

Appendix I
2019 Annual Drinking Water Systems Summary

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Drinking Water System	Responsibility	Legislative Requirement	Statement of Non-Compliance	Immediate Action Taken	Control Measures
Palgrave – Caledon East Caledon Village – Alton Inglewood Cheltenham South Peel Distribution	Region of Peel	Ontario Regulation 170/03 Schedule 6-5(1)3 A certified operator must examine continuous monitoring test results within 72-hours after the tests are conducted. Municipal Drinking Water Licence (MDWL) Schedule D, Condition 1.1, Conditions for Relief from Regulatory Requirements The daily minimum, maximum and average free chlorine residuals and UV disinfection parameters must be reviewed at a minimum every 72-hours, supplemented by a review of continuous trends when the daily minimum, maximum and average results warrant further investigation.	Test results from October 24, 2019 were not reviewed within the 72-hours time period. The review was completed and signed off by a certified operator on October 28, 2019, by 8:24 am, approximately 8.5 hours overdue, caused by staffing demands. Review of the minimum, maximum and average free chlorine residual and UV disinfection parameters concluded that water quality did not deviate from established standards and the data did not require further investigation of continuous trends.	On November 6, 2019, when this oversight was identified, the Region notified the Ministry of Environment Conservation and Parks (Ministry).	On December 5, 2019, the Region developed and implemented two-step automated e-mail notifications that are sent prior to the 72-hour report review deadline. If the reports have not been signed off by 15 hours before the deadline, an e-mail notification reminder is sent to all certified operators who complete the 72-hour report review. If the reports have not been signed off by 12 hours before the deadline, a second e-mail is sent and escalated to management for information and action, if required. Peel's corrective action in response to this non-compliance provides a tool to ensure that test results are reviewed within the 72-hour deadline.
Cheltenham	Region of Peel	Municipal Drinking Water Licence No. 009-104 Schedule B, Section 10.1 Water systems must not discharge a contaminant into the natural environment that causes, or is likely to cause, an adverse effect.	On Tuesday April 9, 2019 it was determined that there was an unplanned spill from the Cheltenham Reservoir that had occurred from Friday April 5 until Monday April 8 which resulted in 153 m ³ of potable drinking water being released into the environment through the immediate surrounding ground/soil.	Upon discovery that the water level in the isolated reservoir was dropping, staff investigated and found the drain valve was not snugly closed. The drain was immediately adjusted to fully closed, stopping further water release. The event was reported to the Ministry on April 11, 2019.	A new practice has been implemented for staff to monitor computer control system trends closely for drop in the water storage levels, which will be investigated immediately. Procedures currently are being updated to include this direction.
Inglewood	Region of Peel	Permit to Take Water (PTTW) #0838-AZRFZ5 Condition 3.3 Combined daily water taking of the individual wells shall not exceed 1,296 m3.	On December 19, 2019, the combined daily water taking from the three Ingelwood wells totalled 1,318.23 m3, which is 22.23 m3 (1.7%) over the limit. Inglewood Reservoir Cell #3 was filled on December 19 after being empty for 5-year major maintenance inspection. The Cell #3 capacity is 1,000 m3, plus daily system demand in December is typically 250-300 m3. These combined demands resulted in the high water taking.	On February 10, 2020, review of December 2019 data revealed the daily water taking exceedance that occurred on December 19, 2019. The event was reported appropriately. It is suspected that addition of the well totalizer was missed during transition to a new computer control system platform, although staff are investigating the root cause so that effective corrective actions and preventative measures can be applied.	Region staff are working on creating a well water taking totalizer with reporting and alarming functions.

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Arthur P. Kennedy Water Treatment Plant	Ontario Clean Water Agency (OCWA)	Municipal Drinking Water Licence No. 009-101, Schedule B, Section 10.1 Water systems must not discharge a contaminant into the natural environment that causes, or is likely to cause, an adverse effect.	On February 21, 2019, to accommodate work within the area, flow from a sanitary sump pit (primarily discharging ground water and process water) was temporarily redirected to the primary plant outfall that discharges to Lake Ontario. Operations staff noticed the level increasing in the flood pump sump pit and went to investigate. Upon arrival it was observed that the water within the sumps was blue in colour. Investigation revealed that the blue water was coming from a separate work area where paint was being removed from piping. During the event, which lasted approximately four hours, an estimated 1000 litres of water containing paint entered the outfall.	As soon as it was discovered, operations stopped the sump pumps that were directed to the outfall and manually pumped out water containing paint dust from the flood sump and cleaned the sanitary sump area of paint. Work area where paint was being removed was secured and areas covered where paint dust could encounter water and flow to drain. Contractor was also instructed to clean the area more frequently using brooms and mops and to properly dispose of paint dust and wastewater collected. The event was reported to the Ministry appropriately.	Grinding of old paint off the pipes resulted in dried powderized paint falling to the floor. The intention was that contractor sweep it once all paint removal was completed. Floor of this particular area of the facility gets wet from groundwater seepage, which collected some of the the paint dust and washed it into the drain. Per Immediate Action, the wet areas were covered so dust wouldn't get washed to drains and contractor cleaned up more frequently. Review of site specific conditions in work areas will be conducted with contractors and staff.
			A sanitary sump pump failure caused water buildup in the ozone gallery. The pump was repaired but failed again. On July 13, 2019, staff used a submersible pump to direct water from the pit to outside of the building. It was believed that sump pit water did not contain chlorine. On July 25, 2019, an operator tested the discharge water and identified that it contained 0.50 mg/L chlorine.	Once chlorine was discovered, the pump was stopped. The event was reported appropriately. Dechlorination pucks were placed into the sump pit and outside near the storm basin. A diffuser with dechlorination pucks was added to the discharge point and was monitored when pumping resumed.	On July 31, 2019, the new sump pump was installed, directing sump contents to the sanitary sewer as usual.

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Lorne Park Water Treatment Plant	OCWA	Ontario Regulation 170/03 Schedule 6, Section 6-5 (1) Continuous monitoring and recording must be carried out every 15 minutes for filter effluent turbidity readings.	After being out-of-service for an extended period of time, Membrane Filter Train 42 was placed into service on July 2, 2019 at 2:05 pm. On July 8, 2019, at 10:01 am, the train was taken offline for routine turbidimeter calibration, at which time staff discovered that the turbidimeter sample line was isolated resulting in no sample flow through the turbidimeter for the period of July 2-8, 2019.	Sample line was immediately opened to re-establish flow to the turbidimeter and Membrane Train #42 was kept offline during investigation. The event was reported appropriately. After calibration was completed, the analyzer recorded a turbidity value of 0.024 NTU. Continuous turbidity monitoring data for the South Filtered Conduit was reviewed for July 2-8 and showed a maximum turbidity of 0.30 NTU and average turbidity of 0.05 NTU, both within legislated range. During this time, Membrane Train 42 operated under normal conditions and underwent regular maintenance cleans. Membrane Integrity Tests were completed daily and the resulting Log Removal Values were within the normal operating range. Four routine treated water microbiological samples were collected at the plant during this period and all showed no presence of E. coli or Total Coliform bacteria. Membrane Train #42 was returned to service.	Following the July 8 calibration of Membrane Trains 42 and 45, on July 9, Train 45 was discovered to have no flow through the turbidimeter although the sample valve was open. An adjustment restored flow. Although there are no control measures to prevent reoccurrence, staff have been directed to check for flow through all turbidimeters each time they perform their routine rounds of the facility. Rounds occur twice per 12-hour shift.
			On July 9, 2019 at 1:46 pm, it was discovered that there was no sample flow to the Membrane Train 45 effluent turbidimeter while the Membrane Train was in production. Sample flow to the turbidimeter had last been verified as satisfactory on July 8, 2019 at 10:48 am.	Membrane Train 45 was taken out of service. The sample flow isolation valve on the permeate turbidimeter was confirmed to be in an open position. Sample flow to the turbidimeter was re-established, at which time the turbidity measured 0.018 NTU. The event was reported appropriately. Continuous turbidity monitoring data for the South Filtered Conduit was reviewed for the event duration and showed a maximum turbidity reading of 0.08 NTU and average of 0.05 NTU, well below the legislated limit. Membrane Train 45 was returned to service.	
			On December 5, 2019, at 9:20 am, staff discovered that the hand valve on the sample line to Conventional Filter 10 turbidimeter was closed, resulting in no flow through the turbidimeter while the filter was in production. Sample flow to the turbidimeter had last been verified as satisfactory on December 4, 2019 at 08:50 am.	Filter 10 was taken offline. A grab sample of Filter 10 effluent yielded a turbidity result of 0.067 NTU. The event was reported appropriately. Continuous turbidity monitoring data for the South Filtered Water Conduit for the period showed a maximum turbidity of 0.06 NTU and an average of 0.03 NTU, both well below the legislated limit. Results of a treated water sample collected from the Lorne Park reservoir on December 5 at 11:00 am showed no presence of E.coli or Total Coliform bacteria. The filter was returned to service.	Communication was provided to operations personnel to ensure flow to turbidity analyzers during their daily rounds. As part of the corrective action, all isolation valve handles have been removed from the conventional filter and membrane train turbidity analyzers to prevent a reoccurrence. Feasibility of modifying all filter effluent turbidity analyzers with a see-through rotameter valve is being assessed.

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		<p>Municipal Drinking Water Licence No. 009-101, Schedule D, Section 2.3</p> <p>Ensure that chemical coagulant feed interruptions do not exceed 15 consecutive minutes in duration while the conventional treatment process is directing water to users</p>	<p>On June 12, 2019, from 10:41 am to 12:00 pm and 12:03 pm to 12:27 pm, the Lorne Park Water Treatment Plant experienced an interruption of coagulant feed to the conventional treatment process. At the time of event, the conventional plant low lift pumps were running but the volume of water did not register on the associated flow meter. Since the flow meter did not register a flow, coagulant was not automatically added.</p>	<p>Upon discovery, the conventional plant was immediately shut down. The event was reported appropriately.</p> <p>Review of continuous monitoring data on the treated water for the duration of the coagulant feed interruption identified no fluctuations in free chlorine or turbidity, where the minimum free chlorine residual was 1.36 mg/L and the maximum turbidity was 0.03 NTU.</p> <p>Due diligence microbiological samples were collected from the Lorne Park WTP reservoir and five downstream locations in the distribution system on June 12, 2019, as well as routine microbiological samples that were performed that day at the west side storage reservoirs. All lab results demonstrated no presence of E. coli or Total Coliform bacteria in any of the samples collected.</p> <p>While the conventional plant was shut down, water was drained from the flocculation and settling tanks and filters were backwashed to remove any remaining inadequately coagulated water prior to returning the conventional plant to service.</p>	<p>To prevent a reoccurrence, the system programming was adjusted to monitor the low lift pump running status and a new critical alarm was implemented for low lift pump run status.</p>

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South Peel Distribution System	OCWA	Municipal Drinking Water Licence No. 009-101, Schedule B, Section 10.1 Water systems must not discharge a contaminant into the natural environment that causes, or is likely to cause, an adverse effect.	On May 9, 2019 at 11:45 am, staff filled the East Brampton Reservoir Cells 3 & 4 following construction work. The filled cells were sampled for bacteriological testing and left isolated while awaiting sample results. On May 11 at 8:03 am, control room operator noticed that the reservoir level had slowly decreased over the period of time of the isolation. An estimated volume of 2.5 ML of water leaked into the stormwater system over a 3-day period.	Investigation confirmed that reservoir drain valves had not closed fully and potable water (0.80 mg/L free chlorine and 1.04 mg/L total chlorine) had been leaking to storm sewer. Drain valves were closed and spill of potable water was reported appropriately. The bacteriological sample results were satisfactory, confirming potable quality water. Control room operator continued to monitor reservoir levels and observed that levels were still slowly dropping. Pumping station was turned off, confirming that leakage was not going to the drinking water system. The reservoir was isolated and Cells 3 & 4 fully drained. Internal inspection confirmed that leakage from the construction joints had entered the weeping tile drain chambers that discharge into the environment.	Since the event the reservoir cells have remained out of service and a capital project is underway to repair the reservoir construction joints and roof membrane.
	Region of Peel		On August 28, 2019 at 2:10 am, operations staff was notified of flooding at the Silverthorn Pumping Station. Water flooded a construction site on the facility property and the street and silty water entered nearby stormwater catch basins. The source of the incoming water was failure of a 600 mm diameter feedermain within the capital construction project site on pumping station property. The feedermain was isolated and release stopped at 3:55 am. An estimated volume of 10.15 ML of potable water was discharged to the environment.	Upon notification of the flooding, control room operators turned off high lift pumps to the area and adjusted transmission system pumping to stop the release. The spill was reported appropriately and Operations staff were dispatched to site. Silverthorn Pumps 3 & 4 were isolated and discharge lines were disinfected prior to return to service. Local distribution operations staff were dispatched to collect bacteriological samples in the affected area to confirm integrity of the system was not compromised due to the low-pressure event. A total of 8 samples were collected, all of which yielded satisfactory results for bacteriological parameters and chlorine residual.	The pipe in the chamber failed at the joint because of the water pressure against the closed valve downstream. A more rigorous shut-down protocol has been implemented for this project, involving more thorough review and sign-off from the project team and Consultant. Based on the effectiveness of this approach at Silverthorn, this process is being considered for roll-out to other projects
	Region of Peel		On several occasions throughout 2019, water emerging from a watermain break picked up soil (silt) and washed it into nearby storm sewers or water body until the water supply was isolated for watermain repair efforts to be initiated.	All the events were reported to the Ministry appropriately. The Region of Peel Environmental Control immediately responds to these events to assess impact to fish, wildlife, or plant life and report the event to the Ministry.	During these unplanned events, staff strive to maintain drinking water system pressure and ensure the integrity of the drinking water supply to minimize impact on the environment and the public.

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	OCWA	Ontario Regulation 128/04, Section 27-6 (1) The owner or operating authority shall ensure that logs and other record-keeping mechanisms are kept for at least five years.	On June 21, 2019, an OCWA operator noticed a page torn out from the facility logbook at the Hanlan Pumping Station.	The finding was reported to the Ministry appropriately. The entry prior to the missing page was dated June 20, 2019, 8:50 am and the entry after the missing page was dated as June 20, 2019 at 3:00 pm.	Individuals working on a capital construction project at the site were required to access the room where the log book was located. Capital project lead was informed of the occurrence to ensure another incident does not occur.
	OCWA	Watermain Disinfection Procedure Live tap into a potable water system must be performed in the presence of a certified Operator-In-Charge.	On October 31, 2019, during preparation for a live watermain tap, the contractor inadvertently punched through watermain while there was no OCWA Operator-In-Charge present.	OCWA was informed of the incident and reported to the Region and the Ministry as required. Samples were collected for microbiological analysis to confirm that contamination was not introduced into the drinking water system during the incident. Sample results showed no presence of E. coli or Total Coliform bacteria.	The contractor provided a written a statement to OCWA indicating their awareness of, understanding of, and commitment to comply with the requirements of the <i>Watermain Disinfection Procedure</i> to avoid a reoccurrence of a similar incident in the future.