

Municipality of Huron East
Water Distribution Systems

Drinking Water Quality Management System
Operational Plan
for

Brucefield
Brussels
Seaforth/Egmondville
Vanastra

Approved and Authorized By:

Mayor Bernie MacLellan
Owner/Mayor

October 1, 2019
Date

Brad Knight, CAO/Clerk
Top Management

September 17, 2019
Date

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Mayor Bernie MacLellan
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December 8, 2020

Date



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ELEMENTS

1. Quality Management System

This document will act as the quality management system Operational Plan for the Municipality of Huron East Water Distribution Systems for Brucefield, Brussels, Seaforth/Egmondville and Vanastra. The Municipality of Huron East Water Department is the Operating Authority for the Distribution System. (There is a contracted operating authority for the treatment of the water supply and water storage for the distribution system.)

The development and continual improvement of the plan will help ensure that all regulatory requirements are met and that consumers can be confident that their drinking water will be protected through the effective application of the QMS.

This plan was developed to meet the Ministry of the Environment's Drinking Water Quality Management Standard (DWQMS).

2. Quality Management System Policy

The Municipality of Huron East is committed to meeting all legislative and regulatory requirements in order to supply safe clean drinking water to all of our consumers. Huron East will also maintain and continually improve the Quality Management System.

3. Commitment and Endorsement

The owner (Mayor and Council) endorsement shall be demonstrated by the endorsement through documentation in the Council Minutes and documented in the Operational Plan. The QMS Policy is communicated to users through posting on the Municipal Website (www.huroneast.com) and on the bulletin board in the Public Works Main Office. The Communication Procedure is found in Appendix H. Council endorsement exhibits the Owner's Commitment to providing the resources needed to maintain and continually improve the QMS.

4. Quality Management System Representative

The Public Works Manager is appointed by Top Management (Water & Sewer Committee) to the role of QMS representative. The QMS representative will ensure that the QMS is maintained and continually improved. The QMS representative will also ensure that the QMS is effectively documented and will report the performance of the QMS to top management. (Refer to Section 9 and Appendix H).

5. Documents and Record Control

Procedures are in place for Document Control and Record Control (attached in Appendices A, B). These procedures describe how QMS documents are identified, kept

current, legible and retained and how QMS records are stored, protected from damage and deterioration, retained and kept retrievable. All QMS system documentation is controlled. Methods of control are defined in the reference procedures.

Records are maintained as objective evidence of conformance to the DWQMS and compliance with all applicable Safe Drinking Water Regulations.

All documents and records required by Ministry of the Environment in order to demonstrate compliance will be maintained in accordance with the regulations.

6. Drinking Water System

(i) Brucefield Water System

The Brucefield water system is a well supply system that services approximately 175 consumers with 96 service connections. The distribution system is composed of 50mm and 100mm PVC pipe. Four manual blowoffs are connected throughout the distribution system for the purpose of flushing. Four 455L bladder type pressure tanks are used as a supplementary supply and to maintain system pressure.

An accredited contracted corporation is the operating authority for the well along with the pressure tanks and pumphouse while Huron East Water Department staff operate the distribution system. Raw water is treated by chlorine, and ultraviolet light. The distribution system is kept pressurized by pump and tank pressure. Spring and fall flushing of hydrants and blow-offs are conducted in order to maintain disinfection residuals throughout the distribution system. For more information on the well and water parameters for this system see the Quality Management System Operational Plan developed by the Contracted Corporation.

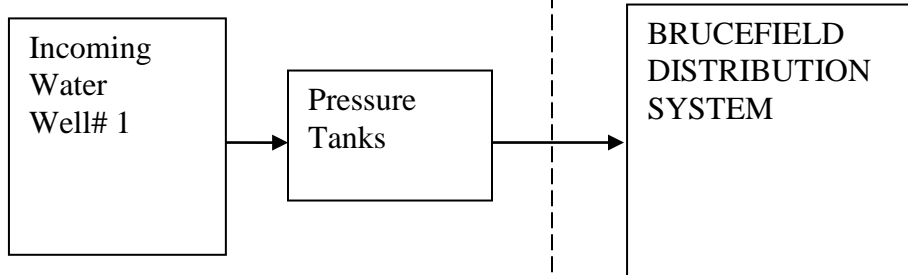
Process Flow Chart

Owner: Municipality of Huron East

OA: Jacobs, Contracted Corporation

Owner: Municipality of Huron East

OA: Municipality of Huron East

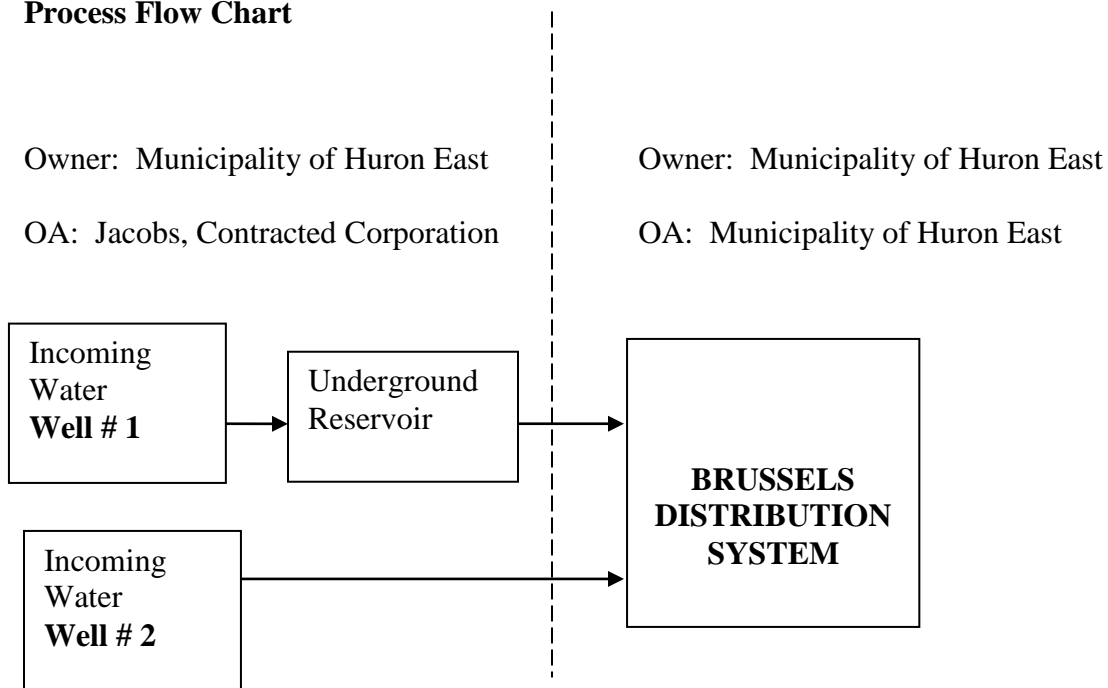


(ii) **Brussels Water System**

The Brussels water system is a well supply system that services approximately 1277 consumers. The distribution system is composed of cast iron, ductile iron and PVC pipe with 64 hydrants. One automatic blowoff, four (4) manual blowoffs and one sampling station are connected throughout the distribution system. A 568 m³ underground reservoir is used as a supplementary supply and for emergencies.

An accredited contracted corporation is the operating authority for the wells (2) along with the reservoir, and pumphouses while Huron East Water Dept. staff operates the distribution system. Raw water is treated by chlorine and Ultraviolet light (Well 2 only). The distribution system is kept pressurized by pump pressure. Spring and fall flushing of hydrants and blow-offs are conducted in order to maintain disinfection residuals throughout the distribution system. For more information on the well and water parameters for this system see the Quality Management System Operational Plan developed by the Contracted Corporation.

Process Flow Chart

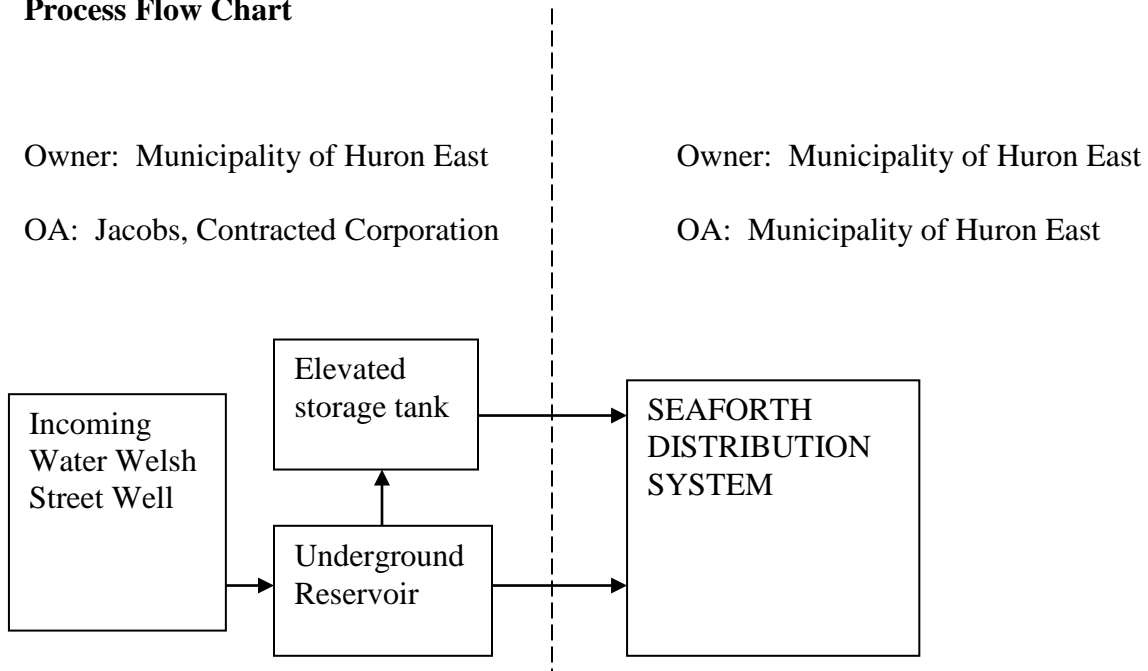


(iii) Seaforth/Egmondville Water System

The Seaforth/Egmondville water system is a well supply system that services approximately 3300 consumers. The distribution system is composed of cast iron, ductile iron and PVC pipe with 120 hydrants. One automatic blowoff, seven manual blowoffs and one sampling station are connected throughout the distribution system. An underground reservoir with a capacity of 670 m³ and a 1930m³ elevated storage tank is used as a supplementary supply and for emergencies.

An accredited contracted corporation is the operating authority for the wells (3) along with the water tower and pumphouses while Huron East Water Department staff operate the distribution system. Raw water is treated by chlorine and sodium silicate (to sequester iron). The distribution system is kept pressurized by water tower and pump pressure. Spring and fall flushing of hydrants and blow-offs are conducted in order to maintain disinfection residuals throughout the distribution system. For more information on the well and water parameters for this system see the Quality Management System Operational Plan developed by the contracted corporation.

Process Flow Chart

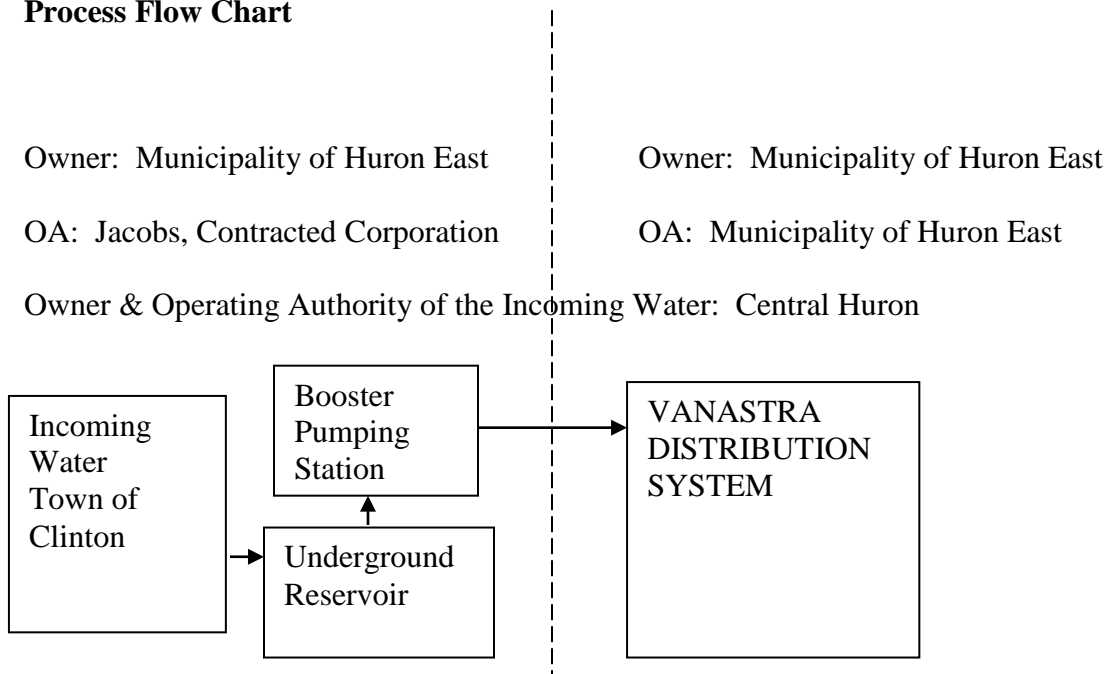


(iv) Vanastra Water System

The Vanastra water system receives treated ground water from the Town of Clinton in the Municipality of Central Huron by way of a 150mm PVC water main. The Municipality of Central Huron provides primary treatment for the water received by the Vanastra Drinking Water System. The Vanastra Booster pumping station provides re-chlorination and pressure boosting of incoming water, which services approximately 650 consumers. The distribution system is composed of cast iron, ductile iron and PVC pipe with 49 hydrants. Two manual blow-offs are connected to the distribution system for flushing purposes. An 1135 m³ underground reservoir is used as a supplementary supply and for emergencies.

An accredited contracted corporation is the operating authority for the booster pumping station along with the reservoir while Huron East Water Dept. staff operates the distribution system. Received treated water is re-chlorinated, and the distribution system is kept pressurized by pump pressure. Spring and fall flushing of hydrants and blow-offs are conducted in order to maintain disinfection residuals throughout the distribution system. For more information on the pumping station and water parameters for this system see the Quality Management System Operational Plan developed by the Contracted Corporation.

Process Flow Chart



7 & 8. Risk Assessment and Outcomes

A Risk Assessment Procedure is located in Appendix C.

The Risk Assessment Table shows the identified hazards and hazardous events, ranked risks, control measures, and reference to monitoring and response procedures.

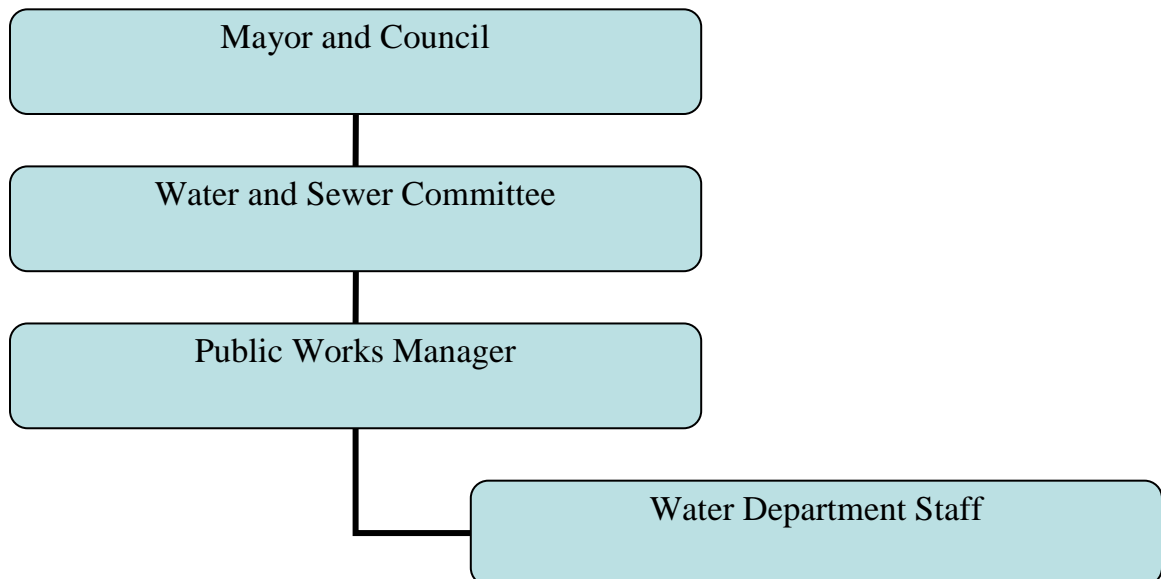
Critical Control Points identified in the Risk Assessment are:

- Asset operation and maintenance:
 - to reduce watermain break hazards
 - to reduce potential cross-contamination of tools and operators
 - to reduce the likelihood of source water contamination
 - maintain chlorine residuals throughout distribution system

Appendix D: Critical Control Point Procedure.

9. Organizational Structure, Roles, Responsibilities and Authorities

A basic overall organizational chart is shown below:



Key water system roles are listed below, with associated responsibilities and authorities. This information is communicated as per the Communication Procedure (Element 12, Appendix H).

The Public Works Manager (QMS Representative) is responsible for keeping the structure, respective roles, responsibilities and authorities of the organization current through communication with the owner and personnel.

| Role | Responsibilities | Authorities |
|--|---|--|
| Municipality of Huron East Mayor and Council (Owner) | <ul style="list-style-type: none"> • Prescribe requirements and monitor operations of the waterworks • Provide resources and system infrastructure, as necessary • Represent the waterworks to end users and the public | <ul style="list-style-type: none"> • Prescribe requirements and obligations for the operation of the waterworks • Ensure a continual supply of safe drinking water • Provide resources and system infrastructure, as necessary • Designate responsibilities as appropriate |
| Water and Sewer Committee (Top Management) | <ul style="list-style-type: none"> • Ensure QMS is in place • Communicate QMS as per Communication Procedure • Determine, obtain and provide resources required for QMS • Perform Management Review | <ul style="list-style-type: none"> • Allocation of provided resources • Designate responsibilities as required. |
| Public Works Manager (QMS Representative) | <ul style="list-style-type: none"> • Maintain regulatory compliance • Monitor water quality & demand • Develop, implement and maintain the QMS • Report on the performance of the QMS to Top Management • Identify needs for improvement in the QMS • Ensure that the current versions of documents required by the QMS are in use at all times • Ensure that all personnel are aware of all applicable legislative requirements that are relevant to the operation of the works • Stay up to date on changes to relevant legislative and regulatory requirements • Promote the QMS throughout the Operating Authority | <ul style="list-style-type: none"> • Delegate duties as necessary • Oversees daily functions of Public Works and Water Department staff • Assigns work to Foremen • Hire additional water department staff • Sign-off expenditures • Develops and oversees budget • Meets regularly with water department staff to determine capital project priorities |
| Certified Foreman | <ul style="list-style-type: none"> • Oversees daily operation/maintenance of all the water distributions systems. • Oversees water operators • Future planning and development of the Water Department | <ul style="list-style-type: none"> • Assigns tasks to Operators • Ensures training of staff meets requirements • Recommend ways to improve operational effectiveness • Sign- off expenditures |
| Water Operators | <ul style="list-style-type: none"> • Performs daily maintenance on water distribution systems | <ul style="list-style-type: none"> • Performs tasks set out by Foreman • Recommend ways to improve operational effectiveness • Maintain license certification |
| Operator in Training (OIT) | <ul style="list-style-type: none"> • Performs daily maintenance on water distribution systems under the direction of a licensed water operator | <ul style="list-style-type: none"> • Assist with daily maintenance operations |

10. Competencies

The Competencies Procedure (Appendix F) describes Huron East's commitment to developing, maintaining and documenting the competencies required for personnel performing duties directly affecting drinking water quality.

11. Personnel Coverage

The Water Department's normal hours of operation are Monday to Friday 7:30am to 4:00pm. The certified foreman is the primary overall responsible operator (ORO). Personnel coverage Procedure for after hour emergencies can be found in Appendix G.

12. Communications

The Communications Procedure describes the process for ensuring relevant aspects of the QMS are communicated between Top Management and the Owner, water department staff, suppliers and the public. The procedure is located in Appendix H.

13. Essential Supplies and Services

The Essential Supplies and Services Procedure describes the process for identifying essential supplies and services, and ensuring quality requirements and procurement methods are established and communicated. The procedure is provided in Appendix I.

14. Review and Provisions of Infrastructure

The Infrastructure Review Procedure describes the process for the review of the infrastructure adequacy. The procedure is provided in Appendix J.

15. Infrastructure Maintenance, Rehabilitation and Renewal

The maintenance program currently involves mapping all the components of the distribution system, including valves and hydrants, determining the condition of the distribution system. A preventive maintenance program will be developed based on the information developed from the mapping and review.

A summary of the Water Departments programs will be monitored and maintained in order to evaluate their effectiveness and also to communicate them with the owner and top management.

Renewal of the infrastructure is discussed in the Infrastructure Review procedure provided in Appendix J.

16. Sampling, Testing and Monitoring

The Sampling Testing and Monitoring Procedure describes the procedures for sampling, testing and monitoring at the water department. The procedure is located in Appendix K.

17. Measurement and Recording Equipment and Maintenance

The Calibration and Maintenance of Measuring Equipment Procedure describes the process for maintenance and calibration of measurement and testing equipment. The procedure is located in Appendix L.

18. Emergency Management

An emergency is considered to be a potential situation or service interruption that may result in the loss of the ability to maintain a supply of safe drinking water to consumers.

The Emergency Management procedure (Appendix M) describes the process of maintaining a state of emergency preparedness. It refers to applicable emergency response procedures.

19. Internal Audit

The Internal Audits Procedure describes the procedure for internal audits, including audit criteria, frequency, scope, records, methodology and schedule. The Corrective Action Procedure describes the process of initiating, investigating, performing and documenting corrective actions. Both procedures are provided in Appendices N and E.

20. Management Review

The Management Review Procedure describes the procedure for management review, including review items, reviewers, outcomes, and documentation. The Procedure is provided in Appendix O.

21. Continual Improvement

The Municipality of Huron East has recognized the Quality Management System as a priority and is committed to implementing any changes deemed necessary through annual audit and reviews in order to continually make improvements to our drinking water system. The effectiveness of the QMS will be evaluated and continually improved through the use of corrective actions, staff suggestions and Management Reviews. (Appendix P).

| Revision | Date | Description | By |
|-----------------|----------------------------------|---|--------------------------------|
| 0 | November 20 th , 2008 | Original – 4 separate plans for Brucefield, Brussels, Seaforth/Egmondville & Vanastra | Shawn Bromley |
| 1 | March 28 th , 2019 | Combined 4 individual plans into 1 document with 4 system descriptions. Revisions were made to the plan to comply with the New Standard 2.0. Appendix P was created and added to the plan. | Cathy Garrick Shawn Bromley |
| 2 | September 17, 2020 | Revisions to System Descriptions (Element 6 of the Plan) as per OFI identified by external audit – procedure in place to maintain disinfection residuals in distribution system. Also revised several documents in order to incorporate OFIs recommended through the External Audit. | Cathy Garrick Shawn Bromley |
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