DRINKING WATER

QUALITY MANAGEMENT SYSTEM

OPERATIONAL PLAN
<table>
<thead>
<tr>
<th>No.</th>
<th>Topic</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>QUALITY MANAGEMENT SYSTEM</td>
<td>Oct. 2014</td>
</tr>
<tr>
<td>2</td>
<td>QUALITY MANAGEMENT SYSTEM POLICY</td>
<td>Feb. 2010</td>
</tr>
<tr>
<td>3</td>
<td>COMMITMENT AND ENDORSEMENT</td>
<td>Mar. 2015</td>
</tr>
<tr>
<td>4</td>
<td>QUALITY MANAGEMENT SYSTEM REPRESENTATIVE</td>
<td>Aug. 2009</td>
</tr>
<tr>
<td>5</td>
<td>DOCUMENT AND RECORDS CONTROL</td>
<td>Mar. 2014</td>
</tr>
<tr>
<td>6</td>
<td>DRINKING-WATER SYSTEMS</td>
<td>Mar. 2014</td>
</tr>
<tr>
<td>7</td>
<td>RISK ASSESSMENT</td>
<td>July 2013</td>
</tr>
<tr>
<td>8</td>
<td>RISK ASSESSMENT OUTCOMES</td>
<td>Feb. 2014</td>
</tr>
<tr>
<td>9</td>
<td>ORGANIZATIONAL STRUCTURE, ROLES, RESPONSIBILITIES AND AUTHORITIES</td>
<td>Mar. 2015</td>
</tr>
<tr>
<td>10</td>
<td>COMPETENCIES</td>
<td>May 2014</td>
</tr>
<tr>
<td>11</td>
<td>PERSONNEL COVERAGE</td>
<td>May 2011</td>
</tr>
<tr>
<td>12</td>
<td>COMMUNICATIONS</td>
<td>Oct. 2014</td>
</tr>
<tr>
<td>13</td>
<td>ESSENTIAL SUPPLIES AND SERVICES</td>
<td>Aug. 2013</td>
</tr>
<tr>
<td>15</td>
<td>INFRASTRUCTURE MAINTENANCE, REHABILITATION AND RENEWAL</td>
<td>Feb. 2015</td>
</tr>
<tr>
<td>16</td>
<td>SAMPLING, TESTING AND MONITORING</td>
<td>June 2014</td>
</tr>
<tr>
<td>17</td>
<td>MEASUREMENT AND RECORDING EQUIPMENT</td>
<td>Oct. 2014</td>
</tr>
<tr>
<td>18</td>
<td>EMERGENCY MANAGEMENT</td>
<td>Mar. 2015</td>
</tr>
<tr>
<td>19</td>
<td>INTERNAL AUDITS</td>
<td>Nov. 2013</td>
</tr>
<tr>
<td>20</td>
<td>MANAGEMENT REVIEW</td>
<td>Oct. 2012</td>
</tr>
<tr>
<td>21</td>
<td>CONTINUOUS IMPROVEMENT &amp; SUPPORTING DOCUMENTICATION</td>
<td>Sept. 2012</td>
</tr>
</tbody>
</table>
DRINKING WATER QUALITY MANAGEMENT SYSTEM

This document is the drinking water Quality Management System Operational Plan for the District Municipality of Muskoka.

The District of Muskoka owns and operates municipal water treatment and distribution systems in the municipalities of Bracebridge, Gravenhurst, Huntsville, Port Carling, Mactier, Port Sydney, Port Severn, Bala and Baysville.

This Plan has been written to meet or exceed the requirements of the Ministry of the Environment’s prescribed standard and is applicable to the management and operation of the District of Muskoka’s water treatment and distribution systems.

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 continue to be protected through the effective application of the QMS.
QUALITY MANAGEMENT SYSTEM POLICY

The District Municipality of Muskoka owns, maintains and operates Municipal water treatment and distribution systems.

The District Municipality of Muskoka is committed to:

(i) ensuring a consistent supply of safe, high quality drinking water,
(ii) maintaining and continually improving its Quality Management System, and
(iii) meeting or surpassing applicable regulations and legislation.

The Owner representative, for purposes of the Quality Management Standard is the Commissioner of Engineering and Public Works.

The QMS policy is available for viewing at the Engineering and Public Works office at the District of Muskoka, the District of Muskoka’s Intranet and on our website at www.muskoka.on.ca.
Commitment and Endorsement

The District Municipality of Muskoka, as owner and operating authority for all of Muskoka’s Municipal Drinking Water Systems, supports the implementation, maintenance and continual improvement of a Drinking Water Quality Management System (QMS), as documented in this Operational Plan.

March 5, 2015
Date

[Signature]

(For the Owner)
Commissioner of Engineering and Public Works
Fred Jahn, P.Eng.

March 2, 2015
Date

[Signature]

Acting Director of Water & Sewer Operations
Lee Gillan.
QUALITY MANAGEMENT SYSTEM REPRESENTATIVE

The designated QMS Representative at the District of Muskoka is the Director of Water and Sewer Operations.

The QMS Representative shall:

- administer the Quality Management System by ensuring that processes and procedures needed for the Quality management System are established and maintained.
- report to Top Management on the performance of the Quality Management System and any need for improvement.
- ensure that current versions of documents required by the Quality Management System are being used at all times,
- ensure that personnel are aware of all applicable legislative and regulatory requirements that pertain to their duties for the operation of the subject system, and
- promote awareness of the Quality Management System throughout the Operating Authority.
DOCUMENT AND RECORD CONTROL PROCEDURE

Procedure Description

This procedure is applicable to QMS documents and records:

<table>
<thead>
<tr>
<th>Key Documents and Records</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permit to Take Water</td>
<td>Facilities/Public Works Office</td>
</tr>
<tr>
<td>Water Treatment Plant DWWP</td>
<td>Facilities/Public Works Office</td>
</tr>
<tr>
<td>Municipal Drinking Water Licence</td>
<td>Facilities/Public Works Office</td>
</tr>
<tr>
<td>WTP System Classification</td>
<td>WTP/Public Works Office File</td>
</tr>
<tr>
<td>Water Distribution System Classification</td>
<td>Lines C.O. office location/Public Works Office File</td>
</tr>
<tr>
<td>QMS Operational Plan</td>
<td>Public Works Office /Shared Network/CD at Facility</td>
</tr>
<tr>
<td>Operations and Maintenance Manuals</td>
<td>WTP/Public Works Office</td>
</tr>
<tr>
<td>Operator Certifications</td>
<td>Public Works Office/Shared Network/Facilities</td>
</tr>
<tr>
<td>Operator Training Records</td>
<td>Shared Network</td>
</tr>
<tr>
<td>Supplier List &amp; Documentation</td>
<td><a href="http://www.infomuskoka.ca/emergency/">www.infomuskoka.ca/emergency/</a></td>
</tr>
<tr>
<td>Treatment Operations Log Book</td>
<td>WTP</td>
</tr>
<tr>
<td>Distribution Operations Log Book</td>
<td>Lines Chief Operator Office</td>
</tr>
<tr>
<td>Calibration Manuals and Records</td>
<td>WTP</td>
</tr>
<tr>
<td>Distribution Maintenance Records</td>
<td>Facilities/Shared Network</td>
</tr>
<tr>
<td>Standard Operating Procedures</td>
<td>WTP/Public Works Office/Shared Network</td>
</tr>
<tr>
<td>Lab Results</td>
<td>Shared Network/Facilities</td>
</tr>
<tr>
<td>Material Safety Data Sheets (MSDS)</td>
<td>WTP or Lines Office as applicable</td>
</tr>
<tr>
<td>Treatment Maintenance Records - Antero</td>
<td>Facility/Off-site backup by Consultant</td>
</tr>
<tr>
<td>QMS Audit Records</td>
<td>Public Works Office</td>
</tr>
</tbody>
</table>

Creating New or Updating Existing Documents

- The need for document changes or for the creation of new documents may be identified through audits, Management reviews or as may be required by Operations. The Director of Water and Sewer Operations and/or Area Managers may approve changes. Any changes identified will be implemented by the QMS Admin Support.

Reviewing Documents

The Operational Plan and procedures shall be reviewed annually for applicability and relevance.

Document & Record Retrievability & Availability

- Water treatment and distribution drawings are available on a shared electronic network, which is backed up automatically each night.
- External Lab testing results are also stored on the shared electronic network and backed up each night.

- SCADA data is backed up daily at the WTP on the SCADA computer and archived annually. Reportable data and sampling records from external sources are copied to the shared electronic network on a monthly basis and backed up each night.

- Logbooks for water treatment and distribution systems are maintained whenever an Operator attends a facility or any component of a drinking water system. The attending Operator and OIC (Operator In Charge) will be logged as applicable. At a minimum, a weekly entry must be made indicating the ORO (Overall Responsible Operator). In addition, logbook entries should identify Operators that are concurrently responsible for the appropriate sub-system.

- Staff shall complete documents and records legibly and in pen. They shall be filed in filing cabinets or archival storage boxes for protection from damage.

**Retention and Disposal of Documents and Records**

This procedure is applicable to all records that demonstrate conformance to DWQMS requirements. All records that demonstrate compliance are covered by Ontario Regulations 170/03 and 128/04.

- All QMS records and documents are retained for a minimum of 5 years, unless a QMS record or document is also a requirement of O/Reg. 128/04 and/or 170/03, then retention time shall be as per the regulation. Once the retention time has been reached, records and documents may be destroyed or placed in the Public Works archives at the discretion of Management.

- Operational records within the QMS shall be stored in such a manner as to prevent deterioration and/or damage.

- Obsolete documents may be identified as such at any time. Once a document has been identified as obsolete, it shall be destroyed.

**Electronic Documents**

Electronic versions of documents and records are stored on a shared electronic drive and sharing permissions are in place to prevent unauthorized personnel from making amendments.
DRINKING WATER SYSTEM

Owner & Operating Authority

The District Municipality of Muskoka is the Owner and Operating Authority for water treatment facilities throughout Muskoka. There are no subject systems connected to other drinking-water systems owned by other owners.

Common Event Driven Fluctuations

All surface water supplies experience seasonal lake/river turnover, which generally results in pH and alkalinity changes of the raw water. These changes require seasonal adjustments to the coagulant feed rates. The stability of the raw water source provides moderate operational challenges or threats.

Lone Pine WTP – Port Severn

The presence of Zebra Mussels in Little Lake requires that an annual inspection of the intake structure be done. It is also cleaned, and any presence of mussels is scraped. The intake pipe is inspected every 5 years and cleaned as required.

Minto WTP - Bala

The presence of Manganese in the source water is a usual occurrence. This is treated with a Permanganate solution.

Beech WTP – Mactier

The presence of Manganese in the source water is a usual occurrence. This is treated with a Permanganate solution.

Clarke Well – Port Sydney

The Clarke Well is a ground water source. There are no common event-driven fluctuations at this facility.

Source Water Characteristics

Source water characteristics for each system are described in the Introduction for each system which are described as part of this Plan under Supporting Documentation.

Treatment Process and Distribution Components
Key treatment and distribution process components are described as part of this Plan under Supporting Documentation.

Treatment Process and Distribution Flow Charts

Treatment and distribution flow charts are located under Tab entitled Treatment and Distribution Flow Charts.

Critical Upstream and Downstream Processes

The District of Muskoka has a by-law (97-1) which regulates the supply of water and provides for water rates and charges within District supplied areas. This by-law prohibits potential cross connections in a general way in that it provides the representatives of the District with the authority to disconnect any user from the system given reasonable grounds of any non-conformance with the by-law including suspicion of a potential cross connection.

The District of Muskoka has also developed ‘The Muskoka Water Strategy’. It was adopted in February 2003 to address issues of source water protection. The strategy includes enhanced water quality monitoring programs (including taking part in the Drinking Water Surveillance Program (DWSP) through the MOE) and maintenance of shoreline vegetative buffers.

By-law #97-1 and the Muskoka Water Strategy are located as part of this Plan under Supporting Documentation.
RISK ASSESSMENT

PROCEDURE

An initial risk assessment was performed for all drinking water systems within the District of Muskoka. In addition, a review will provide opportunities for improvement. The methodology for assessment may be changed as required by the DWQMS Representative or designate.

A complete risk assessment shall be conducted every thirty-six months at a minimum and shall take into consideration reliability and redundancy of equipment. A review will be conducted on an annual basis during years between a complete assessment. Revisions may be made at any time as determined by an Area Manager or the QMS Rep.

The purpose of the risk assessment is to identify any hazards or hazardous events that pose a risk to the drinking water quality resulting in a risk to public health.

HAZARD IDENTIFICATION AND AVAILABLE CONTROL MEASURES

Each water system is assessed separately and risks are identified from source to point of delivery. A further annual review will be conducted by the Area Manager responsible for the system, the QMS Admin Support, and staff working within that system as required.

Each step of the treatment process and the distribution system is examined for potential hazards or hazardous events, which are documented on a risk assessment table. Once a hazard has been identified, the resultant effect and any available control measures are discussed and documented on the table.

RANKING OF HAZARDOUS EVENTS AND CRITICAL CONTROL POINTS

Having completed the identification and control measure process, the detectability, consequence, and likelihood for each hazard, is the rank considered when applying critical control points.

Using these three criteria to rank hazardous events, we have chosen to adopt an additive model in which the individual ratings are added together. The total sum of the ratings for detectability, consequence, and likelihood for each hazard, is the rank considered when applying critical control points.

CRITICAL CONTROL POINTS

The threshold number that the District of Muskoka has used as a critical control point is a threshold of 8. Any hazards or hazardous events that total 8 or higher are considered critical. Discretion may be used when determining which events are indeed critical.
Critical control points do not have to be assigned to items below the threshold.

These control points are typically:

- Able to prevent, eliminate or reduce hazards,
- Monitored, preferably in real time,
- Able to have determined control limits, and,
- Essential to ensure the safety of the drinking water.

Any hazards or hazardous events that are at the threshold or higher, which cannot have control measures, must have contingency procedures or emergency response procedures developed.

**CRITICAL CONTROL LIMITS**

Critical control limits may be numerical or descriptive and need only be assigned to critical control points for items 8 or above.

Numerical critical control limits must be indicated as a maximum, minimum, or range with clearly defined upper and lower values.

Appropriate action will be taken by the Operator for any treatment related deviations from critical control limits recorded using SDADA. SCADA records can be retrieved by viewing trending records. Deviations from critical control limits will alarm and page out to the certified operator whose response will include a report of the deviation in the treatment plant logbook.

Appropriate action will be taken by an Operator for any Distribution related deviations from critical control limits. Responses will include a report of the deviation in the distribution logbook.
## TABLE 1

### Detectability Rating System

<table>
<thead>
<tr>
<th>Description</th>
<th>Detectability of Hazardous Event</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Detectable</td>
<td>Easy to detect, on-line monitoring through SCADA (Supervisory Control and Data Acquisition)</td>
<td>1</td>
</tr>
<tr>
<td>Moderately Detectable</td>
<td>Moderately detectable, alarm present but not in SCADA, may require operator to walk by and notice alarm; problem is indicated promptly by in-house lab test results.</td>
<td>2</td>
</tr>
<tr>
<td>Normally Detectable</td>
<td>Normally detectable, visually detectable on rounds or through regular maintenance.</td>
<td>3</td>
</tr>
<tr>
<td>Poorly Detectable</td>
<td>Poorly detectable, visually detectable but not inspected on a regular basis; not normally detected before problem becomes evident; lab tests are not done on a regular basis (e.g. quarterly).</td>
<td>4</td>
</tr>
<tr>
<td>Undetectable</td>
<td>Cannot be detected.</td>
<td>5</td>
</tr>
</tbody>
</table>

### Consequence Rating System

<table>
<thead>
<tr>
<th>Description</th>
<th>Detectability of Hazardous Event</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insignificant</td>
<td>Insignificant impact, little public exposure, little or no health risk.</td>
<td>1</td>
</tr>
<tr>
<td>Minor</td>
<td>Limited public exposure, minor health risk.</td>
<td>2</td>
</tr>
<tr>
<td>Moderate</td>
<td>Minor public exposure, health impact on small part of the population.</td>
<td>3</td>
</tr>
<tr>
<td>Major</td>
<td>Large part of population at risk.</td>
<td>4</td>
</tr>
<tr>
<td>Catastrophic</td>
<td>Major impact for large part of the population, complete failure of systems.</td>
<td>5</td>
</tr>
</tbody>
</table>

### Likelihood Rating System

<table>
<thead>
<tr>
<th>Description</th>
<th>Detectability of Hazardous Event</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rare</td>
<td>May occur in exceptional circumstances, and has not occurred in past.</td>
<td>1</td>
</tr>
<tr>
<td>Unlikely</td>
<td>Could occur at some time, historically has occurred less than once every five or 10 years.</td>
<td>2</td>
</tr>
<tr>
<td>Possible</td>
<td>Has occurred or may occur once or more per year.</td>
<td>3</td>
</tr>
<tr>
<td>Likely</td>
<td>Has occurred or may occur on a monthly to quarterly basis.</td>
<td>4</td>
</tr>
<tr>
<td>Very likely</td>
<td>One or more occurrences on a monthly or more frequent basis.</td>
<td>5</td>
</tr>
</tbody>
</table>
RISK ASSESSMENT OUTCOMES

Risk assessment outcomes for each drinking water system within the District of Muskoka are included as part of the documentation of this element.

Included under critical control limits are references to SOP’s, Emergency Plan and Contingency Plan. These may be found on a CD which is included as Supporting Documentation to this Plan.

All Supporting Documentation is reviewed for applicability and relevance during the annual review of the risk assessments.

CRITICAL CONTROL POINTS

Critical control points do not have to be assigned to items below the threshold.

These control points are typically:

➢ Able to prevent, eliminate or reduce hazards,
➢ Monitored, preferably in real time,
➢ Able to have determined control limits, and,
➢ Essential to ensure the safety of the drinking water.

Any hazards or hazardous events that are at the threshold or higher, which cannot have control measures, must have contingency procedures or emergency response procedures developed.

CRITICAL CONTROL LIMITS

Critical control limits may be numerical or descriptive and need only be assigned to critical control points for items 8 or above.

Appropriate action will be taken by the Operator for any treatment related deviations from critical control limits recorded using SDADA. SCADA records can be retrieved by viewing trending records. Deviations from critical control limits will alarm and page out to the certified operator whose response will include a report of the deviation in the treatment plant logbook.

Appropriate action will be taken by an Operator for any Distribution related deviations from critical control limits. Responses will include a report of the deviation in the distribution logbook.
ORGANIZATIONAL STRUCTURE, ROLES, RESPONSIBILITIES AND AUTHORITIES

Operating Authority

The Operating Authority under this QMS Plan is the District Municipality of Muskoka. The Operating Authority shall keep current the description of the organizational structure including respective roles, responsibilities and authorities.

Owner

The Owner for purposes of this Operational Plan is the District Municipality of Muskoka. The Owner Representative is the Commissioner of Engineering and Public Works.

Management Review

Management reviews shall be conducted by Top Management, specifically the Commissioner of Engineering & Public Works and the Director of Water and Sewer Operations.

Organization Charts

District of Muskoka water and sewer organizational structure is comprised of three areas, North Muskoka, Central Muskoka and South Muskoka as illustrated by the following organization charts. All areas fall under the direction of the Commissioner of Public Works and subsequently the Director of Water and Sewer Operations, however each area has a Manager who is responsible for managing the operation in their designated area.

Responsibilities and Authorities

Operating Authority

As the Operating Authority, The District Municipality of Muskoka is responsible and has authority to maintain finances in order to sustain water and sewer systems.

Commissioner of Engineering & Public Works

The Commissioner of Engineering and Public Works is responsible for the strategic leadership, management, and administration of the Engineering and Public Works department including the development, operation, maintenance, renewal and/or replacement of the District roads system, sewage collection and treatment systems, water treatment and distribution systems, and solid waste management facilities. Major responsibilities include:
Work closely with the CAO, the Senior Management Team (SMT) and Council, either directly or through the standing committees, to advise on all matters pertaining to the functional areas including the development of annual budgets and performance measures; long range planning and corporate policies; and the planning, engineering, design, construction, operation and maintenance of infrastructure.

Provide overall direction to the department in the application of engineering principles and practices.

Prepare reports, budgets, recommendations and presentations as required. Attend Council, Committee of Council and public meetings as required.

Act as primary advisor to the Chair of the Engineering and Public Works Committee and provide such support and assistance as the Committee Chair may require.

Act as a member of the SMT and ensure that departmental priorities, programs, goals and objectives are aligned with and support those of the corporation as a whole.

Lead, direct, mentor, motivate and support departmental staff consistent with District values, policies and procedures including strategic planning, recruiting, development and performance evaluation.

Cultivate and maintain excellent working relationships with representatives of the District’s Area municipalities, senior levels of government, peer groups, professional associations, ratepayer groups and other stakeholders.

Accountable for the safety and security of employees and workplaces. Ensure that employees work safely and in compliance with relevant statutes, regulations and the District’s safe work procedures and directives.

Ensure compliance with all applicable legislation, standards and codes of practice including but not limited to the Safe Drinking Water Act and the Ontario Water Resources Act.

Act as the Owner Representative for the District’s Drinking Water Quality Management System Operational Plan and be responsible for compliance with the plan.

Perform related duties as assigned.

The Commissioner of Engineering and Public Works has the authority to establish and implement operating policies governing the execution of major Engineering & Public Works Department functions and administrative practices.

Director of Water and Sewer Operations – QMS Representative

The Director of Water and Sewer Operations is responsible for directing the operation and maintenance of Muskoka’s public water treatment, storage and distribution systems and wastewater collection, treatment & disposal systems, including quality control and assurance. Major responsibilities include:

- Overall Responsible Operator (ORO)
- Supervise/manage assigned personnel
- Responsible for the operation and maintenance of water systems including water production, transmission, storage and distribution.
- Responsible for the operation and maintenance of sewage systems including wastewater collection, transmission, treatment and disposal.
- Prepares, monitors & controls budgets for the operation and maintenance of water and sewage works.
- Ensures compliance with provincial, federal & municipal environmental statutes, regulations, guidelines, directives and policies, including the production of mandatory reports.
- Ensures that all staff engaged in the operation of water and sewage systems are properly trained and licensed.
- Responsible for the development of the staff complement to facilitate succession planning.
- Assists in the compilation of the capital budget and ten year capital forecast.
- Prepares reports to the Engineering and Public Works Committee and makes presentations as required.

The Director of Water and Sewer Operations has authority to maintain day to day operations, long and short term operations of water and sewer systems and establish policies and procedures relative to water and sewer operations.

As QMS Representative, the Director of Water and Sewer Operations shall be responsible for:

- Ensuring that the process required for the QMS are established, implemented and maintained.
- Reporting to Top Management on the performance of the QMS and making any suggestions for improvement.
- Ensuring that the most current versions of documents required by the QMS are being used at all times.
- Ensuring that personnel are aware of all current regulatory requirements that pertain to their duties within the operation of the drinking water system.
- Ensuring the promotion of awareness and effectiveness of the QMS throughout the Operating Authority.

Area Manager – Water and Sewer Operations

The Area Manager is responsible for managing the operation, maintenance and repair of Muskoka’s public water treatment, storage and distribution systems and wastewater collection, treatment and disposal systems in a designated area. Major responsibilities include but are not limited to:

- Manage employees in a manner consistent with District Values, policies and procedures, including selection, work scheduling, training and performance evaluation.
Ensure that employees work safely and in compliance with the relevant statutes and regulations and with the safe work procedures and directives as established by the District.

Acts as “Overall Responsible Operator” for Muskoka as defined in provincial statutes

Prepares, monitors and controls work plans for water and sewage works, including standard operating procedures.

Responsible for expenditures on the operation, maintenance and repair of water and sewage works

Prepares requests for quotations/proposals in accordance with corporate procurement policies

Ensures that all operations comply with certificates of approval and applicable regulations

Ensures that scheduled maintenance requirements are carried out and recorded

Produces annual reports for assigned facilities/locations

Participates in the development of operating budgets and advises senior management on the content of the capital budget and ten year capital forecast

Reviews and comments on engineering designs for new and/or upgraded facilities

Maintains effective communications with customers, elected officials and staff at all levels of government

Arranges, participates in and reports to senior management on training programs

Administers by-law enforcement programs

Undertakes standby duties on a rotational basis as required

Related duties as assigned

The Area Manager has the authority for the following:

- Purchase orders for payment of invoices.
- Timesheets in accordance with the Collective Agreement.
- Distribution of safety wear and uniform allowances to assigned staff.
- Use and coordination of outside forces involving large capital expenditures in emergency situations.
- Operational expenditures – major and minor capital items.
- Acceptance of completed projects (substantial completion).

**Chief Operator**

The Chief Operator supervises and participates in the operation, maintenance and repair of the assigned facilities/locations. Major responsibilities include:

- Responsibility for the overall condition of the assigned facilities/locations
- Operates designated facilities in compliance with certificates of approval and applicable regulations.
- Acts as "Operator In Charge" as defined in provincial statutes.
- Supervises and distributes work to assigned personnel.
- Schedules and records all maintenance activities.
Ensures that all sampling, monitoring, recording and document preparation is carried out in the manner prescribed in the applicable regulations, and as directed.

Ensures that adequate levels of operating supplies are on hand at all times.

Monitors and controls expenditures and assists in the preparation of the annual budget.

Deals with customer enquiries, complaints and service requirements.

Diagnoses problems and takes necessary corrective action.

Reviews and comments on engineering designs for new and/or upgraded facilities.

Advises management on time allocation for assigned personnel, including standby, vacations, etc.

Keeps records of training taken by assigned personnel, advises management on training requirements and participates in the delivery of training where required.

Enforces by-laws as required.

Maintains open lines of communication with other Chief Operators within Muskoka to ensure cooperation in service delivery and effective knowledge transfer.

Undertakes standby duties on a rotational basis as required.

Performs related duties as assigned.

The Chief Operator has the authority for the following:

- Distribution of work to assigned personnel.

**Treatment Operator**

The Treatment Operator assists the Chief Operator in the safe and efficient operation and maintenance of the District of Muskoka’s water and/or wastewater facilities, with minimum supervision. Major responsibilities include:

- Performs the monitoring and recording of all charts, meters, gauges etc. as required.
- Completion of daily logging of facility performance.
- Performs or directs laboratory testing associated with the facility(s) process including raw and treated produce, e.g. chlorine residual, pH, alkalinity, turbidity, marble tests, aluminum residual, total and volatile total solids, alkalinity and volatile acids on raw sludge and digested sludge etc. as required.
- Diagnose/test and make necessary adjustments to ensure compliance with approved procedures, quality and legislated targets.
- Supervise assigned personnel.
- Maintain general maintenance and repair both inside and outside the facility, arranging for outside services as necessary.
- Deal with customer inquiries, complaints and other requirements including conducting facility tours as required.
- Order all necessary chemicals, equipment parts etc. as required.
- Undertake standby duties as required.
- Acts as Operator In Charge (OIC).

The Treatment Operator has the authority for supervision of staff.
Operator II

The Operator II assists the Chief Operator in the safe and efficient operation and maintenance of Muskoka’s water/wastewater treatment, distribution and wastewater collection systems, and hauled waste facilities with minimal supervision. Major responsibilities include:

- Operates and maintains water distribution and sewage collection systems and/or hauled waste facilities, as required.
- Assists Treatment Operators in the general operation, maintenance and repair of treatment works.
- Acts as "Operator in Charge" (OIC) as defined in provincial statutes.
- Coordinates the activities of assigned personnel.
- Performs all chemical tests and/or collects samples in the prescribed manner in compliance with Certificates of Approval, legislation, policy and procedures.
- Assists in the preparation of work schedules and documentation for the billing of third parties.
- Assists in the ordering of all necessary chemicals, equipment, parts, etc., as required.
- Enters daily logging of facility performance.
- Deals with customers inquiries and complaints.
- Conducts facility tours and participates in public education events.
- Undertakes standby duties as required.
- Performs related duties as assigned.

The Operator II has the authority to supervise staff as required.

Operator I

The Operator I assists in the operation and maintenance of District water and water pollution control facilities including associated distribution and collection systems. Major responsibilities include:

- Assists with the operation and maintenance of the facility including monitoring and recording of all charts, meters, gauges, etc. on a daily basis.
- Assists in the preparation of the daily logging of the facility performance.
- Assists in the sampling and laboratory testing for various parameters associated with water and sewage works.
- Respond to customer concerns and complaints.
- Carries out, or makes arrangements to carry out, necessary repairs on any equipment related to assigned area.
- Undertake standby duties on a rotational basis as required.
- Perform related duties as assigned.
Labourer

The Labourer performs all tasks of a physical nature required in the operation and maintenance of District operations and facilities. Major responsibilities include:

- Assist in minor maintenance and repair as directed.
- Perform laboratory tests on various samples as directed (alkalinity, hardness, pH, suspended solids, phosphorous, etc.)
- General operation of selected plant processes (i.e. Centrifuge)
- Enter data into various operational spreadsheet
- Dig, shovel, sweep, trim, prune, clean, pick up etc., as directed
- Assist in moving and arranging furniture, office equipment, refuse, appliances, etc.
- Related duties assigned.

The Labourer has no authorities.

Instrument Technician

There are no plans to fill the Instrument Technician position at this time.

Water & Sewer Operations Administrator

The Water and Sewer Operations Administrator is primarily responsible for providing and coordinating office administration and support services to the Water and Sewer Department including front line customer interface. Provides research and liaison for senior management and supervisors of the department. Major responsibilities include:

- Provide and coordinate administrative and department support functions in accordance with District of Muskoka policies and procedures, by-laws, health and safety directives, collective agreement and Ministry Regulations.
- Facilitate communications between departmental management, consultants, trainers and staff, elected representatives, corporate management, community organizations, and other government organizations.
- Facilitate and monitor management work processes and projects to meet scheduled requirements.
- Research, design and develop improved work processes for administrative and department functions.
- Assist in the development and monitoring of departmental budgets.
- Coordinate management’s preparation of report packages and/or research documentation for meetings. Distribute report package information as required.
- Edit and prepare for distribution, draft management documentation including correspondence, notices and departmental standard operating procedures.
- Maintains existing and creates new operator licensing and training files. Monitors and coordinates staff training and licensing requirements and prepares and submits documentation and fees for same to the Ontario Environmental Training Consortium.
- Respond to telephone and/or walk in enquires regarding water and sewage infrastructure. Provide back up to customer service function.
- Responsible for purchase card and petty cash account.
- Carry out general office administration support duties as assigned.

The Water and Sewer Operations Administrator has no authorities.

**Administrative Support – Water and Sewer Operations**

The Administrative Support, Water and Sewer Operations is responsible for providing administrative support to water and sewer operations staff for the creation and maintenance of utility databases, and other related documents; as well as creating and maintaining associated Water and Sewer GIS map layers, databases, and hardcopy mapping. Major responsibilities include:

- Using GIS or equivalent software, plot and map water and sewer infrastructure data. Maintain the data, including data loading, editing, and quality control.
- Interpret as-built drawings or other data sources for the purpose of extracting accurate data about water and sewer infrastructure. This may involve examining, analyzing, and verifying multiple records/sources to determine the most appropriate source.
- Receives and/or collects field data on hydrants, valves, watermains, maintenance access holes, sewer lines and other appurtenances for record keeping purposes. Verifies accuracy of data received from consultants with field staff. Occasional field work may be required.
- Liaise with various departments to collect, verify, and correct information on service agreements, easements, etc. that pertain to water and sewer assets.
- Maintains logs, modify and/or audits Bell Circuit and Hydro Utility accounts and databases. Check and verify accuracy of bills. Make recommendation to consolidate and/or eliminate accounts for discontinued operations.
- Reviews condition inspection data (CCTV and other) and assists in recommendations into Rehabilitation projects.
- Creates utility/appurtenance locate drawings using appropriate software and maintains data in a store that is readily accessible and understandable by operations staff. Ensures locate drawings are properly cross referenced to main utility plans.
- Maintains a list of changes/updates required for large scale utility wall maps. Arranges for replacement/updating of damaged or outdated maps and drawings.
- Deals with telephone and other utilities regarding services to water and sewer operations division.
- Performs other related duties as assigned.

The Administrative Support – Water and Sewer Operations has no authorities.
COMPETENCIES

Satisfying Competencies

The District of Muskoka may administer certain tests, conduct interviews, and verify references and/or request specific documentation as part of the hiring process in order to verify skills, experience and knowledge.

In order to meet the ongoing changes to technology, software, the requirements of O. Reg. 128/04 and Water Department processes, all licensed staff shall receive training as required by O. Reg. 128/04, as a minimum. The training may be provided on or off site by qualified employees or contracted subject matter experts. Training effectiveness is evaluated when appropriate through testing, or a demonstration of knowledge gained. On site training is provided on a continual basis as required, where treatment processes or equipment changes warrant.

Training records are maintained by the Chief Operator and stored on a shared network.

The table below illustrates competency requirements.

Identifying Competencies

Director of Water & Sewer Operations – QMS Representative

Shall take responsibility for the operation and maintenance of water systems including water production, transmission, storage and distribution while ensuring compliance with regulations, guidelines, directives and policies as well as provincial, federal and municipal environmental statutes. The Director shall ensure that all staff engaged in the operation of water systems are properly trained and licensed. The District of Muskoka's designated overall responsible operator (ORO) is the Director of Operations. The ORO can be reached by calling pager number (705) 644-5660. If the ORO designate is absent or unable to act, one of the three area managers will act as the ORO. The acting ORO manager will have a certificate or license that is not more than one class lower than the class of the subsystem to act in the place of the ORO.

As QMS Representative, the Director shall:

➢ Administer the Quality Management System
➢ Report the performance of the system and any need for improvement to Top Management
➢ Ensure currency of documents
➢ Ensure personnel awareness of all applicable legislative and regulatory requirements that pertain to their duties for the operation of the subject system, and
➢ Promote awareness of the QMS throughout the Operating Authority.
Area Manager – Water and Sewer Operations

Responsible for managing the operation, maintenance and repair of the District of Muskoka's public water treatment, storage and distribution systems and wastewater collection, treatment & disposal systems in a designated area. The District of Muskoka's designated overall responsible operator (ORO) is the Director of Operations however, if the ORO designate is absent or unable to act, one of the three area managers will act as the ORO. The acting ORO manager will have a certificate or license that is not more than one class lower than the class of the subsystem to act in the place of the ORO. The Area Manager shall report to management on training programs and ensure that all operations comply with certificates of approval and applicable regulations.
<table>
<thead>
<tr>
<th>Role</th>
<th>Required Competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Director of Water and Sewer Operations</strong></td>
<td></td>
</tr>
</tbody>
</table>
- Engineering or related degree  
- or licensed to operate Class 4 water & sewage systems  
- Valid Ontario Driver's License  
- More than 6 yrs. directly related experience including 2 years progressive management experience. |
| **Area Manager Water & Sewer Operations** |  
- 3 year Community College in a related field or equivalent  
- More than 5 years directly related post-graduate experience including two years of progressive related management experience. Must meet all certification, licensing and other requirements prescribed in the prevailing regulations. Demonstrated familiarity with provincial and federal environmental statutes and municipal engineering standards and practices. Proven ability to accomplish performance objectives, demonstrated technological proficiency and well developed leadership, organization, written and oral communication skills. Working knowledge of computer assisted engineering methods and management information systems.  
- Valid Ontario driver's license. |
| **Chief Operator** |  
- 2 year Community College in related field or equivalent and up to 5 years experience.  
- Must be certified or licensed, as applicable, at the Chief Operator level as specified on the "Licenses Required" spreadsheet that is based on the classifications of the applicable systems, which may be updated from time-to-time.  
- Excellent interpersonal & communication skills for dealing with municipal personnel and the public.  
- A sound knowledge of engineering, electrical & mechanical systems and proficiency with computers.  
- Hold a valid Ontario Driver's license. |
| **Treatment Operator** |  
- Grade 12 education  
- 3 years related experience  
- Licensed at the level prescribed by District of Muskoka (exceeds requirements of O. Reg. 128/04)  
- Computer proficiency  
- Valid Ontario Driver's License |
| **Operator II** |  
- Grade 12 education with 3 years of related experience and an aptitude for electrical and/or mechanical work.  
- Must be certified or licensed as applicable, at the Operator 2 level as specified on the "Licences required" spreadsheet that is based on the classifications of the applicable systems, which may be updated from time-to-time.  
- Good interpersonal & communication skills for dealing with municipal personnel and the general public.  
- A sound knowledge of engineering, electrical & mechanical systems and proficiency in computers.  
- Must possess basic computer skills and hold a valid Ontario Driver's license. |
| **Operator I** |  
- Grade 12 education with 1-2 years of experience and an aptitude for electrical and/or mechanical work.  
- Must be certified or licensed as applicable, at the Operator 2 level as specified on the "Licences required" spreadsheet that is based on the classifications of the applicable systems, which may be updated from time-to-time.  
- Possess basic computer skills  
- Strong interpersonal and communication skills.  
- Hold a valid Ontario driver's license. |
PERSONNEL COVERAGE

Water Treatment & Distribution Staffing

The District of Muskoka Water & Sewer Operations Department presently has a staff compliment of licensed operators.

Water treatment and distribution staffing is outlined under Standard Operating Procedure (SOP) WS-10 which is available on a shared network and at the water treatment facilities.

In the event of a strike, continuity of the operations of the water systems will be ensured according to a document prepared and maintained by the Director of Water and Sewer Operations. For reasons of confidentiality, this document will be presented upon request.
COMMUNICATIONS

The following procedure describes how the District of Muskoka communicates the QMS to Council, its employees, suppliers and the public.

Owner/Operating Authority – District of Muskoka

The Commissioner of Engineering and Public Works or his designate will provide a written report to the Owner once annually upon completion of the Management Review.

District of Muskoka Employees

The District of Muskoka provides QMS training to all Water Department employees. An Employee information session is held as changes to the Plan require and the Operational Plan is available for viewing on the District of Muskoka Intranet. New employees are trained during their orientation. A hard copy of the Plan is available for viewing at the District of Muskoka Administration Office Public Works Department.

Consumers

The QMS Policy statement is included on a rate brochure that is mailed out annually. The rate brochure also directs customers to the District of Muskoka Administration Office should they wish to view a hard copy of the Operational Plan. The Plan can also be viewed on the District of Muskoka’s website at www.muskoka.on.ca. The Quality Management System link can be found by going to the Water and Sewer Department and selecting Municipal Water Quality.

Consumers may contact the District of Muskoka at publicworks@muskoka.on.ca or they may reach On Call staff by calling the Public Works office during office hours or by calling the Public Works office after hours for On Call contact phone information. Contact information is also provided in the Annual Report and maintenance activity notifications that are published in the local newspapers.

Suppliers

Suppliers of critical supplies and services will receive written communication from the Director of Water and Sewer Operations or his/her designate, informing them of our requirements such as ANSI/NSF certification, MSDS's and proof of laboratory accreditation for analysis of samples. Requirements are also included on Requests for Proposals/Quotations.
ESSENTIAL SUPPLIES AND SERVICES

Chemical and Material Standards

All chemicals and materials used in the operation of the drinking water system that come into contact with water within the system shall meet all applicable standards set by both the American Water Works Association (AWWA) and the American National Standards Institute (ANSI) safety criteria standards NSF/60 and NSF/61.

The most current chemical and material product registration documentation from a testing institution accredited by either the Standards Council of Canada or by the American National Standards Institute shall be available at all times for each chemical and material used in the operation of the drinking-water system that comes into contact with water within the system.

Procurement

Procurement of supplies and services is administered under our Finance Policies and Procedure AD:47 – Procurement (attached). Additional resources for supplies and services are referenced in our Contingency Plan and Standard Operating Procedures (included in Supporting Documentation). SOP WS-35 describes the procedure for ordering of treatment chemicals and water system parts. This SOP is also located in section 6 of the Contingency Plan and Standard Operating Procedures manual.
REVIEW AND PROVISION OF INFRASTRUCTURE

A review of the District of Muskoka’s infrastructure needs is conducted by the Director of Water and Sewer Operations, Area Managers and Chief Operators and recommendations for maintenance, rehabilitation and renewal programs are considered.

These programs are implemented in conjunction with input from the Finance Department and then presented to the Owner for approval.

Details of the ten year forecast can be viewed in the Capital Budget.
INFRASTRUCTURE MAINTENANCE, REHABILITATION AND RENEWAL

The Director, Area Managers and Chief Operators review maintenance, rehabilitation and renewal programs annually, as part of the budget process.

Planned Maintenance

Planned maintenance activities include an annual water main flushing program where all municipal watermains in Muskoka are flushed to maintain water quality and fire flow capabilities, and a fall program that includes flushing of municipal watermains at dead ends.

Treatment and Distribution maintenance activities are tracked using proprietary software programs to ensure their completion. These include Antero, Microsoft Excel and Microsoft Access.

Maintenance activities are initiated using written and verbal work orders and documented and recorded using paper or electronic documents, i.e. electronic work order.

Electronic or paper records are utilized to communicate maintenance activities to field staff.

A fire hydrant maintenance program includes an annual check as prescribed by the Ontario Fire Code. Each municipal hydrant is also checked for freezing susceptibility in the fall and again during the winter. The procedure for this maintenance is outlined in SOP WS-14.

A water meter change-out program is also implemented to remove aged meters from the system.

In addition, an ongoing valve maintenance program ensures that valves are checked and exercised to ensure reliability. The procedure for this maintenance is outlined in SOP WS-14.

In treatment facilities, visual inspections, lubrications and fluid changes are performed according to a maintenance schedule, to ensure reliability and performance.

The completion of planned maintenance activities shall be the responsibility of the facility Chief Operator, under the direction of the Area Manager.

In the distribution system, air relief valves are maintained through annual inspections. The procedure for air relief valve maintenance is outlined in SOP WS-45.
Unplanned Maintenance

Water main breaks are typically repaired by District water and sewer staff. In the event that the repair must be contracted out, the work is contracted to a qualified contractor. (Refer to Essential Supplies & Services.)

The procedure for water main breaks is outlined in SOP WS-12.
SAMPLING, TESTING AND MONITORING

The District of Muskoka has a sampling program based on the requirements set out in O. Reg. 170/03, Standard Operating Procedure WS-02 (all SOP’s are included in Supporting Documentation with this Plan), and the Municipal Drinking Water Licence.

Sampling schedules for each municipality can be found in the Contingency Plan and Standard Operating Procedures Manual under Appendix A in the facility copy.

The procedure for sampling of newly constructed watermains is set out in Standard Operating Procedure WS-09.

The District of Muskoka also monitors water quality at various locations throughout the distribution system to detect changes in water quality and to meet the requirements of O. Reg. 170/03.

A procedure for addressing water quality parameters that are out of compliance is set out in Standard Operating Procedure WS-23.

Regulatory sampling is carried out to meet O. Reg. 170/03. Additional discretionary sampling outside the regulatory requirements is performed using a schedule that varies by facility. Sampling, testing and monitoring activities performed upstream before water enters the drinking water system are carried out to meet O. Reg. 170/03 and the drinking water system permit and municipal licence.

All results are summarized in tables at the end of the year in the annual compliance report. These reports are provided to the Commissioner of Engineering and Public Works, the owner’s representative.

SCADA (supervisory control and data acquisition) is a computer controlled system that monitors and controls processes within the subsystems. Muskoka uses SCADA as a tool to collect and monitor data. If the data points go outside established critical control limits, communication infrastructure is in place that will alert the Operator to take appropriate action.
MEASUREMENT & RECORDING EQUIPMENT
CALIBRATION & MAINTENANCE

All calibrations are performed by the Operator excepting flow meters, which are calibrated by an outside contractor as set out in the Drinking Water Works Permit. Equipment is calibrated according to the Manufacturer’s instructions.

Calibration records are stored at the facility with the exception of Clarke Well in Port Sydney, which is stored at Fairyview WTP.

The following table is a reference for the frequency of performing calibrations.

<table>
<thead>
<tr>
<th>Equipment/Analyzer</th>
<th>Frequency of Calibration</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-Line Analyzers</td>
<td>As per Manufacturer’s specifications</td>
</tr>
<tr>
<td>Portable Cl₂ test kits</td>
<td>Monthly – tested against the titrator or using Spec Standards</td>
</tr>
<tr>
<td>Lab Equipment</td>
<td>As per Manufacturer’s specifications</td>
</tr>
</tbody>
</table>
EMERGENCY PREPAREDNESS AND RESPONSE

The District of Muskoka has emergency plans that outline steps to be taken to respond to an emergency involving the water works.

Potential emergency situations or service interruptions such as adverse drinking water quality, watermain breaks and power failures, have emergency response procedures as outlined in our Contingency Plan and Standard Operating Procedures manual. (Contingency Plan and SOPs, Muskoka Emergency Response Plan, Engineering and Public Works Emergency Response Plan can all be found in pdf format in Section 21, Supporting Documentation).

Responsibility During Emergencies

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.

The Muskoka Emergency Response Plan and Program is updated annually by the Emergency Management Coordinator and is available in hardcopy in the Director’s office in the Public Works office.

The Emergency Response plan for the Engineering and Public Works Department is also updated on an annual basis by the Engineering and Public Works Administrative Assistant and is available in hardcopy in the Director’s office.

The Contingency Plan and Standard Operating Procedures binder also contains all Standard Operating Procedures for the Water and Sewer Department as well as contact information for operating staff. Suppliers and services can be referenced at www.infomuskoka.ca/emergency/ The Contingency Plan and S.O.P’s is available at all water treatment plants in hardcopy and on the shared network drive.

All District of Muskoka Water and Sewer Operations staff participate in an emergency exercise every three years.

Associated Documents

SOP WS-23 Adverse Water Quality – Parameters are out of Compliance
SOP WS-12 Watermain Breaks
SOP WS-24 Extended Power Outage
INTERNAL AUDITS

The District of Muskoka conducts annual audits to ensure conformance to the requirements of the District of Muskoka Operational Plan and the DWQMS. These requirements include ensuring that the Quality Management System has been effectively implemented and properly maintained.

Trained auditors who are employed by the District of Muskoka will conduct internal audits.

Auditors

The QMS & Bylaw Admin Support will perform the internal audits and Management within the Water and Sewer Division will audit this element.

Internal Audit Schedule

A schedule of when each drinking-water system will be audited will be circulated to Area Managers and the QMS Representative prior to conducting the audit.

An internal audit will be conducted at least once every twelve months.

Audit Planning

Planning the audit shall include a focus on previous non-conformances to measure the results of corrective actions and resulting improvements.

Conducting the Audit

The auditor may observe activities, review records, previous internal and external audit results and interview personnel as necessary, to ensure that the status of the audited element of the QMS has been effectively evaluated. The audit locations may vary but will typically involve the water treatment facility, and the appropriate Chief Operator’s location.

The QMS Representative will be advised of any issues identified during the audit that do not conform to the DWQMS. A Corrective Action Record will be issued and a root cause analysis will be performed.

Records of annual audits will be retained as part of the QMS records as reference for future audits.
Audit Report and Follow-Up

The audit report will be sent to the QMS Rep in a timely manner once all audits have been completed. Any supporting evidence, questionnaires and field notes taken by the Auditor will be retained as part of the QMS audit records.

Corrective action records will be used to record the following:

- The date that a quality-related problem, deviation, or non-conformance occurred, or was identified.
- A description of the non-conformance.
- A description of the corrective action being taken.
- Responsibilities and timelines for corrective actions.
- A signoff by the responsible employee once the corrective actions are complete.

Any QMS non-conformances will be reported to the appropriate Area Manager and the Chief Operator for corrective action. Following a root cause analysis the corrective action record will be returned to the Internal Auditor to complete that audit item.
MANAGEMENT REVIEW

This procedure defines the Management Review process to evaluate the continuing suitability, adequacy and effectiveness of the QMS.

Review Frequency

Management review shall be conducted at least once every 12 months.

Review Participants

The management review is conducted by Top Management including the Commissioner of Engineering and Public Works and the QMS Representative, or their designates. Other personnel may be included at the discretion of Top Management.

Review Process

The QMS Representative or his/her designate shall provide information and data concerning the following categories, for the review:

- Incidents of regulatory non-compliance,
- Incidents of adverse drinking-water tests,
- Deviations from critical control-point limits and response actions,
- The efficacy of the risk assessment process,
- Internal and third-party audit results,
- Results of emergency response testing,
- Operational performance,
- Raw water supply and drinking water quality trends,
- Follow-up on action items from previous management reviews,
- The status of management action items identified between reviews,
- Changes that could affect the QMS,
- Consumer feedback,
- The resources needed to maintain the QMS,
- The results of the infrastructure review,
- Operational plan currency, content and updates, and
- Staff suggestions.

The management review participants shall review all data presented, and where necessary, identify deficiencies. These may include deficiencies related to the:

- effectiveness of the QMS and related procedures
- ability of the Operating Authority to implement the QMS
- provision of adequate human and financial resources
- level of consumer satisfaction.
For all deficiencies identified, the management review participants shall identify action items, personnel responsible for implementing action items, and timelines for action items.

The QMS Representative shall maintain records of management review. The records shall reflect all new action items and any decisions made by the review team, deficiencies, and personnel responsible for action items, and timelines.

A report containing the results of the management review will be presented to the Owner.
CONTINUOUS IMPROVEMENT

The District of Muskoka is committed to the continual improvement of the Quality Management System and drinking-water quality through preventative maintenance programs, and corrective actions.

Through the performance of annual management reviews and effective auditing, training and communication between all parties, deficiencies can be identified, recorded and corrected.

Annual outcomes of all of these procedures can be compared to ensure continuous improvement.

Measurable results may include fewer watermain breaks through regular maintenance and infrastructure improvements, fewer customer complaints, fewer adverse water quality incidents, etc.
Supporting Documentation is included with each hardcopy of the Operational Plan on a CD.

The CD contains the Muskoka Emergency Plan,
Engineering & Public Works Emergency Plan,
Contingency Plan & Standard Operating Procedures,
Distribution & Treatment Processes,
Source Water Characteristics and
Critical Upstream and Downstream Processes.