Date of Re-assessment: November 21, 2024 | DWS Assessed: Bevan Heights DWS | Date Reviewed: December 8, 2023 | *DWQMS Risk Assessment Threshold = 25*

Recognize							Assess				Control			
Element or Process Step							Risk Evaluation							
#	Process Category	Description of Process	Hazardous Event	Potential Hazard	Current Available Control Measures	Reliability/Redundancy of Equipment	Likelihood (1-5)	Consequence (1-5)	Detectability (1-5)	Assessed Risk (L x C x D = 1 - 125)	CCP? Yes or No	Critical Control Limits (can be qualitative or quantitative; use appropriate units)	Relevant Procedures	Potential Additional Controls
1	Upstream Transmission (Region)	Upstream Water Quality from Niagara Falls WTP	Inadequate disinfection or inadequate chlorine residual	Biological contamination of water	Region monitors at St. Paul Ave. Testing completed in NF at Stanley Ave & Church's Lane	NA	2	3	2	12	No - Under Regional Control	-	-	-
2	Upstream Transmission (Region)	Upstream Water Quality from Niagara Falls WTP	Chemical or physical contamination at water source or at chemical addition	Chemical contamination of water	Region manages treatment process	NA	1	4	4	16	No - Under Regional Control	-	-	-
3	Upstream Transmission (Region- Niagara Falls WTP)	Upstream Water from Niagara Falls WTP through transmission main	Break in transmission main	Insufficient supply of water - all purposes	Double supply (also from DeCew) Second supply coming from St. Catharines (Eastchester) now operational Adequate supply from NF, but concerns that Town may not be able to supply all areas (some at higher pressures)	NA	2	2	1	4	No	-	-	-
4	Upstream Transmission (other Municipalities)	Upstream Water through other Municipalities' systems	Contamination of water through other Municipalities' systems	Biological/chemical contamination	Biological - weekly testing of micro & residual	NA	1	4	4	16	No - Under Regional Control	-	-	
5	Distribution (Town)	Watermain - distribution, infrastructure (i.e. Watermain break)	General physical failure of watermains due to aging, deterioration	Insufficient supply (all purposes) Biological/chemical contamination	Watermain repair procedure in place: PW-DW-SOP-011-001 No leak detection programs in place. 80% or more PVC/PE - infrastructure	- Minimum essential supplies required in stock - Essential Supplies & Services list for approved suppliers & services (PW-DW-LM-009-001) in emergency situations, with 24 hour numbers on Emergency Contact List (PW-DW-LM-014-001) - Aggressive replacement program, system largely renewed	4	1	3	12	No	-	-	-
6	Distribution (Town)	Watermain - distribution, infrastructure	Biological contamination occurring during regular operations - i.e. biofilms	Biological contamination of water	Flushing program in place (annual): PW-DW-SOP-011-003 Weekly sampling & testing for micro (including HPC) and chlorine residual (PW-DW-SOP-012-001)	NA	1	3	2	6	No	-	-	-

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7	Distribution (Town)	Watermain - distribution, infrastructure	General chemical/physical contamination	Chemical contamination of water	Majority of system is constructed in PVC/PE. Flushing program in place (annual) (W-DW-SOP-011-003)	NA	2	3	3	18	No	-	-	-
8	Distribution (Town)	Watermain - distribution, infrastructure	Lead contamination (chemical)	Chemical contamination of water	Period of regulatory relief from community lead testing program. Relatively few incidents of lead in drinking water system	NA	1	2	2	4	No	-	-	-
9	Distribution (Town)	Watermain - distribution, infrastructure	Geological fault - i.e. earthquake	Insufficient supply (all purposes)	No incidents in recent history - any tremors have not been substantial enough to cause damage to the system.	- Minimum essential supplies required in stock	1	1	1	1	No	-	-	-
10	Distribution (Town)	Watermain - distribution, infrastructure	Heat wave	Insufficient supply (all purposes)	Water restriction bylaw in place. Consultation with the Region occurs during summer months re: storage monitoring, etc.	NA	2	2	1	4	No	-	-	-
11	Distribution (Town)	Watermain - commissioning of new watermains	Contamination of water - new connections to distribution system	Biological contamination of water	New connections completed by contractor under supervision of licensed operator. Bacteriological testing completed prior to turning water on. Would not connect main if testing had not passed.	NA	-	-	-	N/A	-	-	-	Watermain not commissioned yet, therefore not applicable.
12	Distribution (Town)	Watermain - distribution, infrastructure	Deep freeze	Frozen services or mains, supply loss	Service thawing machine	one machine in stock - possibility of borrowing from other local municipalities if needed	2	1	2	4	No	-	-	-
13	Distribution (Town)	Watermain - distribution, infrastructure	Extreme weather conditions (tornad0, ice storm, flood, etc.)	System failure or loss of access to control valves	Tiger torch, steamer, road plow trucks, backhoes	multiple types of equipment on hand and available contractors	1	2	1	2	No	-	-	-
14	Distribution (Town)	Watermain - distribution, infrastructure	Long term impact of climate change	System failure or inadequacy	mulitiple transmission feeds and two source water feeds	multiple transmission feeds and valves for isolation	1	2	1	2	No	-	-	-

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15	Distribution (Town)	Watermain - distribution, infrastructure	Water supply shortfall - drought or other reasons	Insufficient supply for all purposes	multiple transmission feeds and two source water feeds	NA	1	5	1	5	No	-	-	Water restriction options through By-law
16	Distribution (Town)	Repair of watermains	Contamination of water - repair to watermain	Biological contamination of water	Repair completed by staff or by contractor under supervision of licensed operator. Bacteriological testing completed but water is turned on prior to results. Chlorine residual testing completed.	- Minimum essential supplies required in stock	1	3	5	15	Yes	AWWA C651 **Niagara Municipalities SOP for Watermain Repairs & MECP Dissinfection Procedure**	AWWA C651 **Niagara Municipalities SOP for Watermain Repairs & MECP Dissinfection Procedure**	Wherever possible, reinstate main only following receipt of results
17	Distribution (Town)	Cross-connections & backflows	Cross-connections & backflows from industrial, agricultural or multi-storey residential service and new construction source water	Biological or chemical cross-contamination of water	Backflow prevention included in new water management bylaw. System runs at high pressure - reduced potential for negative/low pressure events.	NA	2	3	4	24	No	Immediate response to backflow events upon becoming aware of event	Suspected Backflow Event PW-DW-PRO-014-006	Backflow bylaw being approved. BSI Online contracted for tracking devices and tests
18	Distribution (Town)	Cross-connections & backflows	Cross-connections and/or backflows from residential services (i.e. private interconnections to well or cistern)	Biological or chemical cross-contamination of water	No backflow bylaw in place. System runs at high pressure - reduced potential for negative/low pressure events.	NA	1	3	4	12	No	Immediate response to backflow events upon becoming aware of event	Suspected Backflow Event PW-DW-PRO-014-006	Backflow bylaw being drafted. BSI Online contracted for tracking devices and tests
19	Distribution (Town)	Low Chlorine, for example: dead ends	Stagnant water - low chlorine residuals, bacterial regrowth	Biological contamination of water	Flushing completed annually (more often if required). No recent issues with chlorine residuals. Weekly chlorine residuals checked as well as chlorine samples taken with every microbiological sample	- 3 Chlorine Analyzers, meters calibrated quarterly as per PW-DW-PRO-013-001 - Minimum essential supplies required in stock	4	2	3	24	Yes	Maintain minimum free residual of 0.10 mg/L	Water Sampling of Water Distribution System (PW-DW-SOP-012-001); Annual Watermain Flushing (PW-DW-SOP-011-003)	Critical Control Procedure for Low Chlorine in the Distribution System (PW-DW-SOP-018-001)

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#	**Process Category**	**Description of Process**	**Hazardous Event**	**Potential Hazard**	**Current Available Control Measures**	**Reliability/Redundancy of Equipment**	Likelihood (1-5)	Consequence (1-5)	Detectability (1-5)	Assessed Risk (L x C x D = 1 - 125)	**CCP? Yes or No**	**Critical Control Limits (can be qualitative or quantitative; use appropriate units)**	**Relevant Procedures**	**Potential Additional Controls**
20	Distribution (Town)	Water delivery system - filling from hydrants (authorized connections)	Failure of Backflow Prevention devices	Biological or chemical contamination of water	Agricultural/contractor users can rent hookup from Town (meter & BFP) for irrigation during set hours This issue is controlled through the application process	-a procedure to check backflow protection devices (checked annually) - Monthly inspection of both Bulk Water Station	2	3	4	24	No	Program in place Backflow Preventers tested annually (contracted service)	DWQMS Operational Plan (PW-DW-OP-001-001) Section 15: Infrastructure Maintenance, Rehabilitation & Renewal	Inspection during filling Education of customer
21	Distribution (Town)	Watermain - distribution, infrastructure (i.e. Leaks)	Minor physical failure of watermain (i.e. Breaks which could include natural or contractor damage)	Biological contamination of water	100% of system is constructed in PVC (newer). No leak detection program.	- Minimum essential supplies required in stock	3	2	4	24	No	AWWA C651 **Niagara Municipalities SOP for Watermain Repairs & MECP 2020 Dissinfection Procedure**	AWWA C651 **Niagara Municipalities SOP for Watermain Repairs & MECP 2020 Dissinfection Procedure**	-
22	Distribution (Town)	Fire hydrant performance (public and private)	Malfunction of hydrants (leaks, freezing etc)	Water loss, loss of pressure for fire flows	Some self-draining hydrants. Hydrant inspection program in place (monthly during winter, otherwise 20% inspected per year). Includes accessibility - Town digs out hydrants. Town inspects all hydrants (public and private).	- Minimum essential supplies required in stock	5	2	2	20	No	-	-	-
23	Distribution (Town)	Customer linkages - fire sprinkler systems	Cross-contamination from private sprinkler systems	Biological or chemical contamination of water	Backflow preventers required as part of Fire Code	NA	1	3	5	15	No	-	-	

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24	Distribution (Private - downstream)	Customer elements - customer system issues	Lead contamination from private connections (pipes, soldered joints, faucets)	Chemical contamination of water (lead)	No known lead services; lead lines are replaced up to property line as they are found. Property owners are advised to do the same. Procedure for replacement: PW-DW-SOP-011-017 Qualified for regulatory relief for lead sampling.	NA	1	2	2	4	No	-	-	-
25	Upstream Transmission (Region- St. Catharines WTP and Niagara Falls WTP)	Upstream Water from St. Catharines WTP and Niagara Falls WTP through transmission mains	Cyber-security	Untreated or mistreated water from WTP's	Niagara Region has Cyber-security policy and processes in place Qualified for regulatory relief for lead sampling.	NA	3	2	2	12	No	-	-	Niagara Region Cybersecurity policies and procedures as per letter dated August 3, 2022