

Drinking Water Quality Management System

Operational Plan
Operating Authority # 136-OA2



Township of Cavan Monaghan

Millbrook Drinking Water System

January 9, 2019, Revision 2

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1.0 Quality Management System

Purpose

The purpose of this Operational Plan is to describe in detail the Quality Management System developed and implemented by PUG Services Corp. (PUG) for the operation of the drinking water system owned by the Township of Cavan Monaghan. The policy and procedures outlined in this Operational Plan are in accordance with the requirements of the Drinking Water Quality Management Standard (DWQMS).

Scope

The Operational Plan covers all activities and employees associated with the operation and production of safe drinking water under contract for the Township of Cavan Monaghan. The system is limited to the Millbrook Drinking Water System. The Operational Plan also covers the associated storage, pumping and the distribution systems. The Operational Plan has been developed to meet the requirements of the DWQMS standard and as a requirement under the Ontario Water Licensing Program directed by The Safe Drinking Water Act. For the purpose of the DWQMS PUG Services Corp. is the Operating Authority and the Township of Cavan Monaghan is the Owner of the municipal drinking water systems.

Related Documents

Drinking Water Quality Management Standard – Element 1
The Safe Drinking Water Act - 2002

2.0 Quality Management System Policy

PUG Services Corp.. is committed to managing the drinking water system on behalf of the Township of Cavan Monaghan for the Village of Millbrook by effectively establishing, maintaining and continually improving its Drinking Water Quality Management System to help ensure its customers clean, safe drinking water at all times. Consumer confidence in the drinking water quality shall be achieved through a proactive approach to meet or exceed applicable drinking water legislation, regulations and standards. Drinking water quality is ensured by a comprehensive risk-based process control system that is staffed by competent employees who are dedicated to providing reliable, safe drinking water to the Millbrook Drinking Water System.

3.0 Commitment and Endorsement of Operational Plan

In accordance with section 3.0 of the Drinking Water Quality Management Standard, the Township of Cavan Monaghan, as the Owner of the drinking water system and Top Management of PUG Services Corp., support the implementation and maintenance of a Drinking Water Quality Management System (DWQMS), as documented in this Operational Plan. This commitment by the Owner and Top Management extends beyond agreement in principle to active participation in the development and/or review of policies that promote continual improvement. Endorsement by the Owner and Top Management acknowledges the need for and supports the provision of sufficient resources to maintain the DWQMS.

OWNER

Signature on Original

The Township of Cavan Monaghan
Chief Administrative Officer
Yvette Hurley (Owner)

Date

TOP MANAGEMENT

Signature on Original

Signature on Original

PUG Services Corp.
Vice President Water Utility Services
Patrick J. Devlin

PUG Services Corp.
Manager Water Utility
Michael Meyers

Signature on Original

PUG Services Corp.
Manager Water Treatment Plant
René Gagnon

4.0 Quality Management System Representative

The Water Utility Quality Assurance Manager, PUG Services Corp. was appointed to the role of the Quality Management System Representative. As the QMS Representative, the Water Utility Quality Assurance Manager has both the responsibility and authority to:

- Ensure that the processes required by the DWQMS are established, implemented and maintained;
- Ensure that the most current version of documents required by the DWQMS are in use at all times;
- Ensure that all personnel are aware of applicable current regulatory requirements within the operation of the drinking water system;
- Ensure the promotion of awareness and the effectiveness of the DWQMS throughout the operating authority;
- Report to Top Management on the performance of the QMS and any need for improvement;
- The Vice President Water Utility Services is designated as an alternate QMS Representative.

5.0 Document and Record Control

Purpose

The purpose of this procedure is to describe the method used for the control of documents and records for the Millbrook Municipal Water System.. Proper maintenance of documents and records is critical for conformance with the DWQMS and for compliance with drinking water legislation.

Scope

This procedure is applicable to the data and documentation described within this Operational Plan as being used or generated during the water treatment and distribution process.

Related Documents

Drinking Water Quality Management Standard - Element 5
SOP-02–104 Document and Record Control
Master List Form Distribution (form # 03064)

General

Effective control of the issue and changes to data and documentation is essential to DWQMS. Therefore the Water Utility Quality Assurance Manager will implement and maintain a system that exercises these controls throughout the water treatment and distribution process.

Current issues of documents will be made available at all locations where operations affecting the drinking water system are performed.

Procedure

The Document and Records Control Procedure is outline in detail in the SOP-02–104.

6.0 Drinking-Water System

Purpose

The purpose of this procedure is to describe the drinking water systems owned by the Township of Cavan Monaghan and operated by PUG Services Corp. This outline documents a description of the drinking water system as prescribed by the DWQMS.

Scope

The Village of Millbrook drinking water system are fully owned by the Township of Cavan Monaghan who has designated full command and control of the drinking water systems by contract to the PUG Services Corp. (Operating Authority), including the treatment plant, storage and pumping facilities, trunk and distribution water mains and individual water services up to the private property line.

Responsibilities and Authorities

It is the responsibility of the QMS Representative to ensure that this procedure is kept up to date. Any changes to the drinking water system must be changed in accordance with the document control procedures shown in paragraph 5 of this Operational Plan.

Related Documents

Drinking Water Quality Management Standard – Element 6
Operational Plan paragraph 5 Document and Records Control

Procedure

Description of the Millbrook Drinking Water System

The system serves the community of Millbrook. The existing waterworks consists of three (3) wells with the following components (Schematic A):

Well No.1

A 250 mm Diameter 30 m deep ground water production well located approximately 40 m north of King Street at a point approximately 33 meters west of George Street intersection (NAD 17:UTM Zone 17:0703038.00 E, 4891261.00 N) equipped with a submersible vertical turbine well pump capable of delivering 1500 L/min at a Total Dynamic Head (THD) of 64 m, driven by a 30 HP electric motor, discharging to a well pump house. Well No. 1 is equipped with a magnetic flow meter, a flow control valve and a 150 mm diameter gated/valved overflow line installed in the existing pumphouse.

Well No. 2

A 250 mm Diameter 30 m deep ground water production well located in a 1.75 m by 2.06 m Well NO. 2 pump chamber (NAD 17:UTM Zone 17:070344.00 E, 4891258.00 N) equipped with a submersible vertical turbine well pump capable of delivering 1500 L/min at a THD of 64 m, driven by a 30 HP electric motor, discharging header complete with a magnetic flow meter, a flow control valve and a 150 mm diameter gated/valved overflow line installed in the existing pumphouse.

Well No. 3

A 254 mm Diameter 31 m deep ground water production well located outside the main pumping station (NAD 17:UTM Zone 17:4891250.00 E, 703060.00 N) housed in a 1.75 m by 2.06 m concrete chamber, equipped with a submersible vertical turbine well pump capable of delivering 1500L/min at a TDH of 64 M, driven by a 22.5 kW electric motor. A 150 mm diameter discharge header provided from Well No. 3 pump chamber to the existing 150 mm common discharge header in the existing Well No. 1 pumping station complete with flow control valve, magnetic flow meter and a 150 mm diameter gated/valved overflow line installed in the existing pumphouse.

Pumphouse

A 5.5 m by 5.5 m well pumphouse is located over Well No. 1(NAD 17:UTM Zone 17:0703038.00 E, 4891261.00 N) housing a submersible vertical turbine well pump. A 150 mm discharge header, treatment and control facilities including:

Disinfection System

The chlorination system uses sodium hypochlorite solution and consisting of one (1) 400 L chemical solution tank and spoil containment. Two (2) paced-to-flow chemical metering pumps (1 duty, 1 standby) each rated at 291 L/day, complete with related instrumentation, piping, vales, mechanical and electrical equipment, and appurtenances, auto switch-over capability, 4- 20 mA signal flow meter on common treated water discharge line, a turbidity analyzer and a chlorine residual analyzer, complete with related sampling lines connecting from the 250 mm diameter common discharge header. The system is equipped with a low chlorine residual alarm and pump shut off mechanism to prevent low chlorine or unchlorinated water to be distributed to consumers.

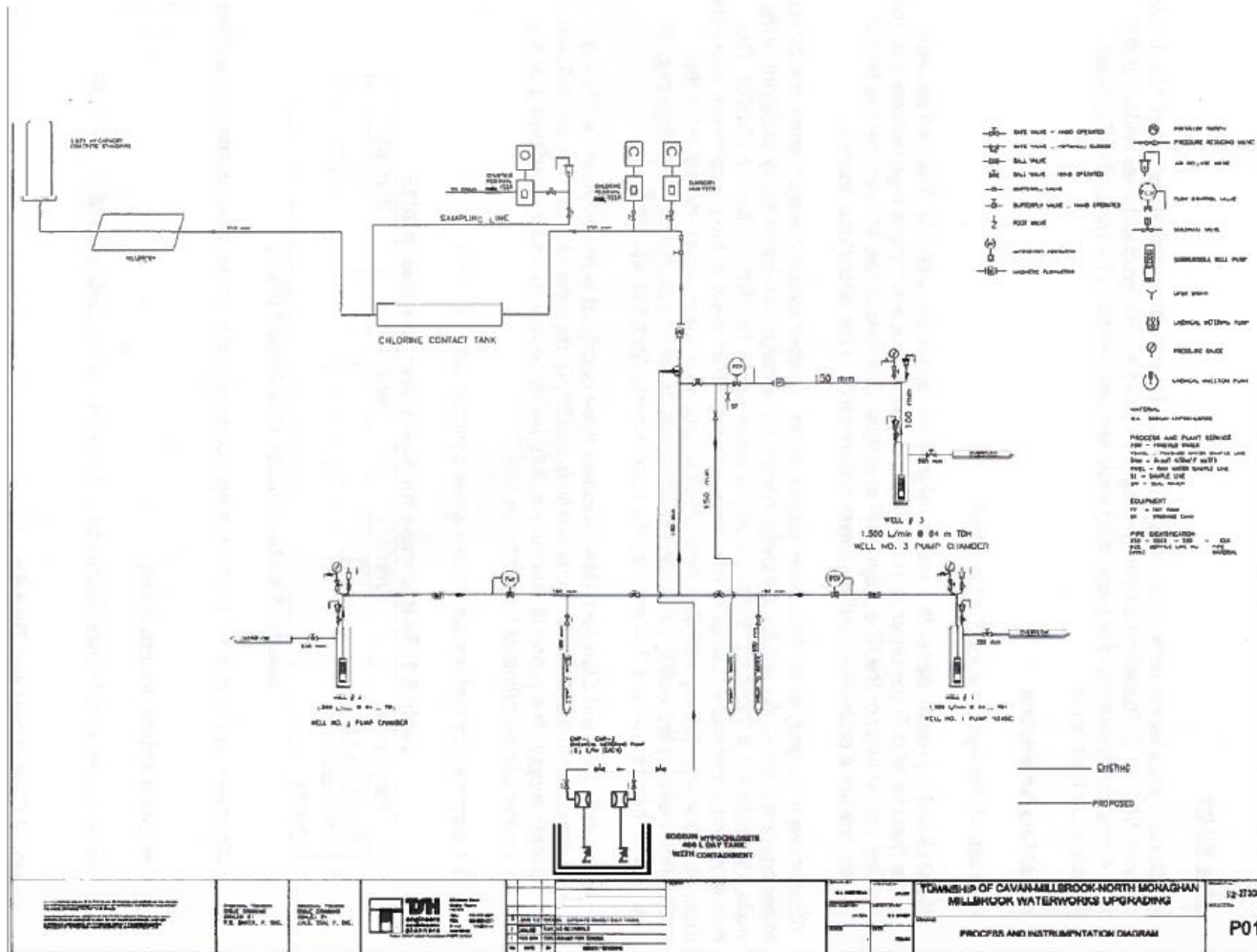
Serpentine

71 m of 900 mm diameter watermain at the pumphouse site complete with a 25 mm diameter air release line to the air release valve within the pumphouse, all associated appurtenances and sample lines to the chlorine residual analyzer within the pumphouse.

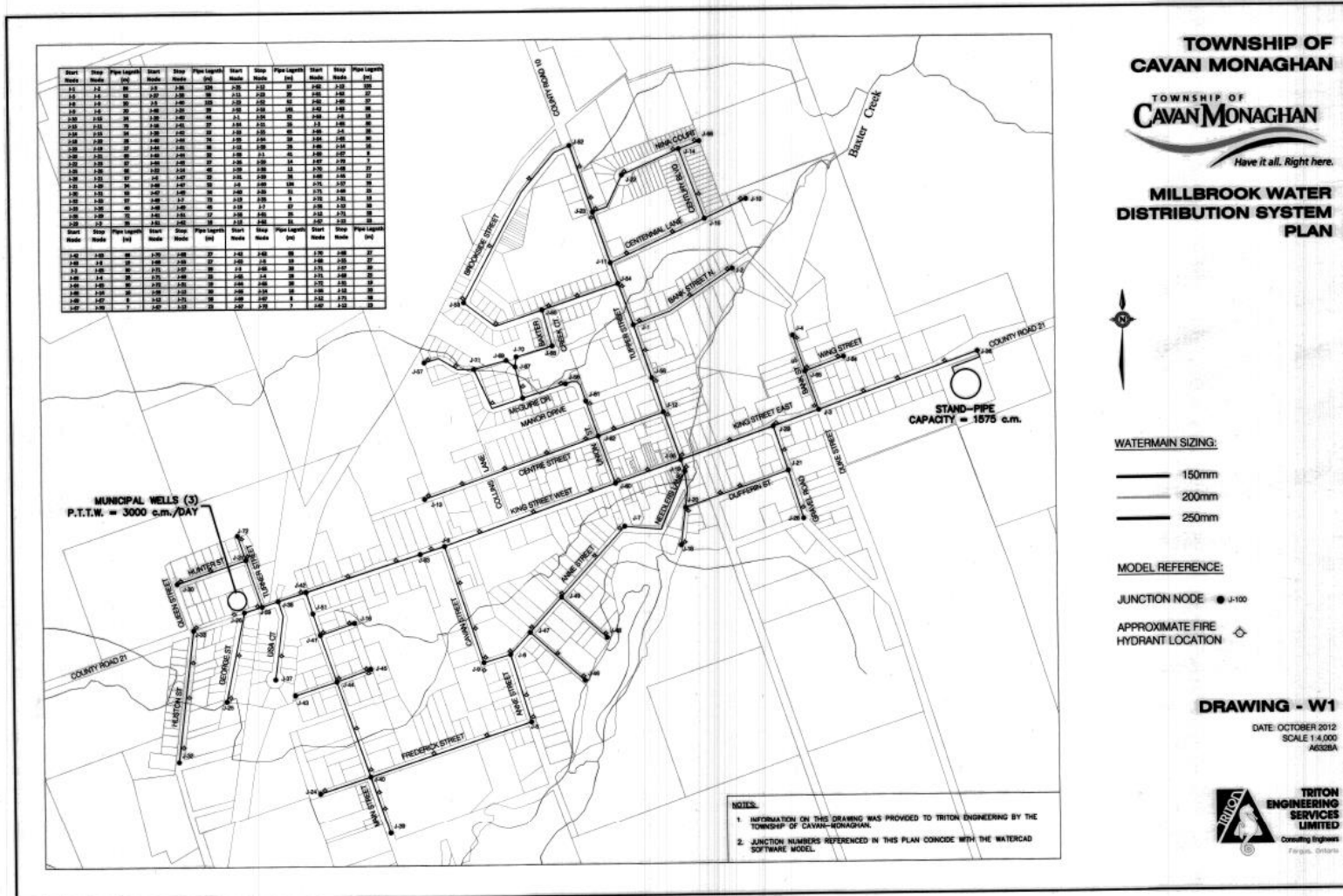
Water Distribution System

The water distribution system (Schematic B) comprises of the water main having diameters of 150 mm, 200 mm and 250 mm. A 2600 m³ capacity standpipe located at the Township office on County Road 10 provides storage and maintains pressure in the water distribution system. A booster pumping station also located at the Township office provides pressure to the Township office and future development. Fire hydrants and isolating valves are located at several locations in the distribution network. The distribution system consists of looped water mains as well as branched connections with several dead ends. Water mains are flushed twice annually during spring and fall.

Schematic A Millbrook Water Treatment Plant



Schematic B Millbrook Water Distribution System



Raw Water Supply & General Characteristics

The Millbrook municipal water system obtains its water from three (3) drilled municipal wells Well No. 1, Well No. 2 and Well No. 3. Based on hydrogeologist's report and subsequent peer review of that report, it was concluded that the production wells are considered not to be under the direct influence of surface water.

On the report, the hydrogeologist states that:

“Glacial till soil is present beneath a veneer of granular soil at the well site. The well records indicate that the till is in the order of 16 m thick: the geotechnical borehole logs indicate that the upper section, at least of the till is clayey silt in texture. It is reasonable to infer that the till soil does not provide a protective confining layer with respect to the underlying aquifer.”

“ Since there is no body of surface water (creek, pond, or other standing water) within the 50-day travel capture zone of the production wells, excepts for water course immediately adjacent to the wells, the wells are not considered to be groundwater under the direct influence (GUDI). The flow in the adjacent water course (creek approximately 10 m south of the pumphouse) is, for the most part, due to a flowing well that discharges to ground surface 80 m upgradient of the production wells. In the vicinity of the production wells, there is a protective confining layer of glacial till at ground surface that isolates the water course from the aquifer.”

“Heterotrophic Plate and Standard Plant Colonies have persisted in recent years, and such colonies are indicative of aerobic bacteria which should not be present in an oxygen-deficient groundwater supply. The probable bacteria source would appear to be the overflow piping system if water can be pumped back into the well.”

Table 6.2.1 summarizes the test results for raw water samples taken in 2013 from Monthly Process Data Reports. The results indicate that bacterial quality of the groundwater is excellent

Table 6.2.1 Test Results for 2013 Raw Water Samples

Parameter	Well No. 1	Well No. 2	Well No. 3
E. coli cfu/mL	0	0	0
Total coliforms, cfu/mL	0	0	0

Historical, Seasonal or Common Event-Driven Fluctuations

There are no known event-driven fluctuations that affect the processes at the Millbrook water Treatment Facility.

Operational Challenges and Threats

Use of distribution system for fire fighting may result in increased flows. Contact times may be reduced if flows exceed CT calculation parameters.

Loss of standpipe communication and when standpipe is to be put out of service can be an operational challenge.

7.0 Risk Assessment Procedure

Purpose

The purpose of the risk assessment procedure is to describe the method used to analyze risks associated with the drinking water system. This includes a process-based system for risk identification and risk assessment, Critical Control Point (CCP) and CCP threshold limits.

Scope

This procedure is applicable to the risk identification, risk assessment and CCP's in the drinking water systems including treatment, storage, pumping and distribution.

Related Document

Drinking Water Quality Management Standard - Element 7
SOP-02-106 Risk Assessment

Procedure

The Risk Assessment Procedure is outlined in detail in SOP-02-106.

8.0 Risk Assessment Outcomes Procedure

Purpose

The purpose of this procedure is to detail the outcomes from the risk analysis procedure in paragraph 8 of this Operational Plan. The results include a list of ranked hazards with appropriate control measures, CCP's, control limits for

CCP's, monitoring methods and method used for recoding and reporting deviation from CCP limits.

Scope

This procedure is applicable to the risks identified by the risk analysis process as outlined in paragraph 7 of this Operational Plan, which covers the drinking water system including treatment, storage, pumping and distribution.

Related Documents

Drinking Water Quality Management Standard - Element 8
SOP-02-106 Risk Assessment
SOP-19-002 Primary Disinfection
Millbrook Risk Assessment Matrix

Procedure

Once a drinking water risk has been defined in paragraph 7 as a Critical Control Point it shall be monitored and controlled according to the individual Standard Operating Procedure (SOP). The SOP's shall include a description of the associated hazards and risk of the CCP, establish a critical control limit, define procedures to monitor the CCP, document the procedure for a deviation and the associated reports required for a deviation.

The following drinking water risks have been identified as Critical Control Points for the Millbrook municipal drinking water system:

- Primary Disinfection SOP-19-002

If a hazardous event is not considered a CCP then the method to control the hazardous event must be documented on the Risk Analysis Matrix.

9.0 Organizational Structure, Roles, Responsibilities and Authorities

Purpose

The purpose of this procedure is to outline the organizational structure of the drinking water systems. It is also to define the roles, responsibilities and authorities used to ensure the drinking water system is adequate.

Scope

This procedure is applicable to the outlined roles and responsibilities within the Operational Plan governed by the DWQMS. This covers the entire water treatment and distribution process as well as the inter-relation with Quality Assurance.

Responsibilities and Authorities

The Water Utility Quality Assurance Manager is responsible to ensure that the roles and responsibilities outlined in this procedure are reviewed annually to ensure accuracy. This is usually completed as part of the Internal Audit Procedure in paragraph 19.0 but may be updated as result of organizational or staff changes.

Related Documents

Drinking Water Quality Management Standard - Element 9
PUG Services Corp. Organizational Chart
SOP-19-001 Operator-In-Charge and Overall Responsible Operator Designation

Organizational Chart for the Township of Cavan Monaghan

The most current version of the Township of Cavan Monaghan is in [Appendix 2](#)

Organizational Chart for the Operating Authority

The most current version of the organizational chart for PUG can be found on the corporate intranet site.

Responsibility and Authorities - Owner

The Township of Cavan Monaghan

The Township of Cavan Monaghan has ownership and full command and control of the Millbrook municipal drinking water systems, including the treatment plant, storage and pumping facilities, trunk and distribution water mains and individual water services up to the private property line. Water meters within the buildings.

The Township shall establish service levels and expectations by means of:

- ◆ Having a contract with PUG Services Corp. to manage operate, and maintain the water system facilities;
- ◆ Approving an annual budget;
- ◆ Endorsing the Operational Plan
- ◆ Approving annual water rates;

- ◆ Approving 5 and 10-year capital budget predictions;
- ◆ Establishing bylaws and policies.

Responsibility and Authorities - Operating Authority

PUG Services Corp. (PUG) is an Ontario Business Corporation registered private company. PUG has a written contract with the Township to operate, maintain and improve the municipal drinking water system under the Township's ownership. All operating and management staff directly responsible for the water system are employed by PUG.

Responsibility and Authorities - Top Management

Top Management is described by the DWQMS as a person, persons or group of people at the highest level within an operating authority that makes decisions respecting the QMS and recommendations to the Owner respecting the drinking water system.

It is the responsibility of Top Management to demonstrate a commitment to the implementation of the DWQMS by:

- Ensuring that the QMS is in place and meets the DWQMS.
- Ensuring that the Operating Authority (PUG) is aware of applicable legislations and regulations.
- Communication according to paragraph 12.0.
- Participation in the Management Review as per paragraph 20.0.
- Determine, obtain or provide the resources needed to maintain and continually improve the QMS.
- Encourage participation in industry associations and committees (AWWA, AWWARF, OMWA, OWWA).
- To provide annual budget for training, attendance at conferences, workshops and seminars.

Top Management consists of the following persons in PUG Services Corp.:

- Vice President Water Utility
- Manager Water Utility
- Manager Water Treatment Plant

Responsibility and Authorities - Operational Management and Staff

[Chart 1](#) in Appendix A gives a detailed description of the Key Responsibilities and Authorities of the Operational and Management Staff.

10.0 Competencies

Purpose

The purpose of this procedure is to describe the competencies of personnel whose job activities directly affect the quality of the drinking water.

Scope

This procedure applies to the personnel identified by this procedure as personnel whose job can directly affect the quality of the drinking water in Millbrook.

Related Documents

Drinking Water Quality Management Standard - Element 10
SOP-19-001 Operator-In-Charge and Overall Responsible Operator Designation
SOP-02-114 Satisfying Competencies

Procedure

The following personnel perform duties that directly affect the quality of the drinking water for the Village of Millbrook.

- Water Service & Maintenance Operator
- Water Treatment Manager and Supervisor
- Manager Water Utility and Water Distribution Supervisor

Satisfying competencies

The detailed procedure describing competencies for employees whose job directly affects the drinking water is outlined in SOP-02-114.

11.0 Personnel Coverage

Purpose

The purpose of this procedure is to document the procedure used at PUG to ensure that sufficient personnel meeting the outline competencies in paragraph 10 are available to perform duties that directly affect the drinking water quality system.

Scope

This procedure applies to water treatment and distribution systems for Millbrook.

Related Documents

Drinking Water Quality Management Standard - Element 11
Operational Plan paragraph 10, Competencies
SOP-19-001 Millbrook Operator-In-Charge and Overall Responsible Operator
Designation
SOP-02-116 Personnel Coverage
SOP-02-117 Business Continuity

General

PUG employs licensed operators, all of whom are required to have and maintain licenses (distribution or treatment) according to the Certification of Drinking Water System Operators and Water Quality Analysts (O. Reg. 128/04).

Call out for additional staff to cover emergency or sick time is done as per the "Standby Schedule". The schedule is prepared weekly by payroll. Each department submits information based on their department's annual standby schedule. This information is collated into a single document for the after hours call out through the answering service.

Procedure

The detailed procedure to ensure that sufficient competent personnel are available for duties that directly affect drinking water is contained in SOP-02-116.

Collective Agreement

Employment for the WTP and distribution system is according to the terms and conditions of a collective agreement between PUG Services Corp. and IBEW Local 636. During a strike/lock-out the business continuity is maintained according to SOP-02-117 Business Continuity – Water Utility.

12.0 Communication

Purpose

The purpose of this procedure is to identify the method for communicating the Quality Management System to all stakeholders.

Scope

The procedure applies to the communication of relevant aspects of the Operational Plan between Top Management and the Owner, Operating Authority Personnel, suppliers and the public.

Related Documents

Drinking Water Quality Management Standard – Element 12
SOP-02-102 DWQMS Communication

Procedure

The Communication Procedure is outline in detail in the SOP-02-102.

13.0 Essential Supplies and Services

Purpose

The purpose of this procedure is to identify essential suppliers and services that may affect quality of drinking water and to ensure availability of those supplies and services.

Scope

This procedure applies to the following essential supplies and services for the Village of Millbrook.

- Essential Chemical
- Laboratory Services
- Auto-Dialer System
- SCADA Services

Related Documents

Drinking Water Quality Management Standard – Element 13
SOP-19-006 Essential Supplies and Services

Critical Supplies and Services List

The procedure by which PUG ensures the quality and availability of essential supplies and services are outlined in SOP-19-006.

14.0 Review and Provision of Infrastructure

Purpose

The purpose of this procedure is to outline the method used at PUG to annually review the infrastructure of the drinking water system. This review shall determine if the infrastructure is adequate to operate and maintain the drinking water system.

Scope

This procedure applies to the infrastructure relating to the provision of drinking water.

Related Documents

Drinking Water Quality Management Standard - Element 14
Paragraph 20 Management Review
SOP-19-004 DWQMS Infrastructure – Township of Cavan Monaghan

Procedure

The infrastructure is reviewed annually during the Management Review process outlined in paragraph 20 of the Operational Plan, additional details on the review and provision of infrastructure are provided in SOP-19-004.

15.0 Infrastructure Maintenance, Rehabilitation and Renewal

Purpose

The purpose of this procedure is to summarize the Capital Planning Approach that the Corporation of Cavan Monaghan uses along with PUG in order to maintain the Village of Millbrook's drinking water system infrastructure maintenance, rehabilitation and renewal programs.

Scope

This procedure applies to the infrastructure relating to the provision of drinking water.

Related Documents

Drinking Water Quality Management Standard - Element 15
SOP-19-004 Township of Cavan Monaghan DWQMS Infrastructure
5-10 Year Capital Forecast (Millbrook)

Procedure

A summary for the Township of Cavan Monaghan infrastructure maintenance program of rehabilitation and renewal for Millbrook is described in SOP-19-004.

16.0 Sampling, Testing and Monitoring

Purpose

The purpose of the following procedure is to describe the sampling, monitoring and testing activities at the WTP and distribution system to ensure compliance to applicable drinking water legislation and for the provision of safe drinking water.

Scope

This procedure is applicable to the water treatment plant and water distribution operations.

Related Documents

Drinking Water Quality Management Standard – Element 16
Millbrook Water Treatment Plant Operator and Maintenance Manual
Millbrook Water Treatment Plant Laboratory Analysis Book
SOP-19-005 Sampling and Monitoring
SOP 02-009 Procedure to Respond to Adverse Water Quality Results

Procedure

The procedure was developed to meet the requirements of Element 16; Sampling, Testing and Monitoring are described in SOP-19-005.

17.0 Measurement and Recording Equipment Calibration Maintenance

Purpose

The purpose of this procedure is to describe the process used to calibrate and maintain measuring and recording devices used within the water treatment process.

Scope

This procedure is applicable to the measuring and recording devices used by the Water Treatment Plant for monitoring of raw, in-process and potable drinking water from intake, through treatment, storage, pumping and distribution.

Related Documents

Drinking Water Quality Management Standard – Element 17
SOP-19-005 Sampling and Monitoring Procedure
Instrumentation Manuals

Procedure

The procedure that describes PUG activities for the calibration and maintenance of measurement and recording equipment is outlined in SOP-19-005.

18.0 Emergency Management

Purpose

This purpose of this procedure is to describe the process to maintain a state of emergency preparedness for the drinking water system.

Scope

This procedure shall include all potential emergency situations or service interruptions for the water treatment and water distribution system in Millbrook.

Related Documents

Drinking Water Quality Management Standard – Element 18
SOP-02-108 Emergency Preparedness and Response
Municipal Emergency Plan for Village of Millbrook
Municipal Emergency Plan for City of Peterborough

Procedure

The Emergency Management Procedure is outlined in SOP-02-108 for the Village of Millbrook.

19.0 Internal Audit

Purpose

The purpose of the Internal Audit Procedure is to describe the method used at PUG to verify conformance to the Operational Plan and to the Drinking Water Quality Management System. Internal auditing is also a tool to be used to be proactive and continually improve the Water Quality Management System.

Scope

This procedure is applicable to Millbrook Drinking Water System operations that are described within this Operational Plan.

Related Documents

Drinking Water Quality Management Standard – Element 19
Continual Improvement paragraph 21 of Operational Plan
SOP-02-101 Internal Audit Procedure
Procedure

The Internal Audit Procedure is outlined in detail in the SOP-02-101.

20.0 Management Review

Purpose

The purpose of this Management Review Procedure is to outline the method used at PUG Services Corp. to evaluate the continuing suitability, adequacy and effectiveness of the Drinking Water Quality Management System.

Scope

The scope of this procedure includes management activities, water treatment plant operations and water distribution activities identified in the Operational Plan.

Responsibilities and Authorities

The DWQMS Representative is responsible to the CAO Township of Cavan Monaghan for ensuring that detailed and comprehensive reviews are carried in accordance with this procedure.

The Water Utility Quality Assurance Manager is responsible to the Vice President Water Utility Services for ensuring that the necessary documentation and records are maintained and made available for review by Management.

The DWQMS Representative is responsible to communicate the results of the Management Review to Top Management and the Owner.

Related Documents

Drinking Water Quality Management Standard – Element 20
Operational Plan paragraph 21 Continual Improvement
SOP-02-100 Management Review

Procedure

The Management Review procedure is outlined in detail in the SOP-02–100.

21.0 Continual Improvement

Purpose

The purpose of this procedure is to describe the system used by PUG to continually improve the effectiveness of the DWQMS by initiating timely corrective action on deficiencies identified in the Drinking Water Quality Management System, and to take preventative action where potential problems are identified.

Scope

This procedure applies to the correction of actual or potential non-conformities in the drinking water QMS, or other systemic problems affecting the drinking water quality.

Related Documents

Drinking Water Quality Management Standard – Element 21
SOP-02-107 Continual Improvement
Corrective Action Request (form # 02040)

Procedure

The Corrective Action (Continual Improvement) Procedure is outlined in detail in SOP-02–107.

Appendix 1

Chart 1 Responsibilities and Authorities Chart

Category 1		Staff who can have day-to-day direct affect on the water quality reaching the customer's premise	
Position	Key Responsibilities	Key Authorities	
Manager Water Treatment Plant	<ul style="list-style-type: none"> • Regulatory compliance for treated water and operations at the WTP • Monitor water quality and demand • Supervision of operating staff and supervisors • Schedule work, allocate projects and resources, monitor progress • Develop procedures to optimize water quality and reliability • Assist in selecting staff and their training and development • Work safety program • Report issues to the VP Water Utility as necessary • ORO (when present during business hours) 	<ul style="list-style-type: none"> • Day-to-day operations of the WTP • Direct supervisors and staff • Overseeing adverse water quality incidences • Develop departmental practices • Administer union agreement • Arrange for training of supervisors and staff • Schedule construction activities as they affect the WTP operations • Expenditures up to \$5000 without supervisor approval 	
Water Treatment Plant Operations & Water Quality Supervisor	<ul style="list-style-type: none"> • Assist with regulatory compliance particularly as it applies to water quality • Assist to monitor water quality and demand • Supervise WQA and other staff • Assume Manager WTP duties and responsibilities when the Manager WTP is absent • Assist in training and development of staff • Report issues to the Manager WTP as necessary • ORO when Manager WTP is absent (when present during business hours) • Purchasing Chemical Suppliers for WTP 	<ul style="list-style-type: none"> • Direct staff in day-to-day operations and maintenance activities • Recommend to the Manager WTP ways to improve water quality and operational effectiveness • Act as Manager WTP when the Manager WTP is absent • Expenditures up to \$1500 without supervisor approval 	

Category 1		Staff who can have day-to-day direct affect on the water quality reaching the customer's premise
Position	Key Responsibilities	Key Authorities
Water Treatment Plant Operations & Maintenance Supervisor	<ul style="list-style-type: none"> • Supervise staff work, safety and progress • Report issues to the Manager WTP as necessary • ORO when Manager WTP and WTP Operations & Water Quality Supervisor are absent (when present during business hours) 	<ul style="list-style-type: none"> • Direct staff in day-to-day operations and maintenance activities • Recommend to the Manager WTP ways to improve operational effectiveness • Expenditures up to \$1500 without supervisor approval
System Operators (Millbrook)	<ul style="list-style-type: none"> • Perform specified duties as instructed within established parameters for operating the WTP • OIC as assigned • ORO as assigned • Daily operational water quality testing • Communication of water quality testing results to appropriate management and staff • Customer concern response 	<ul style="list-style-type: none"> • Operational discretion as delegated by the Manager WTP
Manager Water Utility	<ul style="list-style-type: none"> • Oversee the daily operations and maintenance of the water distribution system • Overall daily planning of work related to the operations and maintenance of the water distribution system • Coordinate work with capital program • Develop procedures to optimize effectiveness of department • Assist in selecting staff and their training and development • Work safety program • Report issues to the V.P. Water Utility as necessary 	<ul style="list-style-type: none"> • Day-to-day operations of the Water Distribution Dept. • Direct supervisors and staff • Overseeing adverse water quality incidences for tests taken by WD staff • Develop departmental practices • Administer union agreement • Arrange for training of supervisors and staff • Schedule construction activities as they affect the water distribution operations • Expenditures up to \$5000 without supervisor approval
WD Supervisor	<ul style="list-style-type: none"> • Supervise staff work, safety and progress • Report issues to the Manager WTP as necessary • ORO when required 	<ul style="list-style-type: none"> • Direct staff in day-to-day operations and maintenance activities • Recommend to the Manager Water Utility ways to improve operational effectiveness • Expenditures up to \$750 without supervisor approval

Category 2		
Staff who can have day-to-day indirect affect on the water quality reaching the customer's premise		
Position	Key Responsibilities	Key Authorities
WTP Maintenance Mechanic	<ul style="list-style-type: none"> • Installation, maintenance and troubleshooting of mechanical equipment 	<ul style="list-style-type: none"> • Carry out work in an efficient manner that has minimal impact on operations
WTP Maintenance Electrician	<ul style="list-style-type: none"> • Installation, maintenance and troubleshooting of electric and electronic equipment 	<ul style="list-style-type: none"> • Carry out work in an efficient manner that has minimal impact on operations
VP Water Utility	<ul style="list-style-type: none"> • Establish Water Utility Capital Budget and review/approve annual operating budgets • Monitor regulatory framework and advise managers of important issues • Report to Owner • Manage overall budget and expenditures 	<ul style="list-style-type: none"> • Provide day-to-day direction for the water utility • Approve expenditure up to \$50,000 in accordance with Purchasing Policy • Approve budget changes within the approved budget amount • Authority to declare a Water Utility emergency

Category 3		
Staff who can have an occasional indirect effect on the water quality reaching the customer's premise		
Position	Key Responsibilities	Key Authorities
Purchasing and Materials Manager	<ul style="list-style-type: none"> • Arrange for purchase of supplies, equipment and materials 	<ul style="list-style-type: none"> • Establish purchasing criteria and award contracts in consultation with operating departments
Water Utility Quality Assurance Manager	<ul style="list-style-type: none"> • Development of DW Operational Plans • Internal Audit • Operational plan update and Maintenance • Training on Operational Plan and DW QMS • Liaise with Registrar to schedule audits, respond to audit finding, provide documentation • Management Review 	<ul style="list-style-type: none"> • Issue Corrective Action • Update Operating Procedures

APPENDIX 2

