcomes and CCP Response Procedures are attached as **Appendix A.**

Critical control points for the Township of Moonbeam are chlorine residual leaving the plant, chlorine residual in distribution, water pressure leaving the plant and in the distribution system. Control limits for points are set within the regulatory limits set by the MOE. They act as warnings that adjustments to the treatment process may be required to prevent an adverse water condition.

| CCP | HIGH LIMIT | LOW LIMIT |
|---------------------------------------|-------------------|------------------|
| Chlorine residual leaving the plant | 1.5 mg/L | 0.55 |
| Chlorine residual in distribution | 1.5 mg/L | 0.2 |
| Water pressure leaving the plant | 100psi | 50psi |
| Water pressure in distribution system | 100psi | 40psi |

The chlorine analyzer in the plant will send the alarm if critical limits are reached in chlorine residual leaving the plant. In the distribution system, grab samples are used to check chlorine residual. An alarm will be sent if the water pressure at the plant leaving for distribution drops below 50 PSI. When deviation occurs, the water treatment operator shall adjust the process and record everything that is being done, in the plant log book. It should also be reported to the ORO.



9. ORGANIZATIONAL STRUCTURE, ROLES, RESPONSABILITIES AND AUTHORITIES

Definition

Organizational structure, roles, responsibilities and authorities component defines the personnel structure which the Township of Moonbeam follows. It also defines the roles and the responsibilities each individual has, the authority each person has to carry out its roles and responsibilities.

Scope

Organizational structure, roles, responsibilities is applicable to every person involved in the treatment and in the delivery of safe and reliable water in the Township of Moonbeam.

Rationale

In any organization it is important for everyone to know who is in charge of what, the responsibilities of each individual and who has the authority to do each job or task. QMS rep is responsible to communicate any change that may occur in the organization.

9.1 Organizational Chart

Owner – Township of Moonbeam Mayor – Nicole Fortier Levesque

Town Council

Top Management - Clerk Treasurer – Carole Gendron Operating

Authority – Township of Moonbeam

ORO – Claire Gibson – Class II Water Treatment Operator

Operator – Luc Pelchat – Class I Water Treatment and Distribution

Operator

QMS REP – Luc Pelchat

9.2 Mayor/Town Council / Operating Authority

| Responsibilities | Authorities |
|---|--|
| <ul style="list-style-type: none"> • Ultimate responsibility for the provision of safe drinking water. • Ensure compliance with application, legislation and regulations. | <ul style="list-style-type: none"> • Financial administrative authority related to the water treatment and distribution of safe drinking water selection and appointment of operating authority |

9.3 Top Management - Clerk Treasurer

| Responsibilities | Authorities |
|---|---|
| <ul style="list-style-type: none"> • Complete oversight of the entire Water Treatment & Distribution Systems and QMS • Provide and obtain resources for the QMS and necessary infrastructure to operate and maintain the drinking water system safely and efficiently • Communication with mayor and council about QMS and water system • Preparation of budgets, emergency response planning and training • Management review | <ul style="list-style-type: none"> • Financial, administrative and technical authority related to municipal water system • Evaluate and prioritize long-term utility needs. • Staffing within guidelines of the municipality and any in force collective agreements. |

9.4 ORO

| Responsibilities | Authorities |
|---|---|
| <ul style="list-style-type: none"> • Control WTP operations by taking samples, analyzing results, determining flow and chemical feed rates and making adjustments as required • Perform maintenance and cleaning of equipment, WTP and wells • Perform visual checks | <ul style="list-style-type: none"> • Act as operator in charge • Report any non-compliance or maintenance issues • Maintain daily operating records and record all data in log book • Make necessary process adjustments based on safe water requirements • Receive and document all public complaints |

9.5 Water Treatment Operator

| Responsibilities | Authorities |
|--|---|
| <ul style="list-style-type: none"> • QMS Rep • Control WTP operations by taking samples, analyzing results, determining flow and chemical feed rates and making adjustments as required • Perform maintenance and cleaning of equipment, WTP and wells • Perform visual checks | <ul style="list-style-type: none"> • Report any non-compliance or maintenance issues to ORO • Maintain daily operating records and record all data in log book • Make necessary process adjustments based on safe water requirements |

9.6 Distribution Operator

| Responsibilities | Authorities |
|---|---|
| <ul style="list-style-type: none"> • Repair leaks safely following regulatory requirements for disinfection of new or repaired water mains • Conduct hydrant maintenance and repairs • Conduct valve maintenance and repairs | <ul style="list-style-type: none"> • Collect water samples for chlorine residuals • Operate valves, hydrants • Assess water quality during flushing • Conduct flow test of hydrants |

9.7 Distribution Operator

| Responsibilities | Authorities |
|--|--|
| <ul style="list-style-type: none"> • Overseeing all aspects of the quality management system (Section 4 of the Drinking Water Quality Management System Operational Plan) | <ul style="list-style-type: none"> • Approve any changes to the Drinking Water Quality Management System Operational Plan |

10. COMPETENCIES

Definition

Competencies define what jobs operators and management are qualified to do. Each person in the organization has different skill sets and knowledge bases and working together is the way the Moonbeam structure works.

Scope

Competencies is applicable to every person involved in the treatment and delivery of safe and reliable water in the Township of Moonbeam.

Rationale

Bringing a wide variety of people, with different skill sets and knowledge bases, together to work on the water treatment and distribution system for Moonbeam is important to ensure that the Township of Moonbeam will be prepared in any situation. Having these skill sets and knowledge bases documented in this DWQMS and operational plan is important because it makes it simple for every party to know who is best suited to do each job or task.

Identified are the competencies of management and certified operators in either managerial or operational positions whose duties directly impact drinking water quality.

10.1 Identified Competencies

Mayor/Town Council / Operating Authority

- Budget preparation
- Long term planning
- Internal auditor training
- Knowledge in drinking water related regulations and QMS
- Management skills

Top Management - Clerk Treasurer

- Budget preparation
- Accountability and ethical behavior
- Critical thinking, observation and problem solving
- Project management
- Supervisory skills
- Planning and research skills
- Computer skills
- Record keeping
- Reading comprehension of technical and regulatory documents
- Technical report writing
- Knowledge of DWQMS

ORO

- Minimum of Level I WT Certificate
- Computer skills
- Acquaintance with laboratory and sampling procedures
- Record keeping
- Observation and inspection skills
- Knowledge of confined space training
- Reading comprehension of technical and regulatory documents
- Knowledge of chemistry and water chemical processes
- Pipe and valve repair
- Mechanical aptitude
- Biology and microbiological understanding related to water
- Technical math skills
- Instrumentation and electrical controls
- WHIMIS and TDG
- Pump maintenance
- Thorough knowledge of DWQMS

Water Treatment Operator

- QMS Rep
- Minimum of Level I WT Certificate
- Acquaintance with laboratory and sampling procedures

- Record keeping
- Observation and inspection skills
- Knowledge of confined space training
- Reading comprehension of technical and regulatory documents
- Pipe and valve repair
- Mechanical aptitude
- WHIMIS and TDG
- Pump maintenance
- Thorough knowledge of DWQMS

Distribution Operator

- Minimum of Level I WD Certificate
- Pipe and valve repair procedures
- Understanding of secondary disinfection
- Record keeping
- Plans and blueprint reading
- Health and safety training
- Confined spaces entry
- WHIMIS
- Trench boxing
- Thorough knowledge of DWQMS

10.2 Satisfying Competencies

Management

Competencies are satisfied through regular briefings by staff on operating conditions, attendance of conferences, seminars and training courses related to drinking water and DWQMS.

ORO

Minimum 5 years' experience in water treatment, Class I Water Treatment Certificate. Continual training as per Ontario regulation 128/04 for level 2 Water Treatment System is mandatory.

Class I Water Treatment and Distribution Operators

After one year or 1800 hours of on the job training has been reached, the operator must successfully complete the Class I Water Treatment or Distribution preparation course and Class I exam to become a Class I Water Treatment or Distribution Operator. The operator must also complete the entry level drinking water course. Training courses are provided as per Ontario Regulations 128/04.

Class II Water Treatment and Distribution Operators

After two years working as a Class I Water Treatment or Distribution Operator, the operator can advance to a Class II Water Treatment Operator by successfully passing the Class II Water Treatment Operator exam.

New Operators

All new employees undergo on the job training with experienced or senior staff. They are required to complete their OIT exams within 3 months. Upon successfully receiving their certificate, new operators will apprentice until a satisfactory level of competence has been reached, determined through observation and peer review. Training courses are provided as per Ontario Regulation 128/04.

Recruitment Planning

The Township of Moonbeam operates one level I Water Treatment Plant and one level I Water Distribution System. Starting as an OIT may take 3-4 years to be fully certified as a Class II Operator. Presently we have two water treatment staff, and one water distribution operator, which currently meet our staffing requirements.

11. PERSONNEL COVERAGE

Definition

Personnel coverage defines the hours in which the water treatment and distribution system for the Township for Moonbeam are manned.

Scope

Personnel coverage is applicable to every person involved in the provision of safe and reliable potable water in the Moonbeam Water Treatment and Distribution Systems.

Rationale

Personnel coverage is important for every person involved in the operation and management of the Moonbeam Water Treatment and Distribution System.

This procedure describes the coverage provided for the Township of Moonbeam water works.

11.1 Water Treatment Staff

The Moonbeam Water Treatment Plant is monitored seven days a week. The operator completes a daily log sheet which covers equipment checks and recording process values as operators go through their daily routines

and activities. This assists in ensuring critical processes are monitored and evaluated. The licensed operator is at the plant for the duration of time it takes to operate the plant on a daily basis.

11.2 After-hours

The drinking water system is controlled and monitored by call. Any alarm condition is routed to staff houses and cell phones. The first call goes to the ORO. The ORO acknowledges the call and takes the necessary action to investigate and address the alarm. If the ORO does not acknowledge the call, the call is then routed to the operator. The operator then acknowledges the call and takes the necessary action to investigate and address the alarm condition. The alarm will continue sending calls until an operator acknowledges it.

11.3 Distribution Staff

The distribution staff's normal hours of operation are 7:00 to 4:30. After hour alarms are received by the operator by cell phone.

11.4 Emergency or in case of sickness by all operators

The ORO shall contract an outside operator to provide Emergency and Sickness Coverage for the Township of Moonbeam water works, as needed. Arrangements have been made with two operators from the Town of Kapuskasing to provide backup if needed.

11.5 Strikes and/or lockouts

N/A. The Moonbeam Water Treatment Plant is operated contractually and as such is non-unionized. The Moonbeam Water Distribution System is operated by the Township of Moonbeam which is non-unionized.

12. COMMUNICATIONS

Definition

Communications describes how the Township of Moonbeam communicates the QMS between town council and its employees, the suppliers, and the residents and businesses of Moonbeam.

Scope

Communication of the QMS to the operating authority, personnel, suppliers and public is critical to the success of the QMS.

Rationale

Communications ensures that all parties involved with the DWQMS and Operational Plan are aware of it and fully comprehend it. Every party involved with a Quality Management System must fully understand and be capable of carrying out its role with the system in order to work in a proficient manner.

This procedure describes how the Township of Moonbeam communicates the QMS between town council and its employees, suppliers and the public.

12.1 Town Council

The QMS representative will ensure the mayor and council are provided with a current copy of the operational plan, and any updates to the plan. Any changes to the QMS or any important events happening in the water treatment plant will be communicated with mayor and council in a timely manner. The QMS representative will address top management by setting a meeting at the municipal office and will provide any QMS related documentation at these meetings. Top management will communicate the items to mayor and council at their regular meeting. All emergency development will be communicated immediately to top management, which in turn will call an immediate meeting with town council. Minutes of these meetings will be maintained by top management and filed at the municipal office.

12.2 Consumers and Suppliers

Consumers and suppliers can view the Quality Management System at the municipal office, at the library and on the town's website.

12.3 Employees

The Township of Moonbeam has two licensed operators working at the water plant. As one of the operators is the QMS representative and the other is the ORO, they both are actively involved with the QMS and both take part on decision making for the water treatment and distribution system.

The QMS representative will ensure the employees are provided with a current copy of the QMS and operational plan, any updates, and any important matter related to the water treatment plant. The QMS and the operational plan are available at the municipal office, the public library, and on the town's website.

13. ESSENTIAL SUPPLIES AND SERVICES

Definition

Essential supplies and services define what is required on a day to day basis for the safe and reliable operation of the Moonbeam Water Treatment Plant. All process chemicals must meet applicable AWWA and ANSI standards. Proof of this must be provided prior to unloading. All chemicals must have WHMIS labels and documentation. Documentation will be maintained at the water treatment plant. All laboratory testing must be done at an accredited lab. All suppliers are to be qualified or licensed for the services they provided.

Scope

Essential supplies and services apply to the supplies and services required by the Moonbeam Water Treatment Plant and Distribution System in order to operate safely or reliably.

Rationale

Documenting essential supplies and services in this operational plan is important to ensure that during an emergency the names and telephone numbers of suppliers are readily available to staff and management. In the case where an operational staff is ill, or for any reason the operational staff may not be available, the names and telephone numbers will be ready and available for any person which may require them. The essential supply and service provider list below meet the Township's requirements. If, for any reason, we are not satisfied with the services or supplies, we will work with the provider for corrective actions or choose another provider.

| Supply or Service | Primary Supplier | Secondary Supplier |
|-----------------------------|---|---|
| Sodium Hypochlorite | Norfil 320 Turpin Avenue Rouyn-Noranda, QC 800-567-6325 819-797-9209 (fax) | Office Pro 30 Brunetville Rd. Kapusksasing, ON 705-335-3560 |
| Calibration | OCWA Kapusksasing, ON 705-335-4992 | Hach 400 Britannica Rd. E., Unit 1 Mississauga, ON L4Z 1X9 970-669-3050 |
| Monitoring Equipment Parts | Hach 400 Britannica Rd. E., Unit 1 Mississauga, ON L4Z 1X9 970-669-3050 | Metcon 15 Connie Crescent Concord, ON 905-738-2355 |
| Accredited Lab | Accurrassay Lab 1470 Government Rd Kirkland Lake, ON 705-642-3361 | Tesmark Laboratory 7 Marguerite St. N. Garson, ON 705-693-1121 |
| Electrician | Today's Electrical Services 114 Brunelle Rd N Kapusksasing, ON 705-367-4374 | Chevalier Electrical Moonbeam, ON 705-367-6139 |
| Extra Staffing Requirements | Michel Gosselin Kapusksasing, ON 705-335-3710 | Ted Czuba Kapusksasing, ON 705-367-0771 |
| Contracting Service | A. Tremblay Contracting Kapusksasing, ON 705-335-3031 | Lachance Lumber LTD Kapusksasing, ON 705-335-3021 |
| Vacuum Truck | Dufour Waste Disposal 1-144 Brunelle Rd. S. Kapusksasing, ON 705-335-3031 | Emergency Response and Support Services Timmins, ON 705-264-3772 |
| Mechanic | Henry's Heavy Equipment & Repair 10 Con O'Brien Kapusksasing, ON 705-335-4811 | Moonbeam Machine Shop 207 Highway 11 West Moonbeam, ON 705-367-2299 |

A minimum of five day supply of chemicals is maintained at all times. Each of these products or services is available from more than one source approved by the water department. All spare parts are as manufacture's recommendations. The ORO is responsible for the maintenance of the chemical and the instrumentation parts inventory. All essential products and services are to be bought as they are needed. As for other purchases, the ORO shall talk to the town management. No one is allowed in the plant without supervision from water plant personal.

14. REVIEW AND PROVISION OF INFRASTRUCTURE

Definition

The review and provision of infrastructure is a way to display and record the quality of buildings and structural items that are important to the provision of safe and reliable drinking water in the Township of Moonbeam.

Scope

The review and provision of infrastructure covers the buildings, storage, distribution, machinery, equipment and software pertaining to the provision of safe and reliable drinking water in the Township of Moonbeam.

Rationale

It is very important to be aware of the reliability of the infrastructure as well as its expected life span. This information makes it easier to allocate funds to the proper areas as upgrades and replacements are needed on the water works' infrastructure.

The infrastructure review ensures periodic evaluation of the condition and capacity of the infrastructure components. This is done to review the adequacy of the infrastructure and the resources necessary to operate and maintain the drinking water system safely and effectively. The infrastructure review will be conducted by the QMS representative and the ORO the first quarter of the fiscal year. Risk assessment outcome should be considered in that review. The review will then be presented to the town management who will bring the outcome to the town council during the budget deliberations. Upon approval of the budget, the ORO shall begin the process of implementing the approved recommendations over the course of the fiscal year. The infrastructure review will be presented to town council in a timely fashion at a town council meeting. The infrastructure review shall include all elements required by current legislation. The review shall include, but is not limited to, 14.1 and 14.2.

14.1 Buildings, Storage and Distribution

This includes new infrastructure required, new infrastructure recommended for the fiscal year and the upcoming five years, recommended infrastructure rehabilitation or renewal for the fiscal year and upcoming five years. This includes machinery, equipment and software.

The Infrastructure Review Form is attached as Appendix D.

15. INFRASTRUCTURE MAINTENANCE, REHABILITATION AND RENEWAL

Definition

Infrastructure maintenance, rehabilitation and renewal is the process of keeping all of the physical equipment and buildings for the plant up to date, running efficiently and consistently.

Scope

Infrastructure maintenance, rehabilitation and renewal covers all aspects of the plant and distribution system. Buildings, storage, equipment, machinery, distribution, and software pertaining to the safe and reliable delivery of water to the Township of Moonbeam is covered in this section.

Rationale

Keeping the Moonbeam Water Treatment and Distribution Systems up to date, running efficiently and consistently, and always providing the highest quality water is a high priority in Moonbeam. Keeping all residents confident in the safety of their water is a goal Moonbeam plans to maintain.

The ORO and operator plan and carry out all maintenance on infrastructure. Authorization for maintenance is required from the operating authority. When funding is needed for maintenance, it must first be approved by the owner. Infrastructure maintenance for the Township of Moonbeam Water Treatment and Distribution System is done as per manufacturer's specifications. As Moonbeam runs a relatively small system, this currently meets Moonbeam's needs. Manufacturer's specifications can be found in the Moonbeam Water Treatment Plant office, or directly on machinery/equipment. Unplanned maintenance is carried out by the ORO, and is budgeted for by the owner, having funding set aside. Rehabilitation programs are generally contracted out when appropriate. Rehabilitation is determined and planned by the ORO. Rehabilitation assessments are done on the wells as per the ORO's recommendation. The last well assessment was done on March 9, 2010. The well assessments are generally planned for 10 year intervals, or more as appropriate.

Rehabilitation and Renewal Rehabilitation and renewal activities including capital upgrades (major infrastructure maintenance) are determined at least once every calendar year in consultation with Operations Management and the Owner. A list of required replacement or desired new equipment is compiled and prioritized by Operations Management in conjunction with operations personnel and is presented to the Owner for review and comment. All major expenditures require the approval of the Owner. In addition to the short-term facility needs (i.e. current year), the Capital and Major Maintenance Recommendations Report also provides a long-term (i.e. rolling 5-year) list of major maintenance

recommendations as needed in the annual reports. Risk assessment outcome is also considered every calendar year.

16. SAMPLING, TESTING AND MONITORING

Definition

Sampling, testing and monitoring defines the procedures used in the Moonbeam Water Treatment and Distribution System for sampling water, certain in-house tests done on the water, and monitoring the parameters of the water.

Scope

The sampling, testing and monitoring component covers when test are done, samples taken, as well as how they are done or taken. This procedure also covers process monitoring.

Rationale

Having the sampling procedure included in this DWQMS ensures that the operational staff takes the samples properly.

Free chlorine residuals are tested daily by a qualified operator in the distribution system.

In accordance with regulation O.Reg 170/03, Schedule 10 1, water samples are collected weekly from various locations throughout the municipality. Bacteriological and chemical tests are collected weekly by plant operators and submitted to an accredited laboratory for testing, as required by Ontario Regulation 170/03. Test results from the accredited lab are e-mailed to the ORO and the municipal office where they are filed electronically on a USB by the ORO and a hardcopy is printed and filed at the municipal office and at the water plant.

These samples are tested for E. coli and total coliform, and 25% of those samples are tested for HPC. Chlorine residuals are also tested manually by the operator at these sites at the same time the microbiological samples are taken. Samples are also taken from each well weekly and sent to the lab to be tested for E. coli and total coliform. For quarterly samples, 2 samples are taken at the municipal garage for THM, two for HAAS in distribution and one sample is done for Nitrite/Nitrate at the treatment plant. Lead testing is done as per the Ministry of the Environment's requirements. Schedule 23, Inorganics, are done every 36 months, as well as Schedule 24, Organics. Sodium and Fluoride are tested every 60 months at the water treatment plant. SOP for water main and temporary line installation are located in Appendix E.

Sterile sample bottles are received from the laboratories, and qualified operators

use the proper procedures for collecting the samples in the distribution system, in accordance with Ministry of the Environment Practices for Collection and Handling of Drinking Water Samples Guidelines. These pamphlets can be found in the water treatment plant's laboratory.

Results from the weekly chlorine tests are recorded on the laboratory chain of custody forms, and copies are filed at the WTP. Copies of all test results are provided to members of the public upon request. Furthermore, all results are summarized in tables at the end of the year and are discussed in the water plant annual compliance report, available at the municipal office in a hardcopy form.

The laboratory will provide immediate oral notification to the ORO and the municipal office of any adverse readings defined by Schedule 16 of O. Reg. 170/03. In turn, immediate oral notification is provided by the ORO and the municipal office staff to the local Medical Officer of Health (MOH) and the Ministry of Environment (MOE) Spills Action Centre, per Schedule 16 of Ontario Regulation 170/03. The names of the people spoken to and the details of the conversation are recorded. All records will be maintained in the Moonbeam well supply log book. In addition, any free chlorine residual below 0.05 mg/L must be reported per Schedule 16 of Ontario Regulation 170/03.

If reported by the lab, within twenty-four hours, the lab will send Section 1 of Notice of Adverse Test Results to the municipal office (if applicable). The ORO will complete Section 2 (a) indicating the corrective action to be taken by the municipality. These forms will be faxed to the MOH and the MOE Spills Action Centre. Once the corrective action has been taken as required by Schedule 17 of Ontario Regulation 170/03, Section 2 (b) will be completed and sent to the MOH and the MOE Spills Action Centre per Schedule 16 of Ontario Regulation 170/03.

These papers will then be filed in a properly labelled folder in a file cabinet at the water treatment plant.

Turbidity is done on each well monthly.

16.1 Sampling Points

Schedule 13 O.Reg 170/03

- Free chlorine residual (after clear well) continuous, 1 sample daily from distribution
- Turbidity, 1 sample monthly on each well prior to addition of chemicals, additionally turbidity sampled at Point of Entry
- Schedule 23 Inorganics, 1 sample water every 36 months sampled at Point of Entry
- Schedule 24 Organics, 1 sample every 36 months sampled at Point of Entry

- Lead testing is done as per the Ministry of the Environment's requirements
- THM's, 1 sample every 3 months at the end of the distribution system
- Nitrate/Nitrite, 1 sample every 3 months sampled at Point of Entry
- Sodium, 1 sample every 60 months sampled at Point of Entry
- Fluoride, 1 sample every 60 months sampled at Point of Entry

The annual report will show all sample test results and any adverse readings.

17. MEASUREMENT AND RECORDING EQUIPMENT, CALIBRATION AND MAINTENANCE

Definition

The measurement and recording equipment, calibration and maintenance component defines the time, the procedure, the frequency and who performs the calibration and the maintenance on the measurement and recording equipment.

Scope

Measurement and recording equipment, calibration and maintenance covers every piece of equipment related to the measurement and recording equipment, how, when and by whom the calibration and maintenance is done.

Rationale

Measurement and recording equipment needs to be maintained and calibrated on a regular basis to ensure that the equipment always gives off the most accurate reading possible.

The Township of Moonbeam currently runs on a maintenance and calibration schedule constructed around manufacturer's specifications for measurement and recording equipment. Currently OCWA calibrates all measurement and recording equipment annually or more frequently as per manufacturer's specifications. Certifications of calibration are located in the binder labeled "Calibration Reports" found in the water treatment plant office. ORO is responsible that all the calibration and maintenance are done in time.

18. EMERGENCY MANAGEMENT

Definition

Emergency management involves the tested and proved procedures and practices that the ORO and operators use in emergency situations.

Scope

Emergency management covers emergency situations such as a pandemic, a major or minor spill, accidents in the plant and on the distribution system, where all or most operators are unavailable to work.

Rationale

Having procedures in place ensures that in case of an emergency, tested and proved methods are already ready to be put into action in a safe and speedy manner by the Township of Moonbeam operators.

The Township of Moonbeam has an emergency plan in place, and it can be found in the Appendix H and in the water treatment plant office in a binder labeled "Moonbeam Well Supply Emergency Preparedness and Contingency Plan". Records of responses to emergencies shall be maintained in the plant log book as required by O.Reg. 128/04. All new water department staff will be required to read the operational plan and the contingency plan binders and sign the sign off sheet at the end of it. Any changes to the emergency plan will be communicated to the staff during meetings, as required. Minutes of meetings will be kept in a binder labeled QMS Review, located in the water plant office. Once every calendar year the Emergency Management and the Contingency Plan will be reviewed by the QMS representative. Training and testing should also be done once every calendar year. If a boil advisory or drinking advisory is issued by MOE, the town will inform the public by local media, post notices at public places, and provide written notices door to door. (a template is located in water plant office)

Critical Control Points Response Work Instruction

18.1 Low chlorine residual at the plant

If the operator in charge gets a low chlorine alarm, he comes to the plant as soon as possible, confirms the low analyzer reading by measuring the residual in a grab sample. If the low reading is accurate, the operator will check the hypochlorite feed system. If it is a pump failure, the operator will make sure the spare pump is put on lead. If it is the injector that is plugged, the operator will clean the injector. If the problem cannot be fixed immediately, the operator will put the standby well on lead, which has its own hypochlorite sure feed system. The event will be recorded in the plant log book and the ORO will be called. If a grab sample is not adequate to meet the CT requirements, the operator must immediately follow the reporting and corrective action requirements of Schedules 16 and 17 of O. Reg 170/03.

18.2 Low chlorine residual in distribution system

If a grab sample reaches the critical control point, the operator shall re-test to confirm a low chlorine residual. The operator shall record the result in the plant log book, and must then follow the reporting and corrective action requirements of Schedules 16 and 17 of O. Reg. 170/03. The operator shall also contact the ORO. The hydrant near the location where the sample was taken, will be flushed until a good residual is obtained.

18.3 Low water pressure in distribution system

The operator shall attempt to find the location or source of the problem and isolate it. If pressure at any point where the potential for backflow or backsiphonage exists, the operator shall immediately report the incident to the Medical Officer of Health and the Ministry of the Environment Spills Action Centre. He shall also record everything in the plant log book and call the ORO to report the event and location.

18.4 Chlorine analyze failure

If the chlorine analyzer fails, the operator will get an alarm. He must take a grab sample immediately for chlorine residual then unplug the orange wire from the unit and plug it to the backup unit. Then put the reagent in and put the unit online. Take grab samples every 5 minutes until it prime itself and it's back online. If it's still not working, put the plant on manual operation by going to Control Panel #1, and put the "D1C CONT." switch to Flow Paced. The operator will then call the ORO, the Medical Officer of Health and the Ministry of Environment Spills Action Centre.

Rationale

Having a senior member of management review the DWQMS is important in that it allows for a point of view from someone controlling a different aspect of the drinking water system. As the responsibility for the provision of safe and reliable water falls on management, management will want to ensure that everything is covered in this manual, and that their part in the provision of safe and reliable water is completed in a timely manner.

19. INTERNAL AUDITS

Definition

An internal audit is a self-evaluation of the DWQMS and Operational Plan. The internal audit process ensures that the QMS has been implemented and provides proof of its effectiveness on an ongoing basis.

Scope

Operators will review the DWQMS and Operational Plan and determine if everything involved in the DWQMS and Operational Plan are included, and fully covered in a readable and understandable manner.

Rationale

Having operators, who work in the plant every day, review the DWQMS and Operational Plan is important as it ensures that what is documented is what is actually being done in the plant.

Internal audits are to be done on a yearly basis. The QMS representative will choose an auditor that has good communication skills and who understands its roles and responsibilities or may conduct it himself. The complete internal audit will be conducted yearly. All elements of the DWQMS will be audited to ensure they are kept up to date, consistent and relevant. The QMS representative shall review all related QMS documentation and the results from the last internal and external audits prior to the audit and should also have an audit checklist. The auditor shall observe activities, review records and interview personnel, and make sure to cover all elements of the QMS. After the internal audit is completed, the checklist and audit report will be handed to the operating authority and to the mayor/town council of Moonbeam to review. Any non-conformance issues will be documented, as will corrective actions. They will be communicated to all staff and included as part of the management review. These reviews are found in the binder labeled QMS Revision located at the water plant office.

The Internal Audit Report is attached as **Appendix B**

20. MANAGEMENT REVIEW

Definition

A management review is a final review of the DWQMS and Operational Plan by the clerk treasurer.

Scope

Senior management will review all aspects included in the DWQMS and Operational Plan and determine if everything involved in the DWQMS and Operational Plan are included, and fully covered in a readable and understandable manner.

For the Township of Moonbeam Water Treatment and Distribution System, a management review will be conducted once a year, by the clerk treasurer. The management review is a meeting involving the clerk treasurer, plant operator and if possible members of the town council. Each input category shall be reviewed in order to identify if, where and when improvements to the QMS and

its procedures are required. The clerk treasurer shall make note to any changes or action items required during the course of the review. The review output shall have a list of changes done to the procedures or other QMS based documentation, a list of "action" items, the individual responsible, timeline to implement them, and the recommendation for any human or financial resources needed for maintenance or improvements of the QMS. The management review results are to be presented to the mayor/town council, in a timely fashion, at a town council meeting, and should include the date and time, the review activity and the name of the participants. One copy should be placed in the water plant office, in the binder labeled QMS Review.

A management review form is attached as **Appendix C**.

21. CONTINUAL IMPROVEMENT

Definition

Continual improvement means that even after this operational plan and QMS is finished, the Township of Moonbeam will continue to strive towards improving the quality of water delivered to the residents and businesses of Moonbeam, as well as the reliability of the delivery of safe drinking water.

Scope

Continual improvement needs to be done on every aspect of the Water Treatment and Distribution Systems. This includes operators, management, suppliers, record and documents, as well as any aspect affecting the safe and reliable supply of drinking water in Moonbeam.

Rationale

Continual improvement is very important when providing public services. It is in the best interest of a water treatment system to adopt new technologies and practices as they are developed, to save money, to provide safe work practices for employees, and to improve the quality and the delivery of water to all residents and businesses operating within Moonbeam.

The Township of Moonbeam continually strives towards continual improvement and is dedicated in the utmost way to the supply and provision of safe and reliable water to the Township of Moonbeam. Through periodic reviews, seminars, reviews from publications from the Ministry on www.ontario.ca/drinkingwater at least once every thirty six months and training, the Township of Moonbeam strives to provide a DWQMS and Operational Plan of top quality.

Appendix A Risk Assessment Outcomes

| Process step | Description of Hazard | Result | Available Control Measure | Detectability | Severity | Likelihood | Total | CCP | Associated Procedures |
|------------------|-------------------------------------|-----------------------|--|---------------|----------|------------|-------|-----|---|
| Source/Well | Fuel spill from Gen set | Contaminated water | Containment as per regulation | 1 | 4 | 1 | 6 | no | |
| Source/Well | Spill from Highway 11 | Contaminated water | Monitor and sample | 2 | 4 | 1 | 7 | no | Monitor and sample Emergency plan |
| Source/Well | Equipment failure Pump/motor | Loss of water to plan | Manual operation Redundancy Multiple pumps | 1 | 4 | 1 | 6 | no | Maintenance |
| Source/Well | Contaminated | Contaminated water | Monitoring and testing | 3 | 4 | 3 | 10 | no | Monitoring and sampling Emergency plan |
| Supply shortfall | Water shortage | Water shortage | Water conservation New well | 3 | 4 | 2 | 9 | no | |
| Source/Well | Leak structure Problems | | Redundancy/ 2 well and Repair | 1 | 1 | 2 | 4 | no | Maintenance |
| Source | Change in raw water characteristics | Adverse result | Sampling and testing | 1 | 3 | 2 | 6 | No | New well |
| Filtration | Loss of media or break down | Poor filtration | Monitoring and Testing | 3 | 5 | 2 | 8 | no | Maintenance |
| Filtration | Pump/Valve failure | | Multiple pumps valves | 1 | 1 | 2 | | no | Maintenance |
| Filtration | Leak/Structure Problems | Loss of water | Repair | 2 | 1 | 1 | 4 | no | Maintenance |
| Process step | Description of Hazard | Result | Available Control Measure | Detectability | Severity | Likelihood | Total | CCP | Associated Procedures |

The Township of Moonbeam
Water Treatment and Distribution QMS Operational Plan

| | | | | | | | | | |
|-------------------|---|---------------------------------------|---|---|---|---|----|-----|---|
| Waste System | Leak structure problems | Contamination | Monitoring and testing | 2 | 2 | 1 | 5 | no | Maintenance |
| Waste System | Pump malfunction | Cannot dispose of waste | Vacuum truck | 2 | 2 | 2 | 6 | no | Maintenance |
| Clearwell | Leak structure problems | Loss of water | Two clear well Chamber | 2 | 3 | 1 | 6 | no | |
| Chemical Pump | Maintenance and failure | | Multiple pump Alarm / run the plant manually CCL for chlorine is 0.55 to 1.00 | 2 | 1 | 2 | 5 | no | Maintenance |
| Chemical Feed | CL 17 shut down | Problem with chlorination | Alarm / run the plant manually CCL for chlorine is 0.55 to 1.00 | 2 | 3 | 3 | 6 | yes | Go to CL 17 failure procedure |
| Distribution | Water main break | Loss of water/pressure Contamination | Visual Pressure CCP High 100 PSI Low 40 PSI | 3 | 3 | 4 | 10 | yes | If pressure drops below CCL go to pressure loss procedure |
| Distribution | Back flow from private plumbing | Biological and chemical contamination | Sampling lab testing flushing | 2 | 4 | 2 | 8 | No | Adverse SOP |
| Distribution | No pressure | Back flow | 2 high lift pumps Pressure CCP High 100 PSI Low 40 PSI | 4 | 3 | 3 | 10 | yes | Go to pressure loss procedure |
| Distribution | Valve failure | | Exercising Program | 3 | 3 | 3 | 9 | no | Exercising program |
| Treatment system | Primary disinfection equipment or process failure | Adverse result | Back up equipment and parts | 1 | 3 | 3 | 7 | No | Maintenance |
| Standby Generator | Failure | Plant shut down | Referee to contingency plan | 4 | 4 | 3 | 11 | yes | Emergency plan |
| Miscellaneous | Vandalism | | Fence /locks | 3 | 2 | 1 | 6 | no | |
| Miscellaneous | Power outage | | Gen set | 1 | 2 | 2 | 5 | no | |
| Climate change | Water shortage | | Water control New well | 3 | 3 | 1 | 7 | no | |
| Extreme weather | Equipment failure | Power failure | Gen set | 3 | 4 | 1 | 8 | No | |

The Township of Moonbeam
 Water Treatment and Distribution QMS Operational Plan

| | | | | | | | | | |
|-------------------------------|-------------------------------|----------|----------------------------|---|---|---|----|-----|----------------|
| Sustained Extreme Temperature | Shortage of water frozen main | No water | Water conservation bleeder | 3 | 3 | 1 | 7 | No | |
| Terrorist Threat | Anything | ? | Security System | 5 | 4 | 2 | 11 | Yes | Emergency plan |

Risk Assessment Outcomes

Critical Control Points Response Work Instruction

1. Low chlorine residual at the plant

If the operator in charge gets a low chlorine alarm, he comes to the plant as soon as possible, confirms the low analyzer reading by measuring the residual in a grab sample. If the low reading is accurate, the operator will check the hypochlorite feed system. If it is a pump failure, the operator will make sure the spare pump is put on lead. If it is the injector that is plugged, the operator will clean the injector. If the problem cannot be fixed immediately, the operator will put the standby well on lead, which has its own hypochlorite sure feed system. The event will be recorded in the plant log book and the ORO will be called. If a grab sample is not adequate to meet the CT requirements, the operator must immediately follow the reporting and corrective action requirements of Schedules 16 and 17 of O. Reg 170/03.

2. Low chlorine residual in distribution system

If a grab sample reaches the critical control point, the operator shall re-test to confirm a low chlorine residual. The operator shall record the result in the plant log book, and must then follow the reporting and corrective action requirements of Schedules 16 and 17 of O. Reg. 170/03. The operator shall also contact the ORO. The hydrant near the location where the sample was taken, will be flushed until a good residual is obtained.

3. Low water pressure in distribution system

The operator shall attempt to find the location or source of the problem and isolate it. If pressure at any point where the potential for backflow or backsiphonage exists, the operator shall immediately report the incident to the Medical Officer of Health and the Ministry of the Environment Spills Action Centre. He shall also record everything in the plant log book and call the ORO to report the event and location.

4. Chlorine analyze failure

If the chlorine analyzer fails, the operator will get an alarm. He must take a grab sample immediately for chlorine residual then unplug the orange wire from the unit and plug it to the backup unit. Then put the reagent in and put the unit online. Take grab samples every 5 minutes until it prime itself and it's back online. If it's still not working, put the plant on manual operation by going to Control Panel #1, and put the "D1C CONT." switch to Flow Paced. The operator will then call the ORO, the Medical Officer of Health and the Ministry of Environment Spills Action Centre.

Appendix B Internal Audit Report

| Element | Consistent, Accurate, Up- to- date | Needs Improvements | Corrective Actions Taken |
|----------------|---|-------------------------------|-------------------------------------|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| 11 | | | |
| 12 | | | |
| 13 | | | |
| 14 | | | |
| 15 | | | |
| 16 | | | |
| 17 | | | |
| 18 | | | |
| 19 | | | |

| INTERNAL AUDIT | | | |
|-----------------------|----------------|---------------------------|--------------------------------|
| Element | Problem | Possible Solutions | Corrective Action Taken |
| | | | |
| | | | |
| | | | |

Appendix C Management Review Form

| Requirements | Notes, Observations and Audit Evidence | Conformance? | Records or Documents Reviewed, Interviews Conducted |
|--|--|--------------|---|
| Incidents of regulatory requirements | | | |
| Incidents of adverse drinking water tests | | | |
| Deviations from CCP | | | |
| The efficiency of the risk assessment process | | | |
| Internal and third party audits | | | |
| Results of emergency response testing | | | |
| Operational performance | | | |
| Raw water supply and drinking water quality trends | | | |
| Follow up on action items identified between reviews | | | |
| The status of management action items identified between | | | |
| Changes that could affect the QMS | | | |
| Consumer feedback | | | |
| Resources needed to maintain the QMS | | | |
| The results of infrastructure review | | | |
| Operational Plan currency, content and updates | | | |
| Staff suggestions | | | |

Appendix D

Review and Provision of Infrastructure Form

| Infrastructure | Approximate Age | Approximate Life Span | Quality | Corrective Action Required (Maintenance=M. Rehabilitation=RH. Renewal=R) |
|----------------------|-----------------|-----------------------|---------|---|
| Filter | | | | |
| Diesel Generator | | | | |
| CL2 pumps | | | | |
| Electrical panel | | | | |
| Clearwell | | | | |
| Building | | | | |
| Monitoring Equipment | | | | |
| Water mains | | | | |
| Hydrants | | | | |
| Well No.1 | | | | |
| Well No.2 | | | | |
| Well Pumps No. 1 | | | | |
| Well Pumps No. 2 | | | | |
| High Lift No. 1 | | | | |
| High Lift No. 2 | | | | |
| High Lift No. 3 | | | | |

Date

Name

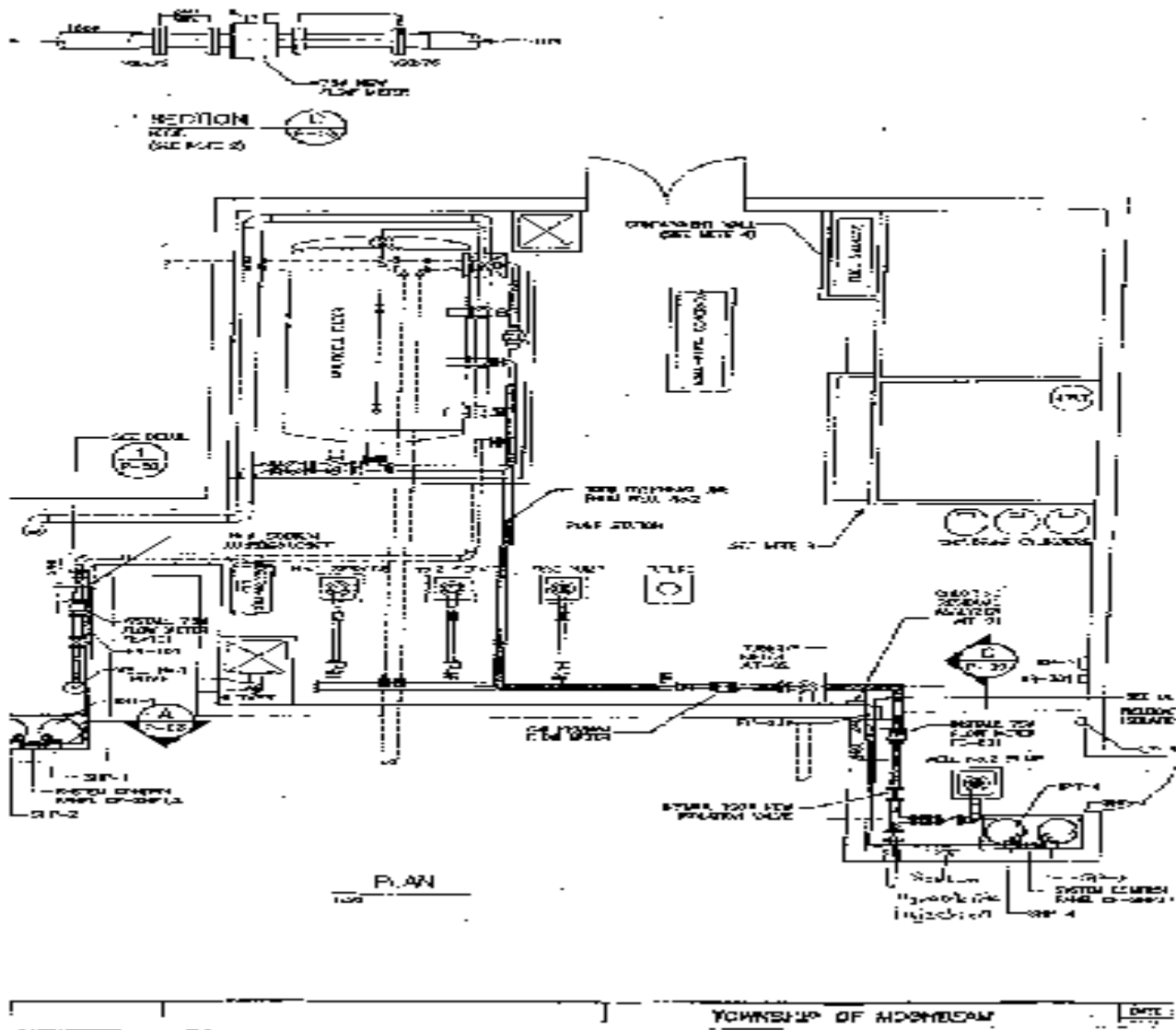
Title

Appendix E

STANDARD OPERATING PROCEDURES

NOTE: Standard Operating Procedures (SOP's) are included in the controlled copy

Appendix F FLOW CHART



Appendix H

TOWNSHIP OF MOONBEAM, ONTARIO

MOONBEAM WATER PLANT

EMERGENCY PREPAREDNESS AND

CONTINGENCY PLAN



Reviewed by the Moonbeam Emergency Response Team:

Claire Gibson
CLASS II WATER PLANT OPERATOR

Date

Approved by:

Nicole Fortier Levesque
MAYOR

Date

Carole Gendron
TOP MANAGEMENT - CLERK TREASURER

Date

Reviewed by:

Denis Plourde
FIRE CHIEF

Date

Luc Pelchat
QMS Rep

Date

TABLE OF CONTENTS

| | |
|--|----|
| 1-EMERGENCY CONTACT | 52 |
| 2-CRITERIA FOR MUNICIPAL EMERGENCY PLAN ACTIVATION..... | 54 |
| 3-PERSONNEL RESPONSIBILITY AND OVERALL RESPONSIBILITIES..... | 55 |
| 4-CONTINGENCY PLAN | 56 |
| 5-CONTENT OF BRIEFINGS AND NEWS RELEASES | 59 |

1. EMERGENCY CONTACTS

MOONBEAM WATER PLANT

1.1 Internal and External Emergency Numbers

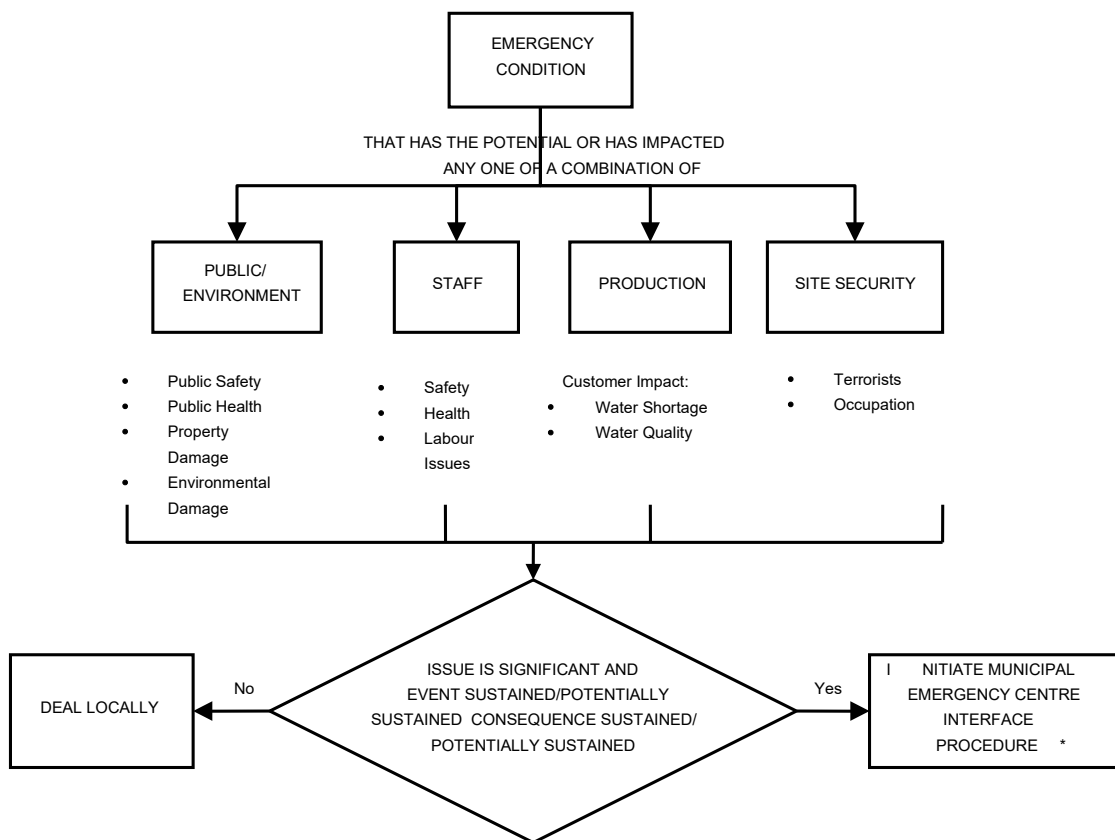
| Name | Position | Telephone | 24 Hour | Cell Number | Off Hour Number |
|---|---|----------------------------------|----------------------------------|----------------------------------|-----------------|
| Claire Gibson | ORO | 1-705-367-2028 | | 1-705-335-1241 | |
| Luc Pelchat | Operator | 1-705-367-2776 | | 1-705-335-0081 | |
| Nicole Fortier Levesque | Mayor | | | 1-705-367-2549 | |
| Luc Pelchat Mario Ethier | Municipal Foreman | 1-705-367-2220 1-705-367-2220 | | 1-705-335-0081 1-705-367-4902 | 1-705-335-0081 |
| Carole Gendron | Clerk Treasurer | 1-705-367-2244 | | 1-705-367-6330 | 1-705-367-2009 |
| Health Unit | | 1-800-890-6566 | | | |
| Jean Francois Durocher | MOE | 1-705-235-1516 | | | |
| Ministry of the Environment: Spills Action Centre (SAC) | All Reportable Spills | 1-800-268-6060 | 1-800-268-6060 (24 Hrs.) | | |
| Ministry of the Environment: Timmins (local) | All Reportable Spills | 1-800-380-6615 1-705-235-1500 | 1-800-268-6060 (24 Hrs.) | | |
| Ministry of Labour: Timmins (local) | If Critical Injury or Death from Fire | 1-800-461-9847 1-705-235-1900 | 1-800-461-9847 1-800-268-6060 | | |
| Sensenbrenner Hospital | Kapuskasing | 911 1-705-337-6111 | | | |
| Police – Ontario Provincial Police (OPP) | Kapuskasing Central Dispatch, North Bay | 911 1-888-310-1122 | | | |

1.2 Local Contractors for Spills Support

| Dufour Waste Disposal | |
|---|---|
| Contact Name: Alain Murray Address: 144 Brunelle Sud Kapuskasing, ON, P5N 2X7 | Phone Number: 1-705-335-3031 Cell Number: 1-705-335- or 1-705-335- Fax Number: 1-705-337-1085 |
| C of A #: A910042 & A580403 | Issue Date: 92/06/05 & 99/05/12 |
| Waste Classes: NHLIW LIW #'s: 111-114, 121-123, | |
| Response Time: Mattagami Plants (1-2 Hrs.) | |
| Equipment Used:- Absorbent Pads / Booms - Backhoe & Trucks | - "Special Portable Vac Unit" (650 litre capacity) - Vac-Pumper Trucks (1-300 gals., 1-2300 gals.) |
| Size of spill able to contain: 75,000 litres *can contain spills in waterways to some extent | - |

| ELECTRICAL AND PLUMBING CONTRATOR | |
|---|--|
| Contact Name: Chevalier Electrical Electrical Contractor, Moonbeam | Phone Number: 1-705-335-6139 Cell Number: |
| Contact Name: GT Plumbing Electrical and Plumbing | Phone Number: 1-705-335-3243 Cell Number: |

2. CRITERIA FOR MUNICIPAL EMERGENCY ACTIVATION



3. PERSONNEL RESPONSIBILITY

3.1 Qualified Plant Operator

The qualified water plant operator is the operator that holds a Class I or Class II operator license and is the operator in charge at the time.

He or she is responsible to evaluate the situation on hand using the criteria in tab 2 of this manual and to determine the seriousness of the emergency.

Then the operator is responsible to take appropriate action as described in this manual and to coordinate the work between different groups and to communicate the plans with all the parties involved.

The ORO is responsible over all for the water treatment plant operation.

Job description

- a) Making decisions when situation arises.
- b) In charge of other operators.
- c) Contact person for MOE and laboratory services.
- d) In case of absence Luc Pelchat, Class 1 operator, will take over all duties and responsibilities until Claire Gibson, ORO, returns.

3.2 Administration Support

Administration will give support to the plant operator.

Example:

Notify proper ministries and specialty groups for the purpose of regulatory reporting and informing of the situation and the type of emergency.

Notify the public of the emergency (boiling advisory, consumptions restriction, etc.) by notifying the media and put up notification on boards.

3.3 Town Supervisor

The town foreman will supervise the work on site and keep the operator posted of the work progress. Water main breaks and any plant equipment failure are examples of tasks requiring municipal employees' involvement.

3.4 Fire Chief

The fire chief has the authority to recall the fire truck for firefighting at any time when the fire truck is being used to transport water for the town.

3.5 Mayor

The mayor will review the emergency plan and have the highest authority when decision making becomes involved. He will deal with the media if he chooses to do so.

4. CONTINGENCY PLAN

4.1 Low chlorine residual at the plant

If the operator in charge gets a low chlorine alarm, he comes to the plant as soon as possible, confirms the low analyzer reading by measuring the residual in a grab sample. If the low reading is accurate, the operator will check the hypochlorite feed system. If it is a pump failure, the operator will make sure the spare pump is put on lead. If it is the injector that is plugged, the operator will clean the injector. If the problem cannot be fixed immediately, the operator will put the standby well on lead, which has its own hypochlorite sure feed system. The event will be recorded in the plant log book and the ORO will be called. If a grab sample is not adequate to meet the CT requirements, the operator must immediately follow the reporting and corrective action requirements of Schedules 16 and 17 of O. Reg 170/03.

4.2 Low chlorine residual in distribution system

If a grab sample reaches the critical control point, the operator shall re-test to confirm a low chlorine residual. The operator shall record the result in the plant log book, and must then follow the reporting and corrective action requirements of Schedules 16 and 17 of O. Reg. 170/03. The operator shall also contact the ORO. The hydrant near the location where the sample was taken, will be flushed until a good residual is obtained.

4.3 Low water pressure in distribution system

The operator shall attempt to find the location or source of the problem and isolate it. If pressure at any point where the potential for backflow or backsiphonage exists, the operator shall immediately report the incident to the Medical Officer of Health and the Ministry of the Environment Spills Action Centre. He shall also record everything in the plant log book and call the ORO to report the event and location. They should follow the instructions at section 3 and fill out form A of the Watermain Disinfection Procedure Binder located at the town shop's office or at the water plant's office.

4.4 Chlorine analyze failure

If the chlorine analyzer fails, the operator will get an alarm. He must take a grab sample immediately for chlorine residual then unplug the orange wire from the unit and plug it to the backup unit. Then put the reagent in and put the unit online. Take grab samples every 5 minutes until it prime itself and it's back online. If it's still not working, put the plant on manual operation by going to Control Panel #1, and put the "D1C CONT." switch to Flow Paced. The operator will then call the ORO, the Medical Officer of Health and the Ministry of Environment Spills Action Centre.

4.5 Adverse water quality

The laboratory will provide immediate oral notification to the ORO and the municipal office of any adverse readings defined by Schedule 16 of O. Reg. 170/03. In turn, immediate oral notification is provided by the ORO and the municipal office staff to the local Medical Officer of Health (MOH) and the Ministry of Environment (MOE) Spills Action Centre, per Schedule 16 of Ontario Regulation 170/03. The names of the people

spoken to and the details of the conversation are recorded. All records will be maintained in the Moonbeam well supply log book. In addition, any free chlorine residual below 0.05 mg/L must be reported per Schedule 16 of Ontario Regulation 170/03. Follow any instructions provided by MOH and MOE (boil water advisories, drinking water advisories, sampling, etc.).

If reported by the lab, within twenty-four hours, the lab will send Section 1 of Notice of Adverse Test Results to the municipal office??) (if applicable). The ORO will complete Section 2 (a) indicating the corrective action to be taken by the municipality. These forms will be faxed to the MOH and the MOE Spills Action Centre. Once the corrective action has been taken as required by Schedule 17 of Ontario Regulation 170/03, Section 2 (b) will be completed and sent to the MOH and the MOE Spills Action Centre per Schedule 16 of Ontario Regulation 170/03.

These papers will then be filed in a properly labelled folder in a file cabinet at the water treatment plant.

4.6 Adverse water in wells

- Shut down pump in affected well and continue operation with backup well.
- Resume normal operation upon consent from MOH and MOE.
- Sample both water sources, treated water and three points in the distribution system for parameters of concern to assess degree of contamination to raw water, the drinking water treatment system and the distribution system.
- If required, increase chlorine dosage to ensure a minimum of 1.5 mg/L total or 0.5 mg/L free residual in the distribution system. Conduct flushing in the distribution system, if required.
- Re-sample and maintain operation on back-up well until two consecutive sets of samples are of acceptable quality, or as otherwise directed by the MOH and the MOE.

4.7 Adverse water in distribution system

- Raise chlorine levels in the distribution system to a minimum of 1.5 mg/L total or 0.5mg/L free residual chlorine.
- If a boil water advisory or drinking water advisory is issued by MOH, inform the public.
- Begin line flushing at affected site.
- Conduct appropriate sampling in the distribution system. Conduct sampling at both wells and of treated water if source is suspected to be raw water or treated water.
- If sampling results are not acceptable, search for leaks, potential backflow, etc.
- Continue to sample and test (and flush, if required) until two consecutive sets of samples are of acceptable quality, or as otherwise directed by the MOH and the MOE.
- Resume normal operation upon consent from MOH and MOE.

4.8 Equipment required for an emergency or upset condition

- a) Metering pump: there are 4 metering pumps in service. Two on well #1 and two on well #2.
- b) In case of chlorine pump break, there is always one on standby at each well ready to take over.
- c) Most of all the equipment at the water plant has redundancy in case of the equipment break down.
- d) Well #2 pump is back up for well #1 pump.
- e) High lift pump #2 is back up for high lift pump #1.

The plant's electrical service is backed up by a 100 KW diesel generator. This diesel generator get inspected on a monthly basis as part of the water plant inspection and yearly by a certified Gen Set mechanic.

4.9 Spill response

The following are hazardous material stored in the water treatment plant:

- a) Sodium hypochlorite solution for water disinfection.

Spill Response Kit:

An industrial spill kit and a containment drum are stored at the water treatment plant ready to be used in case of a spill.

4.10 Steps for spill containment

- a) Assess the hazards to health, safety and environment.
- b) Contain the spill / stop the spill at the source.
- c) Report the spill to the ORO and to the spill centre.
- d) Clean up the spill.

NOTE: If suspected that the spill has entered the town water supply, immediately have the water tested.

4.11 Water shortage

Water shortage could happen for many reasons.

a) Water Plant Maintenance

If a full water plant outage is needed for a long period of time for any reason, water will be supplied to the town with the help of the fire truck tanker. In this case, because of the plant outage, the town water will be supplied through one fire hydrant hooked up to the tanker, using the tanker fire pump to pressurize the distributing system. In this case, the tanker will transport water from the Town of Kapuskasing to the Moonbeam water plant. For instructions on where and how to fill the truck, call this Town of Kapuskasing's emergency number: 705-335-1236.

b) Water shortage caused by dry season

Well levels are measured every month. When a drop is noticed on the well level, the town will advise the public of a water restriction usage. Watering gardens and lawns will be tolerated only at certain times of the day. The public will be notified through the radio stations, notifications will be placed on bulletin boards at the municipal office and at the post office.

c) Both wells disabled

If both wells become disabled because of water shortage or well contamination, and the plant is still operational, the wet well will be used to store water transported with the fire tanker. The tanker will transport water from the Town of Kapuskasing to the Moonbeam water plant. For instructions on where and how to fill the truck, call this Town of Kapuskasing's emergency number: 705-335-1236. The tanker will dump the entire load in the wet well until the well is full, and the water will be pumped to the town distributing system the normal way, using the service pumps.

5. CONTENT OF BRIEFINGS AND NEWS RELEASES

Communications should include the following information. Only facts should be conveyed – no speculation:

- What happened – type of incident, when, location?
- What is being done – response to the situation?
- What is the status of the rest of the operation?
- What is the status of the emergency?
- Have provincial and municipal officials been notified?
- Will this situation affect the supply of water?
- How soon (if known) is the situation expected to return to normal?
- When will more information be available?