

Document:	ENV-FM-OP Record of Watermain Installation and/or Connection
Applicability:	Linear
Activity ID:	

This document separates the following activities to be documented, as required for individual scenarios:

1. General Activity/Watermain/Project Information

2. New Watermains:

- [Backflow Prevention for New Watermains](#)
- [Cleaning and Disinfection of New Watermains](#)
- [Microbiological and Other Sampling of New Watermains](#)

3. Tapping and Connecting Watermains:

- [Tapping Information](#)
- [Information on Connections and Placing into Service](#)

Appendix 1: Regional Water Quality Standards

Appendix 2: Items to be documented as per MECP Watermain Disinfection Procedure (Aug, 2020) Section 3.1 Documentation for New Watermains

Hydrostatic testing of the watermain and/or connection against a valve must not proceed until satisfactory Microbiological Sample results are received. New watermains physically separated from the system may be pressure tested prior to disinfection.

Items marked with an asterisk () are required to be documented by regulation; all other items are required to be completed (when applicable) and documented for supporting regulatory compliance.*

Complete applicable sections of this documentation package as activities occur and send completed copies to SI-Policy & Compliance Coordinator ([Emily Jardine](#)) for filing in Intellex.

Note: when new development or Local Municipality infrastructure is involved, the Local Municipality should receive copies of this form and attachments for their records.

Alternate documentation methods (e.g. specialty contractor's disinfection and commissioning packages) may be considered. Please provide to the Region's project representative with a minimum of two (2) weeks for review and comment prior to the planned activity.

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Title/Identification of New Watermain Activity – documented for every section of this form

Project ID, Watermain Name or ID, etc:
<i>REMINDER: record the total volume of water lost during installation in the Water Loss Tracking Tool</i>

Helpful tip: Asset ID is made up of two parts separated by a dash

1st Part: "Contract Number" (all spaces and dashes are removed for Asset ID name)

2nd Part: "Chamber #"

Example: Watermain ID is PW200510-03

General Activity/Watermain/Project Information

Activity Performed – select all that apply for the entire activity/project (not just today's activities)

Activity/Activities:	<input type="checkbox"/> New Installation	<input type="checkbox"/> Tapping	<input type="checkbox"/> Connection
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***Schematic or Map (capture from GIS and markup a digital copy, or obtain as part of the disinfection plan, attach to record)**

Include on Map:

- Backflow protection installation locations
- Chlorine Injection or Application points
- Flushing/Discharge Points
- *Microbiological and Residuals Sampling Points
- Valves and major appurtenances – line valves, branch valves and status open/closed, valve chamber number, etc
- Watermain diameters and materials (existing and new)
- Any nearby major intersections, maintenance hole/chambers, hydrants, other appurtenances, etc.

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Backflow Prevention (BFP) for New Watermains

Backflow Prevention Devices are required for installation and filling of new watermains.

Be sure to note installation location(s) of BFP on the map

*BFP Method Used:	<input type="checkbox"/> Air Gap (CSA B64.10)	<input type="checkbox"/> RP (AWWA C651, CSA B64.10, B64.10.1)
*RP tested as per 1.1.1 of MECP Procedure? <input type="checkbox"/> Yes		
BFP relocated same day?	<input type="checkbox"/> No	<input type="checkbox"/> Yes
If applicable, Name of Certified Operator who guarded the BFP during relocation (and their employer, if not York Region):		
Owner/Agent Responsible for installing and testing BFP: <input type="checkbox"/> York Region <i>(please specify Name of Branch and Staff Name):</i> <input type="checkbox"/> Local Municipality (LM) <i>(please specify Name):</i> <input type="checkbox"/> Specialty Contractor <i>(please specify Name):</i>		
<i>If the BFP is installed on Regional infrastructure, a copy of the test certificate is required and must be attached to this record.</i> <i>When the BFP is installed on non-Regional infrastructure, written confirmation from the Local Municipality's Water Operations representative that they are satisfied with the BFP device, disinfection process, and sampling results to be attached to the Region's record. Obtaining copies of Local Municipality certificates is optional but preferred.</i>		

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Cleaning and Disinfection of New Watermains

Preliminary Cleaning of New Watermains (Before Disinfection)

Preliminary swabbing and/or flushing: AWWA C651 – 4.4.2 and 4.5.2; MECP Procedure – 1.1.2; as needed: York Region Technical Specification 02511.

*Pre-disinfection swabbing:	<input type="checkbox"/> No	<input type="checkbox"/> Yes
*Pre-disinfection (preliminary) flushing:	<input type="checkbox"/> 3 ft/sec (0.91m/sec)	<input type="checkbox"/> flush 2-3 pipe volumes
<input type="checkbox"/> Turbidity after preliminary flushing and/or swabbing is less than 1.0 NTU		
<i>REMINDER: record the total volume of water lost in the Water Loss Tracking Tool and/or Maximo</i>		

Watermain Disinfection

Disinfection: AWWA C651 – 4.1 to 4.7; MECP Procedure – 1.1.2

*Disinfection Method (minimum contact time is noted next to each type of disinfection)			
<input type="checkbox"/> Tablet (24 hrs)	<input type="checkbox"/> Continuous Feed (24 hrs)	<input type="checkbox"/> Slug (3 hrs)	<input type="checkbox"/> Spray (30 mins)
*Chemical Meets AWWA and NSF 60?		<input type="checkbox"/> Yes	(obtain copy)

*Chlorine Concentrations at Start and End of Contact Time			
*Disinfection Started: dd-mmm-yyyy		hh:mm 24hr	
*Contact Period Ended: dd-mmm-yyyy		hh:mm 24hr	
*Location (reference the points on map)	*Start (mg/L)	*End (mg/L)	*Decrease in mg/L (% decrease also required for tablet or continuous feed methods)

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Microbiological and Other Sampling of New Watermains

**REMINDER: mark approximate locations of samples on the map and record disinfectant residuals at the time of sampling on the Chain of Custody form.*

Be sure to attach a copy of the Chain of Custody form(s) and results to this record.

*Microbiological samples taken? <input type="checkbox"/> Yes	If yes, how many sets?
Other samples taken? <input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Regional Water Quality Standards are satisfied – Refer to Appendix 1.	
<input type="checkbox"/> Sample results reviewed and accepted by OMM (required before watermain can be placed into service)	
*Chain of Custody number(s):	

Staged Sampling (if applicable)

<p>Staged Sampling where limited sampling points available:</p> <p><i>(calculate intervals to represent length of watermain as per 5.1.1.2 and 5.1.1.3 of AWWA C651)</i></p> <p>*Flow Rate (L/s) _____ *Calculated Length (m) _____</p> <p>*Time each sample is taken: (hh:mm 24hr, include dates if spanning multiple dates)</p>
<p>REMINDER: record the total volume of water lost in the Water Loss Tracking Tool and/or Maximo</p>

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Tapping of Watermains

Confirm: all surfaces and equipment which will come into contact with Drinking Water have been cleaned and disinfected using a minimum of 1% sodium hypochlorite solution immediately prior to installation. If any disinfected surfaces came into contact with soil and/or water in the excavation, cleaning and disinfection was repeated.

SDS sheet provided for disinfectant (compliant to AWWA and NSF/ANSI/CAN 60)

Proper disinfection of all surfaces and equipment for tapping is satisfactory

A Certified Operator directly supervised and/or performed the tapping

Name of witnessing Certified Operator:

Name of witnessing Operator's employer:

Date of Tapping: dd-mmm-yyyy

Notes regarding Tapping activity, e.g. Live Tap or Dry Tap (optional):

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Connection and Placing into Service (1 of 2 pages)

General Information regarding any Connection (complete as many copies as required)

In all situations, the Region requires a minimum chlorine residual of 0.5 mg/L (or representative of the area) after flushing and prior to placing the watermain into service. If the chlorine residual dropped below 0.05 mg/L for a free system or 0.25 mg/L for a combined system at any time following initial disinfection, re-flushing and microbiological re-sampling (at a minimum) are required before the watermain can be placed into service.

☐ **Length of Connection ≤ 6m (One Pipe Length)**

*Name of Certified Operator (and their employer) that witnessed installation and disinfection of the Connection:

If not witnessed by a Certified Operator, the connection must remain isolated, except while being flushed or sampled, until at least one satisfactory microbiological sample that meets Regional Water Quality Standards is received, reviewed and approved by OMM.

*Chain of Custody number:

Type of system: ☐ Free Chlorine ☐ Combined Chlorine

*Post-flushing Chlorine residual (as applicable)

Free (mg/L)

Total or Combined (mg/L)

☐ **Length of Connection >6m (Greater than One Pipe Length)**

Approximate length of Connection (m): [free text box]

Connections >6m shall be undertaken in accordance with Section 4.10.2 of ANSI/AWWA Standard C651 unless exercising the exception to standard requirements (up to a maximum length of 40m)

*Reason for exception: ☐ Disturbance to existing thrust block ☐ Impact to major road corridor

A Certified Operator must witness the installation and disinfection of the connection. The connection must remain isolated, except while being flushed or sampled, until two satisfactory microbiological samples that meet Regional Water Quality Standards are received, reviewed and approved by OMM.

*Name of Certified Operator and employer:

*Chain of Custody number(s):

Type of system: ☐ Free Chlorine ☐ Combined Chlorine

*Post-flushing Chlorine residual (as applicable)

Free (mg/L)

Total or Combined (mg/L)

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Sanitary Conditions and Disinfection for Connection

*Sanitary Construction Practices Followed?	<input type="checkbox"/> No	<input type="checkbox"/> Yes
*Proper Disinfection Performed?	<input type="checkbox"/> No	<input type="checkbox"/> Yes

Return to Service of Watermains Isolated from the Distribution System** (if applicable)

<input type="checkbox"/> Flush and Microbiological Sample <input type="checkbox"/> Flush, Re-disinfect, and Microbiological Sample <p>**A plan must be developed to re-commission the isolated watermain (as detailed in Technical Specification 02511 and MECP Watermain Disinfection Procedure Section 1.7) and it must be reviewed and approved by OMM before implementation. Retain or attach a copy of the re-commissioning plan for proof of compliance.</p>
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Date and Time Watermain was Placed into Service

Date watermain placed into service: <i>dd-mm-yyyy</i>
Time watermain placed into service: <i>hh:mm 24 hr</i>
Type of system: <input type="checkbox"/> Free Chlorine <input type="checkbox"/> Combined Chlorine
*Post-flushing Chlorine residual (if not recorded under connection, e.g. delayed placing into service)
Free (mg/L)
Total or Combined (mg/L)
<i>Reminder: If free ≥ 0.05 mg/L or combined ≥ 0.25 mg/L is not maintained prior to placing into service, repeat flushing and microbiological sampling, as per 1.1.3 of MECP Watermain Disinfection Procedure</i>

Any additional comments regarding Connections and Placing into Service (Optional)

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Form Review

Complete as applicable.

Form Completion: Who completed the Form(s)? Complete all that applies.

<input type="checkbox"/> Subcontractor Company Name: Name of Person(s) and Role(s):
<input type="checkbox"/> Developer's Agent Company Name: Name of Person(s) and Role(s):
<input type="checkbox"/> York Region OMM Group: <input type="checkbox"/> Linear Team <input type="checkbox"/> East Team <input type="checkbox"/> West Team <input type="checkbox"/> Central Team Name of Person(s):

Form Review: Who reviewed the Form(s) completion? Complete all that applies.

<input type="checkbox"/> York Region CPD Group: <input type="checkbox"/> Project Team <input type="checkbox"/> Delivery Implementation <input type="checkbox"/> Other Name of Person(s) and Role:
<input type="checkbox"/> York Region IAM Group: <input type="checkbox"/> Approvals <input type="checkbox"/> Capacity Assignment and Servicing Agreements Name of Person(s) and Role:
<input type="checkbox"/> York Region OMM Group: <input type="checkbox"/> Linear Team <input type="checkbox"/> East Team <input type="checkbox"/> West Team <input type="checkbox"/> Central Team Name of Person(s):

Please send completed form, photos and other items to emily.jardine@york.ca

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Appendix 1: Regional Water Quality Standards

Water Infrastructure	Microbiological Parameter (units CFU/100mL)			
	E. Coli	Total Coliform	Background Count	Heterotrophic Plate Counts
Transmission/Source/Storage	Absent, 0	Absent, 0	20	50

Water Chemistry Parameter	Standard
Chlorine (free or combined systems) ¹	0.5 mg/L ¹ (or representative of the system)
Turbidity	< 1.0 NTU
pH	7 - 8.5

¹Regional standard requiring a higher minimum residual (at the time of placing a watermain into service) than what is required by MECP.

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Appendix 2: Items to be documented as per MECP Watermain Disinfection Procedure Section 3.1 Documentation for New Watermains

Backflow Prevention:

- One of Two Options:
 - o Air gap (as defined in CSA Standard B64.10), or
 - o Reduced Pressure Principle Backflow Preventer (as per Section 4.8.9 of ANSI/AWWA C651, CSA B64.10.1)
- Backflow preventer tested as per Section 1.1.1 of MECP procedure.

Pre-disinfection swabbing and/or flushing have been completed.

Disinfection Process:

- Method of disinfection
- Disinfection chemical complies with both the AWWA and NSF/ANSI/CAN 60 Standards
- Date and Time disinfection started, and Date and Time contact time ended
- Chlorine concentration at start and end of contact time at each sampling point
- Decrease in chlorine concentration in mg/L and/or percentage as applicable

Microbiological Sampling referred to in Section 1.1.3:

- Schematic or drawing showing approximate location where Microbiological Samples were taken
- Microbiological and disinfectant residual sample results
- For staged sampling: flow rate, time each sample was taken and calculated length

Connections referred to in Section 1.1.4:

- Length of Connection
- Confirmation whether sanitary construction practices were followed
- Confirmation that proper disinfection was performed
- Name of Certified Operator present for the installation of the Connection (if applicable/required)
- Results of Microbiological and disinfectant residual samples (if applicable/required)
- Reason for using the exception under s. 1.1.4.2 (if used)
- Disinfectant residual after watermain is flushed and put in service
- Date and time watermain was placed into service

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