



Laurentian Valley
Water Works
Drinking Water Quality Management System
Operational Plan

Description

Laurentian Valley Waterworks is a distribution system only, that purchases treated water from the Pembroke Drinking Water System (DWIS # 22000941) and distributes it to 645 homes and businesses through out 14 kilometers of distribution piping. There are no storage tanks, chlorine or pressure booster stations. Laurentian Valley Water Works received it's **Certificate** as a Water Distribution Plant, Level 1 (WD1) in November of 2000, # **2893**. On July 15, 2005 the system was reclassified as Water Distribution Subsystem Class 1 by the Ministry of Environment. The Drinking Water System Information number for Laurentian Valley Water Works is W260007465

On June 2, 2011 the Corporation of the Township of Laurentian Valley was issued Municipal Drinking Water License # 192-101, Issue #1, as both the Owner and Operating Authority.

May 31, 2011 the Corporation of the Township of Laurentian Valley was issued a Drinking Water Works Permit Number 192-201, Issue #1 for the system described by the system maps as of February 2009 as amended from time to time by Form 1 - Record of Watermains.

On March 30, 2016 Drinking Water Works Permit 192-201, Issue #2 and License Number 192-101, Issue #2 was renewed by the Ministry of Environment for the Laurentian Valley Distribution System

Ownership

Laurentian Valley Water Works is owned by the Corporation of the Township of Laurentian Valley.

Operating Authority

Laurentian Valley Water Works is operated by the Corporation of the Township of Laurentian Valley.

Purpose

The purpose of this operational plan is to describe the Drinking Water Quality Management System of Laurentian Valley Water Works for the operation and maintenance of the water distribution system.

Scope

This operational plan covers the activities and personnel associated with all aspects of the Laurentian Valley Water Works drinking water distribution system.

References

Drinking Water Quality Management Standard Guidance Document
Implementing Quality Management: A Guide For Ontario's Drinking Water Systems
Bill 195 - Safe Drinking Water Act

Acronym's

QMS	Quality Management System
DWQMS	Drinking Water Quality Management Standard
Distribution	Mains, branch lines, hydrants, valves etc.
LVWWWQPPM	Laurentian Valley Water Works - Water Quality Policies and Procedures Manual
BMP	Best Management Practice
CI	Continual Improvement

Quality Management System

This operational plan documents the contents and activities of the QMS in accordance with the requirements of the DWQMS.

Quality Management System Policy

This quality management policy is applicable to all employees of the Municipality and is to be displayed at the Public Works Garage and the Municipal Office at 460 Witt Road and on the Municipal website.

Quality Policy

The Municipality of Laurentian Valley Township and Laurentian Valley Water Works shall comply with all relevant legislation and regulations for the consistent delivery of safe drinking water. The Municipality shall also continuously review and improve the QMS.

Drinking Water System

This Operational Plan covers the drinking water distribution system owned by the Corporation of the Township of Laurentian Valley. As of January, 2018 the distribution system served 646 homes and businesses. The distribution system consists of:

- ~14 km of water pipe and mains
- 82 hydrants
- 76 hydrant valves
- 96 main valves
- 7 municipal water meters, complete with backflow preventors, and
- 2 sampling stations

Laurentian Valley Water Works purchases treated water from the City of Pembroke. The City of Pembroke owns and operates the Pembroke Drinking Water System (DWIS # 220000941), which consists of the Pembroke Water Purification Plant and distribution system. Sampling,

testing and monitoring of the treated water provided to the Laurentian Valley Distribution System is conducted by the City of Pembroke. As owner and operating authority of the Pembroke Drinking Water System, Pembroke must ensure that the water supplied to the Laurentian Valley Distribution System meets the Ontario Drinking Water Quality Standards and has a minimum chlorine residual of at least 0.50 mg/l. The Pembroke Water Purification Plant, DWSN 220000941, is located on the Ottawa River and has a capacity of 32,368 m³/day. Four low lift pumps convey the water to flocculation, coagulation, sedimentation and dual media filtration. Four high lift pumps feed the distribution and storage facilities.

Separate operational plans have been developed by the City of Pembroke to describe the DWQMS for their drinking water treatment facility and distribution infrastructure.

Details on the Water Works System and the day to day operation policies are kept in the Laurentian Valley Water Works Water Quality Policies and Procedures Manual (LVWWWQPPM) and in the Asset Management Manuals.

Commitment and Endorsement

A resolution was unanimously passed by the Council of Laurentian Valley Township on April 7, 2009 endorsing the Operational Plan and its contents. The resolution was updated and passed by Council on February 3, 2015. This resolution is filed in Appendix A.

Top Management has also signed a Commitment & Endorsement form, filed in Appendix A

Quality Management System Representative

The Water Quality Analyst (Claus Trost) is appointed to the role of Quality Management System representative for the Municipality of Laurentian Valley Township drinking water distribution QMS.

The Management Representative shall:

- develop, implement and maintain the QMS
- report on the effectiveness of the QMS to top management
- recommend any changes and improvements required
- ensure that the current versions of documents required by the QMS are in use
- ensure that all personnel are aware of all current legislation and regulatory requirements that are relevant to the operation of the water works
- promote the QMS throughout the Municipal Water Department

Appointed by:

Dean Sauriol
CAO
Laurentian Valley Township
February 3, 2015

Approved by:

Steve Bennett
Mayor
Laurentian Valley Township
February 3, 2015

Document and Records Control

This Procedure documents the responsibilities of those involved in the creation, maintenance and collection of all Records and Documents for Laurentian Valley Water Works. Township By-law 02-04-138, as amended (2009-12-055 to add a Schedule B), The Ontario Municipal Records Management System (TOMRMS) and the Documents & Records Control Table describe how the Water Works documents and records are controlled, stored, the minimum retention time and how they are disposed of.

The Water Quality Analyst is responsible for creating and revising all of the QMS documents; Operational Plan, Policies and Procedures, Forms and checklists, etc. The Public Works Manager is responsible for approving all the newly created and/or edited QMS documents prior to their release. The Operations Foreman and Operators complete the maintenance and inspection forms, record scheduled and unscheduled maintenance and occurrences and forward to the Quality Management Representative. (Also see Responsibilities... - pages 10 & 11)

The Quality Management Representative is responsible for the proper filing and storage of all internal and external documents and records. The Municipality uses the Ontario Municipal Records Management System. The QMS records and documents are also coded according to the TOMRMS System.

The Quality Management Representative shall also upload the Quarterly Reports, the Annual Report, the latest version of the Operational Plan and the latest version of the Policies and Procedures Manual to the Municipal Website, after Council has approved them. Please note, the QMS rep is to verify that the documents have properly uploaded and are accessible to the public by checking the website from another computer. Documentation of this task is by printing the Website host's email notification of changes, and filing in the yearly log binder.

Documents & Records Control

Document/Record	Format	Storage Location	Minimum Retention length	Authorized access
Log Books -current	paper	ORO's & WQA's portable possession	NA	PWM, ORO, WQA, Operator 1
- old	paper	460 Witt Road - office	5 years	PWM, ORO, WQA, Auditors
Yearly Log Binder	paper	460 Witt Road - office	7 years	PWM, ORO, WQA, Auditors, General Public
Chain of Custody/Manifests	paper	460 Witt Road - yearly log binder	7 years	PWM, ORO, WQA, Auditors, General Public
	.pdf			
Analysis Reports	paper	460 Witt Road - yearly log binder	5 years	PWM, ORO, WQA, Auditors, General Public
	.pdf file	Global:\E - ENVIRONMENTAL SERVICES\E14 - Water Sampling & Monitoring\Laurentian Valley Water Works\2014\Analysis Reports		
Employee Training Records, Certificates, Licenses	paper	460 Witt Road - WQA office, white binder labeled Continuing Education	5 years after employee leaves	PWM, WQA, Deputy CAO
	various	Global:\H - HUMAN RESOURCES\H03 - Employee Records_name		
System Maps W1 & W2	.pdf file	Global:\E - ENVIRONMENTAL SERVICES\E08 - Water Works\Water Service Maps	2 years after they are updated	PWM, ORO, WQA, Auditors, General Public
	paper	460 Witt Road - WQA office - file room		
Detail Maps	paper	works superintendents office, and operators portable possession	0 years - destroy as pages are updated	PWM, ORO, WQA, Auditors, General Public
	.pdf	Global:\E - ENVIRONMENTAL SERVICES\E08 - Water Works\Water Service Maps (detail maps are being scanned over time)		
Forms	.pdf & word	Global:\A - ADMINISTRATION\A25 - Forms & Templates\Water	delete existing after updates	PWM, ORO, WQA, Operator 1

Flushing Log	paper	460 Witt Road - yearly log binder	7 years	PWM, ORO, WQA, Auditors, General Public
Hydrant Maintenance, Valve Maintenance, Water Distribution System Repair forms	paper	460 Witt Road - yearly log binder & Inventory & Maintenance Binder When a page is filled and a new form started for each hydrant or valve, the old record is placed in the Yearly Log Binder, and destroyed with those records	7 years	PWM, ORO, WQA, Auditors, General Public
Quarterly Reports	paper	460 Witt Road - yearly log binder	7 years	PWM, ORO, WQA, Auditors, General Public, also on the Municipal web-site
	.wpd	Global:\E - ENVIRONMENTAL SERVICES\E08 - Water Works\Annual & Quarterly Reports_year		
Annual Report	paper	460 Witt Road - yearly log binder	10 years	PWM, ORO, WQA, Auditors, General Public, also on the Municipal web-site
	.wpd	Global:\E - ENVIRONMENTAL SERVICES\E08 - Water Works\Annual & Quarterly Reports_year		
Auditors Report	paper	460 Witt Road - yearly log binder	10 years	PWM, ORO, WQA, Auditors, General Public, also on the Municipal web-site
	.pdf	Global:\E - ENVIRONMENTAL SERVICES\E08 - Water Works\Annual & Quarterly Reports_year		
CAR & CI tracking	paper	460 Witt Road, QMS office	15 years	PWM, ORO, WQA, Auditors,
	electronic	changes are tracked at the end of the P&P & OP		
QMS - Operational Plan	paper	460 Witt Road, Works Department	each version 10 years	PWM, ORO, WQA, Auditors, General Public, also on the Municipal web-site
	.wpd	Global:\E - ENVIRONMENTAL SERVICES\E13 - Drinking Water Quality Management System_year		
Policies & Procedures Manual	paper	460 Witt Road, Works Department	each version 10 years	PWM, ORO, WQA, Auditors, General Public, also on the Municipal web-site
	.wpd	Global:\E - ENVIRONMENTAL SERVICES\E13 - Drinking Water Quality Management System_year		
Community Lead Sampling	paper	460 Witt Road - WQA office - Binder marked Community Lead Sampling - protocol & records	7 years	PWM, ORO, WQA, Auditors, General Public
	electronic	Global:\E - ENVIRONMENTAL SERVICES\E15		

Drinking Water License:	paper	460 Witt Road, Works Department	each version 5 years	PWM, ORO, WQA, Auditors, General Public, also on the Municipal web-site
	.docx	computer, local C & G drive		
Financial Plan	paper	460 Witt Road Office	each version 5 years, after expiry	PWM, ORO, WQA, Auditors, General Public, also on the Municipal web-site
	.pdf	computer, local C & G drive		
Internal Audit, Management Review documents	paper	E13, 460 Witt Road Office	7 years	PWM, ORO, WQA, Auditors, General Public
	electronic	Global:\E - ENVIRONMENTAL SERVICES\E13 - Drinking Water Quality Management System\year		
Drinking Water Works Permit	paper	460 Witt Road Office, green binder labeled MOE License & Permits	each version 5 years	PWM, ORO, WQA, Auditors, General Public, also on the Municipal web-site
	.pdf	Global A:\L - LEGAL AFFAIRS\L16 - MOE (MNR) Licences & Permits\Water		
Form 1- Record of Watermains as a Future Alteration	paper	460 Witt Road Office, green binder labeled MOE License & Permits	each version 10 years	PWM, ORO, WQA, Auditors
	.pdf	Global:\L - LEGAL AFFAIRS\L16 - MOE (MNR) Licences & Permits\Water		
Form 2 - Record of Minor Modifications or Replacements to the Drinking Water System	paper	460 Witt Road Office, green binder labeled MOE License & Permits	each version 10 years	PWM, ORO, WQA, Auditors
	.pdf	Global:\L - LEGAL AFFAIRS\L16 - MOE (MNR) Licences & Permits\Water		

- NOTES:** Computer files, kept as indicated above on the main server - taped backup
- : PWM = Public Works Manager, ORO = Operator of Overall Responsibility, WQA = Water Quality Analyst
 - : All master documents are edited and stored by the QMS Representative (WQA), approved by Public Works Manager
 - : Disposal is by recycling, documents are not sensitive, considering they were available on the internet.
 - : Auditor includes; internal audits, certification authority auditor, and MOE Inspectors
 - : please note, it is not improper to keep records longer than required, it is improper to destroy records before the minimum retention date.

Tracking Changes

Version 2009.1- amended in March 2011; after receiving the Draft of the Drinking Water License and the Draft of the Drinking Water Permit, it became apparent that the QMS needed amending to include new documents and records specified in the proposed documents.

Version 2013.1 - amended January 2013; CAR J0306844-4 ; found that the maps were not listed (W1&W2 system maps and the detailed section maps), edited name of 3 ring binder log to Yearly Log Binder - as suggested by OFI-

2013 - Documents & Record Control - falling under the new Documents & Record Control/By-law, being developed by Kayla; special projects clerk, using the OMRMS Manual (*The Ontario Municipal Records Management System*) When the documents are sorted, labeled, indexed and stored, a cheat sheet will replace this table identifying the location of the documents and records)

March 2014: updated the Documents & Records Control Table, entered the location of files on the server within the new storage system, applied consistent retention dating, so that yearly log would not have to be edited for an extra 3 years. Added Public Works Manager title and authority.

April 2014: inserted Lead Sampling documents

Nov 2015 clarified that it is a minimum retention length, clarified the hydrant and valve maintenance record documentation.

Jan 2016 edited typos & formatting errors

Jan 2017 edited to better match the Municipal Documents By-law, asked that the by-law refer to this spreadsheet for instructions, rather than trying to keep two documents current.

March 2019 added Continual Improvement Records

Risk Assessment

Hazards/hazardous events were identified and listed in the Water Works risk analysis table. Each hazard/hazardous event is assessed in terms of likelihood, severity and detectability. The ranking scheme is shown in the Hazards Ranking Table, which follows. The risk priority number assigned to each perceived hazardous event was determined by adding the likelihood, severity and detectability factors. Critical Control Points (CCP) were defined as those with a risk ranking of 10 or more, and/or those identified by the MOE - recommended minimum CCP's.

Hazard Ranking

Risk Priority Number	Likelihood	Severity	Detectability
1	Rare - exceptional circumstances or not at all	Insignificant - little or no product or operational impact	Obvious - easy to detect, instantaneous
2	Unlikely - historically has occurred annually or less than annually	Minor - small population effect, manageable service disruption	Easy - lab results, supplier or consumer report
3	Possible - has occurred once or more per annum	Moderate - small population effect, modify operating parameters	Moderate - no alarms, visually detectable
4	Likely - is expected to occur on a monthly or quarterly basis	Major - significant impact on small population, operations challenged	Difficult - visually detectable, but not part of regular inspection routine
5	Certain - will occur on a frequent basis	Catastrophic - major impact on population, system failure	Impossible - undetectable

All three values are added together to provide a Risk Priority Number

Risk Priority Number rating

- 0 - 5 None to minimal potential or actual impact
- 6 - 9 Moderate potential or actual impact
- 10 - 15 Critical Control Point, significant potential or actual impact

Laurentian Valley Water Works Risk Analysis

Description of Hazard	Possible Outcome	Comments	Existing Monitoring & Control	Likelihood	Severity	Detectable	RP N	CC P	Control Procedures
Water main Break	Reduced flow, contamination	Isolate main	usually observed by works crew or reported by residents in vicinity	2	3	2	7	NO	Watermain maintenance, repair and timely replacement
Service pipe, or connection break	service interruption, contamination	Isolate main or service as required	usually observed by works crew or reported by home owner	3	2	3	8	NO	proper installation, certified products
Loss of Chlorine residual	Biological Contamination	Per O.Reg 170/03	System wide monitoring, system is split into three separate parts.	2	3	3	8	NO	Flush to restore chlorine residual, locate cause
Physical, sediment, bio film	Biological Contamination	flushing program	system is flushed twice a year and monitored	1	1	1	3	NO	Flushing, replace steel pipes, HPC sampling monthly
Cross Connection	Biological, Chemical contamination	Backflow prevention program,	Municipality requires dual check valves on residential connections and double check valves on commercial connections.	1	2	3	6	NO	Inspect all new connections. Isolate and flush out mains.
Service interruption from supplier	reduced flow or no flow	communicate and work with supplier on resolving problem	will be reported by supplier	1	4	1	6	NO	Water Treatment Plant maintenance & repair, not in our control.
Climate change impacts	increased water temperature in summer	may lead to increased use, chlorine degradation, higher THM's	water sampling and testing	2	2	1	5	NO	increase flushing
Source water supply shortfall	water shortages	has not been a concern yet, Ottawa River is very big	Source of water is the suppliers problem, as long as we do not use more than contracted for.	1	3	1	5	NO	we have a water use by-law that is triggered by a Level 2 drought being declared
extreme weather events	heavy storms, droughts	infrastructure is buried, does not require hydro	again this is our suppliers concern and is dealt with in their DWQMS, we will assist when possible	1	3	1	5	NO	follow instructions from the EMC, supplier & RCDHU

sustained extreme temperatures	water rationing, increase in wild fires	Level 2 drought triggers Water Use By-Law	again this is our suppliers concern and is dealt with in their DWQMS, we will assist when possible	1	3	1	5	NO	follow instructions from the EMC, supplier & RCDHU, Fire Department has alternate water supplies
Sustained Pressure Loss	service interruption, contamination	usually triggers a boil water advisory, by RCDHU and Supplier	usually observed customers, works crew or reported by supplier	1	5	1	7	NO	Provide bottled water and supply fresh water filling stations from Municipal Well Systems. When pressure is restored, flush mains and sample
Terrorist threat	contaminated water or damaged infrastructure	can isolate damaged sections to restore service to majority quickly	usually observed customers, works crew or reported by supplier	0	3	1	4	NO	follow instructions of EMC and RCDHU
Vandalism	contaminated water or damaged infrastructure	can isolate damaged sections to restore service to majority quickly	usually observed customers, works crew or reported by supplier	0	3	1	4	NO	follow instructions of EMC and RCDHU
any others ????									

Only the risks associated with the distribution system were considered, the City will have their own Hazard & Risk Assessment for their plant, and distribution system which is tied to our system.

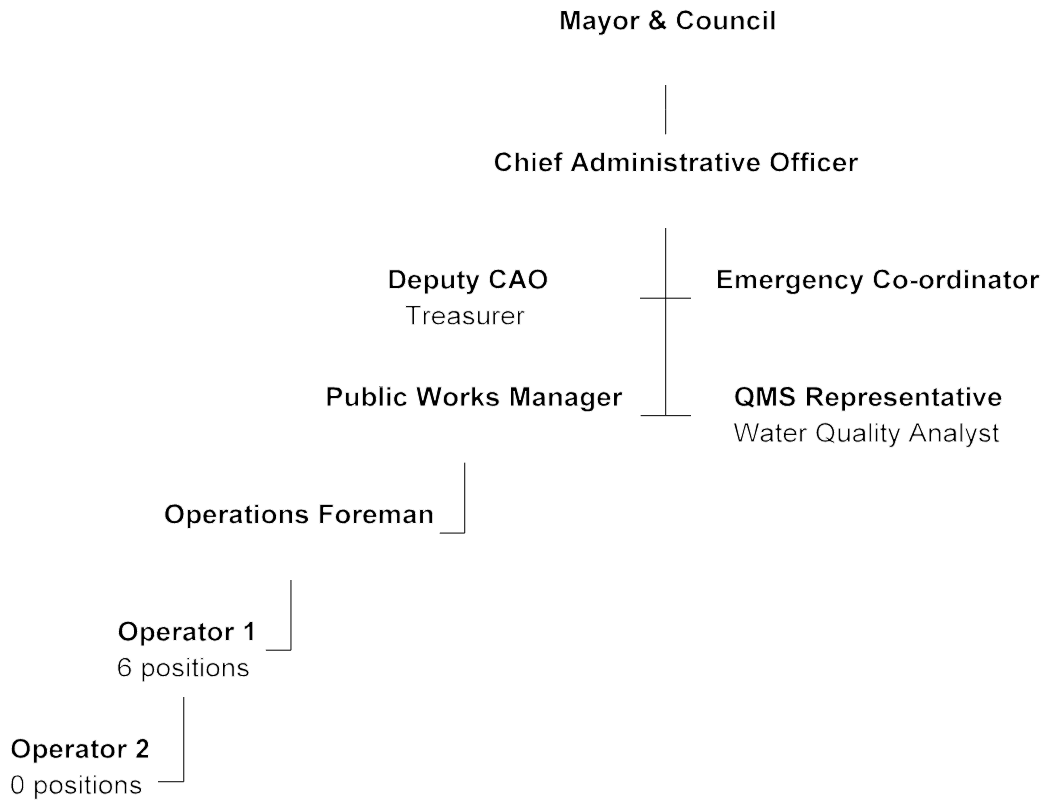
To be clear; most of the hazards and risks the MOECC requires us to consider, will not be situations where we are the masters of our domain; specifically; most of the risks lie with our supplier, and if they run into a situation, they - the MOECC and the RCDHU will be dictating how we respond to a particular situation.

This Hazard Assessment and Risk Analysis shall be reviewed each year and redone every three years at a minimum, but shall be done sooner when a known risk has changed or the Water Works becomes aware of a new parameter. This review shall be documented.

This Review was conducted on December 7, 2016

and on December 5, 2017

Led by Claus Trost, QMS Rep



**Organizational Structure, Roles, Responsibilities, Authorities
Laurentian Valley Water Works Organization Chart**

(this chart does not print to adobe very well, please advise if your copy is not readable)

Responsibility, Authority and Competencies

Mayor and Council

The Mayor and Council have the overall responsibility and authority to ensure that Laurentian Valley Water Works meets all legislated and regulated requirements. They further have the authority and responsibility to allocate the necessary resources for the safe operation of the distribution system based on the recommendations of the CAO and the Public Works Manager. The Mayor and Council approve the QMS.

Chief Administrative Officer

The CAO has complete oversight of the entire distribution system and the QMS. The CAO is the lead for management reviews, budget approval and communication with the Mayor and Council about the water distribution system and the QMS. The CAO shall ensure that the necessary staffing, funding and resources are in place to implement the QMS as approved by Council.

Deputy CAO

The Deputy CAO assumes the CAO's duties in his absence. He/she also is the Treasurer and incorporates the budget and planning materials, provided by the Public Works Manager to ensure that the Water Works is properly funded to implement the QMS as approved by the Mayor and Council.

Emergency Management Co-ordinator

The Emergency Management Co-ordinator is to include the Water Works when developing the Municipal Emergency Plan.

Public Works Manager

He/She has oversight of the entire distribution system and is to ensure the system is operated in accordance with the QMS approved by the Mayor and Council and in compliance with applicable legislation and regulations.

Along with the Operations Foreman and the QMS Rep, performs yearly assessments; of personnel, safety, training and the QMS. The Public Works Manager sits on the Public Works, Property and Protection Committee of Council and updates the members on the issues of the day, and makes recommendations for system improvements, supplier and equipment requirements.

He/She and prepares the budget and planning materials to ensure that the Water Works is properly staffed and funded to implement the QMS as approved by the Mayor and Council.

Core Competencies: Post Secondary Education, 5 years municipal operations experience, Valid

Class G drivers license. The Public Works Manager shall be computer literate with knowledge of word processing systems, GIS mapping, spreadsheets and on-line registrations.

Operations Foreman

The Operations Foreman is the Operator with over-all Responsibility (ORO) and the Operator in Charge (OIC), responsible for the operation of the distribution system. He/She has oversight of the entire distribution system and is to ensure the system is operated in accordance with the QMS approved by the Mayor and Council and in compliance with applicable legislation and regulations.

He/she schedules and oversees the day to day activities related to the water distribution system including; scheduled and unscheduled maintenance, repairs and reporting. Along with the Public Works Manager, performs yearly assessments; of personnel, safety, training and the QMS. He/she also makes recommendations of system improvements, supplier and equipment requirements. The Operations Foreman also communicates directly with the Water Treatment and Water Distribution staff of the drinking water supplier

The Operations Foreman also communicates directly with the WQA to; act on, report and document all incidents of non-compliance, report and document all maintenance conducted by water works staff and to report any abnormal conditions.

Core Competencies: Post Secondary Education, 10 years municipal operations experience (water & waste water), current Level One Distribution System Operator Certificate and a valid Class DZ drivers license. To also have valid WHIMIS and First Aid cards.

Water Quality Analyst, QMS Representative

The Water Quality Analyst has complete oversight of the distribution system and the QMS. The WQA; develops, reviews and implements the QMS; ensures the system is operated in compliance with applicable legislation and regulations; assists in the preparation of budget and planning materials; develops, revises and implements the Water Quality Policies and Procedures Manual; responds to and documents public complaints; oversees adverse water quality incidences and responses. The Water Quality Analyst writes the quarterly and annual reports and is the Communication liaison with the Ministry of Environment, Drinking Water Branch and the Certification/Acreditation Body.

Core Competencies: Post Secondary Education, 5 years municipal operations experience, current Water Quality Analyst Certificate or Level One Distribution System Operator Certificate and a valid Class G drivers license. The Water Quality Analyst shall be computer literate with knowledge of word processing systems, spreadsheets, on-line registrations and web site formatting. To also have valid WHIMIS and First Aid cards.

Operator 1

Operator 1 is the Operator in charge in the absence of the Operations Foreman. He/she shall ensure the system is operated in compliance with applicable legislation and regulations. The Operator 1 position also requires; reporting of distribution system performance, including abnormal conditions noted, to the Operations Foreman. Recommend system improvements, and document all operating activities as per the LVWWQPPM, on approved forms.

Core Competencies: Grade 12, 5 years municipal operations experience (water & waste water), current Level One Distribution System Operator Certificate and a valid Class DZ drivers license. To also have valid WHIMIS and First Aid cards.

Operator 2

The Operator 2 position is for Operators in Training and those with less than 5 years municipal operations experience (water & waste water). Their responsibility is to monitor, maintain and operate the distribution system in accordance with established standard procedures. They are to report to the Operator 1 or the Operations Foreman and act on incidents of non-compliance as instructed.

Core Competencies: Grade 12, Current and valid Operator in Training Certificate or a current Level One Distribution System Operator Certificate and a valid Class DZ drivers license. To also have valid WHIMIS and First Aid cards.

Satisfying Competencies

Laurentian Valley Water Works provides for training in the annual budget. At a minimum, the training budget allows funding for the legislated and required training to maintain Operator Certification in accordance with O.Reg 128/03, and the minimum safety training as required by the OHSA R.S.O. 1990, C.O.1.

The Public Works Manager, Operations Foreman and Water Quality Analyst discuss and compile a list of required training annually for approval by the CAO. Training is scheduled by the WQA. Training or knowledge gain may take the form of on or off site training sessions and seminars, on the job training, distance learning or courses of study. Records of training and certificates are kept by the WQA and the Deputy CAO.

Each year there is a scheduled training session with the Water Works Staff to review the Drinking Water License, the Quality Management System, the Policies and Procedures Manual and to occasionally conduct table top - emergency management training exercises. The yearly review will include activities to ensure that the operators are aware of the relevance of their duties, and how they affect safe drinking water.

Coverage

The Operator in Charge is the Operations Foreman. In the event of his/her absence, Operator 1 assumes the role of Operator in Charge, and is identified in the log book. The works department is staffed from Monday to Friday, 7:00 AM to 3:30 PM. The Operations Foreman is on call 24/7 for response to after hours and weekend emergencies.

The Municipality has an after hours number and call service which forwards calls to the appropriate department. Complaints related to the distribution system which require immediate attention (low pressure, watermain breaks) are directed to the Operations Foreman. The majority of off-hour calls can be addressed by the Operations Foreman following standard operational procedures.

The Municipality also has a direct waterworks emergency phone, which is carried on a scheduled rotation by waterworks staff. If the nature of the emergency requires additional staff, the Operator in Charge is authorized to call in additional staff. Contact information for all operators is documented in the LVWWWQPPM, readily accessible to the Operator in Charge.

Competencies

Minimum competency requirements are listed in the Competencies List Table. The table is to be reviewed annually, to reflect operational and regulatory changes.

Competency Ratings:

- 3 - advanced knowledge and skill experience
- 2 - intermediate knowledge, skill and experience
- 1- basic knowledge, skill and experience
- 0- knowledge, skill and experience is not required

Skills	Public Works Manager	Operations Foreman	QMS Administrator	Operator 1	Operator 2
OETC WD Certification	NR	Level 1	NR	Level 1	OIT
OETC WT Certification	NR	NR	NR	NR	NR
OETC Water Quality Analyst Certification	NR	NR	YES or Level 1	NR	NR
Supervisory Skills	3	3	2	2	0
Written Communications	3	2	3	1	1
Technical Writing	3	2	3	1	1
Research Skills	2	2	3	1	1
Budget Preparation, Analysis	3	2	2	0	0
Long Term Planning	2	2	2	0	0
Scheduling, work planning	2	3	2	1	1
Contract Management	3	2	3	1	1
Record Keeping	3	3	3	2	1
Regulatory Requirements	2	2	3	2	1
Emergency Procedures	2	2	3	2	1
Distribution system troubleshooting	1	2	2	2	1
Technical Mathematics	3	2	3	2	1
Sampling	0	3	3	2	1
Fluid Mechanics	1	3	2	2	1
Water Biology	0	2	3	2	1
Valves, piping maintenance	1	3	1	2	2
Blueprint, plan reading	3	3	3	2	2
Spreadsheets, word processing	3	1	3	1	0

Communication

The procedure for communicating to the Mayor and Council is as follows; the QMS Operations Plan, the LVWWWQPPM, the Management Review Report, quarterly and annual reports are circulated to Council as completed. Council accepts the Manuals (with a summary of changes) and Reports by resolution as being received.

The Drinking Water License, Drinking Water Works Permit, QMS Operational Plan and the Policies & Procedure Manual are communicated to the water department personnel during the Annual Training & Review sessions and copies are kept at Works Garage. *(Operators are to be given an up to date copy of the Drinking Water License, the Drinking Water Works Permit, the Policies and Procedures Manual and the Operational Plan each year at the review and training meeting, and advised of the relevance of their duties and how they affect safe drinking water)* Suppliers and the public have access to these documents on the Municipal Web-site. The suppliers and the public can communicate to top management by using the access tools available on the Municipal Website. *(Phone numbers and email contacts are listed for both Council members and management personnel)*

Essential Supplies and Services

A Critical Supplies and Services List is maintained in the LVWWWQPPM. All suppliers of products and services that may affect drinking water quality are selected on their ability to meet or exceed the Laurentian Valley Water Works criteria. Supplier approvals and annual assessments are based on performance, on-time delivery and responsiveness to enquiries and complaints. The Critical Supplies and Services List shall be updated on yearly basis by verifying the phone numbers and names of the key contacts. Changes of suppliers and reasons shall be documented and communicated to key personnel.

Procurement of essential supplies and services are to be done in conformance with the latest version of the Municipal Procurement Policies and Procedures Manual and SOP 14 in the LVWWWQPPM.

Review and Provision of Infrastructure

The majority of the Laurentian Valley Water Works distribution System is less than 35 years old. The number of customers and the water used each year has been pretty static for the last 10 years, the demographic trend for the County as a whole is not conducive to large population growth, so the adequacy of the infrastructure is not a major concern in Laurentian Valley.

None the less, the Ontario Drinking Water Quality Management Standard requires that the condition and adequacy of the infrastructure to operate and maintain the whole system is to be assessed at least once every calendar year. The outcomes of the Risk Assessments documented are also to be considered; *(if an infrastructure upgrade or improvement has been identified as necessary to reduce the impact of a known hazard or hazardous event, it should be included in the review findings)*. This task is completed during the Management Review.

Scheduling of upgrades and rehabilitation is co-ordinated with the Works Department road maintenance schedule.

Expansion of the distribution system is overseen by the CAO and Public Works Manager. Generally, the developer supplies and installs the infrastructure under the supervision of the Municipal Engineer of Record. The Water Works accepts the installed works after confirmation that the system has been installed as per approved plan and bacteriological samples have been taken and analysed by the WQA.

Infrastructure Maintenance, Rehabilitation and Renewal

Laurentian Valley Water Works has a regular inspection and maintenance program, described in detail in the LVWWQPPM. The planned and unplanned maintenance activities are summarized quarterly to Council and yearly in the Annual Report.

Rehabilitation and renewal is discussed each year during budget deliberations and summer works schedule planning of the Works Department. Consideration is given to trends observed in planned and unplanned maintenance activities and age of the piping. Larger projects require a minimum one year lead time for engineering, budgeting and tendering processes. These projects must also be co-ordinated with road work rehabilitation.

The financial resources for these projects shall be detailed in the Financial Plan.

Sampling and Monitoring

Sampling and Monitoring policies and procedures are filed separately in the LVWWQPPM. The results of sampling and testing are communicated to Council and the general public in the Quarterly and Annual Reports.

Measurement and Recording Equipment Calibration and Maintenance

Measurement and Recording Equipment Calibration and Maintenance is documented in the LVWWQPPM.

Emergency Management

There are Standard Operating Procedures for the known risks that may impact the Drinking Water System, detailed in the LVWWQPPM. The Township of Laurentian Valley also has an Emergency Response Plan in accordance to the prevailing legislation and regulations. If an emergency is declared the Chair of the Community Control Group will communicate with the Operator in Charge and the QMS representative in an emergency situation with respect to the drinking water system.

Lists of drinking water system emergency contacts and an essential service and supply contacts are maintained in the LVWWQPPM and supplied to the Emergency Management Co-ordinator.

Upon implementation of the Emergency Response Plan, it will be important to co-ordinate the release of accurate information to the news media, issue authoritative instructions to the public, and respond to or redirect individual requests for, or reports on, information concerning any aspect of the emergency. In order to fulfill these functions during an emergency, the following positions will be established by the Emergency Management Committee:

- a) Emergency Information Coordinator;
- b) Community Spokesperson; and
- c) Citizen Inquiry Supervisor.

All communication will be through these persons, not directly from the Works Department.

The Public Works Manager, the Operations Foreman and the QMS Rep sit in on the annual Municipal Emergency Management sessions. This management group then directs the Operators during the emergency. Documentation of this exercise is to be obtained by the QMS Rep from the CEMC, and placed in the Yearly Binder/Log.

The Operator's training can consist of a table top exercise during the annual review or alternatively, a documented post mortem meeting can be held after an actual emergency or a water main break, to discuss; what went right or what went wrong, what equipment or tools may have been lacking etc.. This training is to be completed, at minimum, once every 24 months.

Internal Audit

The water works operation shall be internally audited a minimum of once per calendar year to see that the physical operation and maintenance of the distribution system conforms to the requirements of the Operational Plan and the Policies & Procedures Manual, for which there is a Drinking Water Quality Management Internal Audit Checklist maintained by the QMS Rep, any deficiencies are to be noted on a CAR Form. A Report is also required, a template is stored in E/13/InternalAudits. There is also a Guideline and reference material (Internal Auditing for the Drinking Water Quality Management Standard), that will be given to the designated auditor, to assist in completing their assignment.

Management Review

Top management shall review the QMS on an annual basis to assess and ensure the continuing suitability, adequacy and effectiveness of the QMS.

The review is to be completed by the CAO or the deputy CAO in his absence, the Public Works Manager and the QMS Representative at a minimum. Members of the Public Works, Property and Protection Committee can be invited to attend. The review meeting shall be arranged by the QMS Rep by internal communication.

The QMS Rep is to provide the agenda and the following background information at least 14 days

prior to the scheduled meeting;

- a) - incidents of regulatory non-compliance
- b) - incidents of adverse drinking water tests
- c) - efficacy of the risk assessment process
- d) - internal and third party audit results
- e) - results of emergency response testing
- f) - operational performance
- g) - follow up on action items identified in previous reviews
- h) - status of management actions from identified between reviews
- i) - changes that could affect the Quality Management System
- j) - consumer feedback
- k) - the resources needed to maintain the QMS
- l) - the results of the infrastructure review,
- m) - Financial & Asset Management Plans
- n) - Staffing - Training & Licencing, Continuity Plan;
- o) - Continual Improvement; *ideas brought forward for Top Management to bring to Council*

At the completion of the management review meeting, a report shall be drafted, circulated to those in attendance to note errors and omissions and then submitted to the Operating Authority(Council), accepted by motion.

Continual Improvement

The Drinking Water Quality Management System (DWQMS), Operational Plan and the Policies & Procedures shall be reviewed once per calendar year with an eye to improving the whole quality management system.

Continual Improvement (CI) opportunities may be the result of; employee suggestions or ideas, corrective action requests (CAR) and opportunities for improvement identified through internal and external audits, preventative maintenance activities, management and infrastructure reviews, customer & supplier comments, changes in technology, best management practices (BMP's) identified by the MOE and owner input.

With regards to non-conformance's identified through internal & external audits, the QMS representative, in consultation with the Operations Foreman and/or the Public Works Manager is required to identify the root causes and edit the Operations Plan and/or the Policies and Procedures Manual to eliminate the root cause of the non-conformance. This process is to be documented using the CAR Form and stored in the CAR/CI Binder stored in the QMS Office.

With regards to BMP's, employee suggestions, deficiencies identified through preventative maintenance activities, customer & supplier comments, changes in technology etc. The QMS Representative shall document these ideas for review, once per calendar year, with the Operations Foreman and/or the Public Works Manager. Those ideas surviving the initial screening will be researched further for cost-benefit analyses and brought forward at the Management Review for approval to proceed to Council for Budget approval.

Version 2009.1

February 2009: Additional Content added throughout, to conform with MOE 160420 Implementing QMS Guide

Version 2011.1

February 2011: updated stats; infrastructure numbers, homes & businesses served,
 March 2011: documents & record control amended to comply with draft License & Works Permit
 August 2011: entered MDWL & DWWP information into the description,
 : amended the system description - CAR 1083, CAR 1086
 : Changes started to account for the retirement of the Works Superintendent, the addition of a Public Works Manager, and the other staffing issues that need to be resolved.

Version 2013.1

January 2013: added a paragraph to Core Competencies to satisfy CAR J0306844-3
 February 2013: Council Commitment & Endorsement Resolution was updated, QMS Rep appointment was updated - to reflect changes in Council and top management and to satisfy CAR J0306844-1
 :updated stats; infrastructure numbers, homes & businesses served, (*two hydrants added in 2012 Edwards & Plummers*)
 March 2013: documents posted on website - to satisfy CAR

Version 2014.1

March 2014: updated the Documents & Records Control Table, entered the location of files on the server, applied consistent retention dating, so that yearly log would not have to be edited for an extra 3 years.
 Added a line to the Management Review Form - Staffing - training - to provide a summary of when operators licenses expire and what training is required to maintain their licenses.

Version 2015.1

Jan 2015 Commitment & Endorsement, updated - new council & Mayor
 Added a paragraph to Essential Supplies & Services, referencing the P&P Manual, CAR JO5857-2
 Feb 2015 Documents & Record Control, added website info - CAR JO5857-4
 Amended various sections and title references for two positions, Public Works Manager & Operations Foreman, Organization Structure, Responsibility, Coverage & Competency (*split the Works Super into 2 positions*)
 Added paragraph to Management Review, CAR JO5857-5
 Added paragraph to Emergency Management, CAR JO5857-6
 Sept 2015 amended system description to match GIS mapping and asset management numbers.

Version 2016.1

August 2016 DW Permit & License Renewed
 Emergency Management section edited, removed operators from annual training, added documentation requirement
 December 2016 Risk Assessment amended to include the MOECC required risks
 Documents & Record Control Pages added to the document

Had to reformat, after adding above noted changes

Version 2018.1

January 2018 updated version number, edited the Organizational Chart to reflect that we no longer have any OIT's we now have 6 Level One Operators
added hydrant on Robinson Lane, updated service connection numbers,

April 26, 2018 Added Approval signature line, documentation that the Public Works

Version 2019.1

March 2019 edited Continual Improvement - CAR - J3102618-1
Edited Infrastructure Review - OFI -
Added forms to Documents & Record Control to track CI & CAR's
Reformatted headings for consistency

April 2019 Commitment & Endorsement updated, new Council
Commitment & Endorsement renewed for Top Management

Manager approved the changes & updates, becomes part of the official document.

____April 24, 2019____
Date

Public Works Manager

