



# OPERATIONAL PLAN

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for the Township of Russell  
Drinking Water System (DWS)

#184-401

Waterworks #260092014

Revision 7 – October 22, 2015

This Operational Plan defines and documents the Quality Management System (QMS) for the Township of Russell. It sets out the policies and procedures with respect to quality management in accordance with the requirements of the Province of Ontario’s Drinking Water Quality Management Standard (DWQMS).

### OPERATIONAL PLAN REVISION HISTORY

| Date              | Revision | Description of Revision                                                                                                                                                |
|-------------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| October 19, 2009  | 0        | Operational Plan issued                                                                                                                                                |
| September 2, 2010 | 1        | Updated to reflect connection to City of Ottawa drinking water distribution system.                                                                                    |
| April 14, 2011    | 2        | Updated to reflect corrective actions following audit                                                                                                                  |
| August 9, 2012    | 3        | Updated to reflect current status                                                                                                                                      |
| August 20, 2013   | 4        | Updated to reflect updates                                                                                                                                             |
| June 4, 2014      | 5        | Updated to reflect new organizational structure                                                                                                                        |
| January 5, 2015   | 6        | Updated to reflect the corrective actions of OFIs following the Internal Audit 2014; to update the new Mayor; to update the data in Element 6 and the Risk Assessment. |
| October 22, 2015  | 7        | Updated to reflect the corrective actions of OFIs following the Internal Audit 2015; to update the Risk Assessment and to update the organizational chart.             |
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# 1 Quality Management System (QMS)

The Township of Russell Quality Management System (QMS) for the Drinking Water System is structured and documented in this Operational Plan.


# 2 Quality Management System Policy

The Township of Russell is committed to consistently provide a high level of service, to provide safe, high quality drinking water to consumers, to maintain and continually improve on the Drinking Water Quality Management System and to comply with applicable legislation and regulations.


# 3 Commitment & Endorsement of QMS & Operational Plan

The Chief Administrative Officer (CAO) and the Executive Director of Infrastructure Services as Top Management of the Operating Authority, and the Mayor representing the Owner have approved the QMS for the Township of Russell Drinking Water System as documented in this Operational Plan.

### Owner Endorsement & Approval

  
\_\_\_\_\_  
Mayor  
**Pierre Leroux**                      2 Nov 2015

### Operating Authority Endorsement & Approval

 *Nov 2nd 2015*  
\_\_\_\_\_  
CAO  
**Jean Leduc**                      2 Nov 2015

 *Nov 2nd 2015*  
\_\_\_\_\_  
Executive Director of  
Infrastructure Services  
**Craig Cullen**                      2 Nov 2015

## **4 Quality Management System Representative (QMS Rep)**

All Operating Authority personnel have a role and associated responsibilities within the Township of Russell Drinking Water System's QMS.

The Infrastructure Services Office Manager is appointed as the QMS Rep.

The QMS Rep shall:

- Administer the QMS by ensuring processes and protocol needed for the QMS are established and maintained,
- Report on QMS performance and identifying opportunities for improvement,
- Ensure that current versions of documents related to the QMS are in use,
- Ensure personnel are aware of all applicable legislative and regulatory requirements that pertain to their operational duties, and
- Promote awareness of the QMS to the personnel of the Drinking Water System.

## **5 Document and Records Control**

Refer to Appendix A for QMS Procedure QMSP-01 Document and Records Control.

## 6 Drinking Water System

### Owner and Operating Authority

The Township of Russell is the Owner and Operating Authority of a drinking Water System that includes:

- o four storage tanks (three elevated towers, one above ground reservoir);
- o a distribution network and its associated appurtenances.

The City of Ottawa is the Owner and Operating Authority of the water source and of the pre-treated water supplied to the Township of Russell.

### System Description

#### *Water Source*

Treated water is supplied by the City of Ottawa through a connection to its distribution system from Mitch Owens Road and Bank Street to Embrun Reservoir.

The City of Ottawa operates two treatment plants to supply drinking water – Lemieux Island Water Purification Plant (capacity: 400 ML/d; constructed 1931) and Britannia Water Purification Plant (capacity: 360 ML/d; constructed 1961). The source water for both plants is the Ottawa River. Both plants use identical water treatment processes and have undergone significant expansion and modernization over the years.

Raw water enters the treatment plants through large intake pipes that extend into the main flow of the river. The treatment process makes use of the “multiple barrier” principle. A series of treatment steps successively remove undesirable substances such as colour, suspended particles, algae, bacteria, and viruses from the water. The purification process in Ottawa consists of the following steps:

- coagulation (alum and sulphuric acid)
- flocculation (activated silica as a coagulant aid)
- sedimentation
- filtration (sand/anthracite)
- primary disinfection (sodium hypochlorite)
- pH correction (sodium hydroxide)
- secondary disinfection (chloramines)
- fluoridation (HFS)

During the final treatment step, fluoride is added for prevention of dental cavities, and chloramine (mixture of chlorine and ammonia) is added to preserve water quality as it travels through the vast water distribution system. The pH level is adjusted in order to minimize corrosion effects in the distribution system.

After the treatment process, water is pumped through the distribution network to the Township of Russell.

#### Operational Challenges

There are no identified challenges resulting from the quality of the water source however there is an operational challenge resulting from the 20-hour time limit which is imposed by the City of Ottawa. A 4-hour window is in place which prevents the taking of water between the hours of 6 p.m. until 10 p.m. every day, as well the current flow limit of 110 L/s.

### ***Drinking Water System***

***All facilities are monitored by a Supervisory Control and Data Acquisition (SCADA) system and linked to the Infrastructure Services Public Utilities office.***

#### Embrun Reservoir

Reservoir and control building 15.0 m x 12.1 m (NAD27: UTM Zone 18:501560.00 mN, 474400 m N) consisting of the following:

- o fill valve on Russell Feedermain;
- o two (2) compartment concrete tank, each compartment having a net capacity of 705 m<sup>3</sup>, for a total capacity of 1,410 m<sup>3</sup>;
- o two (2) pumping wet well compartments;
- o three (3) Embrun Booster Pumps (two duty, one standby), each having a capacity of a design flow rate of 28.75 L/s at a total dynamic head of 52.34 m;
- o two (2) Russell Booster Pumps, each having a capacity of a design flow rate of 31.4 L/s at a total dynamic head of 52.8 m;
- o two (2) pressure release valves:
  - at Embrun Watermain;
  - at Russell Watermain;
- o three (3) magnetic flow meters monitoring flows:
  - at Russell Feedermain;
  - at Embrun Watermain;
  - at Russell Watermain.
- o Three (3) pressure transmitters at the following locations:
  - at Russell Feedermain (from City of Ottawa);
  - at Embrun watermain;
  - at Russell watermain.
- o duplex ammonium sulfate feed system (one duty pump, one standby pump), with ammonium capacity of 15 L/h, for a dosage of 0.25 to 1.25 mg/L, c/w two 300 L tanks and mixers, for the purpose of rechloramination at reservoir water; the solution is injected at the reservoir fill line. Equipment is installed within a concrete secondary confinement area;
- o duplex sodium hypochlorite feed system (one duty pump, one standby pump), with a minimum capacity of 15 L/h, for a dosage of 0.1 to 1.75 mg<sub>Cl</sub>/L, c/w one

300 L solution tank, for the purpose of rechloramination at reservoir water; the solution is injected at the Reservoir fill line. Equipment is installed within a concrete secondary confinement area;

- o duplex sodium hypochlorite feed system (one duty pump, one standby pump), with a minimum capacity of 10.4 L/h, for a dosage of 0 to 0.5 mg<sub>Cl</sub>/L, c/w a 300 L day tank, for the purpose of chlorine residual adjustment at reservoir water; the solution may be injected to either the reservoir interconnecting pipe (two locations), the Embrun wet well or the Russell wet well. Equipment is installed within a concrete secondary confinement area.
- o six (6) continuous chlorine analyzers, monitoring total chlorine and free chlorine at the three following locations: fill line, reservoir interconnecting piping, and wet wells;
- o site piping

### Marionville Booster Pump Station

Booster pump building 11.37 m X 6.65 m, located at Lot 8, Concession I, at NW corner of the Farm Road and MacDonald Road (NAD 27: UTM Zone 18: 5008900 m N, 471195 m N) consisting of the following:

- o underground compartment for process piping;
- o two (2) Marionville Booster Pumps (one duty, one standby), each having a capacity of a design flow rate of 7.18 L/s at a total dynamic head of 38 m;
- o pressure release valve;
- o flow meter;
- o associated appurtenances, including process piping, valves, instrumentation and controls, office facilities, heating, ventilation, lighting, power supply, on-site 60 kW diesel generator, security system, site piping.

Other:

- o 450 mm diameter connection to Russell Feedermain (from City of Ottawa) at Embrun Reservoir site;
- o Secondary Ottawa Feedermain flowmeter located on Eadie rd.

### Distribution System

The water system for Township of Russell is currently a Class 2 Distribution system and serves a population of approximately 12,181 persons through a water distribution network. Treated water is pumped from the City of Ottawa through a 400 mm feeder main to the Embrun Reservoir, on to the Embrun Tower, then to the Russell Water tower, then to Marionville booster pumping station and then pumped to the Marionville tower. The Township has an



above ground water reservoir of 1,400 m<sup>3</sup>. This provides the water supply with a total of 7,135 m<sup>3</sup> of water storage both above and underground.

The distribution system consists of PVC and Polyethylene pipes ranging from 25 mm (1 inch) service connections to a 350 mm (14 inch) piping. Piping in the local distribution networks in the communities of Embrun, Russell and Marionville consist largely of 150 mm, 200 mm, 250 mm and 350 mm PVC pipes. The municipal distribution system also contains fire hydrants, standard service connections, gate valves, valve chambers, isolation and interconnection valves, blow-off points, drain valve chambers, and air release chambers.

As of December 31<sup>st</sup>, 2014 the main characteristics of the Distribution System are as follows:

Feeder Main: 27 km

Length of mains: 81 km

Number of fire hydrants: 508 (Embrun 267, Russell 221, Marionville 20)

Number of valves: 657(Embrun 350, Russell 282, Marionville 25)

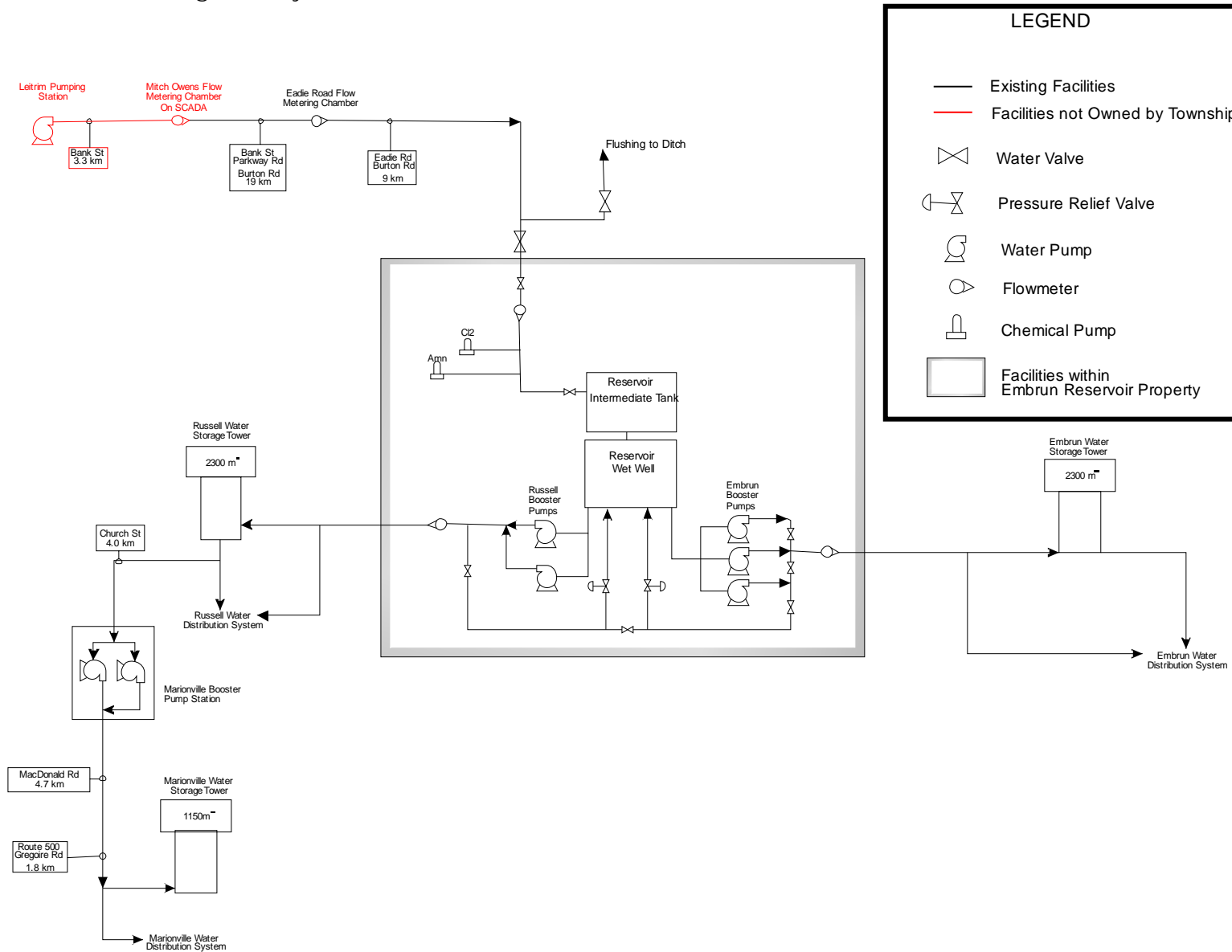
Number of meters: 3,723 (as of December 31, 2014)

Number of water meter connections: (Embrun 2,068, Russell 1,550 Marionville 105)

Source of information for section 6:

- Certificate of Approval (September 8, 2009)
- Hydrant Check List (inventory)
- Valve Check List (inventory)
- Water Meter (inventory)
- Permits (from Township Construction department Building Inspector)
- Annual Maintenance Assessment Performance (completed by the Township of Russell)

# Process Flow Diagram – System Overview



## **7 Risk Assessment**

Refer to Appendix B for QMS Procedure QMSP-02 Risk Assessment and Risk Assessment Outcomes.

## **8 Risk Assessment Outcomes**

Refer to Appendix B for Summary of Risk Assessment Outcomes.

## **9 Organizational Structure, Roles, Responsibilities and Authorities**

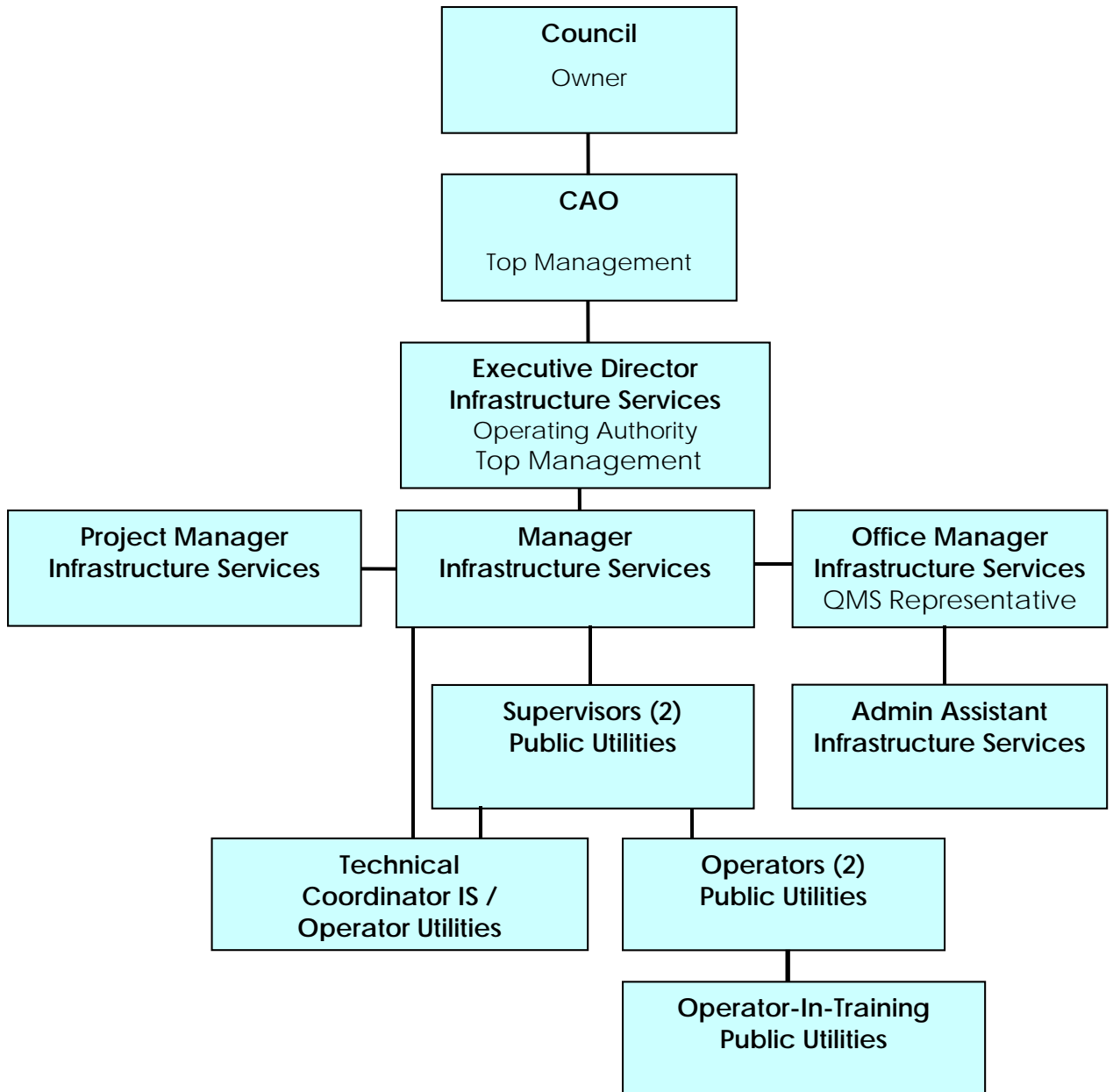
### Owner and Operating Authority

The Owner of the Drinking Water System is the Council of Township of Russell, represented by the Mayor.

The Operating Authority for the Drinking Water System is the Township of Russell represented by the CAO and the Executive Director of Infrastructure Services.

Organizational Structure

The organizational structure for the Township of Russell Drinking Water System is as follows:



QMS Roles, Responsibilities and Authorities

Responsibilities for implementing and maintaining individual elements of the QMS are outlined in the QMS Procedures referenced throughout this Operational Plan.

Specific QMS-related roles, responsibilities and authorities of the Operating Authority personnel are summarized in the following table.

| <b>Operating Authority Position</b>                | <b>Responsibilities</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Authorities</b>                                                                                                                        |
|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| CAO                                                | <ul style="list-style-type: none"> <li>• Reports to Council.</li> <li>• Shares the responsibility of Top Management with the Executive Director of Infrastructure Services.</li> <li>• Ensures that a QMS is in place that meets the requirements of the DWQMS.</li> <li>• Ensures that the Operating Authority is accredited.</li> <li>• Ensures that Internal Audits and Management Reviews of the QMS are conducted.</li> <li>• Determines, obtains and provides resources required to maintain and continually improve the QMS and communicates with Council about the QMS and resource requirements.</li> <li>• Ensures compliance with the terms and conditions of the MDWL and its components.</li> <li>• Has general awareness of the DWQMS.</li> </ul> | To perform Top Management responsibilities as defined in the DWQMS Standard.                                                              |
| Executive Director of Infrastructure Services (IS) | <ul style="list-style-type: none"> <li>• Reports to CAO.</li> <li>• Shares the responsibility of Top Management with the CAO (same as above).</li> <li>• Conducts Management Review of the QMS.</li> <li>• Communicates with the CAO about the QMS and resource requirements.</li> <li>• Responsible for the development and implementation of policies and procedures for the water system.</li> <li>• Coordinates and reviews work with the private sector developers, engineers, contractors and owners for compliance and conformity with the Township's standards, policies and codes.</li> <li>• Responsible for the development and administration of the operational and capital budget.</li> <li>• Has general awareness of the DWQMS.</li> </ul>      | <p>To perform listed responsibilities.</p> <p>To develop, approve and implement policies and procedures.</p> <p>Approve expenditures.</p> |

| Operating Authority Position                         | Responsibilities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Authorities                                                                                                                                              |
|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Manager of Infrastructure Services (IS)</p>       | <ul style="list-style-type: none"> <li>• Reports to the Executive Director of IS.</li> <li>• Participates in Management Review of the QMS.</li> <li>• Responsible for the development and implementation of policies and procedures for the water system.</li> <li>• Coordinates and reviews work with the private sector developers, engineers, contractors and owners for compliance and conformity with the Township's standards, policies and codes.</li> <li>• Responsible for the development and administration of the operational and capital budget.</li> <li>• Has general awareness of the DWQMS.</li> <li>• Responsible for the management of all IS personnel.</li> </ul> | <p>To perform listed responsibilities.</p> <p>To develop, approve and implement policies and procedures.</p> <p>Approve expenditures.</p>                |
| <p>Project Manager of Infrastructure Services</p>    | <ul style="list-style-type: none"> <li>• Reports to the Manager of Infrastructure Services.</li> <li>• Coordinates and reviews work with the private sector developers, engineers, contractors and owners for compliance and conformity with the Township's standards, policies and codes.</li> <li>• Responsible for the development and administration of the capital budget.</li> <li>• Has general awareness of the DWQMS.</li> </ul>                                                                                                                                                                                                                                              | <p>To perform listed responsibilities.</p> <p>To develop and implement policies and procedures.</p> <p>Approve expenditures for the capital project.</p> |
| <p>Office Manager Infrastructure Service/QMS Rep</p> | <ul style="list-style-type: none"> <li>• Reports to the Manager of IS.</li> <li>• Has the responsibility of QMS Rep.</li> <li>• Manages the development and maintenance of the QMS to maintain Accreditation.</li> <li>• Manages the Operational Plan documentation and implements policies and procedures.</li> <li>• Coordinates and participates in Management Review, Audits and Testing of Emergency Procedures.</li> <li>• Participates in MOE inspections of the drinking water system.</li> <li>• Provides leadership and direction to admin staff.</li> <li>• Promotes Continual Improvement of the QMS.</li> </ul>                                                           | <p>To perform QMS Rep responsibilities as defined in the DWQMS Standard.</p> <p>To administer the QMS.</p>                                               |

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                  |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Supervisors                | <ul style="list-style-type: none"> <li>• Reports to the Manager of IS.</li> <li>• Plans, organizes and assigns work of operators and discusses plans and priorities with them.</li> <li>• Has the responsibility of Overall Responsible Operator (ORO) and take on Operator-In-Charge (OIC) responsibilities.</li> <li>• Performs operational day-to-day activities to maintain the integrity of the DWS.</li> <li>• Prepares reports on operational activities; record keeping; and performs preventative maintenance.</li> <li>• Performs and reviews Risk Assessment.</li> <li>• Establishes and reviews Emergency Procedures.</li> <li>• Has general awareness of the DWQMS.</li> <li>• Maintains WD level 2 certificate.</li> <li>• Supervises the DWS Operators.</li> </ul> | <p>To perform listed responsibilities.</p> <p>To supervise the DWS Operations and personnel.</p> |
| Technical Coordinator / IS | <ul style="list-style-type: none"> <li>• Reports to the Manager of IS.</li> <li>• Provides technical information.</li> <li>• Maintains GIS program.</li> <li>• Programs SCADA radios.</li> <li>• Maintains digital records of as-builts.</li> <li>• Maintains Public Utilities website and posts notices on social media.</li> <li>• Performs operational day-to-day activities to maintain the integrity of the Drinking Water System.</li> <li>• Takes on OIC responsibilities when required.</li> <li>• Prepares reports on operational activities; record keeping; and performs preventative maintenance.</li> <li>• Has general awareness of the DWQMS.</li> <li>• Maintains WD level 2 and WQA certificates.</li> </ul>                                                     | <p>To perform listed responsibilities.</p>                                                       |
| Operators                  | <ul style="list-style-type: none"> <li>• Reports to the Manager of IS.</li> <li>• Performs operational day-to-day activities to maintain the integrity of the Drinking Water System.</li> <li>• Take on OIC responsibilities when required.</li> <li>• Prepare reports on operational activities; record keeping; and performs preventative maintenance.</li> <li>• Has general awareness of the DWQMS.</li> <li>• Maintains WD level 2 certificate.</li> </ul>                                                                                                                                                                                                                                                                                                                   | <p>To perform listed responsibilities.</p>                                                       |

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                     |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| Operator-in-Training     | <ul style="list-style-type: none"> <li>• Reports to the Manager of IS.</li> <li>• Performs operational day-to-day activities to maintain the integrity of the DWS under the observation of a higher Class Operator.</li> <li>• Prepares reports on operational activities; record keeping; and performs preventative maintenance.</li> <li>• Has general awareness of the DWQMS.</li> <li>• Maintains OIT certificate and has the ability to upgrade to Level 1 WD certificate.</li> </ul> | To perform listed responsibilities. |
| Administrative Assistant | <ul style="list-style-type: none"> <li>• Reports to the Office Manager of IS.</li> <li>• Has general awareness of the DWQMS</li> <li>• Assists the QMS Rep to maintain the QMS.</li> <li>• Prepares reports.</li> <li>• Inputs data.</li> <li>• Records management.</li> </ul>                                                                                                                                                                                                             | To perform listed responsibilities. |



## 10 Competencies

### Required competencies

Under SDWA, 2002 the regulation O. Reg. 128/04 outlines the requirement for the certification of Water Treatment and Water Distribution Operators.

The competencies required for personnel whose work directly affects drinking water quality are presented below:

| Position                                                          | Required Competencies                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Executive Director of Infrastructure Services<br>(Top Management) | <ul style="list-style-type: none"> <li>• Level 2 Water Distribution Certification.</li> <li>• Management and Leadership skills.</li> <li>• Effective communication and reporting skills.</li> <li>• Water related engineering, project management and budget development experience.</li> <li>• Bachelor's Degree from an accredited university with major course work in civil engineering or related experience.</li> <li>• Valid Driving Licence.</li> </ul>                                                                                                                                           |
| Manager of Infrastructure Services                                | <ul style="list-style-type: none"> <li>• Management and Leadership skills.</li> <li>• Effective communication and reporting skills.</li> <li>• Certified Civil Engineering Technician or Technologist. An Engineering degree is an asset.</li> <li>• Extensive knowledge of the general management principles and theories as they relate to a wide range of water programs and services.</li> <li>• Knowledge of the municipal budgeting practices and processes from initial development of specifications to monitoring and variance reporting functions.</li> <li>• Valid Driving License.</li> </ul> |
| Project Manager Infrastructure Services                           | <ul style="list-style-type: none"> <li>• Effective communication and reporting skills.</li> <li>• Post-secondary education in civil engineering</li> <li>• Knowledgeable in municipal government procedures and operation as well as municipal water infrastructure is an asset.</li> <li>• Ability to identify and analyze problems, find and implement solutions</li> <li>• Able to manage multiple projects simultaneously</li> <li>• Valid Driving License.</li> </ul>                                                                                                                                |
| Office Manager Infrastructure Services / QMS Rep                  | <ul style="list-style-type: none"> <li>• Management and Leadership skills.</li> <li>• Drinking Water Quality Management Standard (DWQMS) Training.</li> <li>• Knowledge of Drinking Water System regulations/legislation.</li> <li>• Effective communication and reporting skills.</li> </ul>                                                                                                                                                                                                                                                                                                             |

|                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Supervisors<br>Public Utilities                              | <ul style="list-style-type: none"> <li>• Minimum Level 2 Water Distribution Certification.</li> <li>• Supervisory skills.</li> <li>• Effective communication skills.</li> <li>• Knowledge of DWQMS.</li> <li>• Risk Assessment and Emergency Preparedness Training.</li> <li>• First Aid/CPR/AED/WHMIS.</li> <li>• Fall Arrest, Confined Space training and knowledge of safety laws.</li> <li>• Valid Driving Licence.</li> <li>• Mechanical aptitude.</li> <li>• SCADA</li> </ul>                                                  |
| Technical<br>Coordinator IS/<br>Operator Public<br>Utilities | <ul style="list-style-type: none"> <li>• Minimum Level 2 Water Distribution Certification.</li> <li>• Effective communication skills.</li> <li>• Knowledge of DWQMS.</li> <li>• Risk Assessment and Emergency Preparedness Training.</li> <li>• First Aid/CPR/AED/WHMIS.</li> <li>• Fall Arrest, Confined Space training and knowledge of safety laws.</li> <li>• Valid Driving Licence.</li> <li>• Mechanical aptitude.</li> <li>• Advanced computer operations</li> <li>• Analytical chemistry skills.</li> <li>• SCADA</li> </ul> |
| Operators<br>Public Utilities                                | <ul style="list-style-type: none"> <li>• Level 2 Water Distribution Certification. (Minimum Level 1 WD Certification if under the supervision of a Level 2 Operator).</li> <li>• DWQMS general awareness Training.</li> <li>• First Aid/CPR/AED/WHMIS/</li> <li>• Fall Arrest Confined Space training and knowledge of safety laws.</li> <li>• Valid Driving Licence.</li> <li>• Mechanical aptitude.</li> </ul>                                                                                                                     |
| Operator-in-Training<br>Public Utilities                     | <ul style="list-style-type: none"> <li>• OIT Certification.</li> <li>• DWQMS general awareness Training.</li> <li>• Confined Space Training.</li> <li>• First Aid/CPR/AED/WHMIS/</li> <li>• Fall Arrest Confined Space training and knowledge of safety laws.</li> <li>• Valid Driving Licence.</li> <li>• Mechanical aptitude.</li> </ul>                                                                                                                                                                                           |
| Administrative<br>Assistant                                  | <ul style="list-style-type: none"> <li>• Drinking Water Quality Management Standard (DWQMS) Training.</li> <li>• Effective communication and reporting skills.</li> <li>• Advanced Microsoft skills</li> </ul>                                                                                                                                                                                                                                                                                                                       |

### Activities to develop and maintain these competencies

The Executive Director of Infrastructure Services (IS) is responsible for ensuring each operator maintains the required Certification. In addition, certification expiry dates are monitored by the Office Manager/QMS Rep.

The Executive Director of IS establishes the training needs for personnel to maintain their certification. A training plan is established and documented. The training plan includes all activities to develop and maintain the required competencies. Records of all training and CEUs are kept by the Office Manager/QMS Rep.

### **Activities to ensure personnel are aware of the relevance of their duties**

All Infrastructure Services personnel are provided with a copy of the Township of Russell's Operational Plan and the QMS procedures and general awareness training. The Executive Director of IS communicates any changes to applicable legislative and regulatory requirements to the QMS Rep. The QMS Rep coordinates communications to all personnel as described in the QMS Communications Procedure QMSP-04. All new staff members are provided with QMS orientation.

The Executive Director of Infrastructure Services communicates all relevant information to the Public Utilities Supervisors and to the Office Manager when an issue arises.

On a monthly basis, the Executive Director of IS meets with the Manager, Supervisors, Project Manager and the Office Manager /QMS Rep to plan and discuss operational and maintenance activities and to communicate any relevant information concerning the operations and projects.

On a daily basis, the Supervisors meet with the Operators to communicate and discuss operational and maintenance activities and concerns.

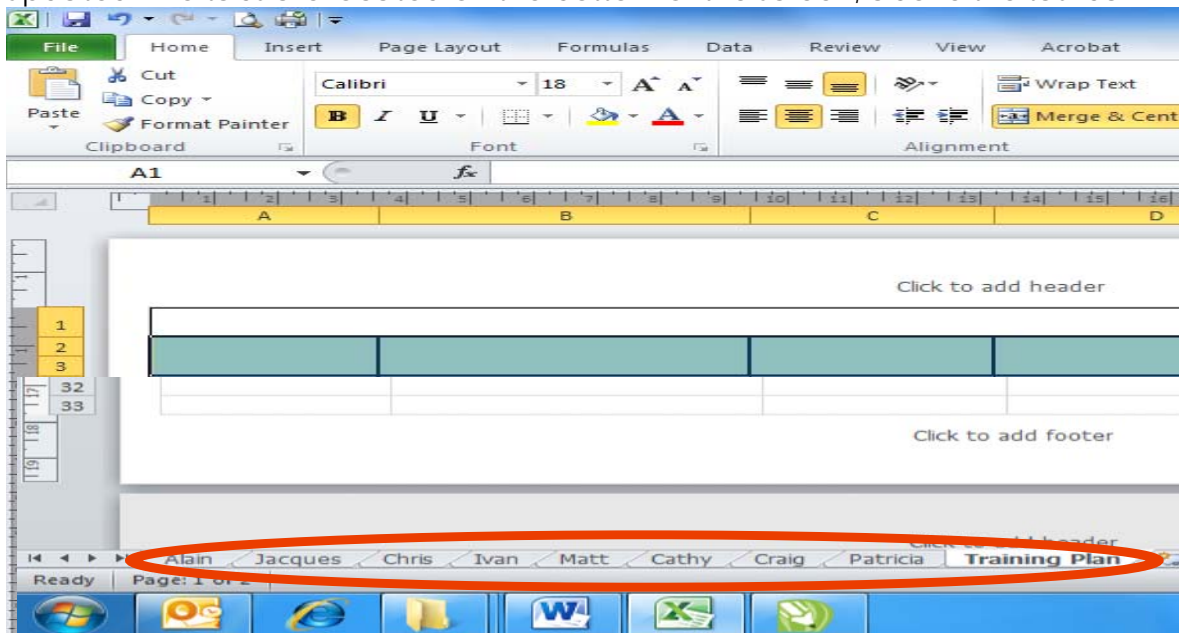
In addition to the on-going training, day-to-day and on-call duties provide operators with hands-on experience.

The training records are to be updated by the QMS Rep upon completion of the course except in the case of "Director approved training" credits, which are not to be added to the record until such time as the completion certificate has been received by the participant.

The file titled "Training XXXX", where XXXX represents the current year, can be found in the following folder location:

S:\Department\Public Utilities\Operations\Training & Certification\XXXX

Upon opening the document, select the tab for the operator whose file is to be updated. The tabs are located on the bottom of the screen, above the taskbar.



Enter the information under its appropriate heading, ensuring the data is entered in to the correct block for year.

**Date:** Date the course was taken, in the case of multiple days, enter the first day.

**Course:** Name of the course.

**Water, Wastewater, On-the-job training/safety:** The number of hours are to be entered in these columns, if the course is based in the water field and provides "Director-Approved CEU's" then it is to be entered in to the Water column and same for the wastewater column, if the course can be entered in to both columns then enter it only in to the Water column. Any other training received by the operators can be entered in to the "On-the-Job training/safety" column.

**CEU:** Continuing education unit, 1 CEU = 10 Hours

Ensure the total columns reflect the correct sums, save the file and exit.

## 11 Personnel Coverage

Refer to Appendix C for QMS Procedure QMSP-03 Personnel Coverage.

## 12 Communications

Refer to Appendix D for QMS Procedure QMSP-04 Communications.

## 13 Essential Supplies and Services

Refer to Appendix E for QMS Procedure QMSP-05 Essential Supplies and Services.

## 14 Review and Provision of Infrastructure

Refer to Appendix F for QMS Procedure QMSP-06 Review and Provision of Infrastructure.

## 15 Infrastructure Maintenance, Rehabilitation and Renewal

The Township of Russell maintains a program of scheduled inspection and maintenance of infrastructure.

All activities are recorded. Records are maintained as per QMS Procedure QMSP-01 Document and Records Control (see Appendix A).

A summary of the maintenance activities is outlined below

Daily and weekly checks (visual inspection) and preventative maintenance is performed by the Operators. Predictive maintenance (vibration analysis) is performed as required.

**Planned maintenance** includes, but is not limited to:

- Weekly generator testing.
- Annual calibration of measurement and recording equipment.
- Annual SCADA inspection and alarm testing.

**Unplanned maintenance** - Typically, an alarm condition is the indicator that unplanned maintenance of machinery or equipment may be required. An operator may also identify the need for unplanned maintenance as a result of daily and weekly routine inspections and checks.

A summary of the Distribution System maintenance activities is outlined below

**Planned maintenance includes**, but is not limited to:

- Repair of watermains and service connections.
- Maintenance of fire hydrants: inspection, repair, repaint, flushing.
- Exercising of valves.
- Weekly generator testing.
- Annual generator maintenance.
- New watermain commissioning (testing for bacteria, chlorine residual, pressure, new service connection supervision, inspection).
- Annual calibration of measurement and recording equipment.
- Annual SCADA inspection and alarm testing.

**Unplanned maintenance** activities are generally related to customer inquiries and complaints or reports of visible signs of potential main breaks, water quality issues relating to pressure, clarity and colour and taste of water. Other unplanned maintenance may be the result of contractor error, a fire or failure of some portion of equipment related to the distribution system.

The Public Utilities Supervisors monitor the effectiveness of these activities on an on-going basis and make adjustments as required. Once a year, the Executive Director of Infrastructure Services prepares a summary of the maintenance, rehabilitation and renewal activities (which is included in the Township of Russell Infrastructure Services Water and Sanitary Sewer Systems Annual Operations Report – this report evaluates the effectiveness of the maintenance activities). This summary is communicated to the Owner as a result of the annual Management Review. The effectiveness of the overall maintenance program is discussed at the Management Review meeting.

## **16 Sampling, Testing and Monitoring**

Refer to Appendix G for QMS Procedure QMSP-07 Sampling, Testing and Monitoring.

## **17 Measurement and Recording Equipment Calibration and Maintenance**

Refer to Appendix H for QMS Procedure QMSP-08 Measurement and Recording Equipment Calibration and Maintenance.

## **18 Emergency Management**

Refer to Appendix I for QMS Procedure QMSP-09 Emergency Management.

## **19 Internal Audits**

Refer to Appendix J for QMS Procedure QMSP-10 Internal Audits.

## **20 Management Review**

Refer to Appendix K for QMS Procedure QP-11 Management Review.

## **21 Continual Improvement**

Through the Internal Audit and Management Review processes, areas of concern as well as opportunities for improvement are identified and addressed by the Township of Russell.