Clarington Transformer Station 2019 Annual Groundwater and Surface Water Monitoring Report

FINAL REPORT

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Sign-off Sheet

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Executive Summary

This 2019 Annual Monitoring Report presents data collected during the Spring and Fall semi-annual sampling events completed in April and October 2019. This report includes a summary of Project Area groundwater monitoring well and private well monitoring data collected during these semi-annual monitoring events, discusses adaptive changes made to the Groundwater and Surface Water Monitoring Program (Monitoring Program), and presents analyses, conclusions, and recommendations based on these data. This report represents the final report for the Clarington Transformer Station (TS) groundwater and surface water monitoring program.

Introduction

Construction of the Clarington Transformer Station was completed in 2017 on a Hydro One owned property located within the Regional Municipality of Durham, in the Municipality of Clarington, bordering the east side of the City of Oshawa, northeast of Concession Road 7 and Townline Road North.

The 11 ha Station Site includes a shallow stormwater management (SWM) system to collect precipitation that falls within the Station Site in order to maintain dry ground and safe operating conditions. The shallow SWM system was constructed within the graded area within the Station Site limits.

The Ministry of the Environment, Conservation and Parks (MECP) approved Monitoring Program for the Clarington TS included installation of groundwater monitoring wells, implementation of groundwater, surface water, and private well monitoring programs, and annual reporting. The Monitoring Program objectives include defining the hydraulic conductivity of geologic units, documenting pre-station construction hydrogeologic conditions within the Project Area, and continued monitoring of the hydrogeologic conditions within the Project Area and for private wells within 1,200 m of the Station Site during and following station construction.

As of December 2017, the Clarington TS facility was successfully constructed. In fall 2017, the first 500 kV and 230 kV connections were completed, bringing the station into partial operation. The remaining 230 kV connections and other commissioning work was completed in the first few months in 2018 and the station was fully operational by May 2018. Removal of temporary access roads and laydown areas was initiated in summer 2018 and continued through early 2019. In 2019, habitat creation and visual screening work throughout the Project Area was continued.

Given that Station construction was completed in mid-2017, the 2-year post-construction monitoring phase of the program began with the Spring 2018 monitoring event and concluded following the Fall 2019 monitoring event. The private well monitoring program was voluntarily extended by Hydro One to include monitoring events in each of Spring 2020, 2021, and 2022.

Local Hydrogeology

Since issuing the Baseline Conditions Report in November 2014, additional on-site monitoring wells were installed in 2014, which included MW5-14S(2), and MW5-14D as a condition of the municipal resolution to provide a permanent easement for the Clarington TS access road. Monitoring well MW4-13D was replaced by MW4-15D in 2015. No new monitoring wells associated with the monitoring program have since been installed. The drilling, monitoring well installation, and hydraulic testing associated with the borehole and monitoring well installations completed since November 2014 have been provided in the Clarington Transformer Station Baseline Conditions - Addendum 2 Report (Stantec, 2015b), which was submitted to the MECP and is publicly available on Hydro One's project website along with the 2015 through 2018 Clarington Transformer Station Annual Monitoring Reports (Stantec, 2015c, 2017, 2018, 2019).

Within the Project Area, shallow groundwater flows to the west and southwest towards the Harmony Creek tributaries and their associated branches. East of the Station Site, a shallow groundwater divide extends from north to south, dividing shallow groundwater lateral flow between the Harmony Creek and the Farewell Creek sub-watersheds. At the eastern extent of the Project Area, groundwater flow within the Farewell Creek Sub-watershed is to the southeast toward Farewell Creek and is consistent with the overall ground surface topography.

The recorded water level elevation fluctuations indicate the monitoring wells have responded to seasonal changes, consistent with the findings presented in the Baseline Conditions Report (Stantec, 2014) and the previous Clarington Transformer Station Annual Monitoring Reports (Stantec, 2015c, 2017, 2018, 2019). Environment Canada climate data indicate seasonal climate changes in 2019 were characterized by precipitation totals consistent with normal annual precipitation and that of 2018, resulting in groundwater levels consistent with historical levels.

Site observations and recorded water level elevations at drive-point piezometers within nearby surface water features and adjacent monitoring wells indicated that the Harmony Creek tributaries flowed intermittently and were supported by a combination of discontinuous surface water runoff and groundwater discharge.

No shallow private wells are located directly downgradient of the Station Site. All shallow private wells in the vicinity of the Clarington TS participating in the Private Well Monitoring Program are located in the Oshawa Creek Watershed and Farewell Creek sub-watershed, with the exception of two (2) private wells located north and upgradient of the Station Site and one (1) private well more recently added to the monitoring program located beyond the Harmony Creek tributary. Monitoring wells at MW2-13, MW3-13, MW4-13, and MW5-14 are well positioned to serve as downgradient shallow groundwater monitoring wells for the Station Site.

Recorded October 2019 groundwater elevations from pairs of shallow and intermediate depth wells were used to calculate vertical hydraulic gradients at monitoring well locations MW1, MW2, and MW5. The vertical hydraulic gradient within the shallow overburden across the Project Area in 2019 ranged from neutral at MW1 and MW2 to 0.27 m/m at MW5 (downward). Vertical hydraulic gradients at MW3 and MW4 could not be determined due to very slow well recovery between sampling events.

A downward vertical hydraulic gradient is interpreted between the surficial sand and weathered till units within the proposed Project Area. The large difference in recorded water levels in both deeper wells MW5-14I and MW5-14D, of approximately 25 m, in conjunction with the stratigraphic model understanding for the Site, indicates these wells have little to no direct hydraulic connection to each other or the shallow groundwater system. This data strongly suggests that the surficial sand and upper weathered Newmarket Till are not hydraulically connected to the lower parts of the Newmarket Till or the underlying Thorncliffe Aquifer.

Thorncliffe Aquifer monitoring wells indicate deeper groundwater levels decreased slightly in 2019, ranging from 207.4 m above mean sea level (AMSL) to 214.7 m AMSL in October, with an overall southerly groundwater flow direction consistent with historical monitoring results, and consistent with regional mapping Central Lake Ontario Conservation Authority (CLOCA) (2012) that indicates deep groundwater flow to the southeast across the Project Area.

Surface Water Quality

As part of the Monitoring Program, water quality monitoring was completed semi-annually in April/May and October 2019. Surface water level elevations and water quality was monitored at three (3) locations on the Site (SW2, SW3 and SW4) in 2019. Hydro One technicians, in conjunction with Stantec staff, completed surface water quality sampling within the nearby surface water features including the South Branch of the Tributary of Harmony Creek at SW2, the Tributary of Harmony Creek at SW3 (adjacent to DP3-14), and at a drainage swale located south of the Station Site at SW4.

The surface water quality monitoring data in 2019 indicates that water quality is generally characterized by low concentrations of sodium, chloride, and nitrate, with all parameters generally within the Provincial Water Quality Objectives (PWQO), with the following exceptions: elevated concentrations of phosphorus (total) (SW2) and boron (SW2 and SW3) was detected in at least one (1) sample in 2019.

Shallow Groundwater Quality

Since December 2013, a total of sixteen Project Area groundwater monitoring wells (MW1-13S/D, MW2-13S/D, MW3-13S/D, MW4-13S/D, MW4-15D, MW5-14S(2)/S/I/D, MW6-14, MW7-14, and temporary well MW8-15 (now decommissioned) were installed at seven (7) locations throughout the Project Area in order improve the understanding of the local geology and hydrogeology prior to construction, and to monitor groundwater and surface water during and following construction of the Clarington TS.

During Spring and Fall 2019 monitoring events, all monitoring wells were sampled as part of the semi-annual Monitoring Program, with the exception of MW8-15, as this well was decommissioned in May 2015.

Groundwater quality samples from the Project Area monitoring wells were analyzed for general inorganic chemistry, total metals, petroleum hydrocarbons (PHCs) (F1 to F4) and benzene, toluene, ethylbenzene and xylene (BTEX) compounds, polychlorinated biphenyls (PCBs), semi-volatile organic compounds (SVOC) and volatile organic compounds (VOC) parameters. Groundwater quality met the Ontario Drinking Water Standards (ODWS) for all health-related parameters with the exception of nitrate in one (1) monitoring well, which is attributed to agricultural fertilizer.

Historically and in 2019, benzo(a)pyrene has been detected within some monitoring wells above the ODWS. As presented in the Baseline Conditions Addendum Report (Stantec, 2015a), this compound adsorbs to soil particles and it was concluded that these detections are associated with the sediment collected within the sample. Stantec (2015a) recommended that water quality sampling protocols be amended to include low-flow sampling. This sampling protocol was adopted in 2015 and continued through the 2019 sampling events.

Limited phthalate, PAH, and VOC compounds were detected at low concentrations that remained below the ODWS and Ontario Regulation 153/04 (O. Reg.153/04) Table 6 and/or Table 8 Site Condition Standards. The number of detections and the concentration of detections of PAH and VOC compounds remained very low in 2019, as compared to 2014, as a result of further well development and continued implementation of low-flow sampling methods. These results are consistent with the understanding that historic PAHs detections were associated with the sediment and not representative of dissolved groundwater concentrations.

Private Well Water Quality

Stantec completed semi-annual groundwater quality sampling at private wells that participated in the program in April and October 2019 for general inorganic chemistry, total metals, PHCs (F1 to F4) and BTEX compounds, PCBs, SVOC and VOC, and bacteriological water quality. Well owner consent was obtained from the owners of 25 private wells (24 well owners).

Bacteriological water quality was generally poor within the raw water samples collected from shallow private wells with 14 of the 16 wells (88%) having total coliforms present and 4 of 16 samples (25%) having *E.coli* present on at least one occasion. Water quality for wells completed deeper than 40 m had only two (2) (20%) detections of total coliform and no detections for *E.coli*. The total coliform and *E.coli* detections within the shallow dug wells are interpreted to be related to local sources associated agricultural activities (fertilizer, manure storage, and animal feedlots), septic systems, or potential surface influences. Shallow private well inorganic water quality monitoring detected the following parameters above the ODWS-AO or ODWS-MOH on at least one occasion: sodium in 13 wells (three (3) were samples following a water softener), chloride in two (2) wells, and total dissolved solids in nine (9) wells. Deep private well inorganic water quality monitoring detected the following parameters above the ODWS-AO or ODWS-MOH on at least one occasion: iron in seven (7) wells, turbidity in five (5) wells, and sodium in three (3) wells (including two (2) following treatment), and magnesium in one (1) well.

Low level detection of THMs (trihalomethane) were detected within at least one (1) sample from eight (8) shallow private wells and one (1) deeper well. All of these detections are interpreted to be related to disinfection of wells to address bacteriological detections.

Based on the results presented in this 2019 Groundwater and Surface Monitoring Report, the following conclusions are provided:

- The Groundwater and Surface Water Monitoring Program, initiated in December 2013, and completed through October 2019, allowed for annual characterization and monitoring of groundwater and surface water conditions within the Project Area.

- The voluntary extension of the Private Well Monitoring Program monitored water levels and water quality data for participating private wells within 1,200 m of the Station Site.
- Groundwater levels within the shallow overburden mimic topography, with shallow groundwater flow direction within the Station Site to the west and southwest towards the tributary of Harmony Creek and its associated branches.
- Precipitation totals in the Oshawa area in 2019 were consistent with 2018 and with climate normals.
- Water level and water quality monitoring through to October 2019 indicated no adverse effects on the shallow groundwater system or in shallow or deep private wells as a result of Station Site grading and construction and the second year of operation of the Clarington TS.
- The Groundwater and Surface Water Monitoring Program was successfully implemented and Hydro One and Stantec are confident that this final report has met the conditions of the Minister's Decision (ENV1283MC2013-2616).

The following recommendations are provided:

- The onsite monitoring program has met all the conditions set out in the Groundwater Monitoring Plan, which required baseline, construction and 2 years of post-construction monitoring ending in Fall 2019. The onsite monitoring program has also met the conditions of the Minister's Decision (ENV1283MC2013-2616). As a result, it is recommended that the onsite monitoring program be terminated.
- The Well Interference Response Plan (WIRP) should continue to be reviewed annually. Based on 2019 results, no changes are currently recommended.
- The condition of all monitoring wells and drive-point piezometers should continue to be inspected annually and upgrades/replacement completed, as necessary. The majority of the monitoring wells will be decommissioned in 2020, following publication of this final report.

Abbreviations

AMSL	above mean sea level
AO	aesthetic objective
BGS	below ground surface
BTEX	benzene, toluene, ethylbenzene and xylene
BTOC	below top of casing
BV	Bureau Veritas Laboratories
Class EA	Class Environmental Assessment
CLOCA	Central Lake Ontario Conservation Authority
DEHP	Bis(2-Ethylhexyl) phthalate
EA	Environmental Assessment
ECA	Environmental Compliance Approval
GTA	Greater Toronto Area
Ha	hectares
Hydro One	Hydro One Networks Inc.
ID	inner diameter
LDPE	low density polyethylene
Lotowater	Lotowater Technical Services Inc.
MAC	Maximum Acceptable Concentration
MECP	Ontario Ministry of the Environment, Conservation and Parks
Monitoring Program	Groundwater and Surface Water Monitoring Program
MNRF	Ministry of Natural Resources and Forestry
MOH	Medical Officer of Health
NDOGN	non-detect due to overgrowth of non-target bacteria
NDOGT	non-detect due to overgrowth of target bacteria
OD	outer diameter
ODWS	Ontario Drinking Water Standards
OG	operational guideline

OGS	Ontario Geological Survey
O. Reg. 153/04	Ontario Regulation 153/04
O. Reg. 903	Ontario Regulation 903
OWRA	Ontario Water Resources Act
PAH	polycyclic aromatic hydrocarbons
PCBs	polychlorinated biphenyls
PHCs	petroleum hydrocarbons
Project Area	lands owned by Hydro One in the vicinity of the Clarington TS
PWQO	Provincial Water Quality Objectives
QA/QC	quality assurance / quality control
SCS	site condition standard
Stantec	Stantec Consulting Ltd.
Station Site	land area of the Clarington Transformer Station
SVOCs	semi-volatile organic compounds
SWM	stormwater management
THM	trihalomethane
TS	Transformer Station
VOCs	volatile organic compounds
WIRP	Well Interference Response Plan

1.0 INTRODUCTION

In 2014, Hydro One Networks Inc. (Hydro One, 2014) completed a Class Environmental Assessment for Minor Transmission Facilities (Class Environmental Assessment (EA)) for the construction of the Clarington Transformer Station (TS). The Clarington TS is required to ensure an adequate and reliable supply of power to the eastern portion of the Greater Toronto Area (GTA) as a result of the shutdown of the Pickering Nuclear Generating Station and to reinforce the regional reliability of power supply. The Clarington TS has been constructed on Hydro One owned property located in the Regional Municipality of Durham, in the Municipality of Clarington, bordering the east side of the City of Oshawa, northeast of Concession Road 7 and Townline Road North (Figure 1; Appendix A).

1.1 BACKGROUND

In a letter dated January 2, 2014, the MECP informed Hydro One that an Individual EA was not required and provided six (6) conditions to be undertaken during the detailed design and construction of the Clarington TS.

A condition of the MECP letter required the submission of a Groundwater Monitoring Plan to the MECP Central Region Director for review and approval. The Groundwater Monitoring Plan was to include water level and water quality monitoring from wells located within the Project Area and adjacent private wells to document pre- and post-station construction conditions and to confirm no adverse effects are associated with the Clarington TS. To satisfy this condition, Stantec Consulting Ltd. (Stantec) was retained by Hydro One to prepare the monitoring plan. The Groundwater and Surface Water Monitoring Program (Monitoring Program) was submitted to the MECP on June 13, 2014 (Appendix C).

Approval of the Monitoring Program was received from the MECP Central Region Director on June 24, 2014 (Appendix C).

The first monitoring report to be prepared under the Monitoring Program was the Pre-Station Construction Groundwater and Surface Water Baseline Conditions Report (Baseline Conditions Report, Stantec, 2014). As per one of the recommendations of the Baseline Conditions Report, additional assessment of sampling methodology and the role of sediment in water quality results was completed, with the findings presented in an Addendum Report (Stantec, 2015a). Subsequent to the Baseline Conditions Report, additional drilling and installation of monitoring wells, hydraulic testing, and soil sampling were completed; with the findings of these investigations presented in an Addendum 2 Report (Stantec, 2015b).

The 2015 Annual Groundwater and Surface Water Monitoring Report (Stantec, 2015c) was completed and issued in November 2015. Following completion of Station Site grading and associated temporary water taking, a Clarington Transformer Station Permit to Take Water Monitoring Report (Stantec, 2016) was submitted to the MECP in April 2016. Subsequent Annual Monitoring Reports (Stantec, 2017, 2018, 2019) presented data collected during the subsequent Spring and Fall semi-annual sampling events. All of the above reports are available on Hydro One’s Clarington TS Project Website.

This 2019 Annual Monitoring Report presents water quality data collected during the Spring and Fall semi-annual sampling events completed in April and October 2019. This report also includes a summary of groundwater levels collected to date from Project Area groundwater monitoring wells and private wells. Given that Station construction was completed in mid-2017, the 2-year post-construction monitoring phase of the program began with the Spring 2018 monitoring event and was concluded following the Fall 2019 monitoring event. This 2019 Annual Monitoring Report therefore represents the final Annual report that will be issued for the Clarington TS Monitoring Program, and the Monitoring Program will be considered to be complete upon publication of this report. The private well monitoring was voluntarily extended by Hydro One to include monitoring events in each of Spring 2020, 2021, and 2022. While data collected during this period will be shared directly with private well owners, no further Annual Reports will be published.

1.2 REPORT OUTLINE

The following 2019 Annual Groundwater and Surface Water Monitoring Report presents the results of the Monitoring Program for the Clarington TS. This report is arranged into seven (7) sections, including this introduction. Section 2.0 presents an overview and schedule of the infrastructure and construction tasks for the Project Area. Section 3.0 presents a summary of the Groundwater and Surface Water Monitoring Program. Section 4.0 presents the study methods, and Section 5.0 presents the results of the baseline monitoring. Section 6.0 presents conclusions and recommendations, and Section 7.0 presents report references.

Figures and Tables referenced throughout the report are presented in Appendices A and B, respectively. Appendix C contains a copy of the approved Groundwater and Surface Water Monitoring Program, associated correspondence from the MECP, and well owner notification letters. Appendices D and E include Private Well Hydrographs and a CD of Laboratory Certificate of Analyses, respectively. Appendix F includes a CD with historic monitoring data for the Site from 2013 through to 2019.

2.0 CLARINGTON TRANSFORMER STATION

The following Clarington TS overview and summary of construction staging is provided by Hydro One.

2.1 OVERVIEW

The Clarington TS has been constructed on a Hydro One owned property located at 2745 Townline Road North, Oshawa within the Regional Municipality of Durham, in the Municipality of Clarington, bordering the east side of the City of Oshawa, northeast of Concession Road 7 and Townline Road North (Figure 1). For the purposes of this report, the lands owned by Hydro One in the vicinity of the Clarington TS are referred to as the Project Area, within which the area that will be occupied by the transformer station itself is referred to as the Station Site. The Station Site represents approximately 11 ha of the total 63 ha Project Area (Figure 2), and lies within the Harmony Creek sub-watershed (Figure 3).

The Clarington TS transforms electricity voltages from 500 kV to 230 kV by connecting to two (2) of four (4) existing 500 kV circuits and to all five (5) of the existing 230 kV circuits located on or adjacent to the proposed Station Site. The Clarington TS consists of two (2) 500/230 kV transformers, a 500 kV switchyard, a 230 kV switchyard, two (2) relay buildings, one (1) electrical panel building, and associated bus work and equipment.

The 230 kV wood pole and steel lattice structures originally located on the property have been relocated and replaced with new 230 kV steel lattice structures. An access road off Townline Road North has been constructed on the western edge of the Project Area. The access road is located at the municipal boundary between the Municipality of Clarington and the City of Oshawa. The Station Site includes a shallow stormwater management (SWM) system to collect precipitation that falls within the Station Site in order to maintain dry ground and safe operating conditions. In the unlikely event of a release of mineral insulating oil from a transformer, a spill containment system and oil-water separator have been included in the transformer station design to prevent the loss of transformer mineral insulating oil from entering the surrounding natural environment. The shallow SWM system and spill containment system have received *Environmental Compliance Approval* (ECA) for Industrial Sewage Works, as per the *Ontario Water Resources Act* (OWRA).

2.2 CURRENT STATION SITE CONSTRUCTION STAGING

Prior to construction of the Clarington TS, site preparation and 230 kV tower construction activities were required to relocate the existing 230 kV lines to the north and west of the proposed Clarington TS.

The following provides a summary of the construction staging schedule for the Clarington TS:

Complete	Relocation of 230 kV transmission lines and construction of the access road
Complete	Construct 500 kV Tower Foundations
Complete	Relocation of 500 kV lines
June 2015	Construction on the Clarington TS initiated
Complete	Grading (cut/fill) of the Station Site (completed December 2015)
Complete	Delivery and Assembly of Two (2) 500/230 kV Transformers
Complete	Installation of Two (2) Relay Buildings
Complete	Installation of 500 and 230 kV Switchyards and Equipment
Complete	Installation of Shallow Stormwater Management (SWM) System
Complete	230 kV & 500 kV Connections and Commissioning
May 2017	Station Construction Completed
November 2017	First 230 kV connections made and commencement of operation
May 2018	Final 230 kV connections; station fully operational
2017 – 2019	Habitat Creation and Visual Screening

Construction of the Clarington TS was completed in May 2017. Work completed in 2019 included the removal of temporary construction access and staging areas and continuation of habitat creation and visual screening work throughout the Project Area.

Construction of the adjacent Enfield TS continued within the Project Area throughout 2019 which was concluded in early 2019. Some construction staging and laydown areas at the Site were used to support other Hydro One transmission projects and maintenance work in the Durham Region.

3.0 GROUNDWATER AND SURFACE WATER MONITORING PROGRAM

The approved Groundwater and Surface Water Monitoring Program (Monitoring Program) is included in Appendix C along with the approval letter for the program from the MECP Central Region Director. The Monitoring Program consists of the following main components:

- Installation, development, and hydraulic testing of new groundwater monitoring wells
- Implementation of a private well monitoring program
- Surface water and groundwater monitoring
- Annual reporting

Groundwater and surface water data collected prior to Station construction have been used to define the relationship between the shallow and intermediate groundwater systems within the Project Area. The data also provide a baseline to which monitoring data collected during and post construction will be compared in order to evaluate potential effects of station construction on the natural environment and surrounding private wells. Specifically, the objectives of the Monitoring Program are to:

- Define our understanding of the geology within the Station Site prior to construction of the Clarington TS.
- Define shallow and intermediate depth hydraulic conductivity of geologic units.
- Document seasonal shallow and intermediate groundwater levels within monitoring wells and private wells, including vertical hydraulic gradients between shallow and intermediate groundwater systems and surface water features within the Project Area.
- Document seasonal groundwater quality of the shallow and intermediate groundwater system within the Project Area.
- Document the shallow groundwater conditions during planned Station Site grading and shallow SWM system installation activities, including the potential radius of influence and potential for impact to adjacent private wells.

The following sections provide a summary of the specific monitoring requirements, including any changes to the Monitoring Program that have been implemented since the program was approved in June 2014.

3.1 MONITORING WELLS

Monitoring well installations MW1-13 to MW4-13 were completed in the late fall of 2013 (Figure 4). Based on the results of the borehole and monitoring well drilling, four (4) additional monitoring wells were installed in 2014 and were added to the monitoring program. These wells include MW5-14S/I, located just beyond the southwest corner of the Station Site; and MW6-14 and MW7-14, located along the northeastern boundary of the Project Area (Figure 4). Details of the drilling, monitoring well installation, and hydraulic testing associated with these twelve (12) wells were provided in the Baseline Conditions Report (Stantec, 2014).

Since issuing the Baseline Conditions Report in November 2014, two additional Project Area monitoring wells were added to the Monitoring Program: MW5-14S(2) was installed in December 2014 as part of the adaptive nature of the Monitoring Program, and MW5-14D was installed as part of an agreement between Hydro One and the Municipality of Clarington. A deep bedrock depth well at MW5-14D(2) was installed as part of a separate agreement between Hydro One and the Municipality of Clarington, and is not part of the Monitoring Program for the Clarington TS. CLOCA assumed ownership of this bedrock depth monitoring well in 2017.

In 2015, monitoring well MW4-15D was installed to verify the low groundwater level and slow recovery recorded in MW4-13D. Temporary monitoring well MW8-15 was installed to confirm the borehole log results of the geotechnical borehole BH7D, and borehole BH9-15 was drilled in the presence of staff from CLOCA, MECP Central Region and SLR Consulting to confirm geologic conditions at the location of the Clarington TS planned oil/water separator location.

The drilling, monitoring well installation, and hydraulic testing associated with the borehole and monitoring well installations completed since November 2014 have been provided in the Clarington Transformer Station - Addendum 2 Report (Stantec, 2015b), which was submitted to the MECP and is publicly available on Hydro One’s project website. Monitoring well details related to all Project Area monitoring installations, are provided in Table 1 of this report.

There were no changes to the Monitoring Program in 2019. Project Area groundwater and surface water monitoring has now been completed for the pre-station construction (2013-2014) phase, the station construction (2015-2017) phase, and continued through the post-construction phase (2018-2019). Therefore, the Clarington TS Monitoring Program is considered to be complete upon publication of this final Annual Report.

3.2 PRIVATE WELL MONITORING

The Private Well Monitoring Program included the completion of door to door visits to property (well) owners within 1,200 m of the Station Site (Figure 3). Details of the initial notification were presented by Stantec in the Baseline Conditions Report (Stantec, 2014). By October 2014, well owner consent was obtained from the owners of 23 private wells (22 well owners). Details of the process to commence the residential monitoring program are as follows:

- An introductory letter was hand-delivered to each residence within 1,200 m of Clarington TS on June 13, 2014.
- Hydro One and Stantec completed door to door visits to all residents within 1,200 m of the station on June 18, 19, and 24, 2014 to follow-up and provide a copy of the letter and consent form. For residents that were not home at the time of these visits, copies of the introductory letter and consent form were left at the residence (typically in a mailbox, if available).
- If well owners did not return a signed Consent Form for the Private Well Monitoring Program by September 9, 2014, the Private Well Monitoring Program Letter and Consent Form were sent to them via Canada Post Registered Mail. A copy of Canada Post's Registered Mail record of delivery receipt indicates 22 of 23 registered letters were delivered to residents between September 11-12, 2014, as one letter was unable to be delivered. This particular resident later authorized their participation in the Monitoring Program. The registered letters were only sent to residents that had not already returned a signed Consent Form by September 9, 2014.

Two (2) additional private well owners provided their consent to be added to the Monitoring Program in 2015. One (1) well owner elected to no longer participate in the Monitoring Program in 2016; and one (1) additional private well owner provided their consent to be added to the Monitoring Program in 2017; making 25 participating private wells.

For private well owners that agreed to participate in the Monitoring Program, the following was completed in 2019:

- Automatic pressure transducers were accessed in Spring and Fall 2019 by a licensed water well contractor to retrieve recorded continuous (hourly) water level measurements.
- Water quality samples were collected semi-annually in 2019 (Spring and Fall).
- Following each Spring and Fall monitoring event, a letter was sent to each of the well owners presenting their individual well monitoring results. To maintain confidentiality, the results of the private well monitoring in this report do not include the well identifications.

Private well monitoring has now been completed for the pre-station construction (2013 – 2014), station construction (2015 – 2017), and the planned post-construction period (2018 – 2019). The private well monitoring program was voluntarily extended by Hydro One to include monitoring events in each of Spring 2020, 2021, and 2022. While data collected during this period will be shared directly with private well owners, no further Annual Reports will be published.

3.3 REPORTING

As noted above, the first monitoring report to be prepared under the Monitoring Program was the Pre-Station Construction Groundwater and Surface Water Baseline Conditions Report (Stantec, 2014). The findings of a subsequent assessment of sampling methodology and the role of sediment in water quality results were presented in an Addendum Report (Stantec, 2015a). An Addendum 2 Report (Stantec, 2015b) presents a summary of additional drilling and installation of groundwater monitoring wells, hydraulic testing, and soil sampling complete since issuing the Baseline Conditions Report. The 2015 through 2018 Annual Monitoring Reports presented data collected during the Spring and Fall semi-annual sampling events completed in April and October – November of the respective years.

This 2019 Annual Monitoring Report presents data collected during the Spring and Fall semi-annual sampling events completed in April and October 2019. This report includes a summary of Project Area groundwater monitoring well and private well monitoring data collected during these semi-annual monitoring events. Data collected as part of the voluntarily extended Private Well Monitoring Program will be shared directly with private well owners. No further Annual Reports will be published.

4.0 METHODS

The Monitoring Program included the following components in 2019:

- Groundwater and Surface Water Level Monitoring
- Groundwater and Surface Water Quality Monitoring
- Private Well Monitoring
- Climate Monitoring

Methodologies employed during borehole drilling, well installations, and hydraulic testing completed following the Baseline Conditions Report (Stantec, 2014) are presented in the Addendum 2 Report (Stantec, 2015b). The following sections present a summary of the study methodology for water level and water quality monitoring.

4.1 MONITORING WELL INSTALLATION

Since December 2013, a total of sixteen monitoring wells (MW1-13S/D, MW2-13S/D, MW3-13S/D, MW4-13S/D, MW4-15D, MW5-14S(2)/S/I/D, MW6-14, MW7-14, and temporary well MW8-15 (decommissioned in 2015) were installed at eight (8) locations throughout the Project Area in order refine the understanding of the local geology and hydrogeology prior to construction and to monitor groundwater and surface water during and following construction of the Clarington TS.

Monitoring wells MW1-13S/D, MW2-13S/D, MW3-13S/D, and MW4-13S/D were installed in December 2013. Monitoring wells MW5-14 S/I, MW6-14, and MW7-14 were installed in October 2014, MW5-14S(2)/D in December 2014, and MW4-15D and MW8-15 (temporary) were installed and added to the Monitoring Program in 2015 as part of the adaptive nature of the Monitoring Program. MW8-15 was drilled to provide geological information beneath the footprint of the station and was decommissioned in April 2015 in order to construct the station.

During the Fall 2018 monitoring event, MW3-13D was found to have been hit by equipment and the casing was bent over. This was repaired on October 11, 2018. However, in 2019 it was determined that the casing was still compromised and water levels are no longer representative of the screened depth. The monitoring well locations are presented on Figure 4. Well completion details are presented in Table 1.

4.2 DRIVE-POINT PIEZOMETER INSTALLATION

Three (3) drive-point piezometers (DP2-14, DP3-14 and DP4-13) were installed within surface water features / drainage swales within the Project Area to provide an indication of groundwater levels and vertical hydraulic gradients beneath the surface water features. These were named after the monitoring wells beside which they were installed. A drive-point piezometer was not installed adjacent to MW1-13 as there is no directly adjacent surface water feature. The drive-point piezometer locations are presented on Figure 4.

In April 2015, Stantec replaced the drive-point at SW2 (DP2-14 replaced by DP2-15), as the initial drive-point was installed at an angle due to difficult ground conditions and it was difficult to obtain accurate water level readings. In April 2015, Stantec also replaced the drive-point piezometer at SW3 (DP3-14 replaced by DP3-15), as this monitor was found to be within a dry creek bed in 2014. No changes to the on-Site surface water monitoring locations occurred in 2016. In 2017, two (2) new drive-point piezometers were installed (DP5-17, DP6-17) within the Harmony Creek tributary. DP5-17 was installed upgradient of the Site and DP6-17 downgradient of the Site. During the Fall 2019 monitoring event, DP4-13 was found to be destroyed, likely as a result of grading and habitat rehabilitation that took place in this area in 2019. The surface water monitoring locations are shown on Figure 4. Installation details are summarized in Table 1.

4.3 GROUNDWATER AND SURFACE WATER LEVEL MONITORING

Groundwater level monitoring was completed using a combination of manual and automated techniques, while surface water level monitoring was completed using manual techniques alone. Monitoring wells and drive-point piezometers were instrumented by Stantec with Solinst® LT Leveloggers® and were set to record at 1-hour intervals. The Leveloggers® are not vented to the atmosphere and therefore, record total pressure. As a result, data obtained from the Leveloggers® were corrected for atmospheric pressure to obtain the actual height of water above the sensor. The atmospheric corrections were made using data collected from a Solinst Barologger®, which was located at MW1-13D. Between December 2013 and May 2014, the Barologger malfunctioned, and atmospheric corrections were completed using data from Environment Canada's Oshawa Climate Station located at the Oshawa Airport.

Manual water level measurements were collected at all wells using a battery-operated probe and calibrated tape. Water depths were recorded in metres below the top of the well casing (BTOC) and later corrected for well stick-up. Water level hydrographs for the monitoring wells and surface water drive-point piezometers within the Project Area are presented in Figures 5 through Figure 8.

4.4 GROUNDWATER AND SURFACE WATER QUALITY MONITORING

4.4.1 Surface Water

Surface water quality monitoring was attempted at three (3) locations on Site (SW2, SW3 and SW4) in 2019. Stantec staff, or Hydro One technicians under the direction of Stantec staff, completed surface water quality sampling in April and October 2019 within the nearby surface water features; including, the South Branch of the Tributary of Harmony Creek at SW2 (adjacent to DP2-14), the Tributary of Harmony Creek at SW3 (adjacent to DP3-14). The drainage swale located south of the Station Site (SW4) was dry during the October sampling event. An additional sampling event in May was conducted which confirmed that a few total metal exceedances from the April sampling event were related to turbidity.

Surface water samples were collected directly from the creek into laboratory-provided sample containers. Sample containers for mercury were field-filtered. All other samples collected were not field-filtered. Field measurements of specific conductivity, temperature and pH were recorded using a YSI 556 multi-parameter meter. The meters were calibrated prior to use according to the manufacturers' specifications with the appropriate calibration standards. Following sampling, a bottle was filled for field analysis of dissolved oxygen.

All samples collected were packed into sample coolers, which were refrigerated using ice, and delivered to Bureau Veritas Laboratories (BV) (formerly known as Maxxam Analytics Inc.) for laboratory analyses. All surface water samples were analyzed for general inorganic chemistry, total metals, PHCs (F1 to F4) and BTEX compounds. The lab also analyzed for dissolved calcium, magnesium, potassium and sodium as part of ion balance calculations. Chain of custody forms were completed and included with the sample submissions. The results of the surface water quality testing are presented in Table 3 with copies of the Laboratory Certificates of Analysis provided in Appendix E.

4.4.2 Groundwater Monitoring Wells

Stantec staff, or Hydro One technicians under the direction of Stantec staff, completed groundwater quality sampling within the shallow and deep monitoring wells within the Project Area. Results of previous water level and water quality monitoring were detailed by Stantec (2014, 2015a, 2015b, 2017, 2018, 2019).

Water quality samples were collected at all Project Area monitoring wells as part of the Monitoring Program during semi-annual monitoring events, with two (2) exceptions. First, in Spring 2019, MW4-13D was not sampled because it had insufficient water volume from which to collect a full suite of samples and MW4-15D had a larger groundwater volume from which to collect the laboratory required sample volumes. Second, in Fall 2019, MW4-15D was not sampled because it had insufficient water volume and MW4-13D had a larger water volume from which to collect laboratory samples. Both MW4-13D and MW4-15D have had extremely slow groundwater recovery since installation. Screened at a greater depth, MW4-15D only recovers slightly faster than MW4-13D, but both have demonstrated similar water quality.

For the Spring and Fall 2019 monitoring events, and prior to sampling Project Area monitoring wells MW1-13S/D, MW2-13S, MW4-13S, MW5-14S MW5-14S(2), MW5-14S, MW5-14D, MW6-14 and MW7-14, pre-purging occurred where between one (1) and three (3) volumes of water were removed using the Waterra™ inertial lift system, depending on rate of well recovery. Well sampling was completed after pre-purging using a peristaltic pump or a GeoTech Bladder Pump for low flow sampling with Teflon-lined, bonded low-density polyethylene (LDPE) tubing. Where well water level recovery was extremely slow, sampling was completed immediately with no prior purging (MW2-13D, MW3-13S/D, MW4-14S, and MW4-15D (Spring 2019 only), MW4-13D (Fall 2019 only), and MW5-14I). A bailer was used to sample low yield wells MW4-13D and MW4-15D.

Field measurements of specific conductivity, temperature, pH, and DO were recorded using a YSI 556 multi-parameter meter. Meters were calibrated prior to use according to the manufacturers' specifications with the appropriate calibration standards. Field parameters were monitored during purging and following sampling.

Following purging, groundwater samples were collected directly from the Teflon-lined LDPE tubing, or bailers into the sample containers. Groundwater samples for metals were field filtered and preserved.

All collected groundwater samples were packed into sample coolers, which were refrigerated using ice, and delivered to BV for laboratory analyses. Groundwater samples were analyzed for general inorganic chemistry, dissolved metals, PHCs (F1 to F4), BTEX compounds, PCBs, VOCs and SVOCs. Chain of custody forms were completed and included with the sample submissions. The results of the groundwater quality testing at the monitoring wells are presented in Table 4 with a copy of the Laboratory Certificates of Analysis being provided in Appendix E.

4.4.3 Quality Control Protocol

During the 2019 semi-annual groundwater sampling events, quality assurance / quality control (QA/QC) sampling was completed and included one or more field duplicates, field blanks, and/or trip blanks to evaluate potential sources of error during sample collection. The following QA/QC samples were completed:

- Field blank for VOCs, SVOCs, BTEX and PHCs parameters for Spring and Fall 2019; and
- Trip blank for VOCs, SVOCs, BTEX and F1 parameters for Spring and Fall 2019.

Field duplicate samples for groundwater were also collected at a frequency of one (1) field duplicate per ten (10) samples during each sampling event. For surface water samples, field duplicates were collected during the Spring and Fall 2019 sampling events. The analytical results for the field and trip blanks are included in Table 4.

BV followed internal QA/QC protocols, which included internal replicates, process blanks, process recovery, and matrix spike analyses. A surrogate spike was added for the SVOC analysis to document recovery within lab filtered samples. BV reported that the results for their internal QA/QC were within acceptable limits, and these results were considered acceptable for use in the report. The results of the lab replicates are not presented in Table 1; however, they are included in the detailed laboratory certificates of analyses in Appendix E.

4.5 PRIVATE WELL MONITORING

The following sections present the details of the 2019 Private Well Monitoring Program completed semi-annually in Spring (April) and Fall (October) 2019.

4.5.1 Water Level Monitoring

Lotowater Technical Services Inc. (Lotowater), a licensed well contractor, completed water level monitoring, data logger (Solinst Levelogger®) installation and downloading within the private wells. All equipment was disinfected prior to use within each of the private wells.

All data loggers were downloaded during the Spring and Fall monitoring events in 2019, with three (3) exceptions in Fall 2019 at PW21 (resident not available), PW22 (resident not available), and PW26 (well temporarily inaccessible). Static groundwater levels remained above the level of data loggers in all wells in 2019.

Construction details for the private wells are presented in Table 2, with private well hydrographs included in Appendix D.

4.5.2 Water Quality Monitoring

The Private Well Monitoring Program was initiated in 2014, with sampling completed to document conditions prior to, and during Station Site construction. In 2019, Stantec completed semi-annual groundwater quality sampling in the Spring (April) and Fall (October) from the private wells participating in the Monitoring Program.

All private wells were sampled during the Spring and Fall 2019 sampling events, with the following exceptions:

- PW-21 and PW-22 weren’t sampled in Fall due to unavailable residents

Stantec attempted to collect water quality samples from a raw water tap; however, this was not always feasible. Based on water quality results, it is concluded that water samples from some locations were collected following treatment (sediment filter, water softener, and/or ultra-violet).

The sample location was typically an outdoor tap or a kitchen faucet, depending on accessibility. Prior to sample collection, the tap was disinfected with a dilute solution of chlorine and allowed to run for approximately 10 minutes or until water quality stabilized. Water samples were collected directly into laboratory supplied containers. The samples were not filtered, and results represent total concentrations.

All private well water samples collected were packed into sample coolers, which were refrigerated using ice packs, and delivered to BV for laboratory analyses. Groundwater samples from private wells were analyzed for bacteriological analyses, general inorganic chemistry, total metals, petroleum hydrocarbons and BTEX compounds, PCBs, VOCs and SVOCs. Chain of custody forms were completed and included with the samples. The results of the groundwater quality testing at the private wells are presented in Table 5 with a copy of the Laboratory Certificates of Analysis being provided in Appendix E.

BV followed internal QA/QC protocols, which included internal replicates, process blanks, process recovery, and matrix spike analyses. BV reported that the results for their internal QA/QC were within acceptable limits, and these results were considered acceptable for use in the report. The results of the lab replicates are not presented in Table 5, but included in the detailed laboratory certificates of analyses in Appendix E.

4.5.3 Well Interference Response Plan

Initiated in 2014, the Clarington TS Well Interference Response Plan (WIRP) continued to be implemented in 2019 (see Section 5.2.4). The WIRP fulfills Hydro One's commitment to private well owners within 1,200 metres of the Clarington Transformer Station to respond to and assess the nature of well-related complaints. The WIRP was reviewed at the end of 2019, with no recommended changes to the process or implementation.

4.6 CLIMATE MONITORING

Seasonal fluctuations in groundwater elevations are expected; typically, with water levels rising during the spring freshet due to increased precipitation and warmer temperatures resulting in snow melt, followed by lowering of water levels during drier and warmer summer months. Water levels then generally increase again in the cooler and wetter fall months, and then lower again during the winter due to freezing ground conditions.

Environment Canada's Oshawa Climate Station data were used to represent precipitation and temperature at the Clarington TS. Occasionally, the Oshawa climate station is missing daily precipitation totals on specific days. Where daily precipitation totals were not available, the Oshawa climate station data were supplemented on those days with data from the next closest Environment Canada stations at Blackstock, Oshawa WPCP station, and Oshawa Airport data from the Weather Network website, respectively.

5.0 RESULTS

The following sections present the results of the Monitoring Program based on data collected from 2019 monitoring activities as part of the approved program.

5.1 LOCAL HYDROGEOLOGY

Groundwater and surface water level monitoring continued in 2019, with the following presenting results of groundwater and surface water monitoring completed within the Project Area from Fall 2015 to Fall 2019 as part of the Monitoring Program. The groundwater elevation data consist of water level measurements from five (5) drive-point piezometers, 15 monitoring wells, and 23 available private wells (two (2) private wells were inaccessible) as presented on Figure 4.

The following sections present the groundwater and surface water level data. Hydrographs of the data are shown on Figure 5 through Figure 8. Shallow groundwater contours and an interpretation of shallow groundwater flow are provided on Figure 9, with Thorncliffe depth well water level elevations shown on Figure 10.

5.1.1 Shallow Groundwater Level Monitoring

5.1.1.1 Shallow Monitoring Wells

Shallow groundwater level elevations within the Project Area were obtained from the date of well completion through to Fall 2019 from eight (8) groundwater monitoring wells installed within the Upper Aquifer / Aquitard (MW1-13S, MW2-13S, MW3-13S, MW4-13S, MW5-14S/S(2), MW6-14, and MW7-14).

Water level elevations in 2019 fluctuated within historical levels, following the normal trend of peak levels in spring followed by declining levels through fall. In all shallow monitoring wells, groundwater elevations generally fluctuated in response to precipitation events.

Shallow Well Hydrographs

Shallow monitoring wells MW1-13S, MW6-14, and MW7-14 are located approximately 20 m upgradient of the graded slope on the east side of the Station Site and showed similar groundwater level trends in response to seasonal changes and precipitation. 2019 experienced a similar response as historically monitored levels.

MW2-13S is located on the north side of the Station Site, within Wetland Area 1 and beside the South Branch of the Tributary of Harmony Creek. Shallow water level elevations recorded within this monitoring were lowest through the summer months, with levels remaining generally near ground surface throughout 2019. Water level elevations fluctuated up to 0.7 m over the course of the year (Figure 6).

MW3-13S is located west of the Station Site and on the top of the eastern bank of the Tributary of Harmony Creek. MW4-13S is located south of the Station Site in a drainage swale that has intermittent flow during spring snow melt and during periods of significant precipitation but is otherwise dry for most of the year. Groundwater elevations at MW3-13S and MW4-13S in 2019 fluctuated with precipitation, which is consistent with historical data, and generally remained just below ground surface (Figure 6).

Shallow monitoring wells MW5-14S and MW5-14S(2) are installed immediately adjacent to the southwest corner of the Station Site. Shallow water level elevations in these two (2) wells responded similarly to other shallow wells installed across the Project Area since their installation in late 2014 and early 2015, respectively. Similar to other shallow monitoring wells across the site, these wells responded to seasonal changes, with water levels dropping into the fall (Figure 7). MW5-14S(2) and MW5-14S responded to precipitation events slightly more slowly than some of the other shallow wells, but each fluctuated up to 1.3 m during 2019.

Shallow Well Hydraulic Gradients

Recorded water level elevations from pairs of shallow and intermediate or deep wells were used to calculate vertical hydraulic gradients at monitoring well nest locations MW1, MW2, MW3, MW4, and MW5.

Predominantly neutral to weak downward vertical hydraulic gradients were calculated for 2019 at monitoring well pairs MW1-13S/D and MW2-13S/D, ranging from 0.0 m/m (MW1-13 and MW2-13) to 0.1 m/m (MW1-13). A downward vertical hydraulic gradient ranging from 0.14 to 0.27 m/m was noted at shallow monitoring wells MW5-14S(2)/S. Vertical gradients could not be calculated at MW3-13S/D and MW4-13S/D, because the deeper wells at MW3 and MW4 are installed within a dense till, slowing the well's recovery following installation and subsequent sampling events. At the time of Fall 2019 monitoring, the deep wells were still recovering from previous sampling events.

A difference in recorded water levels of about 25 m between the deeper wells, MW5-14I and MW5-14D, in conjunction with the stratigraphic model understanding for the Site, indicates these wells have no direct hydraulic connection with each other. This data strongly suggests that the surficial sand and upper weathered Newmarket Till are not hydraulically connected to the lower parts of the Newmarket Till or the underlying Thorncliffe Aquifer.

The overall downward vertical hydraulic gradients observed within shallow wells across the Project Area in 2019 are consistent with past annual reports and those presented in the Baseline Conditions Report (Stantec, 2014).

The horizontal hydraulic gradients across the Station Site calculated from average groundwater elevations in 2019 are consistent with historical gradients. Using water level elevations recorded during the October 2019 sampling events, horizontal gradients are 0.023 m/m (MW6 to MW2-13S), 0.027 m/m (MW1-13S to MW3-13S), and 0.044 m/m (MW7-14 to MW4S-13), and remain consistent with historical horizontal hydraulic gradients, which ranged from 0.03 m/m to 0.05 m/m.

5.1.2 Groundwater / Surface Water Interaction

Drive-point piezometers were installed at five (5) locations throughout the Project Area to evaluate groundwater / surface water interaction in the immediate vicinity of the surface water features associated with the Tributary of Harmony Creek. Observations at each of these locations are discussed below with respect to the groundwater contours.

5.1.2.1 Tributary of Harmony Creek

Drive-point piezometers were installed at surface water monitoring locations within the South Branch of the Tributary to Harmony Creek at SW2, and within the Tributary to Harmony Creek at SW3 (Figure 4). Hydrographs for DP2 and DP3 are presented on Figure 8.

There are two (2) drive-point piezometers installed within Wetland Area 1 at SW2; DP2-14 and DP2-15. DP2-15 is a replacement to DP2-14 due to a partially plugged screen which affected its response to seasonal changes. Since the installation of DP2-15, groundwater levels were consistently higher at DP2-15 compared to DP2-14. DP2-14 was destroyed sometime between Fall monitoring in 2016 and Spring monitoring in 2017, and the logger was not recovered. DP2-15 stickup was damaged sometime between Fall 2018 and Spring 2019 monitoring events. The stickup was bent over above the ground surface, thereby preventing manual water levels from being collected. Groundwater levels within DP2-15 were higher than ground surface elevation, except briefly in late summer. DP2-15 does not respond quickly to seasonal or individual precipitation events, indicating it is installed within fine-grained soil within the wetland. Water levels in DP2-15 in 2019 increased in spring then fell slowly through summer before rebounding slightly in early fall (Figure 8).

There are two (2) drive-point piezometers installed within the Tributary of Harmony Creek at SW3; DP3-14 and DP3-15. DP3-15 is a replacement to DP3-14 due to a partially plugged screen which affected its response to seasonal changes. During the monitoring period of 2019, slight minor responses to seasonal and climatic variations were captured by DP3-15 however groundwater elevations were fairly consistent between DP3-14 and DP3-15.

Manual surface water elevations at both DP2-15 and DP3-15 in 2019 were slightly lower than groundwater elevations, indicating slight upward vertical gradients and weak groundwater discharge conditions at these times.

In Fall 2017, two (2) new drive-points (DP5-17 and DP6-17) were installed in the Tributary to Harmony Creek. DP5-17 and DP6-17 were installed near the upgradient and downgradient boundaries of the Site, respectively, to improve monitoring in this area (Figure 2). Figure 8 shows the water level elevations at these drive-points, which indicate groundwater recharge conditions occur at both locations.

5.1.2.2 Drainage Swale

A drive-point piezometer was installed within a mapped drainage swale to the south of the Project Area at SW4. At the time of installation in December 2013, there was some surface water drainage noted due to recent snow melt; however, surface water was not present at this location during further field visits in 2014 or 2017. In 2015, 2016, and 2018, surface water was only present in the Spring, but not in the Fall. In 2019, the groundwater elevation at DP4-13 reacted as it has historically and remained predominantly below ground surface. It responds quickly to precipitation events, indicating the drainage swale receives surface water runoff during spring snow melt and precipitation events (Figure 8) and is an area of groundwater recharge. In Fall 2019, DP4-13 was found to be destroyed, likely as a result of grading and habitat rehabilitation that took place in this area in 2019. The transducer was recovered from the drive-point and removed by the Hydro One technician.

Historical site observations and recorded water level elevations at nearby drive-points and monitoring wells indicated that Harmony Creek tributaries were supported primarily by surface water runoff, with the potential for seasonal groundwater discharge in the wetland near SW2. In 2019, monitoring data from drive-point DP3 suggested that Harmony Creek tributaries in this area received some input from groundwater discharge. Within the low-lying valley associated with the tributary of Harmony Creek on the north side of the Project Area, shallow water levels recorded within the surficial silty sand and the upper portion of the weathered till indicated predominantly downward vertical hydraulic gradient with the potential for short term seasonal upward vertical hydraulic gradients occurring. Due to the limited thickness and discontinuous nature of the surficial silty sand and low permeability of the underlying weathered till, limited groundwater discharge occurs in surface water features within the Project Area sufficient to sustain consistent baseflow conditions. This is consistent with the findings presented in the Baseline Conditions Report (Stantec, 2014).

5.1.3 Shallow Private Wells

Shallow groundwater level data were also available from nearby private wells installed at depths of less than 16 m below ground surface (BGS). These wells are interpreted to be screened within thin sand layers within the surficial sand or the underlying weathered to compact Newmarket Till. Water level data from the shallow private wells show effects due to regular daily well use, which is characterized by rapid, regular drawdown and recovery (Figures 1 to 15; Appendix D). Similar to onsite monitoring wells, private well water levels generally showed an increase early in the year, followed by a steady decline in groundwater elevations into October. Groundwater level changes observed in shallow private wells are interpreted to be a result of seasonal temperature and precipitation fluctuations, and not due to station construction activities.

5.1.4 Shallow Groundwater Flow

Shallow groundwater level elevations within the Project Area are presented on Figure 9. Water level data presented were collected during the October 2019 monitoring event.

Within the Station Site, shallow groundwater flows to the west and southwest towards the tributary of Harmony Creek and its associated branches. East of the Station Site, a shallow groundwater divide shown as a dashed line on Figure 9 extends from north to south, dividing shallow groundwater lateral flow between the Harmony Creek and the Farewell Creek sub-watersheds. The shallow groundwater flow direction observed in 2019 remained consistent with historical observations, including both pre- and during Station Construction.

Water levels recorded in shallow private wells closest to the Project Area are located within the Farewell Creek watershed (Figure 9) and generally indicate groundwater levels typically similar to the previous year, with groundwater levels at MW1-13, MW6-13, and MW7-13 generally about 1.5 m lower than the previous year.

Similarly, groundwater levels typically were generally consistent or slightly lower in shallow private wells within the Harmony Creek watershed (Figure 9) situated east of the Project Area recorded in October 2019 as compared to October 2018. These wells are also located further upgradient of the Project Area, with a smaller catchment available to provide water to the wells. Overall, there was a general slight decline in water level elevations within shallow wells in the area which is attributed to seasonal and climate effects (discussed further in Section 5.3).

Based on the shallow groundwater contours and surface water features, the area downgradient of the Station Site is shaded in light blue (Figure 9). Monitoring wells at MW2-13, MW3-13, MW4-13, and MW5-14 are well positioned to serve as downgradient shallow groundwater monitoring wells for the Station Site.

5.1.5 Thorncliffe Aquifer

In December 2014, monitoring well MW5-14I and MW5-14 D were added to the Monitoring Program, allowing for water levels within the Newmarket Till (MW5-14I) and a deeper sandy aquifer unit within a transition between the Newmarket Till and the Thorncliffe Aquifer (MW5-14D) to be monitored. In addition, several nearby private wells are interpreted to be installed within the Thorncliffe Aquifer (Figure 10). Continuous water level data were obtained at eight (8) nearby private wells completed at a depth greater than 50 m.

Interpreted static groundwater levels within the Thorncliffe Aquifer through the Project Area are presented on Figure 10. Water level data presented were collected during the October 2019 monitoring event. Groundwater levels range from 207.4 m AMSL to 214.7 m AMSL, with an overall south to southeasterly groundwater flow direction that is consistent with historical monitoring results and with regional mapping, which indicates groundwater flow to the southeast across the Project Area (CLOCA, 2012).

A downward vertical hydraulic gradient is interpreted from water level elevations recorded in the surficial sand and weathered till units within the Project Area to the underlying Thorncliffe Aquifer. Assuming a shallow groundwater level of 249.7 m AMSL within the Station Site in the vicinity of MW5-14S (Figure 9) and a groundwater level of 212.1 m AMSL from MW5-14D (Figure 10); the difference in recorded water levels in these monitoring wells, in conjunction with the stratigraphic model understanding for the Site, indicates these wells have little to no direct hydraulic connection.

Water level elevation data from the deep private wells typically indicated well use effects due to operation of the private well pump, which was characterized by rapid, regular drawdown and recovery (Figures 16 to 23; Appendix D). Effects due to water use were more clearly visible in these drilled wells due to the smaller well diameter as compared to shallow dug wells. Fluctuations due to deep private well use ranged from approximately 0.5 m up to 20 m (Appendix D). The extent of water level fluctuation due to well use was generally consistent within each deeper private well over the monitoring period, and available data did not suggest any change in well performance since monitoring began. Water level trends in the deep private wells are characterized by muted responses to individual precipitation events, and steady changes in water level in response to seasonal changes.

5.2 GROUNDWATER AND SURFACE WATER QUALITY

As part of the Monitoring Program, water quality monitoring has been completed within surface water and groundwater monitoring wells from the Project Area since December 2013. In 2019, water quality was monitored semi-annually in the Spring and Fall both onsite and in private water wells. Surface water quality data are presented in Table 3, with groundwater quality data from Project Area monitoring wells presented in Table 4, and water quality data from the private wells in Table 5. To maintain confidentiality for the private well results, the well identification has been removed from Table 5. Laboratory certificates of analysis for all water quality sampling are included in Appendix E. The following section presents a review of the available water quality data.

5.2.1 Surface Water Quality

Surface water quality data are discussed below and are presented in Table 3 with results compared to the PWQO, which are the applicable regulatory criteria for surface water within the Project Area.

Due to the limited amount of water present, it is challenging to collect samples without allowing some sediment to enter the bottles. The surface water samples in April were not field filtered, with the exception of mercury. However, the April sampling results showed a few metals in surface water samples had higher than expected metals results, so a follow up sampling event was completed in May where both filtered and unfiltered samples were collected. The results from the May sampling event confirmed the elevated total metal concentrations were related to sediment. The water quality results in April for metals, except mercury, were interpreted to be biased high due to the presence of sediment in the samples. The field filtered samples for mercury analysis and the field filtered samples for metals in May 2018 are representative of the dissolved phase. The October samples collected both filtered and unfiltered metals. Results discussed below disregard the April surface water metals concentrations because the results were interpreted to be biased high due to sediment.

The South Branch of the Tributary of Harmony Creek flows through Wetland Area 1, and is approximately 0.2 to 0.3 m wide at SW2.

Surface water quality in April/May and October at SW2 in 2019 was characterized by:

- Elevated boron above the PWQO in October 2019

- Elevated total phosphorus in April 2019
- All other parameters were found to be below the PWQO criteria in 2019

The surface water sample at SW3 was collected from the tributary of Harmony Creek along the western Project Area boundary. At this location, the creek ranged from 0.5 to 1.0 m in width, with the actual channel being approximately 1.5 m wide.

Surface water quality at SW3 in April/May and October 2019 was characterized by:

- Elevated boron in Fall 2019
- All other parameters were found to be below the PWQO criteria in 2019

Surface water was present at SW4 (within surficial drainage swale adjacent to DP4-13) at the time of drive-point installation in 2013; however, it was noted as being dry during several historical sampling events, including in May and October 2019.

Surface water quality at SW4 in April 2019 was characterized by:

- All parameters were found to be below the PWQO criteria in 2019

5.2.2 Monitoring Well Water Quality

Semi-annual groundwater quality sampling of the on-Site groundwater monitoring wells was completed in Spring and Fall 2019 sampling events. The following presents the results from semi-annual monitoring completed in April and October 2019.

Groundwater quality results from 2019 are presented in Table 4 and are compared to the ODWS. Historical data from 2013 through to and including 2019 are provided in the accompanying CD of the report in Appendix F. For a number of SVOC and VOC, there are no criteria in the ODWS; and as a result, the results were also compared to applicable criteria under O. Reg. 153/04. Tables 6 and 8 of the Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, dated April 15, 2011 (henceforth the site condition standard (SCS)) were selected as the applicable criteria for the Project Area as the Station Site is located within 30 m of tributaries of Harmony Creek, has a shallow groundwater table, and is situated in an area in which groundwater is used as a potable source. Criteria for coarse grained material were used, as more than 33% of material is sand or coarser, even though the matrix is till.

5.2.2.1 Inorganic Water Quality

Groundwater quality from the Project Area monitoring wells in 2019 met the ODWS maximum acceptable concentration (MAC) for all health-related inorganic parameters with the exception of nitrate which was detected at MW1-13S (up to 15.8 mg/L in Spring 2019). The elevated nitrate concentration at this location is attributed to agricultural fertilizer and consistent with previous results.

Nitrate in groundwater is common in agricultural communities, with potential sources including nitrate from fertilizers, septic system leaching, and the natural decaying process of vegetation and animal matter. As reported in the 2015 Annual Monitoring Report, nitrate concentrations in the shallow groundwater system decreased from east to west and southwest across the Project Area. The same trend was observed in the 2019 shallow groundwater quality data. Though shallow groundwater upgradient of the Station Site was found to have nitrate concentrations above the ODWS of 10 mg/L in Spring 2019 monitoring (MW1-13S), shallow groundwater leaving the Project Area remained well below 10 mg/L. In each of the shallow monitoring wells, nitrate concentrations have been trending lower each year.

The following inorganic parameters were detected above the ODWS aesthetic objective (AO), ODWS operational guideline (OG) or ODWS Medical Officer of Health (MOH) guidelines on at least one (1) occasion in 2019:

- Hardness (80 to 100 mg/L OG) within all monitoring wells, either above or below the OG
- Sodium (20 mg/L MOH) within MW2-13D, MW3-13S/D, MW4-13S/D, MW4-15D, MW5-14S(2), MW5-14I, and MW5-14D
- Total Dissolved Solids (TDS) (500 mg/L AO) within MW3-13D, MW4-13S, MW5-14S, and MW5-14S(2)
- Turbidity (5 NTU AO) within MW1-13S/D, MW2-13S/D, MW3-13S/D, MW4-13S/D, MW5-14D, MW5-14I, MW5-14S, MW5-14S(2), MW6-14, and MW7-14
- Manganese (0.05 mg/L) within MW6-14
- Iron (300 mg/L) within MW6-14
- Molybdenum (70 mg/L, Ontario SCS) at MW4-13D

These 2019 detections are generally consistent with previous 2013 to 2018 results, and do not indicate any significant change in groundwater quality in 2019 during the second full year of operation of the Clarington TS.

To visually compare 2019 water quality results, inorganic water quality data from the monitoring wells are presented as a piper plot on Figure 11 and include results from Fall 2019 sampling. The water quality distribution within the piper plot is consistent with historical results (Stantec, 2014, 2015c, 2017, 2018, 2019). Results indicated that water quality at MW6-14 and MW7-14 was similar to other shallow monitoring wells, with the water characterized as calcium and magnesium bicarbonate water. The deep monitoring wells indicate greater variation in water quality, primarily due to differences in sulphate and sodium concentrations. Results indicated similar groundwater chemistry at deeper monitoring wells MW5-14D, and MW5-14I.

5.2.2.2 Organic Water Quality

Groundwater samples from the monitoring wells were also analyzed for petroleum hydrocarbons, BTEX compounds, PBCs, VOCs and SVOCs and compared to ODWS (Table 4). Historically in 2014, benzo(a)pyrene has been detected above the ODWS in some monitoring wells. As presented in the Addendum Report (Stantec, 2015a), this compound adsorbs to soil particles and it was concluded that these detections are associated with the sediment collected within the sample. The Addendum Report recommended that water quality sampling protocols be amended to include low-flow sampling. This sampling protocol has been adopted since the 2015 Spring sampling round. In 2015, no detections of benzo(a)pyrene were noted in any of the Project Area monitoring wells. However, since 2016, benzo(a)pyrene was detected sporadically at MW4-15D and MW3-13D, or in 2019 at MW1-13S and MW5-14S. For each of these samples, suspended sediments were noted during sampling. The elevated benzo(a)pyrene is likely due to the effect of sediment entrained within the samples, as the non-filtered and lab-filtered samples for the same monitoring locations did not both detect benzo(a)pyrene.

Certain other VOC and SVOC compounds were detected within the monitoring wells in Spring and/or Fall 2019 sampling in low concentrations either below the ODWS criteria, or there were no applicable ODWS criteria. The following provides a summary of these organic parameters and a comparison with respect to the SCS criteria.

Water Quality – Upgradient of Station Site

Monitoring Wells MW1-13S/D, MW6-14 and MW7-14 are located upgradient (East) of the Station Site and indicated the following groundwater quality results in 2019:

- No PCBs were detected within any of the samples.
- No PHCs were detected within any of the samples; however, toluene was detected at low levels within MW6-14 in Spring and Fall, with concentrations below the SCS criteria.
- No phthalate compounds were detected within any of the samples.
- Benzo(a)pyrene exceeded the ODWS and SCS MAC criteria (0.01 μg/L) within the Fall sample at MW1-13S.
- No VOC compounds were detected within any of the samples; except acetone was detected at low levels within MW6-14 in Spring, with a concentration below the SCS criteria.

Water Quality – North of Station Site

Monitoring Wells MW2-13S/D are located at the northern extent of the Station Site and indicated the following groundwater quality results in 2019:

- No PCBs were detected within any of the samples.
- No PHCs were detected within any of the samples.
- No detection of phthalate compounds.
- No PAH compounds were detected within either well.
- No VOC compounds were detected within any of the samples.

Water Quality – Southwest of Station Site

Monitoring Wells MW3-13S/D, MW4-13S, MW4-13D, and MW4-15D (replacing MW4-14D) are located downgradient of the Station Site and indicated the following water quality results in 2019:

- No PCBs were detected within any of the samples.
- No PHCs were detected within any of the samples.
- No detection of phthalate compounds.
- No PAH compounds were detected any of the samples.
- No VOC compounds were detected within any of the samples except a low-level concentration of acetone in the Spring sample at MW3-13D, with a concentration below the SCS criteria.

Water Quality – Adjacent to Station Site

The four monitoring wells at MW5 (MW5-14S(2)/S/I/D are located immediately on the southwest side of the Station Site and generally central to the Project Area. Water quality results indicated the following water quality results:

- No PCBs were detected within any of the samples.
- No PHCs or BTEX compounds were detected within any of the samples.
- No detection of phthalate compounds.
- Benzo(a)pyrene exceeded the ODWS and SCS MAC criteria (0.01 μg/L) at MW5-14S
- No PAH compounds were detected.
- No VOC compounds were detected within any of the samples.

Summary

The organic water quality results for on-site monitoring wells continued to show a general decrease in detections and concentrations. The 2019 results did not indicate any exceedances of the ODWS or SCS criteria, with the exception of a single exceedance of molybdenum at MW4-13D and benzo(a)pyrene in MW1-13S and MW5-14S, which is interpreted to be the result of sediments captured within the samples.

5.2.3 Private Well Water Quality

Water quality monitoring was completed at private wells participating in the Monitoring Program in the Spring and Fall of 2019. During sample collection, Stantec attempted to collect a raw water quality (untreated) sample at each residence; however, based on discussions with well owners and water quality results, it is evident that treated samples were collected at select locations. Water quality results are presented in Table 5 and compared to the ODWS, which are the applicable criterion for drinking water in Ontario. For privacy reasons, sample identifications are not given, and the samples are labeled based on aquifer unit and either raw or treated, as appropriate.

Within 24 hours of receipt of the water quality results, Stantec notified individual well owners of any health-related exceedances within their water sample. A follow-up letter was provided to each well owner following each monitoring event detailing the full water quality results. The sections below summarize key raw water quality characteristics only.

5.2.3.1 Bacteriological Water Quality

Water quality trends for shallow private wells that were installed to a maximum depth of 16 m BGS indicated that 14 of the 16 wells (88%) sampled during the Spring and Fall 2019 rounds had total coliforms present on at least one occasion. This is consistent with historical sampling results. *E. coli* was detected in four (4) of 16 wells (25%) on at least one occasion in 2019, which is significantly less than the 86% in 2017 and 40% in 2018.

Of the ten (10) drilled wells completed at depths below 40 m BGS, including one drilled well completed at an intermediate depth of 16 m BGS, only two (2) wells (20%) had detections of total coliform in 2019. None of the samples collected from these wells in 2019 had *E. coli*. These results are consistent with historical sampling results.

A greater number of total coliform detections were noted within shallow dug wells when compared to drilled wells completed at depths greater than 40 m. The total coliform and *E. coli* detections within the shallow dug wells are interpreted to be related to local sources associated with agricultural activities (fertilizer, manure storage, and animal feedlots), septic systems, or potential surface influences. All residents were notified immediately by Stantec of a positive bacteriological detection and directed to follow any recommendations from the Durham Region Health Unit regarding water and well treatment, follow-up sampling, and well maintenance.

Of note, some laboratory bacteriological results were identified as *no data due to bacterial overgrowth*. This result indicates the target bacterial growth (total coliform and *E. coli*) on the laboratory petri plate could not be counted due to excessive growth of either non-target bacteria (NDOGN), or excessive growth of the target bacteria, *E. coli*. or total coliforms (NDOGT), thereby preventing the target bacteria cultures to be counted. Results of NDOGT are considered a positive detection, and NDOGN are considered as a potential positive result. Well owners were notified of these results and directed to follow recommendations from the Durham Region Health Unit.

5.2.3.2 Inorganic Water Quality

Water quality from the 16 shallow private wells participating in the Monitoring Program did not exceed the ODWS-MAC for any tested inorganic parameter in both the Spring and Fall 2019 sampling rounds. Hardness was above the ODWS-OG in all shallow wells without treated samples, which is common in groundwater quality from southern Ontario. The following parameters were detected above the ODWS-AO or ODWS-MOH on at least one (1) occasion within shallow private wells:

- Sodium exceeded the ODWS-MOH of 20 mg/L in thirteen wells, with water quality results from one (1) well also exceeding the ODWS-AO of 200 mg/L, with three (3) of these wells reported as treated by a water softener.
- Chloride exceeded the ODWS-AO guideline of 250 mg/L in two (2) wells.
- Total Dissolved Solids (TDS) (500 mg/L ODWS-AO) in nine (9) wells with concentrations of up to 1,120 mg/L.

Water quality for all ten (10) deeper wells completed below 40 m BGS, including one well completed at an intermediate depth of 16 m BGS, did not exceed the ODWS-MAC for any tested inorganic parameter in both the Spring and Fall 2019 sampling rounds. Hardness was above the ODWS-OG in the raw water from all deeper wells without treated samples, which is common in groundwater quality from southern Ontario. The following parameters were detected above the ODWS-AO or ODWS-MOH on at least one (1) occasion in 2019 sampling within the deeper private wells:

- Iron exceeded the ODWS-AO (0.3 mg/L) in seven (7) wells with concentrations up to 2.2 mg/L. Elevated iron is common in Thorncliffe-derived water in many areas in Southern Ontario, including within the Harmony Creek watershed (CLOCA, 2011).
- Turbidity exceeded the ODWS-AO (5 NTU) in five (5) wells.
- Sodium was above the ODWS-MOH guideline in the three (3) wells, two (2) of which correspond to treated water (softener).
- Magnesium was above the ODWS-AO (0.05 mg/L) in one (1) well.

5.2.3.3 Organic Water Quality

Water quality samples from private wells were tested for VOCs, SVOCs, PHCs and PCBs and results compared to ODWS. A summary of results is detailed below with the data presented in Table 5.

Low level concentrations of trihalomethanes (THMs) including bromodichloromethane, dibromochloromethane, bromoform, and chloroform were detected within at least one (1) sample from eight (8) shallow private wells, and one (1) deeper well. All of these compounds are commonly the by-product of disinfection and are created by the reaction of chlorine with organic carbon within the groundwater. Discussions with well owners indicated that prior to sampling, several of the well owners had recently disinfected their wells to address bacteriological detections.

5.2.4 Well Interference Responses

Hydro One received one (1) complaint in 2019 from a private well owner participating in the Private Well Monitoring Program. This complaint was not related to the private well owner's well but to surface water flowing from the Site in a tributary that passes through the owner's land. Stantec completed an initial investigation of the complaint, but once it was determined that the complaint was not related to the private well owner's drinking water supply or well, the response was organized by Hydro One outside of the WIRP.

5.3 CLIMATE MONITORING

Summer months in Southern Ontario are typically warmer drier months; which was true in July, August, and September in 2019 which had just 221 mm of precipitation compared to 286 mm in 2018. Overall, the total precipitation in 2019 was 864 mm, which is consistent with 2018 (867 mm) and the long-term precipitation normal of 872 mm.

Groundwater recharge relies on precipitation to infiltrate into the shallow groundwater system, and eventually provide recharge to deeper groundwater systems. While a number of factors influence groundwater recharge, available recharge from precipitation and evapotranspiration are two important factors. Increased summer temperatures will typically increase evapotranspiration, and therefore, reduce the amount of water available for infiltration into the shallow groundwater system. Environment Canada temperature data for the same Oshawa Airport climate station indicates that there was an overall mean daily temperature decrease over the six-month period of May through October from 17.1°C in 2018 to 15.9°C in 2019.

The decreased summer precipitation in 2019 compared to 2018 lead to an overall slight decline in water levels in monitoring wells during this time across the Project Area and in surrounding nearby private wells.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results presented in this 2019 Groundwater and Surface Monitoring Report, the following conclusions are provided:

- The Groundwater and Surface Water Monitoring Program, initiated in December 2013, and completed through October 2019, allowed for annual characterization and monitoring of groundwater and surface water conditions within the Project Area.
- The voluntary extension of the Private Well Monitoring Program continues to monitor water levels and water quality data for participating private wells within 1,200 m of the Station Site.
- Groundwater levels within the shallow overburden mimic topography, with shallow groundwater flow direction within the Station Site to the west and southwest towards the tributary of Harmony Creek and its associated branches. Monitoring wells at MW2-13, MW3-13, MW4-13, and MW5-14 are well positioned to serve as downgradient shallow groundwater monitoring wells for the Station Site.
- Precipitation totals in the Oshawa area in 2019 were consistent with 2018 and climate normals.
- Water level and water quality monitoring through to October 2019 indicates no adverse effects on the shallow groundwater system or in shallow or deep private wells as a result of Station Site grading and construction and the first year of operation of the Clarington TS.
- The Groundwater and Surface Water Monitoring Program was successfully implemented and Hydro One and Stantec are confident that this final report has met the conditions of the Minister’s Decision (ENV1283MC2013-2616).

The following recommendations are provided:

- The onsite monitoring program has met all the conditions set out in the Groundwater Monitoring Plan, which required baseline, construction and 2 years of post-construction monitoring ending in Fall 2019. The onsite monitoring program has also met the conditions of the Minister’s Decision (ENV1283MC2013-2616). As a result, it is recommended that the onsite monitoring program be terminated.
- The WIRP should continue to be reviewed annually. Based on 2019 results, no changes are currently recommended.
- The condition of all monitoring wells and drive-point piezometers should continue to be inspected annually and upgrades/replacement completed, as necessary. The majority of the monitoring wells will be decommissioned in 2020, following publication of this final report.

7.0 REFERENCES

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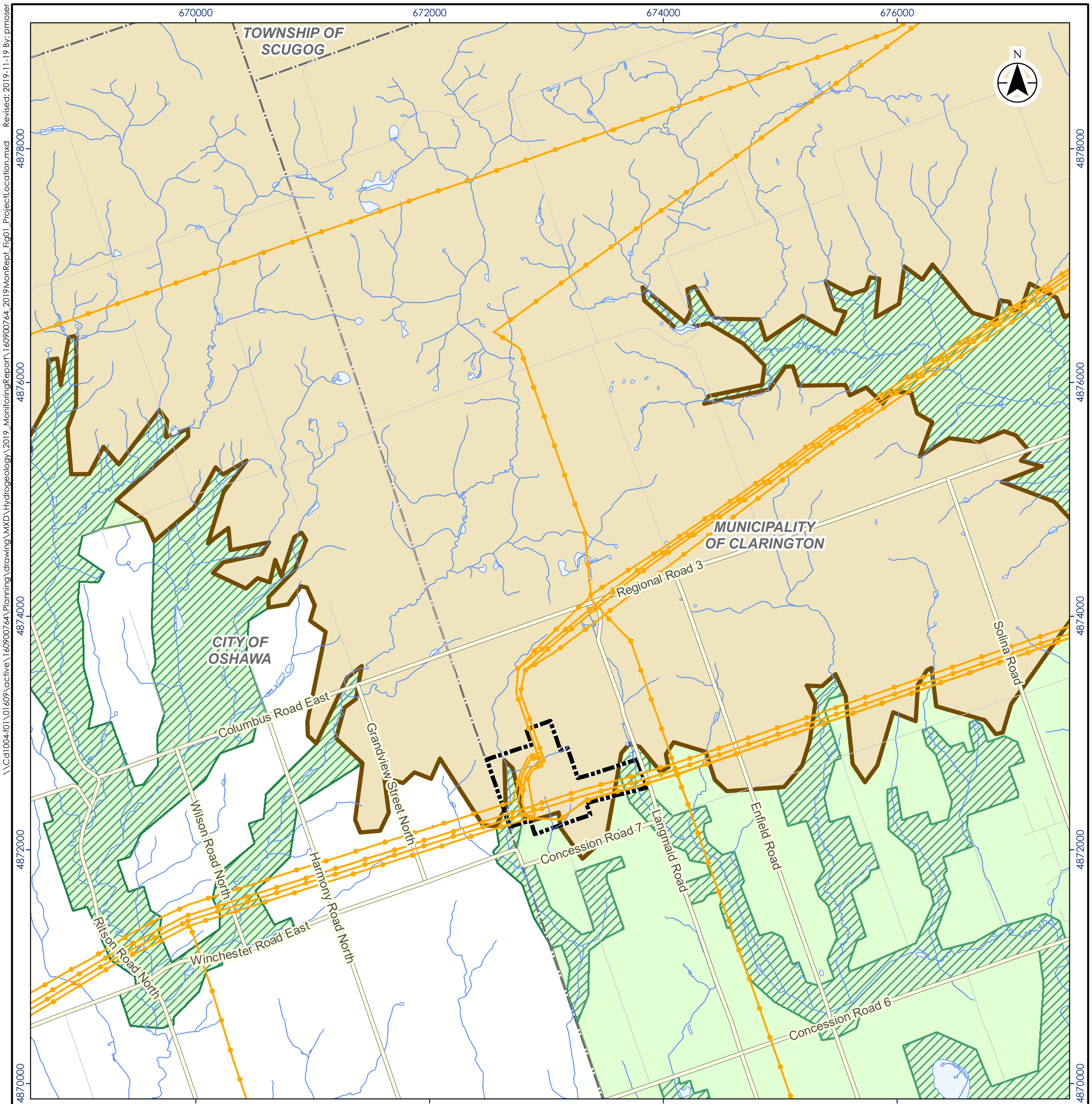
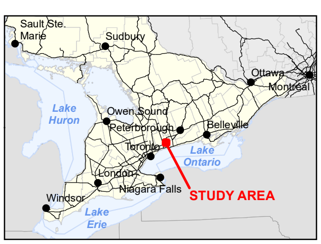
APPENDIX A:

Figures





Legend

- Project Area
- Municipal Boundary
- Utility Line
- Major Road
- Local Road
- Watercourse
- Waterbody
- Oak Ridges Moraine
- Greenbelt - Natural Heritage System
- Greenbelt - Protected Countryside

0 1 2 km

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Notes

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Stantec

Project Location
Municipality of Clarington

160900764 REVA
Prepared by PRM on 2019-11-19
Technical Review by JK on 2019-11-19

Client/Project

2019 ANNUAL GROUNDWATER AND SURFACE WATER MONITORING REPORT, HYDRO ONE - CLARINGTON TRANSFORMER STATION

Figure No.

1

Title

Project Location

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Stantec

Legend

- Project Area
- Station Site
- Borehole (Stantec, 2015)
- Monitoring Well (Stantec, 2013, 2015)
- Monitoring Well (Stantec, 2015) - Decommissioned
- Piezometer (Stantec, 2013)
- Piezometer (Stantec, 2017)
- Test Pit (Stantec, 2013)
- Surface Water Monitoring (Stantec, 2013)
- Monitoring Well (EXP, 2012)
- Monitoring Well (Inspec-Sol, 2012) - Decommissioned
- Borehole (Inspec-Sol, 2012)
- Borehole (EXP, 2012)
- Monitoring Wel (MTO, 2009)
- Topographic Contour (mAMSL)
- Previously Existing Infrastructure
- Watercourse
- Waterbody

0 100 200 metres

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Notes

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5. Wetland boundary as delineated by Stantec (Natural Heritage Existing Conditions Report, 2012).

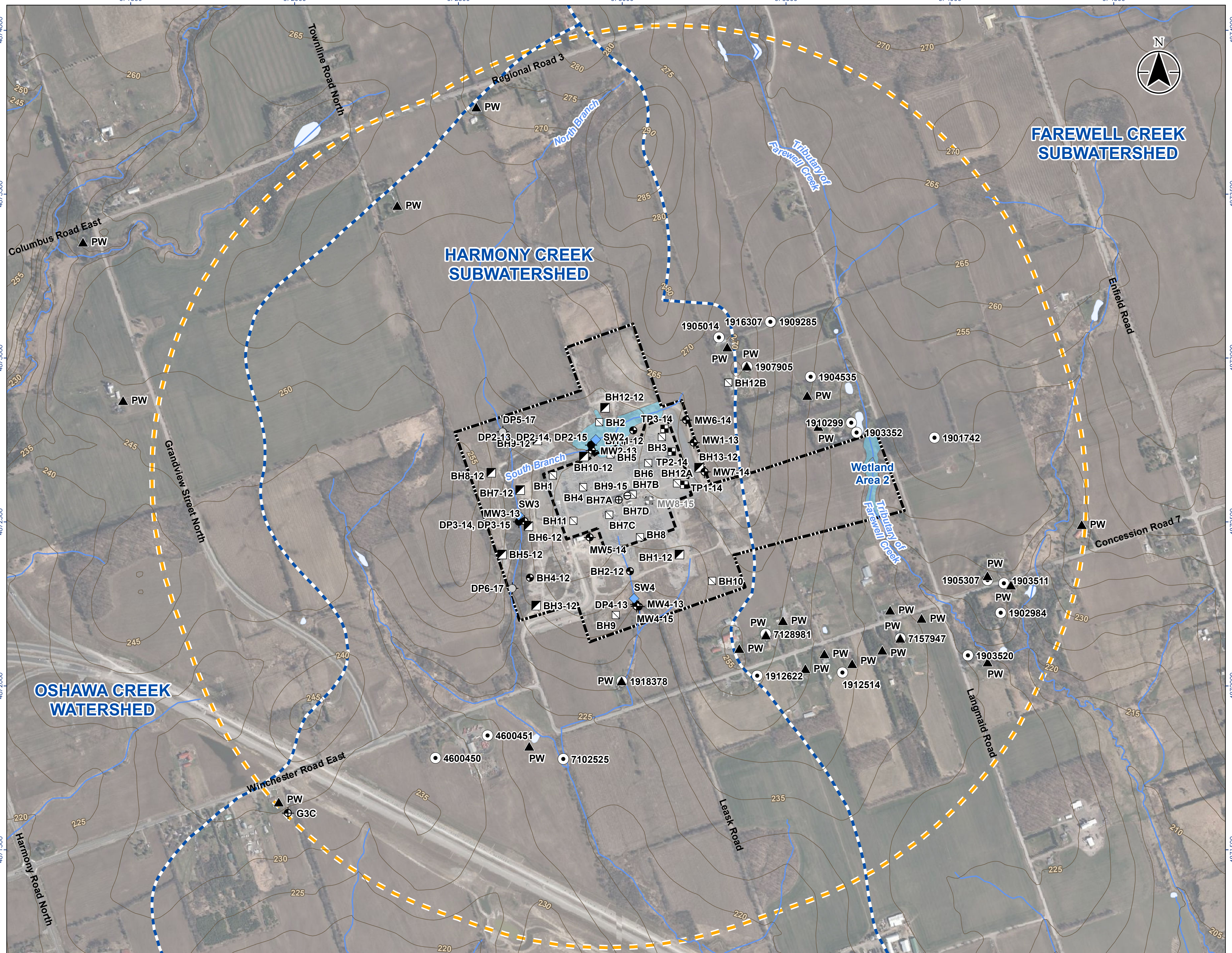
Project Location
Municipality of Clarington

160900764 REVA
Prepared by PRM on 2019-11-19
Technical Review by JK on 2019-11-19

Client/Project
2019 ANNUAL GROUNDWATER AND SURFACE WATER MONITORING REPORT, HYDRO ONE - CLARINGTON TRANSFORMER STATION

Figure No.
2

Title
Project Site Plan



Stantec

Legend

- Project Area
- Station Site
- Private Well Monitoring Area
- Drainage Catchment
- MECP Water Well Record
- Borehole (Stantec, 2015)
- Monitoring Well (Stantec, 2013, 2015)
- Monitoring Well (Stantec, 2015) - Decommissioned
- Piezometer (Stantec, 2013)
- Piezometer (Stantec, 2017)
- Test Pit (Stantec, 2013)
- Surface Water Monitoring (Stantec, 2013)
- Monitoring Well (EXP, 2012)
- Monitoring Well (Inspec-Sol, 2012) - Decommissioned
- Borehole (Inspec-Sol, 2012)
- Borehole (EXP, 2012)
- Monitoring Wel (MTO, 2009)
- Private Well
- Topographic Contour (mAMSL)
- Previously Existing Infrastructure
- Watercourse
- Waterbody

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Notes

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5. Wetland boundary as delineated by Stantec (Natural Heritage Existing Conditions Report, 2012).
6. MECP Water well locations are approximate and have been positioned based on published UTM coordinates © Queen's Printer for Ontario, 2012.

Project Location: Municipality of Clarington — 160900764 REVA — Prepared by PRM on 2019-11-19 — Technical Review by JK on 2019-11-19

Client/Project

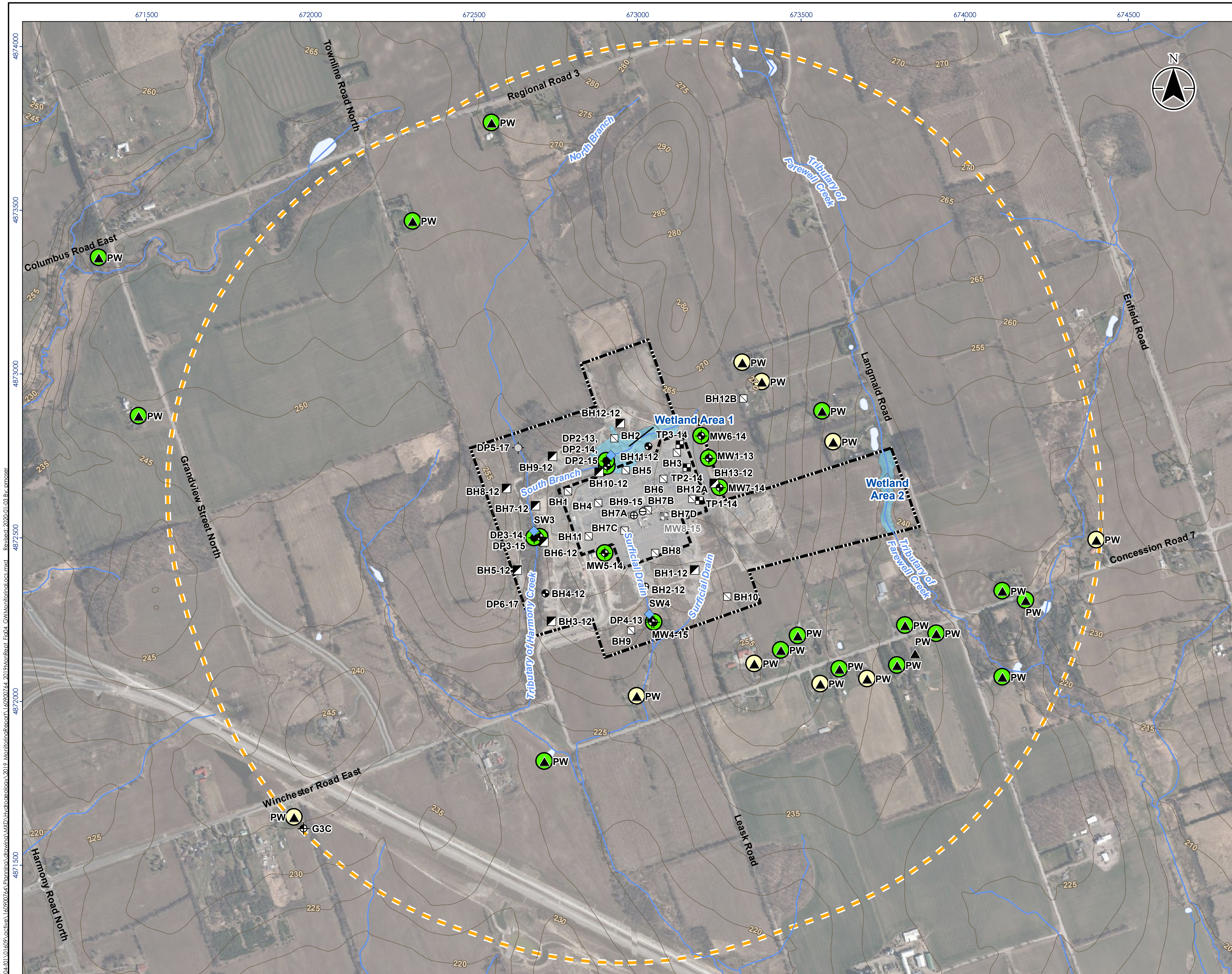
2019 ANNUAL GROUNDWATER AND SURFACE WATER MONITORING REPORT, HYDRO ONE - CLARINGTON TRANSFORMER STATION

Figure No.

3

Title

Site Setting



Stantec

N

Legend

- Project Area
- Station Site
- Private Well Monitoring Area
- Borehole (Stantec, 2015)
- Monitoring Well (Stantec, 2013, 2015)
- Monitoring Well (Stantec, 2015) - Decommissioned
- Piezometer (Stantec, 2013)
- Piezometer (Stantec, 2017)
- Test Pit (Stantec, 2013)
- Surface Water Monitoring (Stantec, 2013)
- Monitoring Well (EXP, 2012)
- Monitoring Well (Inspec-Sol, 2012) - Decommissioned
- Borehole (Inspec-Sol, 2012)
- Borehole (EXP, 2012)
- Monitoring Wel (MTO, 2009)
- Private Well
- Well Screened within Thorncliffe Formation
- Well Screened up to 16 m BGS
- Topographic Contour (mAMSL)
- Previously Existing Infrastructure
- Watercourse
- Waterbody

0 250 500 metres

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Notes

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5. Wetland boundary as delineated by Stantec (Natural Heritage Existing Conditions Report, 2012).

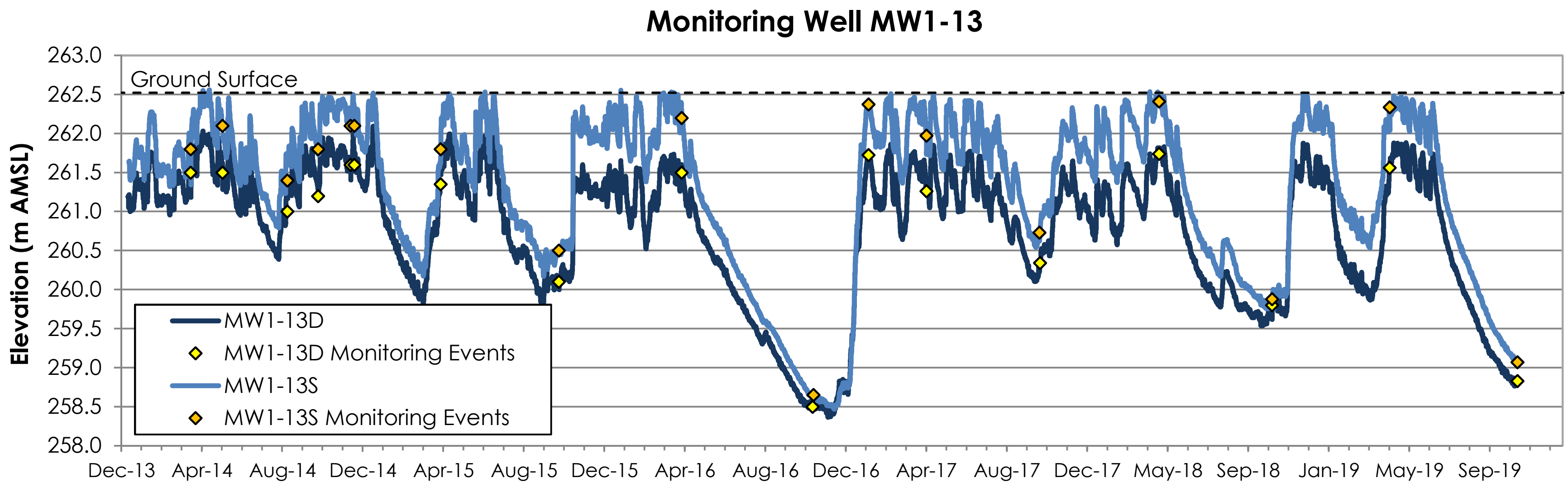
Project Location: Municipality of Clarington

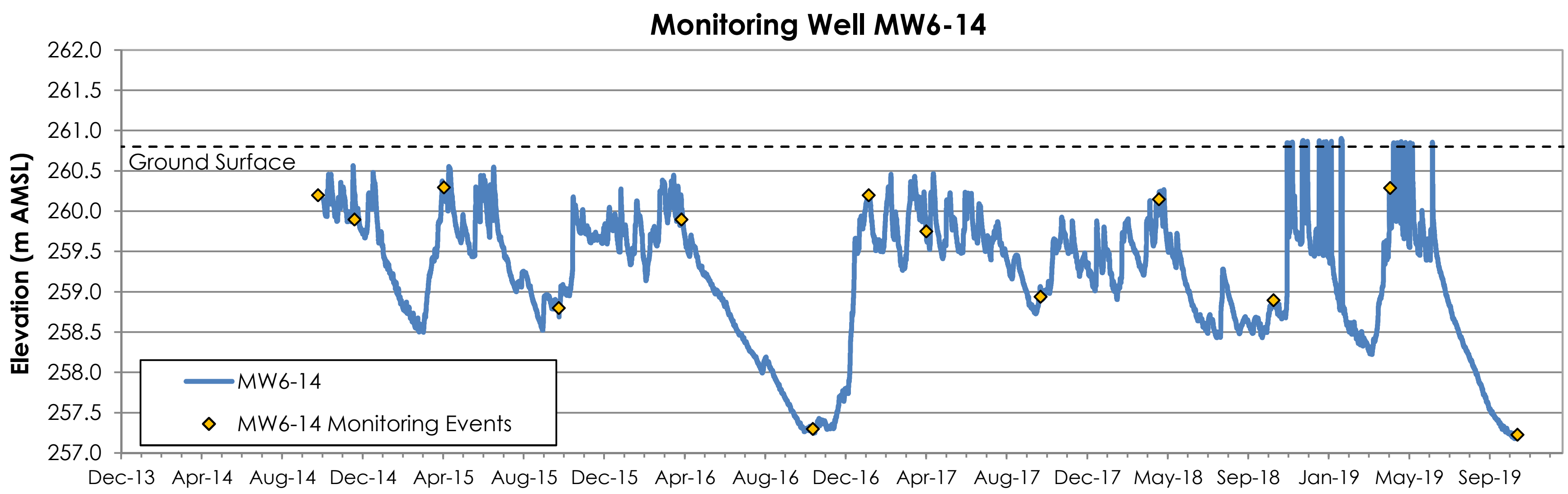
160900764 REVA
Prepared by PRM on 2020-01-03
Technical Review by JK on 2019-11-19

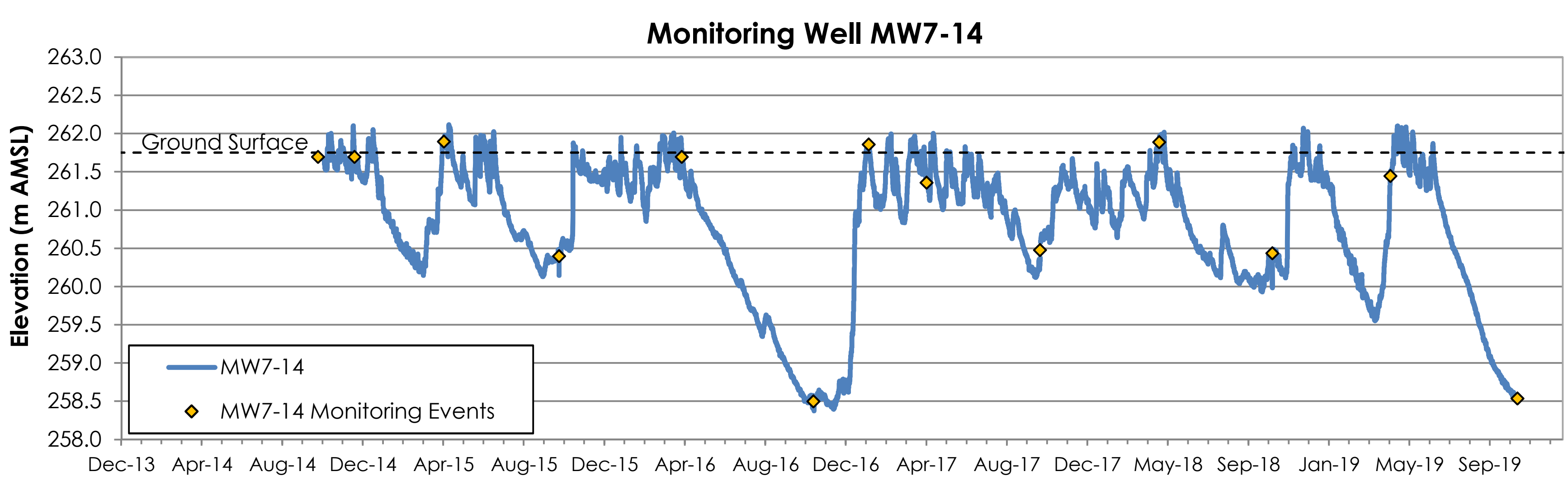
Client/Project
2019 ANNUAL GROUNDWATER AND SURFACE WATER MONITORING REPORT, HYDRO ONE - CLARINGTON TRANSFORMER STATION

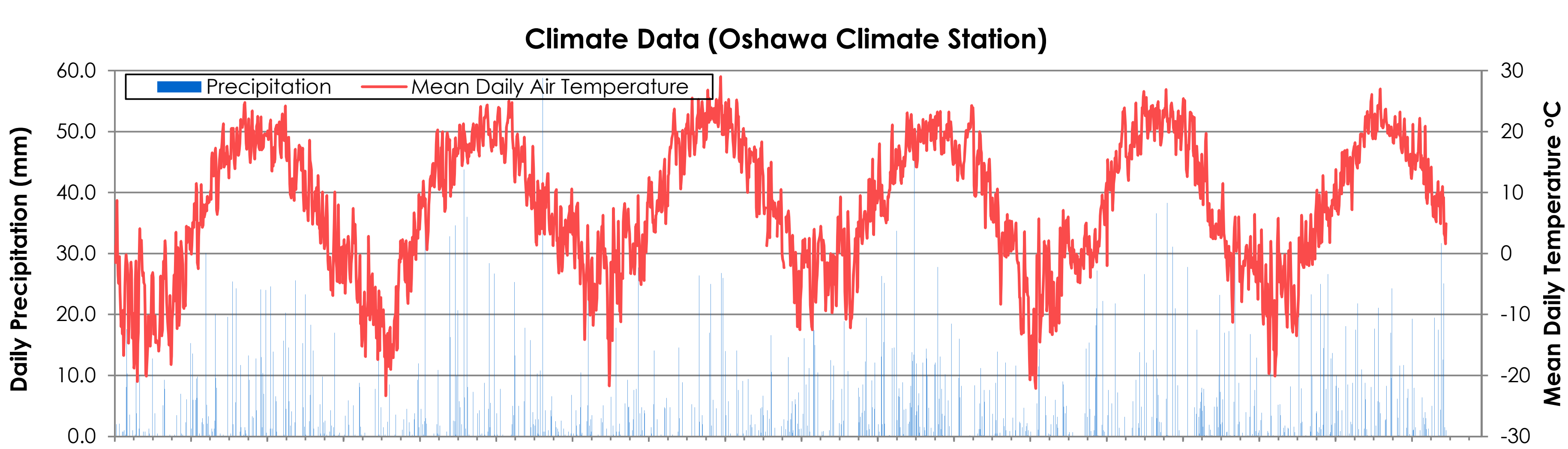
Figure No.
4

Title
Groundwater Monitoring Locations









Notes:

Precipitation and temperature data were obtained from Environment Canada for the Oshawa Climate Station. Climate data gaps were filled using data from the Blackstock and Oshawa WPCP Climate Stations, as well as the Oshawa Airport data from the Weather Network website.

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Hydro One Networks Inc.
2019 Annual Groundwater and Surface Water Monitoring Report

Figure No.

5

Title

Hydrographs
Monitoring Wells MW1, MW6, and MW7

Stantec

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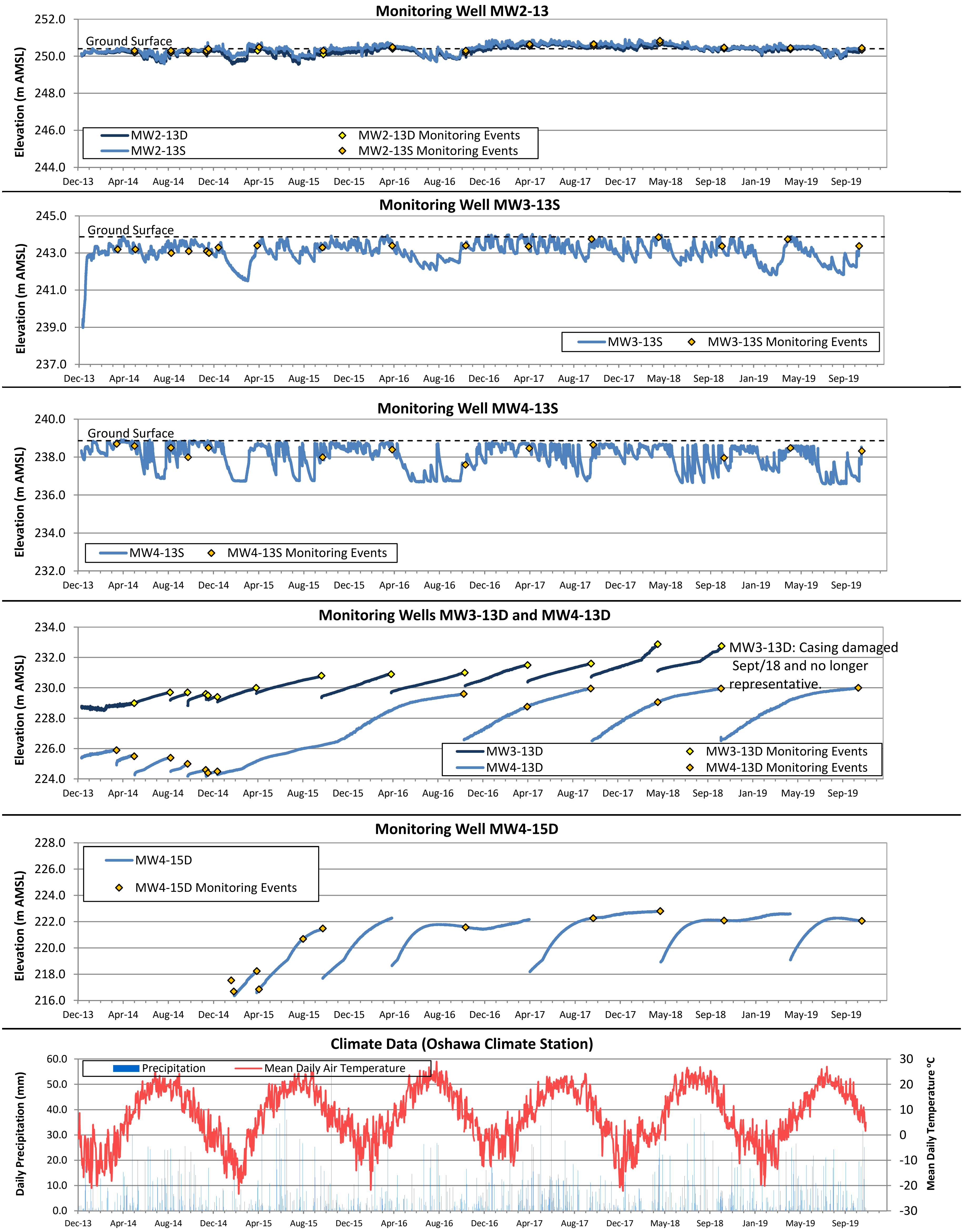


Notes:

Precipitation and temperature data were obtained from Environment Canada for the Oshawa Climate Station. Climate data gaps were filled using data from the Blackstock and Oshawa WPCP Climate Stations, as well as the Oshawa Airport data from the Weather Network website.

Client/Project

Hydro One Networks Inc.
2019 Annual Groundwater and Surface Water Monitoring Report

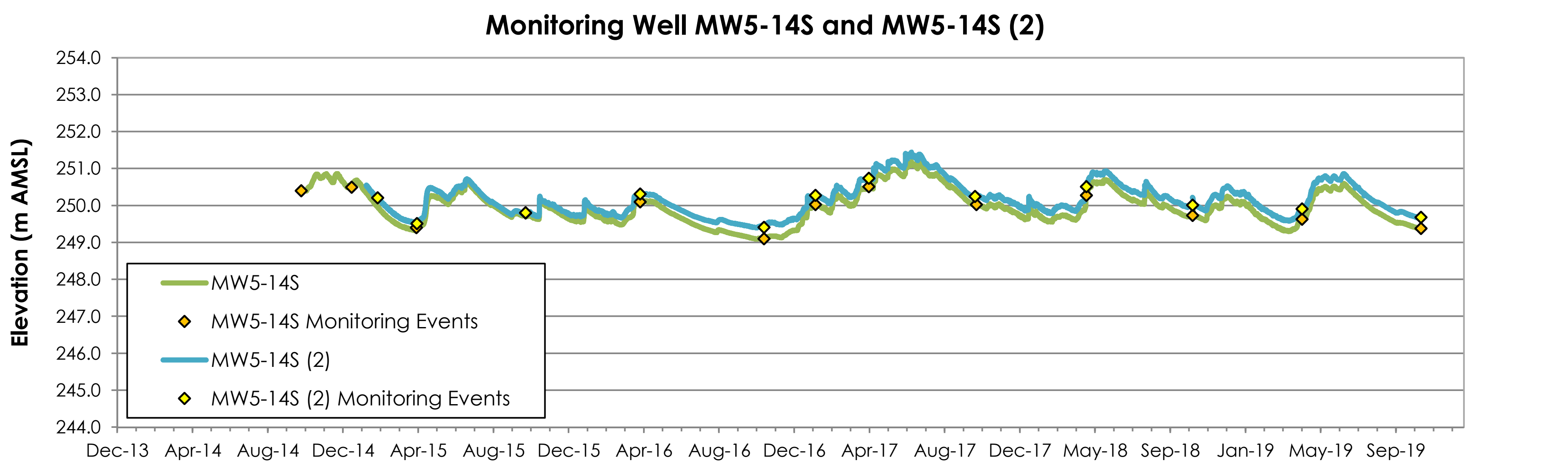
Figure No.

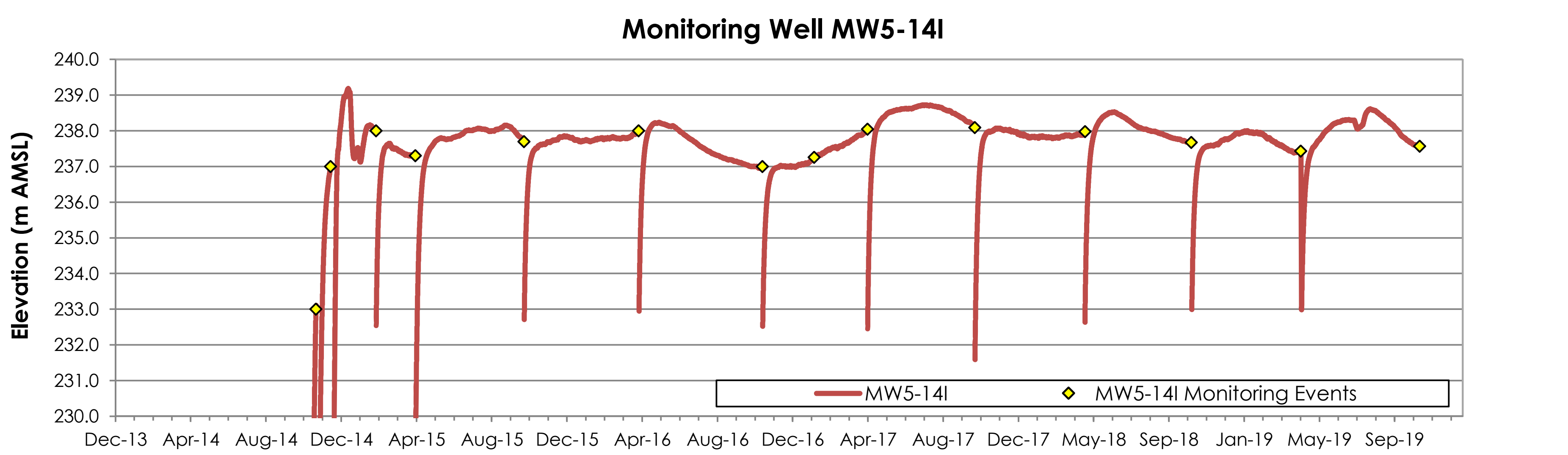
6

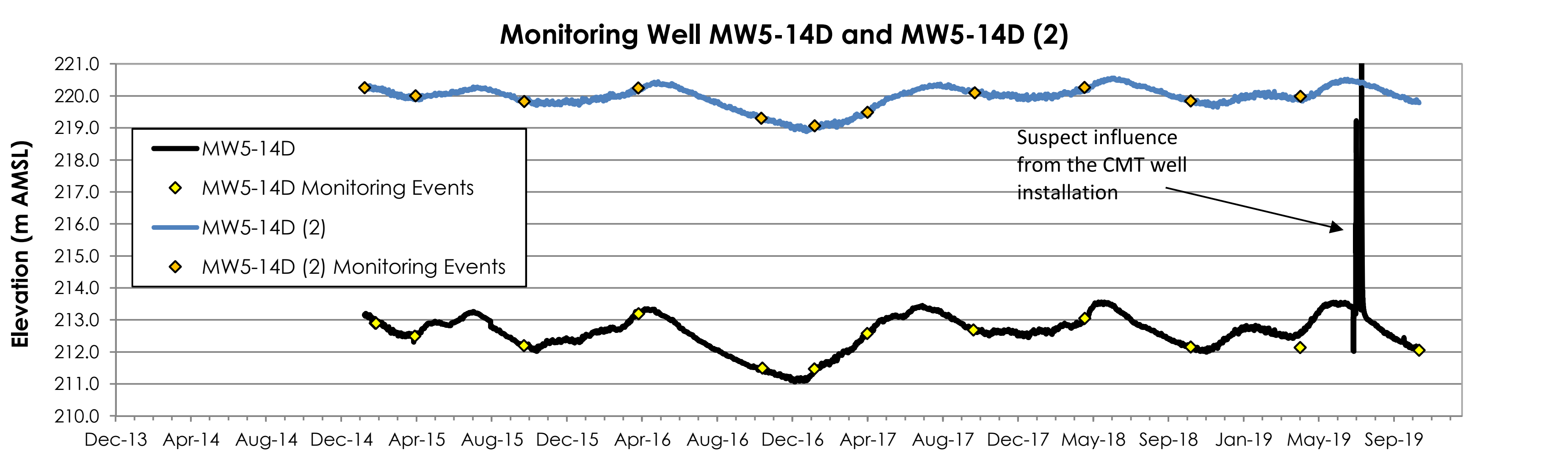
Title

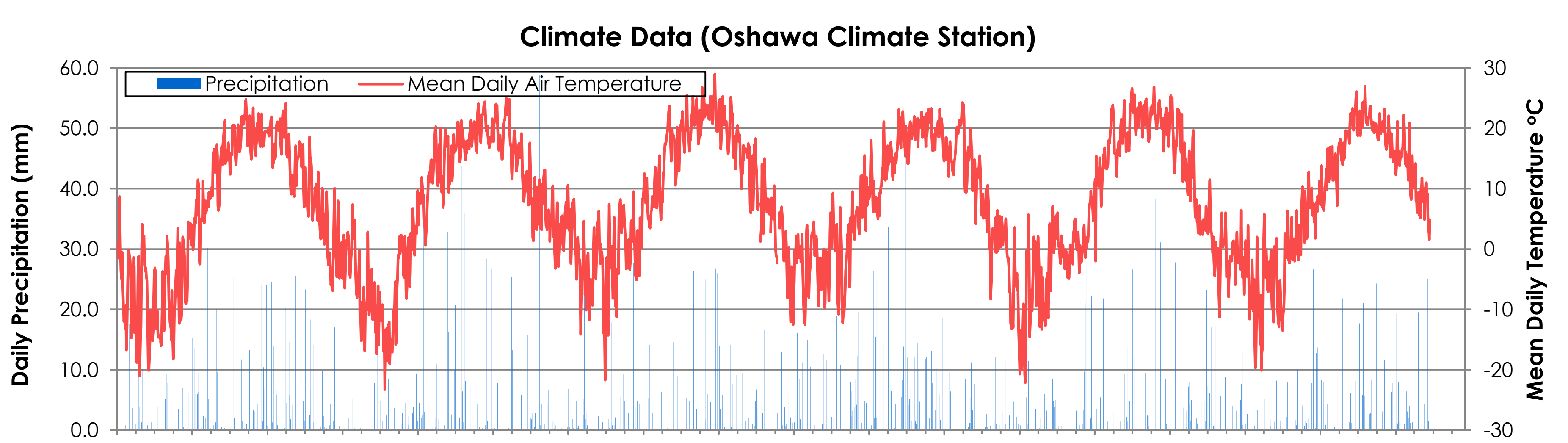
Hydrographs
Monitoring Wells MW2, MW3, and MW4

Stantec









Notes:

Precipitation and temperature data were obtained from Environment Canada for the Oshawa Climate Station. Climate data gaps were filled using data from the Blackstock and Oshawa WPCP Climate Stations, as well as the Oshawa Airport data from the Weather Network website.

Client/Project

Hydro One Networks Inc.
2019 Annual Groundwater and Surface Water Monitoring Report

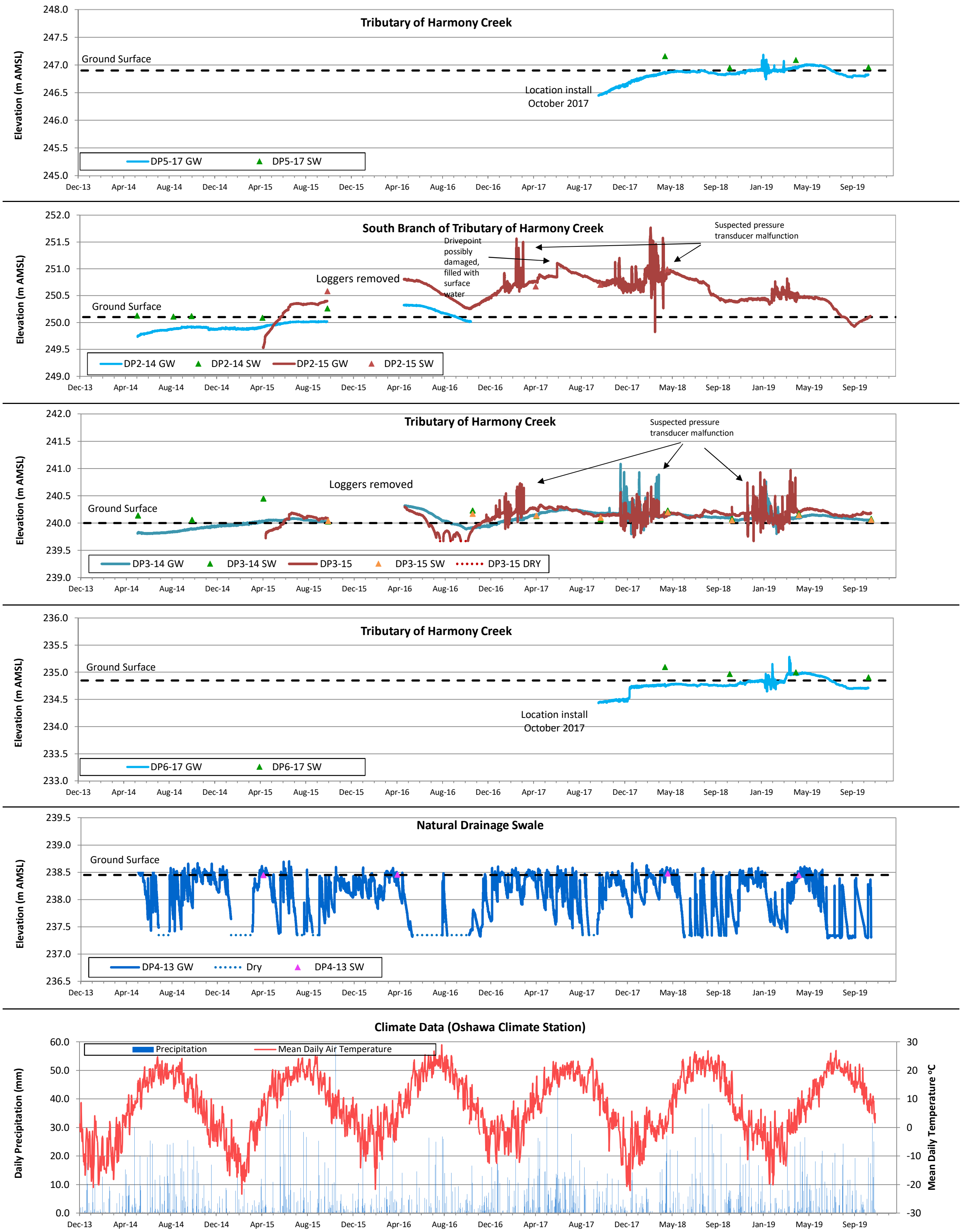
Figure No.

7

Title

Hydrographs
Monitoring Well MW5

Stantec



Notes:

Precipitation and temperature data were obtained from Environment Canada for the Oshawa Climate Station. Climate data gaps were filled using data from the Blackstock and Oshawa WPCP Climate Stations, as well as the Oshawa Airport data from the Weather Network website.

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Hydro One Networks Inc.
2019 Annual Groundwater and Surface Water Monitoring Report

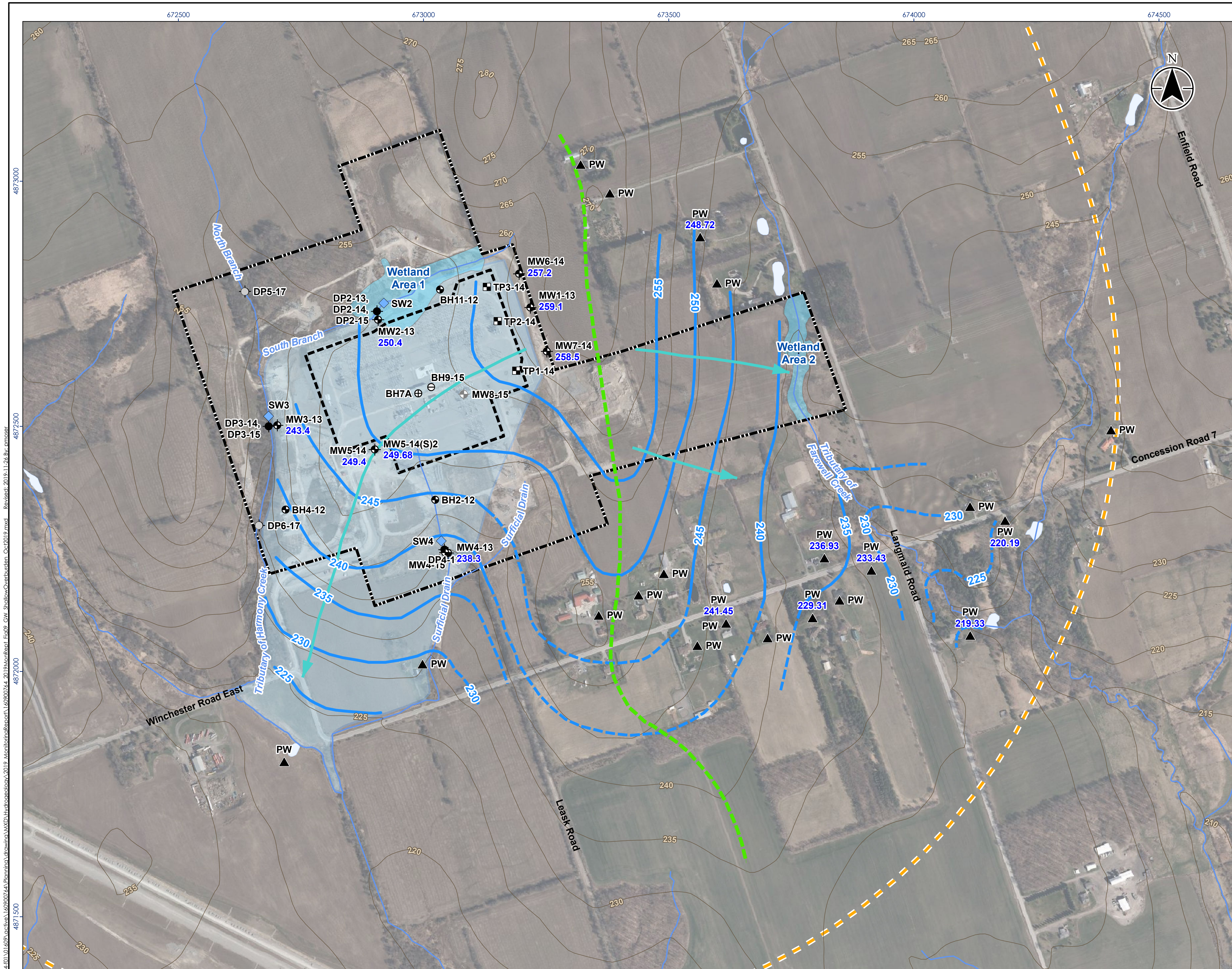
Figure No.

8

Title

Hydrographs
Drivepoints

Stantec



Stantec

Legend

- Project Area
- Station Site
- Private Well Monitoring Area
- 250.2 Groundwater Elevation (mAMSL)
- PW Private Well
- Borehole (Stantec, 2015)
- Monitoring Well (Stantec, 2013, 2015)
- Monitoring Well (Stantec, 2015) - Decommissioned
- Piezometer (Stantec, 2013)
- Piezometer (Stantec, 2017)
- Test Pit (Stantec, 2013)
- Surface Water Monitoring (Stantec, 2013)
- Monitoring Well (EXP, 2012)
- Monitoring Well (Inspec-Sol, 2012) - Decommissioned
- Borehole (Inspec-Sol, 2012)
- Monitoring Well (MTO, 2009)
- Private Well
- Topographic Contour (mAMSL)
- Previously Existing Infrastructure
- Watershed Divide
- Groundwater Flow Direction
- Interpreted Shallow Groundwater Contour (mASL)
- Wetland
- Area Downgradient from Clarington TS Station Site

0 250 500 metres

1:8,000 (At original document size of 11x17)

Notes

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3. Orthoimagery © First Base Solutions, 2017.
4. Topography derived from the MNR Digital Elevation Model - Version 2.0.0 - Provincial Tiled Dataset (DEM) © Queen's Printer for Ontario, 2006.
5. Wetland boundary as delineated by Stantec (Natural Heritage Existing Conditions Report, 2012).

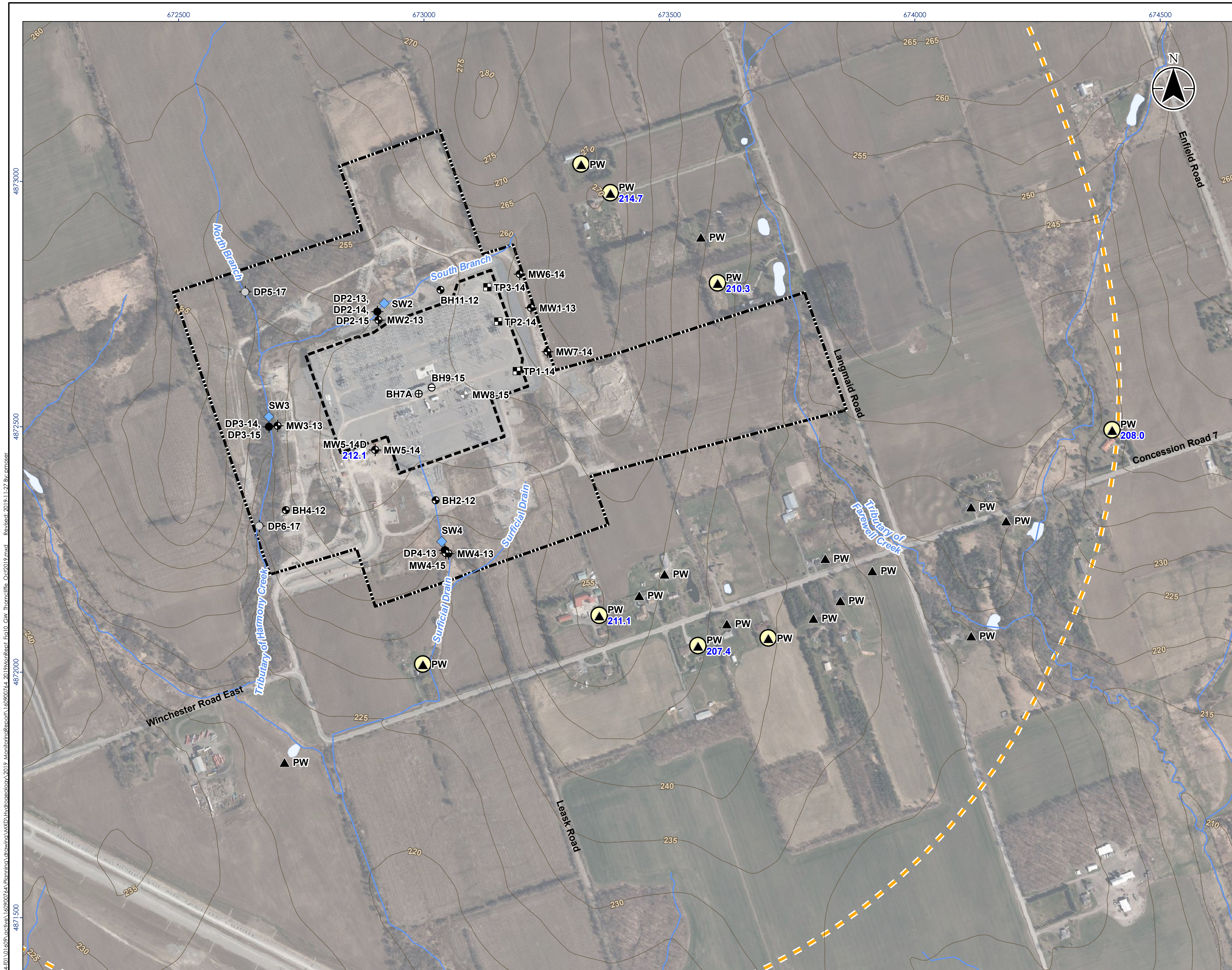
Project Location: Municipality of Clarington

160900764 REVA
Prepared by PRM on 2019-11-26
Technical Review by JK on 2019-11-19

Client/Project
2019 ANNUAL GROUNDWATER AND SURFACE WATER MONITORING REPORT, HYDRO ONE - CLARINGTON TRANSFORMER STATION

Figure No.
9

Title
Groundwater Levels
Shallow Overburden - October 2019



Stantec

Legend

Project Area

Station Site

Private Well Monitoring Area

250.2 Groundwater Elevation (mAMSL)

PW Private Well

Borehole (Stantec, 2015)

Monitoring Well (Stantec, 2013, 2015)

Monitoring Well (Stantec, 2015) - Decommissioned

Piezometer (Stantec, 2013)

Piezometer (Stantec, 2017)

Test Pit (Stantec, 2013)

Surface Water Monitoring (Stantec, 2013)

Monitoring Well (EXP, 2012)

Monitoring Well (Inspec-Sol, 2012)

Borehole (Inspec-Sol, 2012)

Monitoring Well (MTO, 2009)

Private Well

Well Screened within Thorncliffe Formation

Topographic Contour (mAMSL)

Previously Existing Infrastructure

Watercourse

Waterbody

0 250 500 metres

1:8,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2012.
3. Orthoimagery © First Base Solutions, 2017.
4. Topography derived from the MNR Digital Elevation Model - Version 2.0.0 - Provincial Tiled Dataset (DEM) © Queen's Printer for Ontario, 2006.

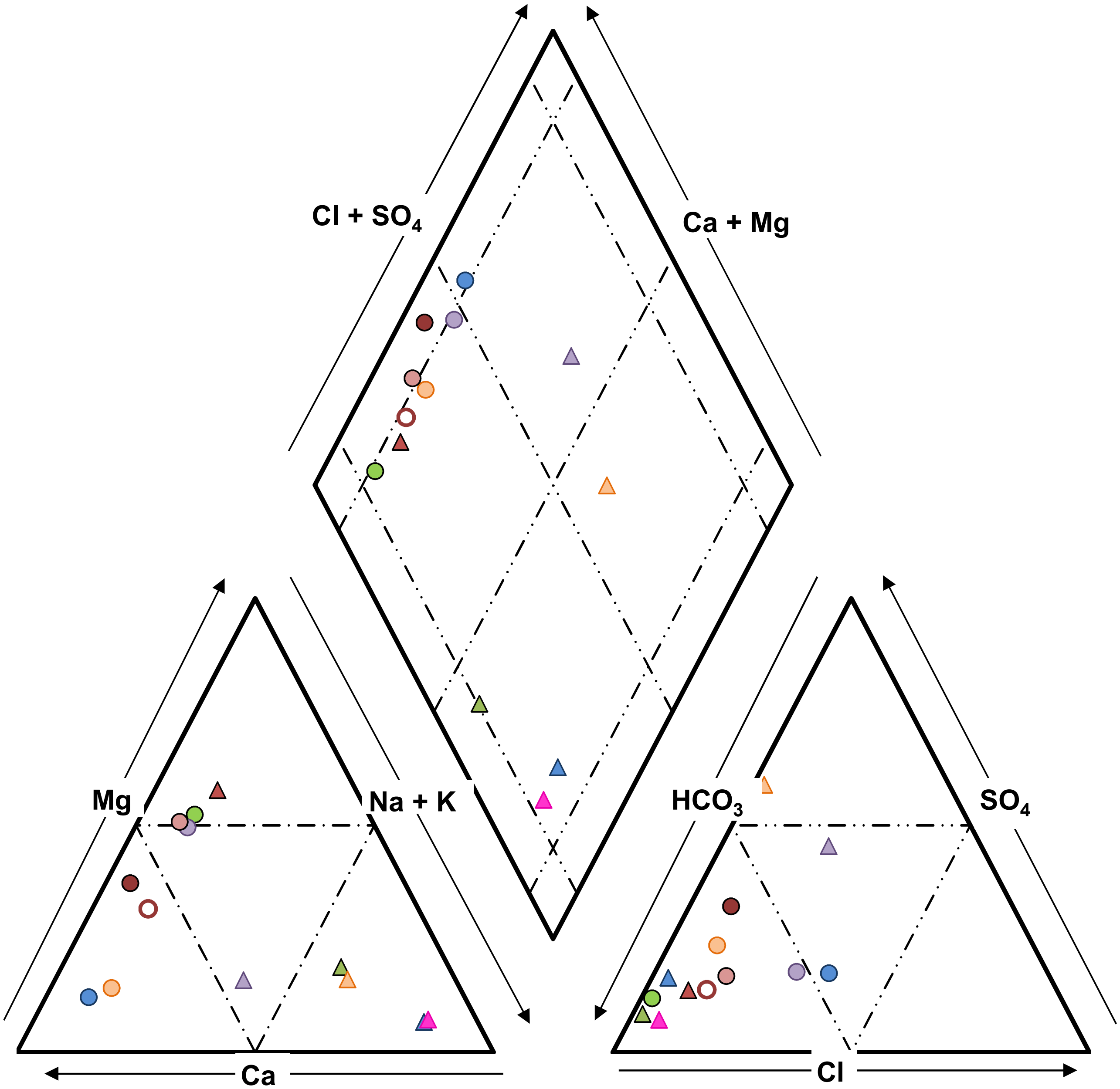
Project Location
Municipality of Clarington

160900764 REVA
Prepared by PRM on 2019-11-27
Technical Review by JK on 2019-11-27

Client/Project
2019 ANNUAL GROUNDWATER AND SURFACE WATER MONITORING REPORT, HYDRO ONE - CLARINGTON TRANSFORMER STATION

Figure No.
10

Title
Groundwater Levels
Thorncliffe Formation - October 2019



Water quality data from groundwater samples were collected on October 21, 2019 at MW5-14S/I/D, October 22, 2019 at MW1-13D, MW6-14, MW7-14, October 23, 2019 at MW1-13S, MW2-13S/D, MW3-13S/D, MW4-13S/D.

Client/Project	Hydro One Networks Inc. 2019 Annual Groundwater and Surface Water Monitoring Report
Figure No.	11
Title	**Water Chemistry - Piper Plot**

Stantec

Fig_11_Piper_Plot.xlsx

APPENDIX B:
Tables

TABLE 1
MONITORING WELL DETAILS
Clarington Tranformer Station
Hydro One Networks Inc.

Location				Coordinates			Elevation			Stick-up	Borehole Depth	Well Diameter	Screened Interval				Screened Material	
MECP WWR No.	Well ID	Installation Date	Status	Easting	Northing	Source	Ground Surface m AMSL	Top of Casing m AMSL	Source	(m AGS)	(m BGS)	(mm)	Top of Well Screen (m BGS)	Top of Well Screen (m AMSL)	Bottom of Well Screen (m BGS)	Bottom of Well Screen (m AMSL)	Screened Unit	Hydraulic Conductivity (m/s)
Monitoring Wells																		
-	MW1-13S	Dec-13	Monitoring Well	673222	4872738	Hydro One (Sept 2014)	262.52	263.39	Hydro One (Sept 2014)	0.87	6.1	51	3.05	259.47	6.10	256.42	Silty Sand Till	9.E-08
-	MW1-13D	Dec-13	Monitoring Well	673222	4872738	Hydro One (Sept 2014)	262.52	263.42	Hydro One (Sept 2014)	0.90	15.2	51	12.19	250.33	15.24	247.28	Silty Sand Till	9.E-06
-	MW2-13S	Dec-13	Monitoring Well	672910	4872716	Hydro One (Sept 2014)	250.42	251.27	Hydro One (Sept 2014)	0.85	4.6	51	1.52	248.90	4.57	245.85	Silty Sand Till	2.E-07
-	MW2-13D	Dec-13	Monitoring Well	672906	4872714	Hydro One (Sept 2014)	250.40	251.26	Hydro One (Sept 2014)	0.86	15.2	51	12.19	238.21	15.24	235.16	Silty Sand Till	1.E-07
-	MW3-13S	Dec-13	Monitoring Well	672702	4872499	Hydro One (Sept 2014)	243.87	244.80	Hydro One (Sept 2014)	0.93	6.7	51	3.66	240.21	6.71	237.16	Silty Sand Till	7.E-09
-	MW3-13D	Dec-13	Monitoring Well PVC Compromised	672703	4872495	Hydro One (Sept 2014)	244.03	244.97	Hydro One (Sept 2014)	0.94	15.2	51	12.19	231.84	15.24	228.79	Silty Sand Till	na
-	MW4-13S	Dec-13	Monitoring Well	673051	4872242	Hydro One (Sept 2014)	238.86	239.78	Hydro One (Sept 2014)	0.92	4.6	51	1.52	237.34	4.57	234.29	Sand Silty Sand Till	1.3.E-05
-	MW4-13D	Dec-13	Monitoring Well	673050	4872238	Hydro One (Sept 2014)	238.72	239.55	Hydro One (Sept 2014)	0.83	15.2	51	12.19	226.53	15.24	223.48	Silty Sand Till	na
-	MW4-15D	Jan-15	Monitoring Well	673050	4872238	Approximated from MW4-13D	238.72	239.47	Approximated from MW4-13D	0.75	25.1	51	19.89	218.83	22.94	215.78	Silty Sand Till	2.8.E-10
-	MW5-14S (2)	Nov-14	Monitoring Well	672901	4872453	Stantec GIS Mapping (2015)	252.60	253.34	Hydro One Topography (0.25 m contours)	0.74	4.1	51	2.48	250.12	4.00	248.60	Sand	2.8.E-07
-	MW5-14S	Oct-14	Monitoring Well	672901	4872453	Field GPS (2014)	252.60	253.51	Hydro One Topography (0.25 m contours)	0.91	6.1	51	3.10	249.50	6.10	246.50	Sandy Silt Till Silty Sand Till	1.6.E-05
-	MW5-14I	Oct-14	Monitoring Well	672901	4872453	Field GPS (2014)	252.60	253.43	Hydro One Topography (0.25 m contours)	0.83	40.1	51	37.10	215.50	40.10	212.50	Silty Sand Till	1.3.E-09
-	MW5-14D	Dec-14	Monitoring Well	672901	4872453	Stantec GIS Mapping (2015)	252.44	253.22	Hydro One Topography (0.25 m contours)	0.78	55.0	51	52.43	200.01	53.95	198.49	Sand	3.3.E-07
-	MW5-14D(2)	Dec-14	Monitoring Well	672901	4872453	Stantec GIS Mapping (2015)	252.44	253.52	Hydro One Topography (0.25 m contours)	1.08	129.5	51	112.01	140.43	113.54	138.90	Sand	-
-	MW6-14	Oct-14	Monitoring Well	673195	4872811	Field GPS (2014)	260.80	261.71	Hydro One Topography (0.25 m contours)	0.91	7.6	51	6.10	254.70	7.60	253.20	Silt Till	4.3.E-07
-	MW7-14	Oct-14	Monitoring Well	673254	4872654	Field GPS (2014)	261.75	262.65	Hydro One Topography (0.25 m contours)	0.90	7.6	51	6.10	255.65	7.60	254.15	Silt Till Sandy Silt Till	8.4.E-07
-	MW8-15	Jan-15	Abandoned	673082	4872565	Approximated from BH7D (EXP, 2012)	254.43	255.25	Approximated from BH7D (EXP, 2012)	0.82	16.9	51	13.72	240.71	15.24	239.19	Silty Sand to Sandy Silt Till	7.4.E-06

Notes:
Northing and Easting Coordinates presented as UTM NAD 83 Zone 17
na: not applicable
m AGS: metres above ground surface
m BGS: metres below ground surface
m AMSL: metres above mean sea level

TABLE 1
MONITORING WELL DETAILS
Clarington Tranformer Station
Hydro One Networks Inc.

Location				Coordinates			Elevation			Stick-up	Borehole Depth	Well Diameter	Screened Interval				Screened Material	
MECP WWR No.	Well ID	Installation Date	Status	Easting	Northing	Source	Ground Surface	Top of Casing	Source				Top of Well Screen		Bottom of Well Screen		Screened Unit	Hydraulic Conductivity
							m AMSL	m AMSL		(m AGS)	(m BGS)	(mm)	(m BGS)	(m AMSL)	(m BGS)	(m AMSL)		(m/s)
Boreholes																		
7191922	BH2-12	Nov-12	Abandoned	673024	4872350	Inspect-Sol (2012)	246.40	247.30	Hydro One Topography (0.25 m contours)	0.90	15.9	na	12.15	234.25	15.20	231.20	Sandy Silt Till	-
-	BH4-12	Nov-12	Abandoned	672719	4872330	Inspect-Sol (2012)	243.20	244.10	Hydro One Topography (0.25 m contours)	0.90	15.5	na	12.45	230.75	15.50	227.70	Sandy Silt Till	-
-	BH7A	May-12	Abandoned	672989	4872568	EXP (2012)	253.20	na	Exp borehole log (2012)	na	15.7	na	4.70	248.50	7.75	245.45	Sandy Silt Till	-
-	BH9-15	Mar-15	Abandoned	673015	4872580	Approximated from BH7A (EXP, 2012)	253.60	na	Approximated from BH7A (EXP, 2012)	na	10.1	na	na	na	na	na	na	-
-	BH11-12	Nov-12	Abandoned	673034	4872779	Inspect-Sol (2012)	253.50	254.41	Hydro One Topography (0.25 m contours)	0.91	15.5	51	11.75	241.75	14.80	238.70	Sandy Silt Till Silt and Sand	-
Drivepoint Piezometers																		
na	DP2-13 (MP2, SW2)	Dec-13	Destroyed	672900	4872725	Adjacent to DP2-14	250.10	251.14	Adjacent to DP2-14	1.04	1.21	25	0.79	249.31	1.21	248.89	na	-
na	DP2-14 (MP2, SW2)	May-14	Destroyed	672900	4872725	Hydro One (Sept 2014)	250.10	251.62	Hydro One (Sept 2014)	1.52	1.34	25	0.92	249.18	1.34	248.76	na	-
na	DP2-15 (MP2, SW2)	Apr-15	Piezometer	672900	4872725	Adjacent to DP2-14	250.10	251.28	Approximated from MW4-13D	1.18	1.68	25	1.26	248.84	1.68	248.42	na	-
na	DP3-14 (MP3, SW3)	May-14	Piezometer	672684	4872500	Field GPS (2014)	240.00	241.69	Hydro One Topography (0.25 m contours)	1.69	0.87	25	0.45	239.55	0.87	239.13	na	-
na	DP3-15 (MP3, SW3)	Apr-15	Piezometer	672684	4872500	Adjacent to DP3-14	240.00	241.80	Adjacent to DP3-14	1.80	0.76	25	0.34	239.66	0.76	239.24	na	-
na	DP4-13 (MP4, SW4)	Dec-13	Destroyed	673055	4872236	Hydro One (Sept 2014)	238.41	239.09	Hydro One (Sept 2014)	0.68	1.57	25	1.15	237.26	1.57	236.84	na	-
na	DP4-15 (MP4, SW4)	Apr-15	Destroyed	673055	4872236	Adjacent to DP4-13	238.41	239.61	Adjacent to DP4-13	1.20	1.35	25	0.93	237.48	1.35	237.06	na	-
na	DP5-17 (MP5)	Oct-17	Piezometer	672636	4872775	Field GPS (2017)	245.43	246.90	Hydro One Topography (0.25 m contours)	1.47	1.08	25	0.66	244.77	1.08	244.35	na	-
na	DP6-17 (MP6)	Oct-17	Piezometer	672665	4872298	Field GPS (2017)	234.85	236.27	Hydro One Topography (0.25 m contours)	1.42	1.13	25	0.71	234.14	1.13	233.72	na	-
Test Pits																		
na	TP1-14	Oct-14	Abandoned	673189	4872613	Field GPS (2014)	256.40	na	Hydro One Topography (0.25 m contours)	na	4.88	na	na	na	na	na	Silty Sand Till	-
na	TP2-14	Oct-14	Abandoned	673151	4872714	Field GPS (2014)	258.20	na	Hydro One Topography (0.25 m contours)	na	4.57	na	na	na	na	na	Silty Sand Till	-
na	TP3-14	Oct-14	Abandoned	673129	4872784	Field GPS (2014)	257.10	na	Hydro One Topography (0.25 m contours)	na	3.96	na	na	na	na	na	Silty Sand Till	-

Notes:

Northing and Easting Coordinates presented as UTM NAD 83 Zone 17
na: not applicable
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m AMSL: metres above mean sea level

TABLE 2
PRIVATE WELL DETAILS
Clarington Tranformer Station
Hydro One Networks Inc.

Location		Coordinates			Elevation			Stick-up	Screened Unit
MOE WWR No.	Well ID	Easting	Northing	Source	Ground Surface m AMSL	Top of Casing m AMSL	Source	(m AGS)	
Private / Residential Wells									
-	PW-01	673817	4872232	Aerial imagery	237.32	237.71	Regional Topography (5 m contours)	0.39	Shallow Overburden Up to 16 m BGS
7157947	PW-02	673848	4872147	Aerial imagery	237.86	238.34	Regional Topography (5 m contours)	0.48	Intermediate Overburden
-	PW-03	673913	4872207	Aerial imagery	234.24	234.48	Regional Topography (5 m contours)	0.24	Shallow Overburden Up to 16 m BGS
-	PW-04	673490	4872201	Aerial imagery	249.75	249.93	Regional Topography (5 m contours)	0.18	Shallow Overburden
-	PW-05	673357	4872116	Aerial imagery	255.40	255.92	Regional Topography (5 m contours)	0.52	Thorncliffe Formation
1908311	PW-06	674402	4872494	Aerial imagery	238.15	238.60	Regional Topography (5 m contours)	0.45	Thorncliffe Formation
-	PW-08	671354	4873355	Aerial imagery	246.53	246.72	Regional Topography (5 m contours)	0.19	Shallow Overburden
-	PW-09	671476	4872872	Aerial imagery	249.20	249.50	Regional Topography (5 m contours)	0.30	Shallow Overburden Up to 16 m BGS
1910299 replaced 1916307	PW-10	673598	4872793	Aerial imagery	247.41	248.05	Regional Topography (5 m contours)	0.64	Thorncliffe Formation
1903520 1913606 amend	PW-11	674115	4872075	Aerial imagery	226.17	226.28	Regional Topography (5 m contours)	0.11	Shallow Overburden Up to 16 m BGS
-	PW-12	673793	4872111	Aerial imagery	238.38	238.49	Regional Topography (5 m contours)	0.11	Shallow Overburden Up to 16 m BGS
1917587	PW-13	671901	4871638	Aerial imagery	235.44	236.37	Regional Topography (5 m contours)	0.93	Thorncliffe Formation
-	PW-14	674186	4872309	Aerial imagery	231.30	231.38	Regional Topography (5 m contours)	0.08	Shallow Overburden Up to 16 m BGS
1905014	PW-15	673320	4873035	Aerial imagery	270.01	na	Regional Topography (5 m contours)	na	Thorncliffe Formation
-	PW-16	673564	4872887	Aerial imagery	250.69	251.25	Regional Topography (5 m contours)	0.56	Shallow Overburden Up to 16 m BGS
1907905	PW-17	673380	4872976	Aerial imagery	268.99	268.69	Regional Topography (5 m contours)	-0.30	Thorncliffe Formation
-	PW-18	673559	4872054	Aerial imagery	245.75	245.88	Regional Topography (5 m contours)	0.13	Thorncliffe Formation
-	PW-19	672554	4873767	Aerial imagery	271.15	271.60	Regional Topography (5 m contours)	0.45	Shallow Overburden Up to 16 m BGS
-	PW-20	673617	4872099	Aerial imagery	243.41	243.60	Regional Topography (5 m contours)	0.19	Shallow Overburden Up to 16 m BGS
1912514	PW-21	673702	4872069	Aerial imagery	240.29	240.77	Regional Topography (5 m contours)	0.48	Thorncliffe Formation
1918378	PW-22	672998	4872016	Aerial imagery	230.44	231.04	Regional Topography (5 m contours)	0.60	Thorncliffe Formation
-	PW-23	672313	4873467	Aerial imagery	261.68	261.68	Regional Topography (5 m contours)	0.00	Shallow Overburden Up to 16 m BGS
-	PW-24	673438	4872157	Aerial imagery	252.04	252.56	Regional Topography (5 m contours)	0.52	Shallow Overburden Up to 16 m BGS
-	PW-25	674115	4872337	Aerial imagery	234.44	235.14	Regional Topography (5 m contours)	0.70	Shallow Overburden Up to 16 m BGS
-	PW-26	672716	4871817	Aerial imagery	221.38	221.53	Regional Topography (5 m contours)	0.15	Shallow Overburden Up to 16 m BGS

Notes:
Northing and Easting Coordinates presented as UTM NAD 83 Zone 17
-- not applicable
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Table 3
Summary of Surface Water Analytical Results
Clarington Tranformer Station
Hydro One Networks Inc.

Sample Location			SW2			SW3				SW4	
Sample Date			10-Apr-19	16-May-19	24-Oct-19	10-Apr-19	16-May-19	24-Oct-19	24-Oct-19	10-Apr-19	10-Apr-19
Sample ID			WS-160900764-20190410-RD102	WS-160900764-20190516-RD-02	WS-160900764-20191024-RD100	WS-160900764-20190410-RD103	WS-160900764-20190516-RD-01	WS-160900764-20191024-RD101	WS-160900764-20191024-RD102	WS-160900764-20190410-RD100	WS-160900764-20190410-RD101
Sampling Company			STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory			MAXX	MAXX	BV	MAXX	MAXX	BV	BV	MAXX	MAXX
Laboratory Work Order			B995472	B9D1305	B9T9096	B995472	B9D1305	B9T9096	B9T9096	B995472	B995472
Laboratory Sample ID			JKT674	JST238	LCU924	JKT675	JST237	LCU925	LCU926	JKT672	JKT673
Sample Type	Units	PWQO							Field Duplicate		Field Duplicate
General Chemistry											
Acidity	mg/L	n/v	6.2	-	<5.0	8.4	-	6.4	6.6	8.6	6.8
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	220	-	150	250	-	190	190	280	280
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	2.5	-	2.7	2.4	-	1.3	1.3	3.2	3.3
Alkalinity, Total (as CaCO3)	mg/L	$_{s16}^{A}$	220	-	150	250	-	190	190	280	280
Ammonia (as N)	mg/L	n/v	0.24	-	0.14	<0.050	-	<0.050	0.24	0.19	0.14
Chloride	mg/L	n/v	130	-	20	39	-	44	43	28	28
Cyanide (Free)	µg/L	5^{A}	<1	-	<1	<1	-	2	1	<1	<1
Electrical Conductivity, Lab	µmhos/cm	n/v	1,000	-	830	690	-	930	930	770	770
Fluoride	mg/L	n/v	0.18	-	0.41	0.10	-	0.31	0.30	<0.10	<0.10
Hardness (as CaCO3)	mg/L	n/v	370	-	400	330	-	450	450	390	390
Langelier Index (at 20 C)	none	n/v	1.03	-	1.08	1.02	-	0.826	0.817	1.20	1.22
Langelier Index (at 4 C)	none	n/v	0.780	-	0.833	0.768	-	0.578	0.569	0.950	0.969
Nitrate (as N)	mg/L	n/v	2.54	-	0.63	3.09	-	0.40	0.40	0.71	0.71
Nitrate + Nitrite (as N)	mg/L	n/v	2.54	-	0.63	3.09	-	0.4	0.4	0.71	0.71
Nitrite (as N)	mg/L	n/v	<0.010	-	<0.010	<0.010	-	<0.010	<0.010	<0.010	<0.010
Orthophosphate(as P)	mg/L	n/v	<0.010	-	<0.010	<0.010	-	<0.010	<0.010	<0.010	<0.010
pH, lab	S.U.	$6.5\text{-}8.5^{A}$	8.09	-	8.30	8.02	-	7.88	7.87	8.09	8.10
Phosphorus, Total	mg/L	0.03_{s4}^{C}	**0.11^{C}**	-	0.006	0.029	-	0.006	0.006	0.017	0.018
Saturation pH (at 20 C)	none	n/v	7.06	-	7.22	7.00	-	7.06	7.05	6.90	6.89
Saturation pH (at 4 C)	none	n/v	7.31	-	7.47	7.25	-	7.31	7.30	7.15	7.13
Sulfate	mg/L	n/v	87	-	240	35	-	230	220	82	82
Total Dissolved Solids	mg/L	n/v	615	-	565	430	-	615	620	485	500
Total Organic Carbon	mg/L	n/v	4.2	-	1.2	2.9	-	1.9	2.0	3.8	3.8
Total Suspended Solids	mg/L	n/v	69	-	<10	15	-	<10	<10	<10	10
Turbidity, Lab	NTU	n/v	28	-	0.2	5.0	-	0.7	0.7	2.6	2.2
Metals. Dissolved											
Aluminum	µg/L	n/v	-	5.3	-	-	<5	-	-	-	-
Antimony	µg/L	20^{C}	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	-
Arsenic	µg/L	100^{A} 5^{C}	-	<1	<1	-	<1	<1	<1	-	-
Barium	µg/L	n/v	-	38	46	-	34	47	47	-	-
Beryllium	µg/L	$1{,}100_{s3}^{A}$	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	-
Boron	µg/L	200_{a}^{C}	-	160	**280^{C}**	-	46	**240^{C}**	**240^{C}**	-	-
Cadmium	µg/L	0.2^{A} 0.5_{s12}^{C}	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	-	-
Calcium	µg/L	n/v	120,000	96,000	120,000	110,000	110,000	140,000	150,000	130,000	130,000
Chromium	µg/L	n/v	-	<5	<5	-	<5	<5	<5	-	-
Cobalt	µg/L	0.9^{C}	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	-
Copper	µg/L	5^{A} 5_{s13}^{C}	-	<1	<1	-	<1	<1	<1	-	-
Iron	µg/L	300^{A}	-	<100	-	-	<100	-	-	-	-
Lead	µg/L	25_{s14}^{A} 5_{s15}^{C}	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	-
Magnesium	µg/L	n/v	17,000	15,000	23,000	9,600	9,000	21,000	21,000	14,000	14,000
Manganese	µg/L	n/v	-	120	-	-	100	-	-	-	-
Mercury	µg/L	0.2^{A}	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1
Molybdenum	µg/L	40^{C}	-	1.2	1.5	-	<0.5	1.1	1	-	-
Nickel	µg/L	25^{A}	-	<1	<1	-	<1	<1	<1	-	-
Phosphorus	µg/L	30_{s4}^{C}	-	***<100***	-	-	***<100***	-	-	-	-
Potassium	µg/L	n/v	3,000	3,500	6,000	2,000	1,600	5,000	5,000	3,000	3,000
Selenium	µg/L	100^{A}	-	<2	<2	-	<2	<2	<2	-	-
Silicon	µg/L	n/v	-	2,000	-	-	3,100	-	-	-	-
Silver	µg/L	0.1^{A}	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	-	-
Sodium	µg/L	n/v	65,000	31,000	23,000	18,000	12,000	28,000	27,000	16,000	16,000
Strontium	µg/L	n/v	-	1,200	-	-	430	-	-	-	-
Thallium	µg/L	0.3_{b}^{C}	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	-
Titanium	µg/L	n/v	-	<5	-	-	<5	-	-	-	-
Uranium	µg/L	5_{a}^{C}	-	0.92	1.1	-	0.57	0.75	0.77	-	-
Vanadium	µg/L	6^{C}	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	-
Zinc	µg/L	30^{A} 20^{C}	-	13	<5	-	<5	6.3	5.4	-	-
Zirconium	µg/L	4_{a}^{C}	-	<1	-	-	<1	-	-	-	-
Metals. Total											
Aluminum	µg/L	n/v	1,500	27	12	280	91	16	21	85	80
Antimony	µg/L	20^{C}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Arsenic	µg/L	100^{A} 5^{C}	<1	<1	<1	<1	<1	<1	<1	<1	<1
Barium	µg/L	n/v	52	36	46	33	33	48	51	54	54
Beryllium	µg/L	$1{,}100_{s3}^{A}$	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron	µg/L	200_{a}^{C}	100	160	**300^{C}**	33	43	**260^{C}**	**260^{C}**	39	38
Cadmium	µg/L	0.2^{A} 0.5_{s12}^{C}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Calcium	µg/L	n/v	120,000	95,000	120,000	110,000	110,000	150,000	140,000	140,000	130,000
Chromium	µg/L	n/v	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chromium (Hexavalent)	µg/L	1^{A}	<0.50	-	<0.50	<0.50	-	<0.50	<0.50	<0.50	<0.50
Cobalt	µg/L	0.9^{C}	0.72	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper	µg/L	5^{A} 5_{s13}^{C}	2.1	<1	<1	<1	1.8	<1	<1	<1	<1
Iron	µg/L	300^{A}	**$1{,}900^{A}$**	<100	<100	**350^{A}**	140	140	140	120	110
Lead	µg/L	25_{s14}^{A} 5_{s15}^{C}	1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Magnesium	µg/L	n/v	16,000	14,000	23,000	9,800	9,400	22,000	22,000	15,000	14,000
Manganese	µg/L	n/v	250	110	31	100	110	350	350	360	350
Molybdenum	µg/L	40^{C}	0.69	0.98	1.5	<0.5	<0.5	1.1	1	<0.5	<0.5
Nickel	µg/L	25^{A}	2.2	<1	<1	<1	<1	<1	1	<1	<1
Phosphorus	µg/L	30_{s4}^{C}	***<100***	***<100***	***<100***	***<100***	***<100***	***<100***	***<100***	***<100***	***<100***
Potassium	µg/L	n/v	3,200	3,300	5,300	1,700	1,600	4,600	4,700	3,100	3,000
Selenium	µg/L	100^{A}	<2	<2	<2	<2	<2	<2	<2	<2	<2
Silicon	µg/L	n/v	4,200	1,900	2,700	3,400	3,100	3,300	3,300	3,800	3,700
Silver	µg/L	0.1^{A}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Sodium	µg/L	n/v	59,000	29,000	23,000	17,000	11,000	29,000	29,000	15,000	15,000
Strontium	µg/L	n/v	1,500	1,200	2,600	460	420	2,300	2,200	550	550
Thallium	µg/L	0.3_{b}^{C}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Titanium	µg/L	n/v	65	<5	<5	16	6.4	<5	<5	7.9	8.1
Uranium	µg/L	5_{a}^{C}	1	0.84	1	0.68	0.58	0.8	0.81	0.99	1
Vanadium	µg/L	6^{C}	3.7	<0.5	<0.5	1.2	0.6	<0.5	<0.5	0.88	0.82
Zinc	µg/L	30^{A} 20^{C}	9.8	<5	<5	<5	<5	7	6.5	10	9.8
Zirconium	µg/L	4_{a}^{C}	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX and Petroleum Hydrocarbons											
Benzene	µg/L	100_{b}^{C}	<0.20	-	<0.20	<0.20	-	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	0.8^{C}	<0.20	-	<0.20	<0.20	-	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	8^{C}	<0.20	-	<0.20	<0.20	-	<0.20	<0.20	<0.20	<0.20
Xylene, m & p-	µg/L	32_{s17}^{B}	<0.20	-	<0.20	<0.20	-	<0.20	<0.20	<0.20	<0.20
Xylene, o-	µg/L	40_{b}^{C}	<0.20	-	<0.20	<0.20	-	<0.20	<0.20	<0.20	<0.20
Xylenes, Total	µg/L	72_{s10}^{B}	<0.20	-	<0.20	<0.20	-	<0.20	<0.20	<0.20	<0.20
PHC F1 (C6-C10 range)	µg/L	n/v	<25	-	<25	<25	-	<25	<25	<25	<25
PHC F1 (C6-C10 range) minus BTEX	µg/L	n/v	<25	-	<25	<25	-	<25	<25	<25	<25
PHC F2 (>C10-C16 range)	µg/L	n/v	<100	-	<100	<100	-	<100	<100	<100	<100
PHC F3 (>C16-C34 range)	µg/L	n/v	<200	-	<200	<200	-	<200	<200	<200	<200
PHC F4 (>C34-C50 range)	µg/L	n/v	<200	-	<200	<200	-	<200	<200	<200	<200
Chromatogram to baseline at C50	none	n/v	YES	-	YES	YES	-	YES	YES	YES	YES

See notes on last page

Table 3
Summary of Surface Water Analytical Results
Clarington Tranformer Station
Hydro One Networks Inc.

Sample Location			SW2			SW3				SW4	
Sample Date			**10-Apr-19**	**16-May-19**	**24-Oct-19**	**10-Apr-19**	**16-May-19**	**24-Oct-19**	**24-Oct-19**	**10-Apr-19**	**10-Apr-19**
Sample ID			**WS-160900764-20190410-RD102**	**WS-160900764-20190516-RD-02**	**WS-160900764-20191024-RD100**	**WS-160900764-20190410-RD103**	**WS-160900764-20190516-RD-01**	**WS-160900764-20191024-RD101**	**WS-160900764-20191024-RD102**	**WS-160900764-20190410-RD100**	**WS-160900764-20190410-RD101**
Sampling Company			**STANTEC**	**STANTEC**	**STANTEC**	**STANTEC**	**STANTEC**	**STANTEC**	**STANTEC**	**STANTEC**	**STANTEC**
Laboratory			**MAXX**	**MAXX**	**BV**	**MAXX**	**MAXX**	**BV**	**BV**	**MAXX**	**MAXX**
Laboratory Work Order			**B995472**	**B9D1305**	**B9T9096**	**B995472**	**B9D1305**	**B9T9096**	**B9T9096**	**B995472**	**B995472**
Laboratory Sample ID			**JKT674**	**JST238**	**LCU924**	**JKT675**	**JST237**	**LCU925**	**LCU926**	**JKT672**	**JKT673**
Sample Type	**Units**	**PWQO**							**Field Duplicate**		**Field Duplicate**
Polychlorinated Biphenyls											
Aroclor 1016	µg/L	$_{s7}^{A}$	-	-	-	-	-	-	-	-	-
Aroclor 1221	µg/L	$_{s7}^{A}$	-	-	-	-	-	-	-	-	-
Aroclor 1232	µg/L	$_{s7}^{A}$	-	-	-	-	-	-	-	-	-
Aroclor 1242	µg/L	$_{s7}^{A}$	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Aroclor 1248	µg/L	$_{s7}^{A}$	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Aroclor 1254	µg/L	$_{s7}^{A}$	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Aroclor 1260	µg/L	$_{s7}^{A}$	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Aroclor 1262	µg/L	$_{s7}^{A}$	-	-	-	-	-	-	-	-	-
Aroclor 1268	µg/L	$_{s7}^{A}$	-	-	-	-	-	-	-	-	-
Polychlorinated Biphenyls (PCBs)	µg/L	0.001_{s7}^{A}	***<0.05***	-	***<0.05***	***<0.05***	-	***<0.05***	***<0.05***	***<0.05***	***<0.05***
Semi-Volatile Organic Compounds											
Phthalates											
Bis(2-Ethylhexyl)phthalate (DEHP)	µg/L	0.6^{A}	***<1***	-	***<1***	***<1***	-	***<1***	***<1***	***<1***	***<1***
Diethyl Phthalate	µg/L	n/v	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1
Dimethyl Phthalate	µg/L	n/v	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	µg/L	n/v	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2
Acenaphthylene	µg/L	n/v	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2
Anthracene	µg/L	0.0008_{a}^{C}	***<0.05***	-	***<0.05***	***<0.05***	-	***<0.05***	***<0.05***	***<0.05***	***<0.05***
Benzo(a)anthracene	µg/L	0.0004_{a}^{C}	***<0.05***	-	***<0.05***	***<0.05***	-	***<0.05***	***<0.05***	***<0.05***	***<0.05***
Benzo(a)pyrene	µg/L	n/v	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01
Benzo(b/j)fluoranthene	µg/L	n/v	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/L	0.00002_{a}^{C}	***<0.05***	-	***<0.05***	***<0.05***	-	***<0.05***	***<0.05***	***<0.05***	***<0.05***
Benzo(k)fluoranthene	µg/L	0.0002_{a}^{C}	***<0.05***	-	***<0.05***	***<0.05***	-	***<0.05***	***<0.05***	***<0.05***	***<0.05***
Chrysene	µg/L	0.0001_{a}^{C}	***<0.05***	-	***<0.05***	***<0.05***	-	***<0.05***	***<0.05***	***<0.05***	***<0.05***
Dibenzo(a,h)anthracene	µg/L	0.002_{a}^{C}	***<0.1***	-	***<0.1***	***<0.1***	-	***<0.1***	***<0.1***	***<0.1***	***<0.1***
Fluoranthene	µg/L	0.0008_{a}^{C}	***<0.2***	-	***<0.2***	***<0.2***	-	***<0.2***	***<0.2***	***<0.2***	***<0.2***
Fluorene	µg/L	0.2_{a}^{C}	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2
Indeno(1,2,3-cd)pyrene	µg/L	n/v	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1
Methylnaphthalene (Total)	µg/L	n/v	<0.28	-	<0.28	<0.28	-	<0.28	<0.28	<0.28	<0.28
Methylnaphthalene, 1-	µg/L	2_{b}^{C}	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2
Methylnaphthalene, 2-	µg/L	2_{b}^{C}	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2
Naphthalene	µg/L	7_{a}^{C}	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2
Phenanthrene	µg/L	0.03_{a}^{C}	***<0.1***	-	***<0.1***	***<0.1***	-	***<0.1***	***<0.1***	***<0.1***	***<0.1***
Pyrene	µg/L	n/v	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Remaining Semi-Volatile Organic Compounds											
Biphenyl, 1,1'- (Biphenyl)	µg/L	0.2_{a}^{C}	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1
Bis(2-Chloroethyl)ether	µg/L	200_{a}^{C}	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Bis(2-Chloroisopropyl)ether	µg/L	n/v	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Chloroaniline, 4-	µg/L	n/v	<1	-	<1	<1	-	<1	<1	<1	<1
Chlorophenol, 2- (ortho-Chlorophenol)	µg/L	n/v	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1
Dichlorobenzidine, 3,3'-	µg/L	0.6_{a}^{C}	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Dichlorophenol, 2,4-	µg/L	0.2^{A}	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1
Dimethylphenol, 2,4-	µg/L	10_{b}^{C}	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Dinitrophenol, 2,4-	µg/L	n/v	<2	-	<2	<2	-	<2	<2	<2	<2
Dinitrotoluene, 2,4-	µg/L	4^{C}	<0.3	-	<0.3	<0.3	-	<0.3	<0.3	<0.3	<0.3
Dinitrotoluene, 2,4 & 2,6-	µg/L	n/v	<0.35	-	<0.35	<0.35	-	<0.35	<0.35	<0.35	<0.35
Dinitrotoluene, 2,6-	µg/L	6^{C}	<0.3	-	<0.3	<0.3	-	<0.3	<0.3	<0.3	<0.3
Pentachlorophenol	µg/L	0.5^{A}	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1
Phenol	µg/L	5_{b}^{C}	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Tetrachlorophenol, 2,3,4,5+2,3,4,6-	µg/L	n/v	-	-	<1	-	-	<1	<1	-	-
Trichlorobenzene, 1,2,4-	µg/L	0.5^{A}	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1
Trichlorophenol, 2,4,5-	µg/L	n/v	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2
Trichlorophenol, 2,4,6-	µg/L	n/v	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2
Volatile Organic Compounds											
Acetone	µg/L	n/v	<10	-	<10	<10	-	<10	<10	<10	<10
Bromodichloromethane	µg/L	200_{a}^{C}	<0.50	-	<0.50	<0.50	-	<0.50	<0.50	<0.50	<0.50
Bromoform (Tribromomethane)	µg/L	60_{a}^{C}	<1.0	-	<1.0	<1.0	-	<1.0	<1.0	<1.0	<1.0
Bromomethane (Methyl bromide)	µg/L	0.9_{a}^{C}	<0.50	-	<0.50	<0.50	-	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride (Tetrachloromethane)	µg/L	n/v	<0.20	-	<0.20	<0.20	-	<0.20	<0.20	<0.20	<0.20
Chlorobenzene (Monochlorobenzene)	µg/L	15^{A}	<0.20	-	<0.20	<0.20	-	<0.20	<0.20	<0.20	<0.20
Chloroform (Trichloromethane)	µg/L	n/v	<0.20	-	<0.20	<0.20	-	<0.20	<0.20	<0.20	<0.20
Dibromochloromethane	µg/L	40_{a}^{C}	<0.50	-	<0.50	<0.50	-	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,2-	µg/L	2.5^{A}	<0.50	-	<0.50	<0.50	-	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,3-	µg/L	2.5^{A}	<0.50	-	<0.50	<0.50	-	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,4-	µg/L	4^{A}	<0.50	-	<0.50	<0.50	-	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane (Freon 12)	µg/L	n/v	<1.0	-	<1.0	<1.0	-	<1.0	<1.0	<1.0	<1.0
Dichloroethane, 1,1-	µg/L	200^{C}	<0.20	-	<0.20	<0.20	-	<0.20	<0.20	<0.20	<0.20
Dichloroethane, 1,2-	µg/L	100^{C}	<0.50	-	<0.50	<0.50	-	<0.50	<0.50	<0.50	<0.50
Dichloroethene, 1,1-	µg/L	40^{C}	<0.20	-	<0.20	<0.20	-	<0.20	<0.20	<0.20	<0.20
Dichloroethene, cis-1,2-	µg/L	200^{C}	<0.50	-	<0.50	<0.50	-	<0.50	<0.50	<0.50	<0.50
Dichloroethene, trans-1,2-	µg/L	200^{C}	<0.50	-	<0.50	<0.50	-	<0.50	<0.50	<0.50	<0.50
Dichloropropane, 1,2-	µg/L	0.7_{a}^{C}	<0.20	-	<0.20	<0.20	-	<0.20	<0.20	<0.20	<0.20
Dichloropropene, 1,3- (sum of isomers cis + trans)	µg/L	n/v	<0.50	-	<0.50	<0.50	-	<0.50	<0.50	<0.50	<0.50
Dichloropropene, cis-1,3-	µg/L	n/v	<0.30	-	<0.30	<0.30	-	<0.30	<0.30	<0.30	<0.30
Dichloropropene, trans-1,3-	µg/L	7_{a}^{C}	<0.40	-	<0.40	<0.40	-	<0.40	<0.40	<0.40	<0.40
Ethylene Dibromide (Dibromoethane, 1,2-)	µg/L	5_{a}^{C}	<0.20	-	<0.20	<0.20	-	<0.20	<0.20	<0.20	<0.20
Hexane (n-Hexane)	µg/L	n/v	<1.0	-	<1.0	<1.0	-	<1.0	<1.0	<1.0	<1.0
Methyl Ethyl Ketone (MEK) (2-Butanone)	µg/L	400_{a}^{C}	<10	-	<10	<10	-	<10	<10	<10	<10
Methyl Isobutyl Ketone (MIBK)	µg/L	n/v	<5.0	-	<5.0	<5.0	-	<5.0	<5.0	<5.0	<5.0
Methyl tert-butyl ether (MTBE)	µg/L	200_{a}^{C}	<0.50	-	<0.50	<0.50	-	<0.50	<0.50	<0.50	<0.50
Methylene Chloride (Dichloromethane)	µg/L	100_{a}^{C}	<2.0	-	<2.0	<2.0	-	<2.0	<2.0	<2.0	<2.0
Styrene	µg/L	4_{b}^{C}	<0.50	-	<0.50	<0.50	-	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,1,2-	µg/L	20_{a}^{C}	<0.50	-	<0.50	<0.50	-	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,2,2-	µg/L	70^{C}	<0.50	-	<0.50	<0.50	-	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene (PCE)	µg/L	50^{C}	<0.20	-	<0.20	<0.20	-	<0.20	<0.20	<0.20	<0.20
Trichloroethane, 1,1,1-	µg/L	10_{a}^{C}	<0.20	-	<0.20	<0.20	-	<0.20	<0.20	<0.20	<0.20
Trichloroethane, 1,1,2-	µg/L	800^{C}	<0.50	-	<0.50	<0.50	-	<0.50	<0.50	<0.50	<0.50
Trichloroethene (TCE)	µg/L	20^{C}	<0.20	-	<0.20	<0.20	-	<0.20	<0.20	<0.20	<0.20
Trichlorofluoromethane (Freon 11)	µg/L	n/v	<0.50	-	<0.50	<0.50	-	<0.50	<0.50	<0.50	<0.50
Trihalomethanes	µg/L	n/v	<1.0	-	<1.0	<1.0	-	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	µg/L	600_{a}^{C}	<0.20	-	<0.20	<0.20	-	<0.20	<0.20	<0.20	<0.20

See notes on last page

Table 3
Summary of Surface Water Analytical Results
Clarington Tranformer Station
Hydro One Networks Inc.

Notes:

PWQO	Provincial Water Quality Objectives of the Ministry of Environment and Energy (MOEE, 1999)
A	PWQO Table 2
B	PWQO Table 2 - Calculated
C	PWQO Table 2 - Interim
6.5[A]	Concentration exceeds the indicated standard.
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / not available.
a	This Interim PWQO was set for emergency purposes based on the best information readily available. Employ due caution when applying this value.
b	This Interim PWQO is currently under development. The value is subject to change upon publication by MOE.
s3	The PWQO for beryllium is hardness dependent. If hardness <75 mg/L than PWQO is 0.011 mg/L. For hardness > 75 mg/L, PWQO is 1.1 mg/L.
s4	Applies to Phosphorus, total. PWQO is 0.03 mg/L for rivers and streams, 0.02 mg/L for lakes, and 0.01 mg/L for lakes naturally below this value.
s7	Standard is applicable to total PCBs, and the individual Aroclors should be added for comparison.
s10	The PWQO value for Total Xylenes is 72 ug/L, which is the sum of the PWQOs for the isomers.
s12	The interim PWQO for cadmium is hardness dependent. If hardness <100 mg/L than PWQO is 0.0001 mg/L. For hardness >100 mg/L, PWQO is 0.0005 mg/L.
s13	The interim PWQO for copper is hardness dependent. If hardness <20 mg/L than PWQO is 0.001 mg/L. For hardness >20 mg/L, PWQO is 0.005 mg/L.
s14	PWQO for lead is alkalinity dependent. For alkalinity <20 mg/L, PWQO is 0.005 mg/L. For alkalinity between 20-40 mg/L, PWQO is 0.01 mg/L. For alkalinity between 40-80 mg/L, PWQO is 0.02 mg/L. For alkalinity >80 mg/L, PWQO is 0.025 mg/L.
s15	Interim PWQO for lead is hardness dependent. For hardness <30 mg/L, interim PWQO is 0.001 mg/L. For hardness between 30-80 mg/L, interim PWQO is 0.003 mg/L. For hardness >80 mg/L, interim PWQO is 0.005 mg/L.
s16	Alkalinity should not be decreased by more than 25% of the natural concentration.
s17	The laboratory is unable to distinguish the m- and p-Xylene isomers, therefore the PWQO standards for m-Xylene (2 ug/L) and p-Xylene (30 ug/L) have been summed to apply to m&p-Xylenes.

Table 4
Summary of Groundwater Analytical Results - 2019 Monitoring Wells
Clarington Tranformer Station
Hydro One Networks Inc.

Sample Location				MW1-13-D								MW1-13-S				MW2-13-D			
Sample Date				9-Apr-19	9-Apr-19	9-Apr-19	9-Apr-19	22-Oct-19	22-Oct-19	22-Oct-19	22-Oct-19	9-Apr-19	9-Apr-19	23-Oct-19	23-Oct-19	10-Apr-19	10-Apr-19	23-Oct-19	23-Oct-19
Sample ID				WG-160900764-20190409-KR02	WG-160900764-20190409-KR03	WG-160900764-20190409-KR02A	WG-160900764-20190409-R03A	WG-160900764-20191022-RD04	WG-160900764-20191022-KR05	WG-160900764-20191022-RD04A	WG-160900764-20191022-KR05A	WG-160900764-20190409-KR04	WG-160900764-20190409-KR04A	WG-160900764-20191023-RD06	WG-160900764-20191023-RD06A	WG-160900764-20190410-KR08	WG-160900764-20190410-KR08A	WG-160900764-20191023-KR07	WG-160900764-20191023-KR07A
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				MAXX	MAXX	MAXX	MAXX	BV	BV	BV	BV	MAXX	MAXX	BV	BV	MAXX	MAXX	BV	BV
Laboratory Work Order				B993774	B993774	B993774	B993774	B9T8219	B9T8219	B9T8219	B9T8219	B993774	B993774	B9T9857	B9T9857	B995634	B995634	B9T9857	B9T9857
Laboratory Sample ID				JKK723	JKK725	JKK724	JKK726	LCQ644	LCQ646	LCQ645	LCQ648	JKK727	JKK728	LCZ127	LCZ128	JKU504	JKU505	LCZ137	LCZ138
Filtered				Field Filtered	Field Filtered	Lab Filtered	Lab Filtered	Field Filtered	Field Filtered	Lab Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered
Sample Type	Units	ODWS	Ontario SCS	Metals	Metals Field Duplicate	SVOC	SVOC Field Duplicate	Metals	Metals Field Duplicate	SVOC	SVOC Field Duplicate	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC
General Chemistry																			
Acidity	mg/L	n/v	n/v	<5.0	<5.0	-	-	<5.0	<5.0	-	-	11	-	6.2	-	<5.0	-	<5.0	-
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	n/v	180	180	-	-	170	170	-	-	220	-	210	-	92	-	86	-
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	n/v	2.3	2.6	-	-	2.5	3.0	-	-	1.6	-	1.8	-	1.7	-	2.3	-
Alkalinity, Total (as CaCO3)	mg/L	30-500^{E}	n/v	180	180	-	-	170	170	-	-	220	-	210	-	93	-	88	-
Ammonia (as N)	mg/L	n/v	n/v	0.13	0.11	-	-	0.079	0.055	-	-	<0.050	-	<0.050	-	<0.050	-	0.067	-
Anion Sum	meq/L	n/v	n/v	4.61	4.66	-	-	4.36	4.38	-	-	7.97	-	7.63	-	2.09	-	1.97	-
Cation Sum	meq/L	n/v	n/v	4.47	4.47	-	-	4.14	4.21	-	-	8.17	-	6.83	-	1.94	-	1.94	-
Chloride	mg/L	250^{C}	790^{FG}	14	14	-	-	14	14	-	-	20	-	22	-	1.4	-	<1.0	-
Cyanide (Free)	µg/L	200^{B}	52^{FG}	<1	<1	-	-	<1	<1	-	-	<1	-	<1	-	<1	-	<1	-
Dissolved Organic Carbon (DOC)	mg/L	5^{C}	n/v	0.61	0.61	-	-	0.60	0.62	-	-	0.87	-	0.80	-	0.80	-	0.57	-
Electrical Conductivity, Lab	µmhos/cm	n/v	n/a^{FG}	430	430	-	-	410	410	-	-	770	-	720	-	190	-	190	-
Fluoride	mg/L	1.5^{B}	n/v	0.24	0.27	-	-	-	-	-	-	<0.10	-	0.12	-	0.87	-	0.78	-
Hardness (as CaCO3)	mg/L	80-100^{E}	n/v	**200^{E}**	**200^{E}**	-	-	**180^{E}**	**180^{E}**	-	-	**390^{E}**	-	**320^{E}**	-	**39^{E}**	-	**40^{E}**	-
Ion Balance	%	n/v	n/v	1.55	2.12	-	-	2.59	1.99	-	-	1.24	-	5.52	-	NC	-	NC	-
Langelier Index (at 20 C)	none	n/v	n/v	0.460	0.524	-	-	0.422	0.494	-	-	0.783	-	0.730	-	-0.129	-	0.0110	-
Langelier Index (at 4 C)	none	n/v	n/v	0.210	0.273	-	-	0.172	0.244	-	-	0.535	-	0.482	-	-0.380	-	-0.241	-
Nitrate (as N)	mg/L	10.0_{d}^{B}	n/v	<0.10	<0.10	-	-	<0.10	<0.10	-	-	**15.8^{B}**	-	8.35	-	0.21	-	<0.10	-
Nitrate + Nitrite (as N)	mg/L	10.0_{d}^{B}	n/v	<0.10	<0.10	-	-	<0.10	<0.10	-	-	**15.8^{B}**	-	8.35	-	0.21	-	<0.10	-
Nitrite (as N)	mg/L	1.0_{d}^{B}	n/v	<0.010	<0.010	-	-	<0.010	<0.010	-	-	<0.010	-	<0.010	-	<0.010	-	<0.010	-
Orthophosphate(as P)	mg/L	n/v	n/v	<0.010	<0.010	-	-	0.013	<0.010	-	-	<0.010	-	<0.010	-	<0.010	-	<0.010	-
pH, lab	S.U.	6.5-8.5^{E}	n/v	8.14	8.19	-	-	8.20	8.27	-	-	7.88	-	7.96	-	8.30	-	8.46	-
Saturation pH (at 20 C)	none	n/v	n/v	7.68	7.67	-	-	7.77	7.77	-	-	7.09	-	7.23	-	8.42	-	8.45	-
Saturation pH (at 4 C)	none	n/v	n/v	7.93	7.92	-	-	8.02	8.02	-	-	7.34	-	7.48	-	8.68	-	8.70	-
Sulfate	mg/L	500_{h}^{C}	n/v	29	28	-	-	24	24	-	-	88	-	110	-	6.0	-	8.0	-
Total Dissolved Solids	mg/L	500^{C}	n/v	190	170	-	-	225	235	-	-	455	-	425	-	120	-	85	-
Total Organic Carbon	mg/L	n/v	n/v	0.71	0.70	-	-	0.71	0.72	-	-	0.97	-	0.92	-	0.93	-	0.63	-
Total Suspended Solids	mg/L	n/v	n/v	<10	<10	-	-	110	89	-	-	35	-	57	-	<10	-	<10	-
Turbidity, Lab	NTU	5_{i}^{C} $_{j}^{E}$	n/v	**5.5^{C}**	**5.4^{C}**	-	-	-	-	-	-	**11^{C}**	-	**72^{C}**	-	**11^{C}**	-	1.9	-
BTEX and Petroleum Hydrocarbons																			
Benzene	µg/L	1^{B}	0.5^{F} 5^{G}	<0.20	<0.20	-	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Toluene	µg/L	60^{B} 24^{C}	24^{F} 22^{G}	<0.20	<0.20	-	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Ethylbenzene	µg/L	140^{B} 1.6^{C}	2.4^{FG}	<0.20	<0.20	-	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Xylene, m & p-	µg/L	n/v	$_{s1}^{FG}$	<0.20	<0.20	-	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Xylene, o-	µg/L	n/v	$_{s1}^{FG}$	<0.20	<0.20	-	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Xylenes, Total	µg/L	90^{B}	72_{s1}^{F} 300_{s1}^{G}	<0.20	<0.20	-	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
PHC F1 (C6-C10 range)	µg/L	n/v	$_{s7}^{FG}$	<25	<25	-	-	<25	<25	-	-	<25	-	<25	-	<25	-	<25	-
PHC F1 (C6-C10 range) minus BTEX	µg/L	n/v	420_{s7}^{FG}	<25	<25	-	-	<25	<25	-	-	<25	-	<25	-	<25	-	<25	-
PHC F2 (>C10-C16 range)	µg/L	n/v	150_{s15}^{FG}	<100	<100	-	-	<100	<100	-	-	<100	-	<100	-	<100	-	<100	-
PHC F3 (>C16-C34 range)	µg/L	n/v	500_{s8}^{FG}	<200	<200	-	-	<200	<200	-	-	<200	-	<200	-	<200	-	<200	-
PHC F4 (>C34-C50 range)	µg/L	n/v	500_{s10}^{FG}	<200	<200	-	-	<200	<200	-	-	<200	-	<200	-	<200	-	<200	-
Chromatogram to baseline at C50	none	n/v	n/v	YES	YES	-	-	YES	YES	-	-	YES	-	YES	-	YES	-	YES	-

See notes on last page

Table 4
Summary of Groundwater Analytical Results - 2019 Monitoring Wells
Clarington Tranformer Station
Hydro One Networks Inc.

Sample Location				MW1-13-D								MW1-13-S				MW2-13-D			
Sample Date				9-Apr-19	9-Apr-19	9-Apr-19	9-Apr-19	22-Oct-19	22-Oct-19	22-Oct-19	22-Oct-19	9-Apr-19	9-Apr-19	23-Oct-19	23-Oct-19	10-Apr-19	10-Apr-19	23-Oct-19	23-Oct-19
Sample ID				WG-160900764-20190409-KR02	WG-160900764-20190409-KR03	WG-160900764-20190409-KR02A	WG-160900764-20190409-R03A	WG-160900764-20191022-RD04	WG-160900764-20191022-KR05	WG-160900764-20191022-RD04A	WG-160900764-20191022-KR05A	WG-160900764-20190409-KR04	WG-160900764-20190409-KR04A	WG-160900764-20191023-RD06	WG-160900764-20191023-RD06A	WG-160900764-20190410-KR08	WG-160900764-20190410-KR08A	WG-160900764-20191023-KR07	WG-160900764-20191023-KR07A
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				MAXX	MAXX	MAXX	MAXX	BV	BV	BV	BV	MAXX	MAXX	BV	BV	MAXX	MAXX	BV	BV
Laboratory Work Order				B993774	B993774	B993774	B993774	B9T8219	B9T8219	B9T8219	B9T8219	B993774	B993774	B9T9857	B9T9857	B995634	B995634	B9T9857	B9T9857
Laboratory Sample ID				JKK723	JKK725	JKK724	JKK726	LCQ644	LCQ646	LCQ645	LCQ648	JKK727	JKK728	LCZ127	LCZ128	JKU504	JKU505	LCZ137	LCZ138
Filtered				Field Filtered Metals	Field Filtered Metals	Lab Filtered SVOC	Lab Filtered SVOC	Field Filtered Metals	Field Filtered Metals	Lab Filtered SVOC	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC
Sample Type	Units	ODWS	Ontario SCS		Field Duplicate		Field Duplicate		Field Duplicate		Field Duplicate								
Metals																			
Aluminum	µg/L	100[E]	n/v	<5	<5	-	-	5.3	<5	-	-	<5	-	<5	-	5.8	-	5.1	-
Antimony	µg/L	6[B]	6[FG]	<0.5	<0.5	-	-	<0.5	<0.5	-	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Arsenic	µg/L	10[B]	25[FG]	1.8	1.9	-	-	1.7	1.5	-	-	<1	-	<1	-	<1	-	<1	-
Barium	µg/L	1,000[B]	1,000[FG]	110	110	-	-	100	100	-	-	63	-	58	-	17	-	16	-
Beryllium	µg/L	n/v	4[FG]	<0.5	<0.5	-	-	<0.5	<0.5	-	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Boron	µg/L	5,000[B]	5,000[FG]	31	31	-	-	32	32	-	-	<10	-	10	-	120	-	130	-
Cadmium	µg/L	5[B]	2.1[FG]	<0.1	<0.1	-	-	<0.1	<0.1	-	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-
Calcium	µg/L	n/v	n/v	28,000	28,000	-	-	24,000	24,000	-	-	100,000	-	79,000	-	9,100	-	8,700	-
Chromium	µg/L	50[B]	50[FG]	<5	<5	-	-	<5	<5	-	-	<5	-	<5	-	<5	-	<5	-
Chromium (Hexavalent)	µg/L	n/v	25[FG]	<0.50	<0.50	-	-	<0.50	<0.50	-	-	1.0	-	<0.50	-	<0.50	-	1.1	-
Cobalt	µg/L	n/v	3.8[FG]	<0.5	<0.5	-	-	<0.5	<0.5	-	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Copper	µg/L	1,000[C]	69[FG]	<1	<1	-	-	<1	<1	-	-	<1	-	<1	-	1.4	-	<1	-
Iron	µg/L	300[C]	n/v	<100	<100	-	-	<100	<100	-	-	<100	-	<100	-	<100	-	<100	-
Lead	µg/L	10[B]	10[FG]	<0.5	<0.5	-	-	<0.5	<0.5	-	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Magnesium	µg/L	n/v	n/v	31,000	31,000	-	-	29,000	29,000	-	-	33,000	-	31,000	-	3,900	-	4,400	-
Manganese	µg/L	50[C]	n/v	5.1	5.2	-	-	4.5	4.8	-	-	<2	-	<2	-	<2	-	2.1	-
Mercury	µg/L	1[B]	0.1[F] 0.29[G]	<0.1	<0.1	-	-	<0.1	<0.1	-	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-
Molybdenum	µg/L	n/v	70[FG]	4.1	3.9	-	-	3.5	3.4	-	-	1.3	-	3.1	-	7	-	5.5	-
Nickel	µg/L	n/v	100[FG]	<1	<1	-	-	<1	<1	-	-	<1	-	<1	-	<1	-	<1	-
Phosphorus	µg/L	n/v	n/v	<100	<100	-	-	<100	110	-	-	<100	-	<100	-	<100	-	<100	-
Potassium	µg/L	n/v	n/v	2,700	2,700	-	-	2,600	2,600	-	-	2,400	-	3,500	-	1,600	-	1,600	-
Selenium	µg/L	50[B]	10[FG]	<2	<2	-	-	<2	<2	-	-	<2	-	<2	-	<2	-	<2	-
Silicon	µg/L	n/v	n/v	10,000	10,000	-	-	9,100	9,100	-	-	7,400	-	6,300	-	4,000	-	4,000	-
Silver	µg/L	n/v	1.2[FG]	<0.1	<0.1	-	-	<0.1	<0.1	-	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-
Sodium	µg/L	$200,000_{g}$[C] $20,000_{g}$[D]	490,000[FG]	11,000	11,000	-	-	11,000	11,000	-	-	5,200	-	6,000	-	**26,000[D]**	-	**25,000[D]**	-
Strontium	µg/L	n/v	n/v	550	540	-	-	580	580	-	-	310	-	300	-	220	-	250	-
Thallium	µg/L	n/v	2[FG]	<0.05	<0.05	-	-	<0.05	<0.05	-	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Titanium	µg/L	n/v	n/v	<5	<5	-	-	<5	<5	-	-	<5	-	<5	-	<5	-	<5	-
Uranium	µg/L	20[B]	20[FG]	0.3	0.32	-	-	0.3	0.33	-	-	1.7	-	2.9	-	<0.1	-	<0.1	-
Vanadium	µg/L	n/v	6.2[FG]	1	1.1	-	-	1.6	1.8	-	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Zinc	µg/L	5,000[C]	890[FG]	<5	<5	-	-	<5	<5	-	-	<5	-	<5	-	5.9	-	<5	-
Zirconium	µg/L	n/v	n/v	<1	<1	-	-	<1	<1	-	-	<1	-	<1	-	<1	-	<1	-
Polychlorinated Biphenyls																			
Aroclor 1242	µg/L	n/v	s14[FG]	<0.05	<0.05	-	-	<0.05	<0.05	-	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Aroclor 1248	µg/L	n/v	s14[FG]	<0.05	<0.05	-	-	<0.05	<0.05	-	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Aroclor 1254	µg/L	n/v	s14[FG]	<0.05	<0.05	-	-	<0.05	<0.05	-	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Aroclor 1260	µg/L	n/v	s14[FG]	<0.05	<0.05	-	-	<0.05	<0.05	-	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Polychlorinated Biphenyls (PCBs)	µg/L	3[B]	0.2_{s14}[FG]	<0.05	<0.05	-	-	<0.05	<0.05	-	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-

See notes on last page

Table 4
Summary of Groundwater Analytical Results - 2019 Monitoring Wells
Clarington Tranformer Station
Hydro One Networks Inc.

Sample Location				MW1-13-D								MW1-13-S				MW2-13-D			
Sample Date				9-Apr-19	9-Apr-19	9-Apr-19	9-Apr-19	22-Oct-19	22-Oct-19	22-Oct-19	22-Oct-19	9-Apr-19	9-Apr-19	23-Oct-19	23-Oct-19	10-Apr-19	10-Apr-19	23-Oct-19	23-Oct-19
Sample ID				WG-160900764-20190409-KR02	WG-160900764-20190409-KR03	WG-160900764-20190409-KR02A	WG-160900764-20190409-R03A	WG-160900764-20191022-RD04	WG-160900764-20191022-KR05	WG-160900764-20191022-RD04A	WG-160900764-20191022-KR05A	WG-160900764-20190409-KR04	WG-160900764-20190409-KR04A	WG-160900764-20191023-RD06	WG-160900764-20191023-RD06A	WG-160900764-20190410-KR08	WG-160900764-20190410-KR08A	WG-160900764-20191023-KR07	WG-160900764-20191023-KR07A
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				MAXX	MAXX	MAXX	MAXX	BV	BV	BV	BV	MAXX	MAXX	BV	BV	MAXX	MAXX	BV	BV
Laboratory Work Order				B993774	B993774	B993774	B993774	B9T8219	B9T8219	B9T8219	B9T8219	B993774	B993774	B9T9857	B9T9857	B995634	B995634	B9T9857	B9T9857
Laboratory Sample ID				JKK723	JKK725	JKK724	JKK726	LCQ644	LCQ646	LCQ645	LCQ648	JKK727	JKK728	LCZ127	LCZ128	JKU504	JKU505	LCZ137	LCZ138
Filtered				Field Filtered Metals	Field Filtered Metals	Lab Filtered SVOC	Lab Filtered SVOC	Field Filtered Metals	Field Filtered Metals	Lab Filtered SVOC	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC
Sample Type	Units	ODWS	Ontario SCS		Field Duplicate		Field Duplicate		Field Duplicate		Field Duplicate								
Semi-Volatile Organic Compounds																			
Phthalates																			
Bis(2-Ethylhexyl)phthalate (DEHP)	µg/L	n/v	10^{FG}	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Diethyl Phthalate	µg/L	n/v	30^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethyl Phthalate	µg/L	n/v	30^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Polycyclic Aromatic Hydrocarbons																			
Acenaphthene	µg/L	n/v	4.1^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Acenaphthylene	µg/L	n/v	1^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Anthracene	µg/L	n/v	1^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)anthracene	µg/L	n/v	1^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/L	0.01^{B}	0.01^{FG}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	**0.02^{BFG}**	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b/j)fluoranthene	µg/L	n/v	0.1_{s2}^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/L	n/v	0.2^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/L	n/v	0.1^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	µg/L	n/v	0.1^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenzo(a,h)anthracene	µg/L	n/v	0.2^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	n/v	0.41^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Fluorene	µg/L	n/v	120^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Indeno(1,2,3-cd)pyrene	µg/L	n/v	0.2^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methylnaphthalene (Total)	µg/L	n/v	3.2_{s3}^{FG}	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28
Methylnaphthalene, 1-	µg/L	n/v	$_{s3}^{FG}$	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methylnaphthalene, 2-	µg/L	n/v	$_{s3}^{FG}$	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	µg/L	n/v	7^{F} 11^{G}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Phenanthrene	µg/L	n/v	1^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	n/v	4.1^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Remaining Semi-Volatile Organic Compounds																			
Biphenyl, 1,1'- (Biphenyl)	µg/L	n/v	0.5^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Bis(2-Chloroethyl)ether	µg/L	n/v	5^{FG}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bis(2-Chloroisopropyl)ether	µg/L	n/v	120^{FG}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroaniline, 4-	µg/L	n/v	10^{FG}	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorophenol, 2- (ortho-Chlorophenol)	µg/L	n/v	8.9^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorobenzidine, 3,3'-	µg/L	n/v	0.5^{FG}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorophenol, 2,4-	µg/L	900^{B} 0.3_{f}^{C}	20^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethylphenol, 2,4-	µg/L	n/v	59^{FG}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dinitrophenol, 2,4-	µg/L	n/v	10^{FG}	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Dinitrotoluene, 2,4-	µg/L	n/v	5_{s13}^{FG}	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Dinitrotoluene, 2,4 & 2,6-	µg/L	n/v	5_{s13}^{FG}	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35
Dinitrotoluene, 2,6-	µg/L	n/v	5_{s13}^{FG}	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Pentachlorophenol	µg/L	60^{B} 30_{f}^{C}	30^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenol	µg/L	n/v	890^{FG}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichlorobenzene, 1,2,4-	µg/L	n/v	3^{F} 70^{G}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Trichlorophenol, 2,4,5-	µg/L	n/v	8.9^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Trichlorophenol, 2,4,6-	µg/L	5^{B} 2_{f}^{C}	2^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

See notes on last page

Table 4
Summary of Groundwater Analytical Results - 2019 Monitoring Wells
Clarington Tranformer Station
Hydro One Networks Inc.

Sample Location				MW1-13-D								MW1-13-S				MW2-13-D			
Sample Date				9-Apr-19	9-Apr-19	9-Apr-19	9-Apr-19	22-Oct-19	22-Oct-19	22-Oct-19	22-Oct-19	9-Apr-19	9-Apr-19	23-Oct-19	23-Oct-19	10-Apr-19	10-Apr-19	23-Oct-19	23-Oct-19
Sample ID				WG-160900764-20190409-KR02	WG-160900764-20190409-KR03	WG-160900764-20190409-KR02A	WG-160900764-20190409-R03A	WG-160900764-20191022-RD04	WG-160900764-20191022-KR05	WG-160900764-20191022-RD04A	WG-160900764-20191022-KR05A	WG-160900764-20190409-KR04	WG-160900764-20190409-KR04A	WG-160900764-20191023-RD06	WG-160900764-20191023-RD06A	WG-160900764-20190410-KR08	WG-160900764-20190410-KR08A	WG-160900764-20191023-KR07	WG-160900764-20191023-KR07A
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				MAXX	MAXX	MAXX	MAXX	BV	BV	BV	BV	MAXX	MAXX	BV	BV	MAXX	MAXX	BV	BV
Laboratory Work Order				B993774	B993774	B993774	B993774	B9T8219	B9T8219	B9T8219	B9T8219	B993774	B993774	B9T9857	B9T9857	B995634	B995634	B9T9857	B9T9857
Laboratory Sample ID				JKK723	JKK725	JKK724	JKK726	LCQ644	LCQ646	LCQ645	LCQ648	JKK727	JKK728	LCZ127	LCZ128	JKU504	JKU505	LCZ137	LCZ138
Filtered				Field Filtered Metals	Field Filtered Metals	Lab Filtered SVOC	Lab Filtered SVOC	Field Filtered Metals	Field Filtered Metals	Lab Filtered SVOC	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC
Sample Type	Units	ODWS	Ontario SCS		Field Duplicate		Field Duplicate		Field Duplicate		Field Duplicate								
Volatile Organic Compounds																			
Acetone	µg/L	n/v	$2,700^{FG}$	<10	<10	-	-	<10	<10	-	-	<10	-	<10	-	<10	-	<10	-
Bromodichloromethane	µg/L	n/v	16^{FG}	<0.50	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Bromoform (Tribromomethane)	µg/L	n/v	5^{F} 25^{G}	<1.0	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Bromomethane (Methyl bromide)	µg/L	n/v	0.89^{FG}	<0.50	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Carbon Tetrachloride (Tetrachloromethane)	µg/L	2^{B}	0.2^{F} 0.79^{G}	<0.20	<0.20	-	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Chlorobenzene (Monochlorobenzene)	µg/L	80^{B} 30_{f}^{C}	30^{FG}	<0.20	<0.20	-	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Chloroform (Trichloromethane)	µg/L	n/v	2^{F} 2.4^{G}	<0.20	<0.20	-	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Dibromochloromethane	µg/L	n/v	25^{FG}	<0.50	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichlorobenzene, 1,2-	µg/L	200^{B} 3_{f}^{C}	3^{FG}	<0.50	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichlorobenzene, 1,3-	µg/L	n/v	59^{FG}	<0.50	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichlorobenzene, 1,4-	µg/L	5^{B} 1_{f}^{C}	0.5^{F} 1^{G}	<0.50	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichlorodifluoromethane (Freon 12)	µg/L	n/v	590^{FG}	<1.0	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Dichloroethane, 1,1-	µg/L	n/v	5^{FG}	<0.20	<0.20	-	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Dichloroethane, 1,2-	µg/L	5^{B}	0.5^{F} 1.6^{G}	<0.50	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichloroethene, 1,1-	µg/L	14^{B}	0.5^{F} 1.6^{G}	<0.20	<0.20	-	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Dichloroethene, cis-1,2-	µg/L	n/v	1.6^{FG}	<0.50	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichloroethene, trans-1,2-	µg/L	n/v	1.6^{FG}	<0.50	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichloropropane, 1,2-	µg/L	n/v	0.58^{F} 5^{G}	<0.20	<0.20	-	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Dichloropropene, 1,3- (sum of isomers cis + trans)	µg/L	n/v	0.5_{s11}^{FG}	<0.50	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichloropropene, cis-1,3-	µg/L	n/v	$_{s11}^{FG}$	<0.30	<0.30	-	-	<0.30	<0.30	-	-	<0.30	-	<0.30	-	<0.30	-	<0.30	-
Dichloropropene, trans-1,3-	µg/L	n/v	$_{s11}^{FG}$	<0.40	<0.40	-	-	<0.40	<0.40	-	-	<0.40	-	<0.40	-	<0.40	-	<0.40	-
Ethylene Dibromide (Dibromoethane, 1,2-)	µg/L	n/v	0.2^{FG}	<0.20	<0.20	-	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Hexane (n-Hexane)	µg/L	n/v	5^{F} 51^{G}	<1.0	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Methyl Ethyl Ketone (MEK) (2-Butanone)	µg/L	n/v	$1,800^{FG}$	<10	<10	-	-	<10	<10	-	-	<10	-	<10	-	<10	-	<10	-
Methyl Isobutyl Ketone (MIBK)	µg/L	n/v	640^{FG}	<5.0	<5.0	-	-	<5.0	<5.0	-	-	<5.0	-	<5.0	-	<5.0	-	<5.0	-
Methyl tert-butyl ether (MTBE)	µg/L	15^{C}	15^{FG}	<0.50	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Methylene Chloride (Dichloromethane)	µg/L	50^{B}	26^{F} 50^{G}	<2.0	<2.0	-	-	<2.0	<2.0	-	-	<2.0	-	<2.0	-	<2.0	-	<2.0	-
Styrene	µg/L	n/v	5.4^{FG}	<0.50	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Tetrachloroethane, 1,1,1,2-	µg/L	n/v	1.1^{FG}	<0.50	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Tetrachloroethane, 1,1,2,2-	µg/L	n/v	0.5^{F} 1^{G}	<0.50	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Tetrachloroethene (PCE)	µg/L	10^{B}	0.5^{F} 1.6^{G}	<0.20	<0.20	-	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Trichloroethane, 1,1,1-	µg/L	n/v	23^{F} 200^{G}	<0.20	<0.20	-	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Trichloroethane, 1,1,2-	µg/L	n/v	0.5^{F} 4.7^{G}	<0.50	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Trichloroethene (TCE)	µg/L	5^{B}	0.5^{F} 1.6^{G}	<0.20	<0.20	-	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Trichlorofluoromethane (Freon 11)	µg/L	n/v	150^{FG}	<0.50	<0.50	-	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Trihalomethanes	µg/L	100_{b}^{B}	n/v	<1.0	<1.0	-	-	<1.0	<1.0	-	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Vinyl Chloride	µg/L	1^{B}	0.5^{FG}	<0.20	<0.20	-	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-

See notes on last page

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Table 4
Summary of Groundwater Analytical Results - 2019 Monitoring Wells
Clarington Tranformer Station
Hydro One Networks Inc.

Sample Location				MW2-13-S				MW3-13-D				MW3-13-S				MW4-13-D	
Sample Date				10-Apr-19	10-Apr-19	23-Oct-19	23-Oct-19	9-Apr-19	9-Apr-19	23-Oct-19	23-Oct-19	9-Apr-19	9-Apr-19	23-Oct-19	23-Oct-19	23-Oct-19	23-Oct-19
Sample ID				WG-160900764-20190410-KR07	WG-160900764-20190410-KR07A	WG-160900764-20191023-RD08	WG-160900764-20191023-RD08A	WG-160900764-20190409-KR06	WG-160900764-20190409-KR06A	WG-160900764-20191023-KR09	WG-160900764-20191023-KR09A	WG-160900764-20190409-PB01	WG-160900764-20190409-PB01A	WG-160900764-20191023-KR08	WG-160900764-20191023-KR08A	WG-160900764-20191023-RD07	WG-160900764-20191023-RD07A
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				MAXX	MAXX	BV	BV	MAXX	MAXX	BV	BV	MAXX	MAXX	BV	BV	BV	BV
Laboratory Work Order				B995634	B995634	B9T9857	B9T9857	B993774	B993774	B9T9857	B9T9857	B993774	B993774	B9T9857	B9T9857	B9T9857	B9T9857
Laboratory Sample ID				JKU502	JKU503	LCZ135	LCZ136	JKK735	JKK736	LCZ141	LCZ142	JKK737	JKK738	LCZ139	LCZ140	LCZ133	LCZ134
Filtered				Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered
Sample Type	Units	ODWS	Ontario SCS	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC
General Chemistry																	
Acidity	mg/L	n/v	n/v	<5.0	-	<5.0	-	15	-	23	-	8.6	-	7.0	-	<5.0	-
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	n/v	180	-	180	-	190	-	220	-	220	-	210	-	130	-
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	n/v	2.0	-	2.5	-	<1.0	-	1.9	-	2.0	-	2.6	-	1.8	-
Alkalinity, Total (as CaCO3)	mg/L	30-500^{E}	n/v	180	-	180	-	190	-	220	-	220	-	210	-	130	-
Ammonia (as N)	mg/L	n/v	n/v	0.058	-	<0.050	-	0.10	-	<0.050	-	0.092	-	<0.050	-	<0.050	-
Anion Sum	meq/L	n/v	n/v	4.32	-	4.28	-	11.5	-	13.9	-	8.06	-	8.06	-	6.68	-
Cation Sum	meq/L	n/v	n/v	4.17	-	4.26	-	12.2	-	13.5	-	8.05	-	8.31	-	6.61	-
Chloride	mg/L	250^{C}	790^{FG}	3.7	-	3.4	-	150	-	110	-	78	-	84	-	5.5	-
Cyanide (Free)	µg/L	200^{B}	52^{FG}	<1	-	<1	-	<1	-	<1	-	<1	-	<1	-	<1	-
Dissolved Organic Carbon (DOC)	mg/L	5^{C}	n/v	0.73	-	0.63	-	2.7	-	2.0	-	0.84	-	0.75	-	0.74	-
Electrical Conductivity, Lab	µmhos/cm	n/v	n/a^{FG}	400	-	380	-	1,200	-	1,300	-	790	-	800	-	650	-
Fluoride	mg/L	1.5^{B}	n/v	0.24	-	0.28	-	0.14	-	0.31	-	0.23	-	0.27	-	0.70	-
Hardness (as CaCO3)	mg/L	80-100^{E}	n/v	**190**^{E}	-	**190**^{E}	-	**430**^{E}	-	**410**^{E}	-	**350**^{E}	-	**350**^{E}	-	**130**^{E}	-
Ion Balance	%	n/v	n/v	1.77	-	0.280	-	3.02	-	1.71	-	0.0700	-	1.57	-	0.560	-
Langelier Index (at 20 C)	none	n/v	n/v	0.424	-	0.539	-	0.610	-	0.860	-	0.716	-	0.796	-	0.324	-
Langelier Index (at 4 C)	none	n/v	n/v	0.174	-	0.289	-	0.363	-	0.614	-	0.468	-	0.547	-	0.0750	-
Nitrate (as N)	mg/L	10.0$_{d}^{B}$	n/v	<0.10	-	<0.10	-	0.70	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-
Nitrate + Nitrite (as N)	mg/L	10.0$_{d}^{B}$	n/v	<0.10	-	<0.10	-	0.79	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-
Nitrite (as N)	mg/L	1.0$_{d}^{B}$	n/v	<0.010	-	<0.010	-	0.085	-	<0.010	-	<0.010	-	<0.010	-	<0.010	-
Orthophosphate(as P)	mg/L	n/v	n/v	<0.010	-	0.013	-	0.010	-	<0.010	-	<0.010	-	<0.010	-	<0.010	-
pH, lab	S.U.	6.5-8.5^{E}	n/v	8.07	-	8.17	-	7.65	-	7.96	-	8.00	-	8.12	-	8.18	-
Saturation pH (at 20 C)	none	n/v	n/v	7.65	-	7.63	-	7.04	-	7.10	-	7.28	-	7.33	-	7.86	-
Saturation pH (at 4 C)	none	n/v	n/v	7.90	-	7.88	-	7.28	-	7.34	-	7.53	-	7.58	-	8.11	-
Sulfate	mg/L	500$_{h}^{C}$	n/v	27	-	24	-	160	-	300	-	71	-	68	-	190	-
Total Dissolved Solids	mg/L	500^{C}	n/v	215	-	205	-	**760**^{C}	-	**815**^{C}	-	470	-	455	-	395	-
Total Organic Carbon	mg/L	n/v	n/v	0.93	-	0.74	-	3.1	-	2.2	-	0.93	-	0.81	-	1.0	-
Total Suspended Solids	mg/L	n/v	n/v	11	-	24	-	13	-	67	-	14	-	<10	-	58	-
Turbidity, Lab	NTU	5$_{i}^{C}$ $_{j}^{E}$	n/v	**24**^{C}	-	**27**^{C}	-	2.1	-	**7.0**^{C}	-	**12**^{C}	-	0.3	-	**130**^{C}	-
BTEX and Petroleum Hydrocarbons																	
Benzene	µg/L	1^{B}	0.5^{F} 5^{G}	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Toluene	µg/L	60^{B} 24^{C}	24^{F} 22^{G}	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Ethylbenzene	µg/L	140^{B} 1.6^{C}	2.4^{FG}	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Xylene, m & p-	µg/L	n/v	$_{s1}^{FG}$	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Xylene, o-	µg/L	n/v	$_{s1}^{FG}$	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Xylenes, Total	µg/L	90^{B}	72$_{s1}^{F}$ 300$_{s1}^{G}$	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
PHC F1 (C6-C10 range)	µg/L	n/v	$_{s7}^{FG}$	<25	-	<25	-	<25	-	<25	-	<25	-	<25	-	<25	-
PHC F1 (C6-C10 range) minus BTEX	µg/L	n/v	420$_{s7}^{FG}$	<25	-	<25	-	<25	-	<25	-	<25	-	<25	-	<25	-
PHC F2 (>C10-C16 range)	µg/L	n/v	150$_{s15}^{FG}$	<100	-	<100	-	<100	-	<100	-	<100	-	<100	-	<100	-
PHC F3 (>C16-C34 range)	µg/L	n/v	500$_{s8}^{FG}$	<200	-	<200	-	<200	-	<200	-	<200	-	<200	-	<200	-
PHC F4 (>C34-C50 range)	µg/L	n/v	500$_{s10}^{FG}$	<200	-	<200	-	<200	-	<200	-	<200	-	<200	-	<200	-
Chromatogram to baseline at C50	none	n/v	n/v	YES	-	YES	-	YES	-	YES	-	YES	-	YES	-	YES	-

See notes on last page

Table 4
Summary of Groundwater Analytical Results - 2019 Monitoring Wells
Clarington Tranformer Station
Hydro One Networks Inc.

Sample Location				MW2-13-S				MW3-13-D				MW3-13-S				MW4-13-D	
Sample Date				10-Apr-19	10-Apr-19	23-Oct-19	23-Oct-19	9-Apr-19	9-Apr-19	23-Oct-19	23-Oct-19	9-Apr-19	9-Apr-19	23-Oct-19	23-Oct-19	23-Oct-19	23-Oct-19
Sample ID				WG-160900764-20190410-KR07	WG-160900764-20190410-KR07A	WG-160900764-20191023-RD08	WG-160900764-20191023-RD08A	WG-160900764-20190409-KR06	WG-160900764-20190409-KR06A	WG-160900764-20191023-KR09	WG-160900764-20191023-KR09A	WG-160900764-20190409-PB01	WG-160900764-20190409-PB01A	WG-160900764-20191023-KR08	WG-160900764-20191023-KR08A	WG-160900764-20191023-RD07	WG-160900764-20191023-RD07A
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				MAXX	MAXX	BV	BV	MAXX	MAXX	BV	BV	MAXX	MAXX	BV	BV	BV	BV
Laboratory Work Order				B995634	B995634	B9T9857	B9T9857	B993774	B993774	B9T9857	B9T9857	B993774	B993774	B9T9857	B9T9857	B9T9857	B9T9857
Laboratory Sample ID				JKU502	JKU503	LCZ135	LCZ136	JKK735	JKK736	LCZ141	LCZ142	JKK737	JKK738	LCZ139	LCZ140	LCZ133	LCZ134
Filtered				Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered
Sample Type	Units	ODWS	Ontario SCS	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC
Metals																	
Aluminum	µg/L	100^{E}	n/v	<5	-	14	-	<5	-	13	-	<5	-	13	-	43	-
Antimony	µg/L	6^{B}	6^{FG}	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Arsenic	µg/L	10^{B}	25^{FG}	<1	-	<1	-	<1	-	<1	-	<1	-	<1	-	<1	-
Barium	µg/L	$1,000^{B}$	$1,000^{FG}$	64	-	67	-	85	-	43	-	59	-	63	-	20	-
Beryllium	µg/L	n/v	4^{FG}	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Boron	µg/L	$5,000^{B}$	$5,000^{FG}$	34	-	38	-	63	-	190	-	72	-	70	-	300	-
Cadmium	µg/L	5^{B}	2.1^{FG}	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-
Calcium	µg/L	n/v	n/v	30,000	-	31,000	-	160,000	-	120,000	-	70,000	-	63,000	-	30,000	-
Chromium	µg/L	50^{B}	50^{FG}	<5	-	<5	-	<5	-	<5	-	<5	-	<5	-	<5	-
Chromium (Hexavalent)	µg/L	n/v	25^{FG}	<0.50	-	<0.50	-	0.84	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Cobalt	µg/L	n/v	3.8^{FG}	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Copper	µg/L	$1,000^{C}$	69^{FG}	<1	-	<1	-	<1	-	<1	-	<1	-	<1	-	2.1	-
Iron	µg/L	300^{C}	n/v	<100	-	<100	-	<100	-	<100	-	<100	-	<100	-	<100	-
Lead	µg/L	10^{B}	10^{FG}	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Magnesium	µg/L	n/v	n/v	27,000	-	27,000	-	11,000	-	26,000	-	42,000	-	48,000	-	13,000	-
Manganese	µg/L	50^{C}	n/v	47	-	47	-	29	-	8.4	-	6.1	-	13	-	4.8	-
Mercury	µg/L	1^{B}	0.1^{F} 0.29^{G}	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-
Molybdenum	µg/L	n/v	70^{FG}	1.6	-	1.6	-	4.5	-	25	-	5.5	-	5.4	-	**120^{FG}**	-
Nickel	µg/L	n/v	100^{FG}	<1	-	<1	-	<1	-	<1	-	<1	-	<1	-	<1	-
Phosphorus	µg/L	n/v	n/v	<100	-	<100	-	<100	-	<100	-	<100	-	100	-	<100	-
Potassium	µg/L	n/v	n/v	1,800	-	2,100	-	4,000	-	4,100	-	4,900	-	5,400	-	2,600	-
Selenium	µg/L	50^{B}	10^{FG}	<2	-	<2	-	<2	-	<2	-	<2	-	<2	-	<2	-
Silicon	µg/L	n/v	n/v	7,000	-	8,100	-	3,200	-	3,800	-	5,500	-	5,900	-	3,000	-
Silver	µg/L	n/v	1.2^{FG}	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-
Sodium	µg/L	$200,000_{g}^{C}$ $20,000_{g}^{D}$	$490,000^{FG}$	8,900	-	9,600	-	**$79,000^{D}$**	-	**$120,000^{D}$**	-	**$22,000^{D}$**	-	**$25,000^{D}$**	-	**$92,000^{D}$**	-
Strontium	µg/L	n/v	n/v	580	-	610	-	1,000	-	1,500	-	930	-	970	-	680	-
Thallium	µg/L	n/v	2^{FG}	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Titanium	µg/L	n/v	n/v	<5	-	<5	-	<5	-	<5	-	<5	-	<5	-	<5	-
Uranium	µg/L	20^{B}	20^{FG}	0.22	-	0.25	-	1.3	-	2.9	-	2.9	-	3	-	2.3	-
Vanadium	µg/L	n/v	6.2^{FG}	<0.5	-	<0.5	-	<0.5	-	<0.5	-	0.56	-	0.58	-	<0.5	-
Zinc	µg/L	$5,000^{C}$	890^{FG}	<5	-	<5	-	<5	-	<5	-	<5	-	<5	-	<5	-
Zirconium	µg/L	n/v	n/v	<1	-	<1	-	<1	-	<1	-	<1	-	<1	-	<1	-
Polychlorinated Biphenyls																	
Aroclor 1242	µg/L	n/v	$_{s14}^{FG}$	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Aroclor 1248	µg/L	n/v	$_{s14}^{FG}$	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Aroclor 1254	µg/L	n/v	$_{s14}^{FG}$	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Aroclor 1260	µg/L	n/v	$_{s14}^{FG}$	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Polychlorinated Biphenyls (PCBs)	µg/L	3^{B}	0.2_{s14}^{FG}	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-

See notes on last page

Table 4
Summary of Groundwater Analytical Results - 2019 Monitoring Wells
Clarington Tranformer Station
Hydro One Networks Inc.

Sample Location				MW2-13-S				MW3-13-D				MW3-13-S				MW4-13-D	
Sample Date				10-Apr-19	10-Apr-19	23-Oct-19	23-Oct-19	9-Apr-19	9-Apr-19	23-Oct-19	23-Oct-19	9-Apr-19	9-Apr-19	23-Oct-19	23-Oct-19	23-Oct-19	23-Oct-19
Sample ID				WG-160900764-20190410-KR07	WG-160900764-20190410-KR07A	WG-160900764-20191023-RD08	WG-160900764-20191023-RD08A	WG-160900764-20190409-KR06	WG-160900764-20190409-KR06A	WG-160900764-20191023-KR09	WG-160900764-20191023-KR09A	WG-160900764-20190409-PB01	WG-160900764-20190409-PB01A	WG-160900764-20191023-KR08	WG-160900764-20191023-KR08A	WG-160900764-20191023-RD07	WG-160900764-20191023-RD07A
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				MAXX	MAXX	BV	BV	MAXX	MAXX	BV	BV	MAXX	MAXX	BV	BV	BV	BV
Laboratory Work Order				B995634	B995634	B9T9857	B9T9857	B993774	B993774	B9T9857	B9T9857	B993774	B993774	B9T9857	B9T9857	B9T9857	B9T9857
Laboratory Sample ID				JKU502	JKU503	LCZ135	LCZ136	JKK735	JKK736	LCZ141	LCZ142	JKK737	JKK738	LCZ139	LCZ140	LCZ133	LCZ134
Filtered				Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered
Sample Type	Units	ODWS	Ontario SCS	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC
Semi-Volatile Organic Compounds																	
Phthalates																	
Bis(2-Ethylhexyl)phthalate (DEHP)	µg/L	n/v	10^{FG}	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	2	<1
Diethyl Phthalate	µg/L	n/v	30^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethyl Phthalate	µg/L	n/v	30^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Polycyclic Aromatic Hydrocarbons																	
Acenaphthene	µg/L	n/v	4.1^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Acenaphthylene	µg/L	n/v	1^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Anthracene	µg/L	n/v	1^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)anthracene	µg/L	n/v	1^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/L	0.01^{B}	0.01^{FG}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b/j)fluoranthene	µg/L	n/v	0.1_{s2}^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/L	n/v	0.2^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/L	n/v	0.1^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	µg/L	n/v	0.1^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenzo(a,h)anthracene	µg/L	n/v	0.2^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	n/v	0.41^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Fluorene	µg/L	n/v	120^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Indeno(1,2,3-cd)pyrene	µg/L	n/v	0.2^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methylnaphthalene (Total)	µg/L	n/v	3.2_{s3}^{FG}	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28
Methylnaphthalene, 1-	µg/L	n/v	$_{s3}^{FG}$	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methylnaphthalene, 2-	µg/L	n/v	$_{s3}^{FG}$	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	µg/L	n/v	7^{F} 11^{G}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Phenanthrene	µg/L	n/v	1^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	n/v	4.1^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Remaining Semi-Volatile Organic Compounds																	
Biphenyl, 1,1'- (Biphenyl)	µg/L	n/v	0.5^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Bis(2-Chloroethyl)ether	µg/L	n/v	5^{FG}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bis(2-Chloroisopropyl)ether	µg/L	n/v	120^{FG}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroaniline, 4-	µg/L	n/v	10^{FG}	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorophenol, 2- (ortho-Chlorophenol)	µg/L	n/v	8.9^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorobenzidine, 3,3'-	µg/L	n/v	0.5^{FG}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorophenol, 2,4-	µg/L	900^{B} 0.3_{f}^{C}	20^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethylphenol, 2,4-	µg/L	n/v	59^{FG}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dinitrophenol, 2,4-	µg/L	n/v	10^{FG}	<2	<6 MI	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Dinitrotoluene, 2,4-	µg/L	n/v	5_{s13}^{FG}	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Dinitrotoluene, 2,4 & 2,6-	µg/L	n/v	5_{s13}^{FG}	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35
Dinitrotoluene, 2,6-	µg/L	n/v	5_{s13}^{FG}	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Pentachlorophenol	µg/L	60^{B} 30_{f}^{C}	30^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenol	µg/L	n/v	890^{FG}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichlorobenzene, 1,2,4-	µg/L	n/v	3^{F} 70^{G}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Trichlorophenol, 2,4,5-	µg/L	n/v	8.9^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Trichlorophenol, 2,4,6-	µg/L	5^{B} 2_{f}^{C}	2^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

See notes on last page

Table 4
Summary of Groundwater Analytical Results - 2019 Monitoring Wells
Clarington Tranformer Station
Hydro One Networks Inc.

Sample Location				MW2-13-S				MW3-13-D				MW3-13-S				MW4-13-D	
Sample Date				10-Apr-19	10-Apr-19	23-Oct-19	23-Oct-19	9-Apr-19	9-Apr-19	23-Oct-19	23-Oct-19	9-Apr-19	9-Apr-19	23-Oct-19	23-Oct-19	23-Oct-19	23-Oct-19
Sample ID				WG-160900764-20190410-KR07	WG-160900764-20190410-KR07A	WG-160900764-20191023-RD08	WG-160900764-20191023-RD08A	WG-160900764-20190409-KR06	WG-160900764-20190409-KR06A	WG-160900764-20191023-KR09	WG-160900764-20191023-KR09A	WG-160900764-20190409-PB01	WG-160900764-20190409-PB01A	WG-160900764-20191023-KR08	WG-160900764-20191023-KR08A	WG-160900764-20191023-RD07	WG-160900764-20191023-RD07A
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				MAXX	MAXX	BV	BV	MAXX	MAXX	BV	BV	MAXX	MAXX	BV	BV	BV	BV
Laboratory Work Order				B995634	B995634	B9T9857	B9T9857	B993774	B993774	B9T9857	B9T9857	B993774	B993774	B9T9857	B9T9857	B9T9857	B9T9857
Laboratory Sample ID				JKU502	JKU503	LCZ135	LCZ136	JKK735	JKK736	LCZ141	LCZ142	JKK737	JKK738	LCZ139	LCZ140	LCZ133	LCZ134
Filtered				Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered
Sample Type	Units	ODWS	Ontario SCS	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC
Volatile Organic Compounds																	
Acetone	µg/L	n/v	$2,700^{FG}$	<10	-	<10	-	11	-	<10	-	<10	-	<10	-	<10	-
Bromodichloromethane	µg/L	n/v	16^{FG}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Bromoform (Tribromomethane)	µg/L	n/v	5^{F} 25^{G}	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Bromomethane (Methyl bromide)	µg/L	n/v	0.89^{FG}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Carbon Tetrachloride (Tetrachloromethane)	µg/L	2^{B}	0.2^{F} 0.79^{G}	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Chlorobenzene (Monochlorobenzene)	µg/L	80^{B} 30_{f}^{C}	30^{FG}	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Chloroform (Trichloromethane)	µg/L	n/v	2^{F} 2.4^{G}	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Dibromochloromethane	µg/L	n/v	25^{FG}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichlorobenzene, 1,2-	µg/L	200^{B} 3_{f}^{C}	3^{FG}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichlorobenzene, 1,3-	µg/L	n/v	59^{FG}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichlorobenzene, 1,4-	µg/L	5^{B} 1_{f}^{C}	0.5^{F} 1^{G}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichlorodifluoromethane (Freon 12)	µg/L	n/v	590^{FG}	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Dichloroethane, 1,1-	µg/L	n/v	5^{FG}	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Dichloroethane, 1,2-	µg/L	5^{B}	0.5^{F} 1.6^{G}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichloroethene, 1,1-	µg/L	14^{B}	0.5^{F} 1.6^{G}	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Dichloroethene, cis-1,2-	µg/L	n/v	1.6^{FG}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichloroethene, trans-1,2-	µg/L	n/v	1.6^{FG}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichloropropane, 1,2-	µg/L	n/v	0.58^{F} 5^{G}	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Dichloropropene, 1,3- (sum of isomers cis + trans)	µg/L	n/v	0.5_{s11}^{FG}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichloropropene, cis-1,3-	µg/L	n/v	$_{s11}^{FG}$	<0.30	-	<0.30	-	<0.30	-	<0.30	-	<0.30	-	<0.30	-	<0.30	-
Dichloropropene, trans-1,3-	µg/L	n/v	$_{s11}^{FG}$	<0.40	-	<0.40	-	<0.40	-	<0.40	-	<0.40	-	<0.40	-	<0.40	-
Ethylene Dibromide (Dibromoethane, 1,2-)	µg/L	n/v	0.2^{FG}	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Hexane (n-Hexane)	µg/L	n/v	5^{F} 51^{G}	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Methyl Ethyl Ketone (MEK) (2-Butanone)	µg/L	n/v	$1,800^{FG}$	<10	-	<10	-	<10	-	<10	-	<10	-	<10	-	<10	-
Methyl Isobutyl Ketone (MIBK)	µg/L	n/v	640^{FG}	<5.0	-	<5.0	-	<5.0	-	<5.0	-	<5.0	-	<5.0	-	<5.0	-
Methyl tert-butyl ether (MTBE)	µg/L	15^{C}	15^{FG}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Methylene Chloride (Dichloromethane)	µg/L	50^{B}	26^{F} 50^{G}	<2.0	-	<2.0	-	<2.0	-	<2.0	-	<2.0	-	<2.0	-	<2.0	-
Styrene	µg/L	n/v	5.4^{FG}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Tetrachloroethane, 1,1,1,2-	µg/L	n/v	1.1^{FG}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Tetrachloroethane, 1,1,2,2-	µg/L	n/v	0.5^{F} 1^{G}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Tetrachloroethene (PCE)	µg/L	10^{B}	0.5^{F} 1.6^{G}	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Trichloroethane, 1,1,1-	µg/L	n/v	23^{F} 200^{G}	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Trichloroethane, 1,1,2-	µg/L	n/v	0.5^{F} 4.7^{G}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Trichloroethene (TCE)	µg/L	5^{B}	0.5^{F} 1.6^{G}	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Trichlorofluoromethane (Freon 11)	µg/L	n/v	150^{FG}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Trihalomethanes	µg/L	100_{b}^{B}	n/v	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Vinyl Chloride	µg/L	1^{B}	0.5^{FG}	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-

See notes on last page

Table 4
Summary of Groundwater Analytical Results - 2019 Monitoring Wells
Clarington Tranformer Station
Hydro One Networks Inc.

Sample Location	Units	ODWS	Ontario SCS	MW4-13-S						MW4-15D		MW5-14-D				MW5-14-I			
Sample Date				10-Apr-19	10-Apr-19	23-Oct-19	23-Oct-19	23-Oct-19	23-Oct-19	10-Apr-19	10-Apr-19	8-Apr-19	8-Apr-19	21-Oct-19	21-Oct-19	8-Apr-19	8-Apr-19	21-Oct-19	21-Oct-19
Sample ID				WG-160900764-20190410-RD08	WG-160900764-20190410-RD08A	WG-160900764-20191023-KR04	WG-160900764-20191023-KR05	WG-160900764-20191023-KR04A	WG-160900764-20191023-KR05A	WG-160900764-20190410-RD07	WG-160900764-20190410-RD07A	WG-160900764-20190408-RD02	WG-160900764-20190408-RD02A	WG-160900764-20191021-RD02	WG-160900764-20191021-RD02A	WG-160900764-20190408-RD03	WG-160900764-20190408-RD03A	WG-160900764-20191021-KR02	WG-160900764-20191021-KR02A
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				MAXX	MAXX	BV	BV	BV	BV	MAXX	MAXX	MAXX	MAXX	BV	BV	MAXX	MAXX	BV	BV
Laboratory Work Order				B995634	B995634	B9T9857	B9T9857	B9T9857	B9T9857	B995634	B995634	B992316	B992316	B9T6852	B9T6852	B992316	B992316	B9T6852	B9T6852
Laboratory Sample ID				JKU500	JKU501	LCZ129	LCZ131	LCZ130	LCZ132	JKU498	JKU499	JKC973	JKC974	LCJ634	LCJ635	JKC975	JKC976	LCJ638	LCJ639
Filtered				Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered
Sample Type				Metals	SVOC	Metals	SVOC Field Duplicate	Metals	SVOC Field Duplicate	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC
General Chemistry																			
Acidity	mg/L	n/v	n/v	20	-	81	71	-	-	<5.0	-	<5.0	-	<5.0	-	<5.0	-	<5.0	-
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	n/v	250	-	380	380	-	-	99	-	180	-	180	-	110	-	84	-
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	n/v	1.4	-	<1.0	<1.0	-	-	7.9	-	7.4	-	6.3	-	4.5	-	1.9	-
Alkalinity, Total (as CaCO3)	mg/L	$30\text{-}500^{E}$	n/v	260	-	380	380	-	-	110	-	190	-	200	-	120	-	86	-
Ammonia (as N)	mg/L	n/v	n/v	<0.050	-	<0.050	<0.050	-	-	0.050	-	<0.050	-	0.053	-	<0.050	-	<0.050	-
Anion Sum	meq/L	n/v	n/v	10.8	-	11.5	11.4	-	-	3.84	-	4.32	-	4.02	-	2.68	-	2.22	-
Cation Sum	meq/L	n/v	n/v	11.2	-	11.5	11.6	-	-	3.85	-	2.31	-	2.28	-	2.18	-	2.10	-
Chloride	mg/L	250^{C}	790^{FG}	140	-	41	41	-	-	5.2	-	1.5	-	<10 DB	-	3.0	-	2.6	-
Cyanide (Free)	µg/L	200^{B}	52^{FG}	<1	-	<1	<1	-	-	<1	-	<1	-	<1	-	<1	-	<1	-
Dissolved Organic Carbon (DOC)	mg/L	5^{C}	n/v	1.5	-	1.6	1.6	-	-	1.1	-	0.95	-	1.0	-	0.79	-	0.90	-
Electrical Conductivity, Lab	µmhos/cm	n/v	n/a^{FG}	1,100	-	1,000	1,000	-	-	410	-	240	-	230	-	220	-	210	-
Fluoride	mg/L	1.5^{B}	n/v	0.11	-	<0.10	<0.10	-	-	0.96	-	1.3	-	1.2	-	1.5	-	1.4	-
Hardness (as CaCO3)	mg/L	$80\text{-}100^{E}$	n/v	**330^{E}**	-	**500^{E}**	**500^{E}**	-	-	**46^{E}**	-	**21^{E}**	-	**20^{E}**	-	**18^{E}**	-	**19^{E}**	-
Ion Balance	%	n/v	n/v	1.72	-	0.0500	0.660	-	-	0.120	-	30.4	-	27.5	-	NC	-	NC	-
Langelier Index (at 20 C)	none	n/v	n/v	0.732	-	0.684	0.628	-	-	0.580	-	0.200	-	0.0880	-	0.00400	-	-0.368	-
Langelier Index (at 4 C)	none	n/v	n/v	0.484	-	0.436	0.381	-	-	0.331	-	-0.0490	-	-0.161	-	-0.247	-	-0.619	-
Nitrate (as N)	mg/L	10.0_{d}^{B}	n/v	1.24	-	0.68	0.71	-	-	0.67	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-
Nitrate + Nitrite (as N)	mg/L	10.0_{d}^{B}	n/v	1.24	-	0.68	0.71	-	-	0.67	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-
Nitrite (as N)	mg/L	1.0_{d}^{B}	n/v	<0.010	-	<0.010	<0.010	-	-	<0.010	-	<0.010	-	<0.010	-	0.016	-	<0.010	-
Orthophosphate(as P)	mg/L	n/v	n/v	<0.010	-	<0.010	<0.010	-	-	0.011	-	<0.10 DB	-	0.11 DB	-	<0.010	-	0.015	-
pH, lab	S.U.	$6.5\text{-}8.5^{E}$	n/v	7.76	-	7.36	7.31	-	-	**8.93^{E}**	-	**8.64^{E}**	-	**8.58^{E}**	-	**8.63^{E}**	-	8.37	-
Saturation pH (at 20 C)	none	n/v	n/v	7.03	-	6.68	6.69	-	-	8.35	-	8.44	-	8.49	-	8.63	-	8.74	-
Saturation pH (at 4 C)	none	n/v	n/v	7.28	-	6.93	6.93	-	-	8.60	-	8.69	-	8.74	-	8.88	-	8.99	-
Sulfate	mg/L	500_{h}^{C}	n/v	76	-	130	130	-	-	70	-	21	-	16 DB	-	9.0	-	17	-
Total Dissolved Solids	mg/L	500^{C}	n/v	**650^{C}**	-	**615^{C}**	**615^{C}**	-	-	230	-	265	-	285	-	135	-	110	-
Total Organic Carbon	mg/L	n/v	n/v	1.7	-	1.8	1.8	-	-	2.6	-	1.2	-	1.5	-	1.1	-	0.87	-
Total Suspended Solids	mg/L	n/v	n/v	15	-	25	28	-	-	19	-	26	-	160	-	33	-	<10	-
Turbidity, Lab	NTU	$5_{i}^{C}\ _{j}^{E}$	n/v	**5.4^{C}**	-	**6.5^{C}**	**6.5^{C}**	-	-	1.3	-	**380^{C}**	-	**430^{C}**	-	**300^{C}**	-	2.5	-
BTEX and Petroleum Hydrocarbons																			
Benzene	µg/L	1^{B}	$0.5^{F}\ 5^{G}$	<0.20	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Toluene	µg/L	$60^{B}\ 24^{C}$	$24^{F}\ 22^{G}$	<0.20	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Ethylbenzene	µg/L	$140^{B}\ 1.6^{C}$	2.4^{FG}	<0.20	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Xylene, m & p-	µg/L	n/v	$_{s1}^{FG}$	<0.20	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Xylene, o-	µg/L	n/v	$_{s1}^{FG}$	<0.20	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Xylenes, Total	µg/L	90^{B}	$72_{s1}^{F}\ 300_{s1}^{G}$	<0.20	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
PHC F1 (C6-C10 range)	µg/L	n/v	$_{s7}^{FG}$	<25	-	<25	<25	-	-	<25	-	<25	-	<25	-	<25	-	<25	-
PHC F1 (C6-C10 range) minus BTEX	µg/L	n/v	420_{s7}^{FG}	<25	-	<25	<25	-	-	<25	-	<25	-	<25	-	<25	-	<25	-
PHC F2 (>C10-C16 range)	µg/L	n/v	150_{s15}^{FG}	<100	-	<100	<100	-	-	<100	-	<100	-	<100	-	<100	-	<100	-
PHC F3 (>C16-C34 range)	µg/L	n/v	500_{s8}^{FG}	<200	-	<200	<200	-	-	<200	-	<200	-	<200	-	<200	-	<200	-
PHC F4 (>C34-C50 range)	µg/L	n/v	500_{s10}^{FG}	<200	-	<200	<200	-	-	<200	-	<200	-	<200	-	<200	-	<200	-
Chromatogram to baseline at C50	none	n/v	n/v	YES	-	YES	YES	-	-	YES	-	YES	-	YES	-	YES	-	YES	-

See notes on last page

Table 4
Summary of Groundwater Analytical Results - 2019 Monitoring Wells
Clarington Tranformer Station
Hydro One Networks Inc.

Sample Location				MW4-13-S						MW4-15D		MW5-14-D				MW5-14-I			
Sample Date				10-Apr-19	10-Apr-19	23-Oct-19	23-Oct-19	23-Oct-19	23-Oct-19	10-Apr-19	10-Apr-19	8-Apr-19	8-Apr-19	21-Oct-19	21-Oct-19	8-Apr-19	8-Apr-19	21-Oct-19	21-Oct-19
Sample ID				WG-160900764-20190410-RD08	WG-160900764-20190410-RD08A	WG-160900764-20191023-KR04	WG-160900764-20191023-KR05	WG-160900764-20191023-KR04A	WG-160900764-20191023-KR05A	WG-160900764-20190410-RD07	WG-160900764-20190410-RD07A	WG-160900764-20190408-RD02	WG-160900764-20190408-RD02A	WG-160900764-20191021-RD02	WG-160900764-20191021-RD02A	WG-160900764-20190408-RD03	WG-160900764-20190408-RD03A	WG-160900764-20191021-KR02	WG-160900764-20191021-KR02A
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				MAXX	MAXX	BV	BV	BV	BV	MAXX	MAXX	MAXX	MAXX	BV	BV	MAXX	MAXX	BV	BV
Laboratory Work Order				B995634	B995634	B9T9857	B9T9857	B9T9857	B9T9857	B995634	B995634	B992316	B992316	B9T6852	B9T6852	B992316	B992316	B9T6852	B9T6852
Laboratory Sample ID				JKU500	JKU501	LCZ129	LCZ131	LCZ130	LCZ132	JKU498	JKU499	JKC973	JKC974	LCJ634	LCJ635	JKC975	JKC976	LCJ638	LCJ639
Filtered				Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered
Sample Type	**Units**	**ODWS**	**Ontario SCS**	Metals	SVOC	Metals	SVOC Field Duplicate	Metals	SVOC Field Duplicate	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC
Metals																			
Aluminum	µg/L	100^{E}	n/v	<5	-	19	23	-	-	14	-	34	-	20	-	71	-	69	-
Antimony	µg/L	6^{B}	6^{FG}	<0.5	-	<0.5	<0.5	-	-	0.51	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Arsenic	µg/L	10^{B}	25^{FG}	<1	-	<1	<1	-	-	2.6	-	1.7	-	1.9	-	2.7	-	2.6	-
Barium	µg/L	$1,000^{B}$	$1,000^{FG}$	73	-	120	130	-	-	34	-	5.1	-	5.7	-	7.3	-	7.5	-
Beryllium	µg/L	n/v	4^{FG}	<0.5	-	<0.5	<0.5	-	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Boron	µg/L	$5,000^{B}$	$5,000^{FG}$	33	-	77	78	-	-	230	-	220	-	210	-	240	-	220	-
Cadmium	µg/L	5^{B}	2.1^{FG}	<0.1	-	<0.1	<0.1	-	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-
Calcium	µg/L	n/v	n/v	110,000	-	170,000	170,000	-	-	10,000	-	5,000	-	4,600	-	4,600	-	4,700	-
Chromium	µg/L	50^{B}	50^{FG}	<5	-	<5	<5	-	-	<5	-	<5	-	<5	-	<5	-	<5	-
Chromium (Hexavalent)	µg/L	n/v	25^{FG}	<0.50	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	0.67	-	<0.50	-	0.51	-
Cobalt	µg/L	n/v	3.8^{FG}	<0.5	-	<0.5	<0.5	-	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Copper	µg/L	$1,000^{C}$	69^{FG}	<1	-	<1	<1	-	-	<1	-	<1	-	<1	-	<1	-	<1	-
Iron	µg/L	300^{C}	n/v	<100	-	<100	<100	-	-	<100	-	<100	-	<100	-	<100	-	<100	-
Lead	µg/L	10^{B}	10^{FG}	<0.5	-	<0.5	<0.5	-	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Magnesium	µg/L	n/v	n/v	12,000	-	19,000	20,000	-	-	4,900	-	2,100	-	2,000	-	1,500	-	1,700	-
Manganese	µg/L	50^{C}	n/v	<2	-	2.7	2.7	-	-	<2	-	2.4	-	<2	-	<2	-	<2	-
Mercury	µg/L	1^{B}	0.1^{F} 0.29^{G}	<0.1	-	<0.1	<0.1	-	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-
Molybdenum	µg/L	n/v	70^{FG}	<0.5	-	<0.5	<0.5	-	-	46	-	3.7	-	3.7	-	5.7	-	4.9	-
Nickel	µg/L	n/v	100^{FG}	<1	-	<1	<1	-	-	<1	-	<1	-	<1	-	<1	-	<1	-
Phosphorus	µg/L	n/v	n/v	<100	-	<100	<100	-	-	110	-	<100	-	100	-	<100	-	110	-
Potassium	µg/L	n/v	n/v	1,300	-	1,700	1,700	-	-	1,100	-	390	-	390	-	590	-	550	-
Selenium	µg/L	50^{B}	10^{FG}	<2	-	<2	<2	-	-	<2	-	<2	-	<2	-	<2	-	<2	-
Silicon	µg/L	n/v	n/v	3,100	-	6,300	6,400	-	-	3,100	-	3,400	-	3,500	-	3,000	-	3,200	-
Silver	µg/L	n/v	1.2^{FG}	<0.1	-	<0.1	<0.1	-	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-
Sodium	µg/L	$200,000_{g}^{C}$ $20,000_{g}^{D}$	$490,000^{FG}$	**$100,000^{D}$**	-	**$32,000^{D}$**	**$33,000^{D}$**	-	-	**$67,000^{D}$**	-	**$43,000^{D}$**	-	**$43,000^{D}$**	-	**$41,000^{D}$**	-	**$39,000^{D}$**	-
Strontium	µg/L	n/v	n/v	400	-	640	640	-	-	320	-	110	-	110	-	110	-	110	-
Thallium	µg/L	n/v	2^{FG}	<0.05	-	<0.05	<0.05	-	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Titanium	µg/L	n/v	n/v	<5	-	<5	<5	-	-	<5	-	<5	-	<5	-	<5	-	<5	-
Uranium	µg/L	20^{B}	20^{FG}	0.6	-	0.89	0.91	-	-	1.6	-	0.27	-	0.26	-	0.49	-	0.4	-
Vanadium	µg/L	n/v	6.2^{FG}	<0.5	-	<0.5	<0.5	-	-	2.7	-	<0.5	-	<0.5	-	0.97	-	0.84	-
Zinc	µg/L	$5,000^{C}$	890^{FG}	<5	-	<5	<5	-	-	<5	-	<5	-	<5	-	<5	-	<5	-
Zirconium	µg/L	n/v	n/v	<1	-	<1	<1	-	-	<1	-	<1	-	<1	-	<1	-	<1	-
Polychlorinated Biphenyls																			
Aroclor 1242	µg/L	n/v	$_{s14}^{FG}$	<0.05	-	<0.05	<0.05	-	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Aroclor 1248	µg/L	n/v	$_{s14}^{FG}$	<0.05	-	<0.05	<0.05	-	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Aroclor 1254	µg/L	n/v	$_{s14}^{FG}$	<0.05	-	<0.05	<0.05	-	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Aroclor 1260	µg/L	n/v	$_{s14}^{FG}$	<0.05	-	<0.05	<0.05	-	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Polychlorinated Biphenyls (PCBs)	µg/L	3^{B}	0.2_{s14}^{FG}	<0.05	-	<0.05	<0.05	-	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-

See notes on last page

Table 4
Summary of Groundwater Analytical Results - 2019 Monitoring Wells
Clarington Tranformer Station
Hydro One Networks Inc.

Sample Location				MW4-13-S						MW4-15D		MW5-14-D				MW5-14-I			
Sample Date				10-Apr-19	10-Apr-19	23-Oct-19	23-Oct-19	23-Oct-19	23-Oct-19	10-Apr-19	10-Apr-19	8-Apr-19	8-Apr-19	21-Oct-19	21-Oct-19	8-Apr-19	8-Apr-19	21-Oct-19	21-Oct-19
Sample ID				WG-160900764-20190410-RD08	WG-160900764-20190410-RD08A	WG-160900764-20191023-KR04	WG-160900764-20191023-KR05	WG-160900764-20191023-KR04A	WG-160900764-20191023-KR05A	WG-160900764-20190410-RD07	WG-160900764-20190410-RD07A	WG-160900764-20190408-RD02	WG-160900764-20190408-RD02A	WG-160900764-20191021-RD02	WG-160900764-20191021-RD02A	WG-160900764-20190408-RD03	WG-160900764-20190408-RD03A	WG-160900764-20191021-KR02	WG-160900764-20191021-KR02A
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				MAXX	MAXX	BV	BV	BV	BV	MAXX	MAXX	MAXX	MAXX	BV	BV	MAXX	MAXX	BV	BV
Laboratory Work Order				B995634	B995634	B9T9857	B9T9857	B9T9857	B9T9857	B995634	B995634	B992316	B992316	B9T6852	B9T6852	B992316	B992316	B9T6852	B9T6852
Laboratory Sample ID				JKU500	JKU501	LCZ129	LCZ131	LCZ130	LCZ132	JKU498	JKU499	JKC973	JKC974	LCJ634	LCJ635	JKC975	JKC976	LCJ638	LCJ639
Filtered				Field Filtered Metals	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC
Sample Type	Units	ODWS	Ontario SCS				Field Duplicate		Field Duplicate										
Semi-Volatile Organic Compounds																			
Phthalates																			
Bis(2-Ethylhexyl)phthalate (DEHP)	µg/L	n/v	10^{FG}	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Diethyl Phthalate	µg/L	n/v	30^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethyl Phthalate	µg/L	n/v	30^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Polycyclic Aromatic Hydrocarbons																			
Acenaphthene	µg/L	n/v	4.1^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Acenaphthylene	µg/L	n/v	1^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Anthracene	µg/L	n/v	1^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)anthracene	µg/L	n/v	1^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/L	0.01^{B}	0.01^{FG}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b/j)fluoranthene	µg/L	n/v	0.1_{s2}^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/L	n/v	0.2^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/L	n/v	0.1^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	µg/L	n/v	0.1^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenzo(a,h)anthracene	µg/L	n/v	0.2^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	n/v	0.41^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Fluorene	µg/L	n/v	120^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Indeno(1,2,3-cd)pyrene	µg/L	n/v	0.2^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methylnaphthalene (Total)	µg/L	n/v	3.2_{s3}^{FG}	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28
Methylnaphthalene, 1-	µg/L	n/v	$_{s3}^{FG}$	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methylnaphthalene, 2-	µg/L	n/v	$_{s3}^{FG}$	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	µg/L	n/v	7^{F} 11^{G}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Phenanthrene	µg/L	n/v	1^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	n/v	4.1^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Remaining Semi-Volatile Organic Compounds																			
Biphenyl, 1,1'- (Biphenyl)	µg/L	n/v	0.5^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.3	<0.3	<0.1	<0.1	<0.3	<0.3
Bis(2-Chloroethyl)ether	µg/L	n/v	5^{FG}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bis(2-Chloroisopropyl)ether	µg/L	n/v	120^{FG}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroaniline, 4-	µg/L	n/v	10^{FG}	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorophenol, 2- (ortho-Chlorophenol)	µg/L	n/v	8.9^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorobenzidine, 3,3'-	µg/L	n/v	0.5^{FG}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorophenol, 2,4-	µg/L	900^{B} 0.3_{f}^{C}	20^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethylphenol, 2,4-	µg/L	n/v	59^{FG}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dinitrophenol, 2,4-	µg/L	n/v	10^{FG}	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Dinitrotoluene, 2,4-	µg/L	n/v	5_{s13}^{FG}	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Dinitrotoluene, 2,4 & 2,6-	µg/L	n/v	5_{s13}^{FG}	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35
Dinitrotoluene, 2,6-	µg/L	n/v	5_{s13}^{FG}	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Pentachlorophenol	µg/L	60^{B} 30_{f}^{C}	30^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenol	µg/L	n/v	890^{FG}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichlorobenzene, 1,2,4-	µg/L	n/v	3^{F} 70^{G}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Trichlorophenol, 2,4,5-	µg/L	n/v	8.9^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Trichlorophenol, 2,4,6-	µg/L	5^{B} 2_{f}^{C}	2^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

See notes on last page

Table 4
Summary of Groundwater Analytical Results - 2019 Monitoring Wells
Clarington Tranformer Station
Hydro One Networks Inc.

Sample Location				MW4-13-S						MW4-15D		MW5-14-D				MW5-14-I			
Sample Date				10-Apr-19	10-Apr-19	23-Oct-19	23-Oct-19	23-Oct-19	23-Oct-19	10-Apr-19	10-Apr-19	8-Apr-19	8-Apr-19	21-Oct-19	21-Oct-19	8-Apr-19	8-Apr-19	21-Oct-19	21-Oct-19
Sample ID				WG-160900764-20190410-RD08	WG-160900764-20190410-RD08A	WG-160900764-20191023-KR04	WG-160900764-20191023-KR05	WG-160900764-20191023-KR04A	WG-160900764-20191023-KR05A	WG-160900764-20190410-RD07	WG-160900764-20190410-RD07A	WG-160900764-20190408-RD02	WG-160900764-20190408-RD02A	WG-160900764-20191021-RD02	WG-160900764-20191021-RD02A	WG-160900764-20190408-RD03	WG-160900764-20190408-RD03A	WG-160900764-20191021-KR02	WG-160900764-20191021-KR02A
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				MAXX	MAXX	BV	BV	BV	BV	MAXX	MAXX	MAXX	MAXX	BV	BV	MAXX	MAXX	BV	BV
Laboratory Work Order				B995634	B995634	B9T9857	B9T9857	B9T9857	B9T9857	B995634	B995634	B992316	B992316	B9T6852	B9T6852	B992316	B992316	B9T6852	B9T6852
Laboratory Sample ID				JKU500	JKU501	LCZ129	LCZ131	LCZ130	LCZ132	JKU498	JKU499	JKC973	JKC974	LCJ634	LCJ635	JKC975	JKC976	LCJ638	LCJ639
Filtered				Field Filtered Metals	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC
Sample Type	Units	ODWS	Ontario SCS				Field Duplicate		Field Duplicate										
Volatile Organic Compounds																			
Acetone	µg/L	n/v	$2,700^{FG}$	<10	-	<10	<10	-	-	<10	-	<10	-	<10	-	<10	-	<10	-
Bromodichloromethane	µg/L	n/v	16^{FG}	<0.50	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Bromoform (Tribromomethane)	µg/L	n/v	5^{F} 25^{G}	<1.0	-	<1.0	<1.0	-	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Bromomethane (Methyl bromide)	µg/L	n/v	0.89^{FG}	<0.50	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Carbon Tetrachloride (Tetrachloromethane)	µg/L	2^{B}	0.2^{F} 0.79^{G}	<0.20	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Chlorobenzene (Monochlorobenzene)	µg/L	80^{B} 30_{f}^{C}	30^{FG}	<0.20	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Chloroform (Trichloromethane)	µg/L	n/v	2^{F} 2.4^{G}	<0.20	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Dibromochloromethane	µg/L	n/v	25^{FG}	<0.50	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichlorobenzene, 1,2-	µg/L	200^{B} 3_{f}^{C}	3^{FG}	<0.50	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichlorobenzene, 1,3-	µg/L	n/v	59^{FG}	<0.50	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichlorobenzene, 1,4-	µg/L	5^{B} 1_{f}^{C}	0.5^{F} 1^{G}	<0.50	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichlorodifluoromethane (Freon 12)	µg/L	n/v	590^{FG}	<1.0	-	<1.0	<1.0	-	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Dichloroethane, 1,1-	µg/L	n/v	5^{FG}	<0.20	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Dichloroethane, 1,2-	µg/L	5^{B}	0.5^{F} 1.6^{G}	<0.50	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichloroethene, 1,1-	µg/L	14^{B}	0.5^{F} 1.6^{G}	<0.20	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Dichloroethene, cis-1,2-	µg/L	n/v	1.6^{FG}	<0.50	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichloroethene, trans-1,2-	µg/L	n/v	1.6^{FG}	<0.50	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichloropropane, 1,2-	µg/L	n/v	0.58^{F} 5^{G}	<0.20	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Dichloropropene, 1,3- (sum of isomers cis + trans)	µg/L	n/v	0.5_{s11}^{FG}	<0.50	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichloropropene, cis-1,3-	µg/L	n/v	$_{s11}^{FG}$	<0.30	-	<0.30	<0.30	-	-	<0.30	-	<0.30	-	<0.30	-	<0.30	-	<0.30	-
Dichloropropene, trans-1,3-	µg/L	n/v	$_{s11}^{FG}$	<0.40	-	<0.40	<0.40	-	-	<0.40	-	<0.40	-	<0.40	-	<0.40	-	<0.40	-
Ethylene Dibromide (Dibromoethane, 1,2-)	µg/L	n/v	0.2^{FG}	<0.20	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Hexane (n-Hexane)	µg/L	n/v	5^{F} 51^{G}	<1.0	-	<1.0	<1.0	-	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Methyl Ethyl Ketone (MEK) (2-Butanone)	µg/L	n/v	$1,800^{FG}$	<10	-	<10	<10	-	-	<10	-	<10	-	<10	-	<10	-	<10	-
Methyl Isobutyl Ketone (MIBK)	µg/L	n/v	640^{FG}	<5.0	-	<5.0	<5.0	-	-	<5.0	-	<5.0	-	<5.0	-	<5.0	-	<5.0	-
Methyl tert-butyl ether (MTBE)	µg/L	15^{C}	15^{FG}	<0.50	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Methylene Chloride (Dichloromethane)	µg/L	50^{B}	26^{F} 50^{G}	<2.0	-	<2.0	<2.0	-	-	<2.0	-	<2.0	-	<2.0	-	<2.0	-	<2.0	-
Styrene	µg/L	n/v	5.4^{FG}	<0.50	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Tetrachloroethane, 1,1,1,2-	µg/L	n/v	1.1^{FG}	<0.50	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Tetrachloroethane, 1,1,2,2-	µg/L	n/v	0.5^{F} 1^{G}	<0.50	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Tetrachloroethene (PCE)	µg/L	10^{B}	0.5^{F} 1.6^{G}	<0.20	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Trichloroethane, 1,1,1-	µg/L	n/v	23^{F} 200^{G}	<0.20	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Trichloroethane, 1,1,2-	µg/L	n/v	0.5^{F} 4.7^{G}	<0.50	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Trichloroethene (TCE)	µg/L	5^{B}	0.5^{F} 1.6^{G}	<0.20	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Trichlorofluoromethane (Freon 11)	µg/L	n/v	150^{FG}	<0.50	-	<0.50	<0.50	-	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Trihalomethanes	µg/L	100_{b}^{B}	n/v	<1.0	-	<1.0	<1.0	-	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Vinyl Chloride	µg/L	1^{B}	0.5^{FG}	<0.20	-	<0.20	<0.20	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-

See notes on last page

Table 4
Summary of Groundwater Analytical Results - 2019 Monitoring Wells
Clarington Tranformer Station
Hydro One Networks Inc.

Sample Location				MW5-14-S				MW5-14-S (2)				MW6-14			
Sample Date				8-Apr-19	8-Apr-19	21-Oct-19	21-Oct-19	8-Apr-19	8-Apr-19	21-Oct-19	21-Oct-19	9-Apr-19	9-Apr-19	22-Oct-19	22-Oct-19
Sample ID				WG-160900764-20190408-RD01	WG-160900764-20190408-RD01A	WG-160900764-20191021-RD01	WG-160900764-20191021-RD01A	WG-160900764-20190408-KR01	WG-160900764-20190408-KR01A	WG-160900764-20191021-KR01	WG-160900764-20191021-KR01A	WG-160900764-20190409-KR05	WG-160900764-20190409-KR05A	WG-160900764-20191022-KR03	WG-160900764-20191022-KR03A
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				MAXX	MAXX	BV	BV	MAXX	MAXX	BV	BV	MAXX	MAXX	BV	BV
Laboratory Work Order				B992316	B992316	B9T6852	B9T6852	B992316	B992316	B9T6852	B9T6852	B993774	B993774	B9T8219	B9T8219
Laboratory Sample ID				JKC971	JKC972	LCJ632	LCJ633	JKC977	JKC978	LCJ636	LCJ637	JKK729	JKK730	LCQ639	LCQ641
Filtered				Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered
Sample Type	Units	ODWS	Ontario SCS	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC
General Chemistry															
Acidity	mg/L	n/v	n/v	21	-	21	-	17	-	15	-	13	-	8.8	-
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	n/v	250	-	230	-	240	-	210	-	210	-	200	-
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	n/v	1.8	-	1.5	-	1.6	-	1.4	-	1.5	-	1.7	-
Alkalinity, Total (as CaCO3)	mg/L	30-500^{E}	n/v	250	-	230	-	240	-	210	-	220	-	210	-
Ammonia (as N)	mg/L	n/v	n/v	<0.050	-	<0.050	-	<0.050	-	<0.050	-	0.45	-	0.52	-
Anion Sum	meq/L	n/v	n/v	7.76	-	10.2	-	8.03	-	10.4	-	4.96	-	5.64	-
Cation Sum	meq/L	n/v	n/v	7.55	-	10.2	-	7.75	-	11.0	-	4.94	-	5.82	-
Chloride	mg/L	250^{C}	790^{FG}	20	-	130	-	25	-	160	-	13	-	26	-
Cyanide (Free)	µg/L	200^{B}	52^{FG}	<1	-	<1	-	<1	-	<1	-	<1	-	<1	-
Dissolved Organic Carbon (DOC)	mg/L	5^{C}	n/v	0.85	-	1.0	-	0.87	-	1.0	-	**8.5^{C}**	-	2.0	-
Electrical Conductivity, Lab	µmhos/cm	n/v	n/a^{FG}	720	-	1,000	-	750	-	1,100	-	470	-	550	-
Fluoride	mg/L	1.5^{B}	n/v	<0.10	-	<0.10	-	<0.10	-	<0.10	-	0.12	-	-	-
Hardness (as CaCO3)	mg/L	80-100^{E}	n/v	**350^{E}**	-	**470^{E}**	-	**340^{E}**	-	**480^{E}**	-	**200^{E}**	-	**250^{E}**	-
Ion Balance	%	n/v	n/v	1.37	-	0.00	-	1.81	-	2.66	-	0.140	-	1.62	-
Langelier Index (at 20 C)	none	n/v	n/v	0.901	-	0.910	-	0.833	-	0.874	-	0.569	-	0.633	-
Langelier Index (at 4 C)	none	n/v	n/v	0.652	-	0.663	-	0.585	-	0.627	-	0.319	-	0.384	-
Nitrate (as N)	mg/L	10.0$_{d}^{B}$	n/v	4.32	-	3.82	-	3.74	-	3.11	-	<0.10	-	<0.10	-
Nitrate + Nitrite (as N)	mg/L	10.0$_{d}^{B}$	n/v	4.32	-	3.82	-	3.74	-	3.11	-	<0.10	-	<0.10	-
Nitrite (as N)	mg/L	1.0$_{d}^{B}$	n/v	<0.010	-	<0.010	-	<0.010	-	<0.010	-	<0.010	-	<0.010	-
Orthophosphate(as P)	mg/L	n/v	n/v	<0.010	-	<0.010	-	<0.010	-	<0.010	-	<0.010	-	<0.010	-
pH, lab	S.U.	6.5-8.5^{E}	n/v	7.87	-	7.84	-	7.84	-	7.84	-	7.87	-	7.93	-
Saturation pH (at 20 C)	none	n/v	n/v	6.97	-	6.93	-	7.00	-	6.97	-	7.30	-	7.30	-
Saturation pH (at 4 C)	none	n/v	n/v	7.22	-	7.18	-	7.25	-	7.22	-	7.55	-	7.55	-
Sulfate	mg/L	500$_{h}^{C}$	n/v	87	-	84	-	100	-	65	-	13	-	38	-
Total Dissolved Solids	mg/L	500^{C}	n/v	435	-	**640^{C}**	-	460	-	**715^{C}**	-	220	-	340	-
Total Organic Carbon	mg/L	n/v	n/v	0.86	-	0.92	-	0.91	-	0.75	-	11	-	2.6	-
Total Suspended Solids	mg/L	n/v	n/v	17	-	<10	-	19	-	<10	-	86	-	26	-
Turbidity, Lab	NTU	5$_{i}^{C}$ $_{j}^{E}$	n/v	**12^{C}**	-	**6.4^{C}**	-	**18^{C}**	-	**6.7^{C}**	-	**67^{C}**	-	-	-
BTEX and Petroleum Hydrocarbons															
Benzene	µg/L	1^{B}	0.5^{F} 5^{G}	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Toluene	µg/L	60^{B} 24^{C}	24^{F} 22^{G}	<0.20	-	<0.20	-	<0.20	-	<0.20	-	9.0	-	9.8	-
Ethylbenzene	µg/L	140^{B} 1.6^{C}	2.4^{FG}	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Xylene, m & p-	µg/L	n/v	$_{s1}^{FG}$	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Xylene, o-	µg/L	n/v	$_{s1}^{FG}$	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Xylenes, Total	µg/L	90^{B}	72$_{s1}^{F}$ 300$_{s1}^{G}$	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
PHC F1 (C6-C10 range)	µg/L	n/v	$_{s7}^{FG}$	<25	-	<25	-	<25	-	<25	-	<25	-	<25	-
PHC F1 (C6-C10 range) minus BTEX	µg/L	n/v	420$_{s7}^{FG}$	<25	-	<25	-	<25	-	<25	-	<25	-	<25	-
PHC F2 (>C10-C16 range)	µg/L	n/v	150$_{s15}^{FG}$	<100	-	<100	-	<100	-	<100	-	<100	-	<100	-
PHC F3 (>C16-C34 range)	µg/L	n/v	500$_{s8}^{FG}$	<200	-	<200	-	<200	-	<200	-	<200	-	<200	-
PHC F4 (>C34-C50 range)	µg/L	n/v	500$_{s10}^{FG}$	<200	-	<200	-	<200	-	<200	-	<200	-	<200	-
Chromatogram to baseline at C50	none	n/v	n/v	YES	-	YES	-	YES	-	YES	-	YES	-	YES	-

See notes on last page

Table 4
Summary of Groundwater Analytical Results - 2019 Monitoring Wells
Clarington Tranformer Station
Hydro One Networks Inc.

Sample Location				MW5-14-S				MW5-14-S (2)				MW6-14			
Sample Date				8-Apr-19	8-Apr-19	21-Oct-19	21-Oct-19	8-Apr-19	8-Apr-19	21-Oct-19	21-Oct-19	9-Apr-19	9-Apr-19	22-Oct-19	22-Oct-19
Sample ID				WG-160900764-20190408-RD01	WG-160900764-20190408-RD01A	WG-160900764-20191021-RD01	WG-160900764-20191021-RD01A	WG-160900764-20190408-KR01	WG-160900764-20190408-KR01A	WG-160900764-20191021-KR01	WG-160900764-20191021-KR01A	WG-160900764-20190409-KR05	WG-160900764-20190409-KR05A	WG-160900764-20191022-KR03	WG-160900764-20191022-KR03A
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				MAXX	MAXX	BV	BV	MAXX	MAXX	BV	BV	MAXX	MAXX	BV	BV
Laboratory Work Order				B992316	B992316	B9T6852	B9T6852	B992316	B992316	B9T6852	B9T6852	B993774	B993774	B9T8219	B9T8219
Laboratory Sample ID				JKC971	JKC972	LCJ632	LCJ633	JKC977	JKC978	LCJ636	LCJ637	JKK729	JKK730	LCQ639	LCQ641
Filtered				Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered
Sample Type	Units	ODWS	Ontario SCS	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC
Metals															
Aluminum	µg/L	100^{E}	n/v	<5	-	<5	-	<5	-	<5	-	7.8	-	5.2	-
Antimony	µg/L	6^{B}	6^{FG}	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Arsenic	µg/L	10^{B}	25^{FG}	<1	-	<1	-	<1	-	<1	-	<1	-	<1	-
Barium	µg/L	1,000^{B}	1,000^{FG}	48	-	76	-	37	-	64	-	58	-	59	-
Beryllium	µg/L	n/v	4^{FG}	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Boron	µg/L	5,000^{B}	5,000^{FG}	44	-	73	-	16	-	37	-	20	-	22	-
Cadmium	µg/L	5^{B}	2.1^{FG}	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-
Calcium	µg/L	n/v	n/v	120,000	-	160,000	-	120,000	-	160,000	-	58,000	-	65,000	-
Chromium	µg/L	50^{B}	50^{FG}	<5	-	<5	-	<5	-	<5	-	<5	-	<5	-
Chromium (Hexavalent)	µg/L	n/v	25^{FG}	1.3	-	1.1	-	0.85	-	1.0	-	<0.50	-	<0.50	-
Cobalt	µg/L	n/v	3.8^{FG}	<0.5	-	<0.5	-	<0.5	-	<0.5	-	1.9	-	1.3	-
Copper	µg/L	1,000^{C}	69^{FG}	<1	-	<1	-	<1	-	1.5	-	<1	-	1.7	-
Iron	µg/L	300^{C}	n/v	<100	-	<100	-	<100	-	<100	-	**2,400^{C}**	-	**1,100^{C}**	-
Lead	µg/L	10^{B}	10^{FG}	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Magnesium	µg/L	n/v	n/v	13,000	-	15,000	-	12,000	-	18,000	-	13,000	-	22,000	-
Manganese	µg/L	50^{C}	n/v	<2	-	<2	-	<2	-	<2	-	**790^{C}**	-	**600^{C}**	-
Mercury	µg/L	1^{B}	0.1^{F} 0.29^{G}	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-
Molybdenum	µg/L	n/v	70^{FG}	<0.5	-	<0.5	-	<0.5	-	<0.5	-	6	-	7.4	-
Nickel	µg/L	n/v	100^{FG}	<1	-	<1	-	<1	-	<1	-	<1	-	<1	-
Phosphorus	µg/L	n/v	n/v	<100	-	110	-	<100	-	<100	-	<100	-	<100	-
Potassium	µg/L	n/v	n/v	1,100	-	1,600	-	720	-	1,100	-	4,600	-	4,200	-
Selenium	µg/L	50^{B}	10^{FG}	<2	-	<2	-	<2	-	<2	-	<2	-	<2	-
Silicon	µg/L	n/v	n/v	4,600	-	5,700	-	4,800	-	6,000	-	7,300	-	7,400	-
Silver	µg/L	n/v	1.2^{FG}	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-
Sodium	µg/L	200,000$_{g}^{C}$ 20,000$_{g}^{D}$	490,000^{FG}	12,000	-	20,000	-	20,000	-	**30,000^{D}**	-	17,000	-	13,000	-
Strontium	µg/L	n/v	n/v	240	-	340	-	220	-	320	-	280	-	330	-
Thallium	µg/L	n/v	2^{FG}	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Titanium	µg/L	n/v	n/v	<5	-	<5	-	<5	-	<5	-	<5	-	<5	-
Uranium	µg/L	20^{B}	20^{FG}	0.55	-	0.64	-	0.4	-	0.41	-	1.1	-	1.7	-
Vanadium	µg/L	n/v	6.2^{FG}	<0.5	-	<0.5	-	<0.5	-	<0.5	-	0.72	-	0.98	-
Zinc	µg/L	5,000^{C}	890^{FG}	26	-	<5	-	<5	-	<5	-	<5	-	<5	-
Zirconium	µg/L	n/v	n/v	<1	-	<1	-	<1	-	<1	-	<1	-	<1	-
Polychlorinated Biphenyls															
Aroclor 1242	µg/L	n/v	$_{s14}^{FG}$	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Aroclor 1248	µg/L	n/v	$_{s14}^{FG}$	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Aroclor 1254	µg/L	n/v	$_{s14}^{FG}$	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Aroclor 1260	µg/L	n/v	$_{s14}^{FG}$	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Polychlorinated Biphenyls (PCBs)	µg/L	3^{B}	0.2$_{s14}^{FG}$	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-

See notes on last page

Table 4
Summary of Groundwater Analytical Results - 2019 Monitoring Wells
Clarington Tranformer Station
Hydro One Networks Inc.

Sample Location				MW5-14-S				MW5-14-S (2)				MW6-14			
Sample Date				8-Apr-19	8-Apr-19	21-Oct-19	21-Oct-19	8-Apr-19	8-Apr-19	21-Oct-19	21-Oct-19	9-Apr-19	9-Apr-19	22-Oct-19	22-Oct-19
Sample ID				WG-160900764-20190408-RD01	WG-160900764-20190408-RD01A	WG-160900764-20191021-RD01	WG-160900764-20191021-RD01A	WG-160900764-20190408-KR01	WG-160900764-20190408-KR01A	WG-160900764-20191021-KR01	WG-160900764-20191021-KR01A	WG-160900764-20190409-KR05	WG-160900764-20190409-KR05A	WG-160900764-20191022-KR03	WG-160900764-20191022-KR03A
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				MAXX	MAXX	BV	BV	MAXX	MAXX	BV	BV	MAXX	MAXX	BV	BV
Laboratory Work Order				B992316	B992316	B9T6852	B9T6852	B992316	B992316	B9T6852	B9T6852	B993774	B993774	B9T8219	B9T8219
Laboratory Sample ID				JKC971	JKC972	LCJ632	LCJ633	JKC977	JKC978	LCJ636	LCJ637	JKK729	JKK730	LCQ639	LCQ641
Filtered				Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered
Sample Type	Units	ODWS	Ontario SCS	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC
Semi-Volatile Organic Compounds															
Phthalates															
Bis(2-Ethylhexyl)phthalate (DEHP)	µg/L	n/v	10^{FG}	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Diethyl Phthalate	µg/L	n/v	30^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethyl Phthalate	µg/L	n/v	30^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Polycyclic Aromatic Hydrocarbons															
Acenaphthene	µg/L	n/v	4.1^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Acenaphthylene	µg/L	n/v	1^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Anthracene	µg/L	n/v	1^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)anthracene	µg/L	n/v	1^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/L	0.01^{B}	0.01^{FG}	<0.01	**0.02^{BFG}**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b/j)fluoranthene	µg/L	n/v	0.1_{s2}^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/L	n/v	0.2^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/L	n/v	0.1^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	µg/L	n/v	0.1^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenzo(a,h)anthracene	µg/L	n/v	0.2^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	n/v	0.41^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Fluorene	µg/L	n/v	120^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Indeno(1,2,3-cd)pyrene	µg/L	n/v	0.2^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methylnaphthalene (Total)	µg/L	n/v	3.2_{s3}^{FG}	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28
Methylnaphthalene, 1-	µg/L	n/v	$_{s3}^{FG}$	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methylnaphthalene, 2-	µg/L	n/v	$_{s3}^{FG}$	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	µg/L	n/v	7^{F} 11^{G}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Phenanthrene	µg/L	n/v	1^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	n/v	4.1^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Remaining Semi-Volatile Organic Compounds															
Biphenyl, 1,1'- (Biphenyl)	µg/L	n/v	0.5^{FG}	<0.1	<0.1	<0.3	<0.3	<0.1	<0.1	<0.3	<0.3	<0.1	<0.1	<0.1	<0.1
Bis(2-Chloroethyl)ether	µg/L	n/v	5^{FG}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bis(2-Chloroisopropyl)ether	µg/L	n/v	120^{FG}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroaniline, 4-	µg/L	n/v	10^{FG}	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorophenol, 2- (ortho-Chlorophenol)	µg/L	n/v	8.9^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorobenzidine, 3,3'-	µg/L	n/v	0.5^{FG}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorophenol, 2,4-	µg/L	900^{B} 0.3_{f}^{C}	20^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethylphenol, 2,4-	µg/L	n/v	59^{FG}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dinitrophenol, 2,4-	µg/L	n/v	10^{FG}	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Dinitrotoluene, 2,4-	µg/L	n/v	5_{s13}^{FG}	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Dinitrotoluene, 2,4 & 2,6-	µg/L	n/v	5_{s13}^{FG}	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35
Dinitrotoluene, 2,6-	µg/L	n/v	5_{s13}^{FG}	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Pentachlorophenol	µg/L	60^{B} 30_{f}^{C}	30^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenol	µg/L	n/v	890^{FG}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichlorobenzene, 1,2,4-	µg/L	n/v	3^{F} 70^{G}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Trichlorophenol, 2,4,5-	µg/L	n/v	8.9^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Trichlorophenol, 2,4,6-	µg/L	5^{B} 2_{f}^{C}	2^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

See notes on last page

Table 4
Summary of Groundwater Analytical Results - 2019 Monitoring Wells
Clarington Tranformer Station
Hydro One Networks Inc.

Sample Location				MW5-14-S				MW5-14-S (2)				MW6-14			
Sample Date				8-Apr-19	8-Apr-19	21-Oct-19	21-Oct-19	8-Apr-19	8-Apr-19	21-Oct-19	21-Oct-19	9-Apr-19	9-Apr-19	22-Oct-19	22-Oct-19
Sample ID				WG-160900764-20190408-RD01	WG-160900764-20190408-RD01A	WG-160900764-20191021-RD01	WG-160900764-20191021-RD01A	WG-160900764-20190408-KR01	WG-160900764-20190408-KR01A	WG-160900764-20191021-KR01	WG-160900764-20191021-KR01A	WG-160900764-20190409-KR05	WG-160900764-20190409-KR05A	WG-160900764-20191022-KR03	WG-160900764-20191022-KR03A
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				MAXX	MAXX	BV	BV	MAXX	MAXX	BV	BV	MAXX	MAXX	BV	BV
Laboratory Work Order				B992316	B992316	B9T6852	B9T6852	B992316	B992316	B9T6852	B9T6852	B993774	B993774	B9T8219	B9T8219
Laboratory Sample ID				JKC971	JKC972	LCJ632	LCJ633	JKC977	JKC978	LCJ636	LCJ637	JKK729	JKK730	LCQ639	LCQ641
Filtered				Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered	Field Filtered	Lab Filtered
Sample Type	Units	ODWS	Ontario SCS	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC	Metals	SVOC
Volatile Organic Compounds															
Acetone	µg/L	n/v	$2,700^{FG}$	<10	-	<10	-	<10	-	<10	-	60	-	<10	-
Bromodichloromethane	µg/L	n/v	16^{FG}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Bromoform (Tribromomethane)	µg/L	n/v	5^{F} 25^{G}	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Bromomethane (Methyl bromide)	µg/L	n/v	0.89^{FG}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Carbon Tetrachloride (Tetrachloromethane)	µg/L	2^{B}	0.2^{F} 0.79^{G}	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Chlorobenzene (Monochlorobenzene)	µg/L	80^{B} 30_{f}^{C}	30^{FG}	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Chloroform (Trichloromethane)	µg/L	n/v	2^{F} 2.4^{G}	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Dibromochloromethane	µg/L	n/v	25^{FG}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichlorobenzene, 1,2-	µg/L	200^{B} 3_{f}^{C}	3^{FG}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichlorobenzene, 1,3-	µg/L	n/v	59^{FG}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichlorobenzene, 1,4-	µg/L	5^{B} 1_{f}^{C}	0.5^{F} 1^{G}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichlorodifluoromethane (Freon 12)	µg/L	n/v	590^{FG}	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Dichloroethane, 1,1-	µg/L	n/v	5^{FG}	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Dichloroethane, 1,2-	µg/L	5^{B}	0.5^{F} 1.6^{G}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichloroethene, 1,1-	µg/L	14^{B}	0.5^{F} 1.6^{G}	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Dichloroethene, cis-1,2-	µg/L	n/v	1.6^{FG}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichloroethene, trans-1,2-	µg/L	n/v	1.6^{FG}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichloropropane, 1,2-	µg/L	n/v	0.58^{F} 5^{G}	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Dichloropropene, 1,3- (sum of isomers cis + trans)	µg/L	n/v	0.5_{s11}^{FG}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dichloropropene, cis-1,3-	µg/L	n/v	$_{s11}^{FG}$	<0.30	-	<0.30	-	<0.30	-	<0.30	-	<0.30	-	<0.30	-
Dichloropropene, trans-1,3-	µg/L	n/v	$_{s11}^{FG}$	<0.40	-	<0.40	-	<0.40	-	<0.40	-	<0.40	-	<0.40	-
Ethylene Dibromide (Dibromoethane, 1,2-)	µg/L	n/v	0.2^{FG}	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Hexane (n-Hexane)	µg/L	n/v	5^{F} 51^{G}	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Methyl Ethyl Ketone (MEK) (2-Butanone)	µg/L	n/v	$1,800^{FG}$	<10	-	<10	-	<10	-	<10	-	<10	-	<10	-
Methyl Isobutyl Ketone (MIBK)	µg/L	n/v	640^{FG}	<5.0	-	<5.0	-	<5.0	-	<5.0	-	<5.0	-	<5.0	-
Methyl tert-butyl ether (MTBE)	µg/L	15^{C}	15^{FG}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Methylene Chloride (Dichloromethane)	µg/L	50^{B}	26^{F} 50^{G}	<2.0	-	<2.0	-	<2.0	-	<2.0	-	<2.0	-	<2.0	-
Styrene	µg/L	n/v	5.4^{FG}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Tetrachloroethane, 1,1,1,2-	µg/L	n/v	1.1^{FG}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Tetrachloroethane, 1,1,2,2-	µg/L	n/v	0.5^{F} 1^{G}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Tetrachloroethene (PCE)	µg/L	10^{B}	0.5^{F} 1.6^{G}	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Trichloroethane, 1,1,1-	µg/L	n/v	23^{F} 200^{G}	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Trichloroethane, 1,1,2-	µg/L	n/v	0.5^{F} 4.7^{G}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Trichloroethene (TCE)	µg/L	5^{B}	0.5^{F} 1.6^{G}	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-
Trichlorofluoromethane (Freon 11)	µg/L	n/v	150^{FG}	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Trihalomethanes	µg/L	100_{b}^{B}	n/v	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Vinyl Chloride	µg/L	1^{B}	0.5^{FG}	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-

See notes on last page

Table 4
Summary of Groundwater Analytical Results - 2019 Monitoring Wells
Clarington Tranformer Station
Hydro One Networks Inc.

Sample Location				MW7-14						TRIP BLANK		FIELD BLANK	
Sample Date				9-Apr-19	9-Apr-19	9-Apr-19	9-Apr-19	22-Oct-19	22-Oct-19	10-Apr-19	23-Oct-19	10-Apr-19	23-Oct-19
Sample ID				WG-160900764-20190409-RD04	WG-160900764-20190409-RD05	WG-160900764-20190409-RD04A	WG-160900764-20190409-RD05A	WG-160900764-20191022-RD03	WG-160900764-20191022-RD03A	TRIP BLANK	TRIP BLANK	FIELD BLANK	FIELD BLANK
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				MAXX	MAXX	MAXX	MAXX	BV	BV	MAXX	BV	MAXX	BV
Laboratory Work Order				B993774	B993774	B993774	B993774	B9T8219	B9T8219	B995634	B9T9857	B995634	B9T9857
Laboratory Sample ID				JKK731	JKK733	JKK732	JKK734	LCQ642	LCQ643	JKU508	LCZ143	JKU506	LCZ144
Filtered				Field Filtered Metals	Field Filtered Metals	Lab Filtered SVOC	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC				
Sample Type	Units	ODWS	Ontario SCS		Field Duplicate		Field Duplicate			Trip Blank	Trip Blank	Field Blank	Field Blank
General Chemistry													
Acidity	mg/L	n/v	n/v	5.0	5.8	-	-	5.4	-	-	-	-	-
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	n/v	180	180	-	-	180	-	-	-	-	-
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	n/v	2.1	2.0	-	-	2.3	-	-	-	-	-
Alkalinity, Total (as CaCO3)	mg/L	30-500[E]	n/v	180	180	-	-	180	-	-	-	-	-
Ammonia (as N)	mg/L	n/v	n/v	0.068	0.080	-	-	<0.050	-	-	-	-	-
Anion Sum	meq/L	n/v	n/v	5.55	5.55	-	-	5.33	-	-	-	-	-
Cation Sum	meq/L	n/v	n/v	5.58	5.63	-	-	5.19	-	-	-	-	-
Chloride	mg/L	250[C]	790[FG]	29	29	-	-	29	-	-	-	-	-
Cyanide (Free)	µg/L	200[B]	52[FG]	<1	<1	-	-	<1	-	-	-	-	-
Dissolved Organic Carbon (DOC)	mg/L	5[C]	n/v	0.75	0.74	-	-	0.74	-	-	-	-	-
Electrical Conductivity, Lab	µmhos/cm	n/v	n/a[FG]	550	550	-	-	530	-	-	-	-	-
Fluoride	mg/L	1.5[B]	n/v	0.16	0.16	-	-	-	-	-	-	-	-
Hardness (as CaCO3)	mg/L	80-100[E]	n/v	**250[E]**	**260[E]**	-	-	**240[E]**	-	-	-	-	-
Ion Balance	%	n/v	n/v	0.270	0.720	-	-	1.35	-	-	-	-	-
Langelier Index (at 20 C)	none	n/v	n/v	0.626	0.596	-	-	0.589	-	-	-	-	-
Langelier Index (at 4 C)	none	n/v	n/v	0.376	0.347	-	-	0.340	-	-	-	-	-
Nitrate (as N)	mg/L	10.0_{d}^{B}	n/v	1.38	1.44	-	-	0.13	-	-	-	-	-
Nitrate + Nitrite (as N)	mg/L	10.0_{d}^{B}	n/v	1.41	1.47	-	-	0.14	-	-	-	-	-
Nitrite (as N)	mg/L	1.0_{d}^{B}	n/v	0.025	0.027	-	-	0.012	-	-	-	-	-
Orthophosphate(as P)	mg/L	n/v	n/v	<0.010	<0.010	-	-	<0.010	-	-	-	-	-
pH, lab	S.U.	6.5-8.5[E]	n/v	8.10	8.07	-	-	8.13	-	-	-	-	-
Saturation pH (at 20 C)	none	n/v	n/v	7.48	7.47	-	-	7.55	-	-	-	-	-
Saturation pH (at 4 C)	none	n/v	n/v	7.73	7.72	-	-	7.80	-	-	-	-	-
Sulfate	mg/L	500_{h}^{C}	n/v	46	47	-	-	43	-	-	-	-	-
Total Dissolved Solids	mg/L	500[C]	n/v	270	265	-	-	305	-	-	-	-	-
Total Organic Carbon	mg/L	n/v	n/v	0.73	0.94	-	-	0.88	-	-	-	-	-
Total Suspended Solids	mg/L	n/v	n/v	<10	<10	-	-	<10	-	-	-	-	-
Turbidity, Lab	NTU	$5_{i}^{C}{}_{j}^{E}$	n/v	**5.2[C]**	3.9	-	-	-	-	-	-	-	-
BTEX and Petroleum Hydrocarbons													
Benzene	µg/L	1[B]	0.5[F] 5[G]	<0.20	<0.20	-	-	<0.20	-	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60[B] 24[C]	24[F] 22[G]	<0.20	<0.20	-	-	<0.20	-	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140[B] 1.6[C]	2.4[FG]	<0.20	<0.20	-	-	<0.20	-	<0.20	<0.20	<0.20	<0.20
Xylene, m & p-	µg/L	n/v	$_{s1}^{FG}$	<0.20	<0.20	-	-	<0.20	-	<0.20	<0.20	<0.20	<0.20
Xylene, o-	µg/L	n/v	$_{s1}^{FG}$	<0.20	<0.20	-	-	<0.20	-	<0.20	<0.20	<0.20	<0.20
Xylenes, Total	µg/L	90[B]	72_{s1}^{F} 300_{s1}^{G}	<0.20	<0.20	-	-	<0.20	-	<0.20	<0.20	<0.20	<0.20
PHC F1 (C6-C10 range)	µg/L	n/v	$_{s7}^{FG}$	<25	<25	-	-	<25	-	-	<25	-	<25
PHC F1 (C6-C10 range) minus BTEX	µg/L	n/v	420_{s7}^{FG}	<25	<25	-	-	<25	-	-	<25	-	<25
PHC F2 (>C10-C16 range)	µg/L	n/v	150_{s15}^{FG}	<100	<100	-	-	<100	-	-	-	-	-
PHC F3 (>C16-C34 range)	µg/L	n/v	500_{s8}^{FG}	<200	<200	-	-	<200	-	-	-	-	-
PHC F4 (>C34-C50 range)	µg/L	n/v	500_{s10}^{FG}	<200	<200	-	-	<200	-	-	-	-	-
Chromatogram to baseline at C50	none	n/v	n/v	YES	YES	-	-	YES	-	-	-	-	-

See notes on last page

Table 4
Summary of Groundwater Analytical Results - 2019 Monitoring Wells
Clarington Tranformer Station
Hydro One Networks Inc.

Sample Location				MW7-14						TRIP BLANK		FIELD BLANK	
Sample Date				9-Apr-19	9-Apr-19	9-Apr-19	9-Apr-19	22-Oct-19	22-Oct-19	10-Apr-19	23-Oct-19	10-Apr-19	23-Oct-19
Sample ID				WG-160900764-20190409-RD04	WG-160900764-20190409-RD05	WG-160900764-20190409-RD04A	WG-160900764-20190409-RD05A	WG-160900764-20191022-RD03	WG-160900764-20191022-RD03A	TRIP BLANK	TRIP BLANK	FIELD BLANK	FIELD BLANK
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				MAXX	MAXX	MAXX	MAXX	BV	BV	MAXX	BV	MAXX	BV
Laboratory Work Order				B993774	B993774	B993774	B993774	B9T8219	B9T8219	B995634	B9T9857	B995634	B9T9857
Laboratory Sample ID				JKK731	JKK733	JKK732	JKK734	LCQ642	LCQ643	JKU508	LCZ143	JKU506	LCZ144
Filtered				Field Filtered Metals	Field Filtered Metals	Lab Filtered SVOC	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC				
Sample Type	Units	ODWS	Ontario SCS		Field Duplicate		Field Duplicate			Trip Blank	Trip Blank	Field Blank	Field Blank
Metals													
Aluminum	µg/L	100[E]	n/v	9.3	9.7	-	-	10	-	-	-	-	-
Antimony	µg/L	6[B]	6[FG]	<0.5	<0.5	-	-	<0.5	-	-	-	-	-
Arsenic	µg/L	10[B]	25[FG]	1.3	1.2	-	-	1.5	-	-	-	-	-
Barium	µg/L	1,000[B]	1,000[FG]	110	110	-	-	110	-	-	-	-	-
Beryllium	µg/L	n/v	4[FG]	<0.5	<0.5	-	-	<0.5	-	-	-	-	-
Boron	µg/L	5,000[B]	5,000[FG]	13	14	-	-	16	-	-	-	-	-
Cadmium	µg/L	5[B]	2.1[FG]	<0.1	<0.1	-	-	<0.1	-	-	-	-	-
Calcium	µg/L	n/v	n/v	47,000	48,000	-	-	42,000	-	-	-	-	-
Chromium	µg/L	50[B]	50[FG]	<5	<5	-	-	<5	-	-	-	-	-
Chromium (Hexavalent)	µg/L	n/v	25[FG]	<0.50	<0.50	-	-	<0.50	-	-	-	-	-
Cobalt	µg/L	n/v	3.8[FG]	<0.5	<0.5	-	-	<0.5	-	-	-	-	-
Copper	µg/L	1,000[C]	69[FG]	<1	<1	-	-	<1	-	-	-	-	-
Iron	µg/L	300[C]	n/v	<100	<100	-	-	<100	-	-	-	-	-
Lead	µg/L	10[B]	10[FG]	<0.5	<0.5	-	-	<0.5	-	-	-	-	-
Magnesium	µg/L	n/v	n/v	33,000	33,000	-	-	32,000	-	-	-	-	-
Manganese	µg/L	50[C]	n/v	6.1	5.8	-	-	18	-	-	-	-	-
Mercury	µg/L	1[B]	0.1[F] 0.29[G]	<0.1	<0.1	-	-	<0.1	-	-	-	-	-
Molybdenum	µg/L	n/v	70[FG]	2.1	1.9	-	-	1.9	-	-	-	-	-
Nickel	µg/L	n/v	100[FG]	<1	<1	-	-	<1	-	-	-	-	-
Phosphorus	µg/L	n/v	n/v	<100	<100	-	-	100	-	-	-	-	-
Potassium	µg/L	n/v	n/v	2,700	2,800	-	-	2,600	-	-	-	-	-
Selenium	µg/L	50[B]	10[FG]	<2	<2	-	-	<2	-	-	-	-	-
Silicon	µg/L	n/v	n/v	10,000	10,000	-	-	11,000	-	-	-	-	-
Silver	µg/L	n/v	1.2[FG]	<0.1	<0.1	-	-	<0.1	-	-	-	-	-
Sodium	µg/L	200,000$_{g}$[C] 20,000$_{g}$[D]	490,000[FG]	9,700	9,700	-	-	8,900	-	-	-	-	-
Strontium	µg/L	n/v	n/v	420	420	-	-	450	-	-	-	-	-
Thallium	µg/L	n/v	2[FG]	<0.05	<0.05	-	-	<0.05	-	-	-	-	-
Titanium	µg/L	n/v	n/v	<5	<5	-	-	<5	-	-	-	-	-
Uranium	µg/L	20[B]	20[FG]	1	1	-	-	0.56	-	-	-	-	-
Vanadium	µg/L	n/v	6.2[FG]	<0.5	<0.5	-	-	<0.5	-	-	-	-	-
Zinc	µg/L	5,000[C]	890[FG]	6.3	<5	-	-	<5	-	-	-	-	-
Zirconium	µg/L	n/v	n/v	<1	<1	-	-	<1	-	-	-	-	-
Polychlorinated Biphenyls													
Aroclor 1242	µg/L	n/v	$_{s14}$[FG]	<0.05	<0.05	-	-	<0.05	-	-	-	-	-
Aroclor 1248	µg/L	n/v	$_{s14}$[FG]	<0.05	<0.05	-	-	<0.05	-	-	-	-	-
Aroclor 1254	µg/L	n/v	$_{s14}$[FG]	<0.05	<0.05	-	-	<0.05	-	-	-	-	-
Aroclor 1260	µg/L	n/v	$_{s14}$[FG]	<0.05	<0.05	-	-	<0.05	-	-	-	-	-
Polychlorinated Biphenyls (PCBs)	µg/L	3[B]	0.2$_{s14}$[FG]	<0.05	<0.05	-	-	<0.05	-	-	-	-	-

See notes on last page

Table 4
Summary of Groundwater Analytical Results - 2019 Monitoring Wells
Clarington Tranformer Station
Hydro One Networks Inc.

Sample Location				MW7-14						TRIP BLANK		FIELD BLANK	
Sample Date				9-Apr-19	9-Apr-19	9-Apr-19	9-Apr-19	22-Oct-19	22-Oct-19	10-Apr-19	23-Oct-19	10-Apr-19	23-Oct-19
Sample ID				WG-160900764-20190409-RD04	WG-160900764-20190409-RD05	WG-160900764-20190409-RD04A	WG-160900764-20190409-RD05A	WG-160900764-20191022-RD03	WG-160900764-20191022-RD03A	TRIP BLANK	TRIP BLANK	FIELD BLANK	FIELD BLANK
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				MAXX	MAXX	MAXX	MAXX	BV	BV	MAXX	BV	MAXX	BV
Laboratory Work Order				B993774	B993774	B993774	B993774	B9T8219	B9T8219	B995634	B9T9857	B995634	B9T9857
Laboratory Sample ID				JKK731	JKK733	JKK732	JKK734	LCQ642	LCQ643	JKU508	LCZ143	JKU506	LCZ144
Filtered				Field Filtered Metals	Field Filtered Metals	Lab Filtered SVOC	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC				
Sample Type	Units	ODWS	Ontario SCS		Field Duplicate		Field Duplicate			Trip Blank	Trip Blank	Field Blank	Field Blank
Semi-Volatile Organic Compounds													
Phthalates													
Bis(2-Ethylhexyl)phthalate (DEHP)	µg/L	n/v	10^{FG}	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Diethyl Phthalate	µg/L	n/v	30^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethyl Phthalate	µg/L	n/v	30^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	µg/L	n/v	4.1^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Acenaphthylene	µg/L	n/v	1^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Anthracene	µg/L	n/v	1^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)anthracene	µg/L	n/v	1^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/L	0.01^{B}	0.01^{FG}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b/j)fluoranthene	µg/L	n/v	0.1_{s2}^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/L	n/v	0.2^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/L	n/v	0.1^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	µg/L	n/v	0.1^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenzo(a,h)anthracene	µg/L	n/v	0.2^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	n/v	0.41^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Fluorene	µg/L	n/v	120^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Indeno(1,2,3-cd)pyrene	µg/L	n/v	0.2^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methylnaphthalene (Total)	µg/L	n/v	3.2_{s3}^{FG}	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28
Methylnaphthalene, 1-	µg/L	n/v	$_{s3}^{FG}$	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methylnaphthalene, 2-	µg/L	n/v	$_{s3}^{FG}$	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	µg/L	n/v	7^{F} 11^{G}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Phenanthrene	µg/L	n/v	1^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	n/v	4.1^{FG}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Remaining Semi-Volatile Organic Compounds													
Biphenyl, 1,1'- (Biphenyl)	µg/L	n/v	0.5^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Bis(2-Chloroethyl)ether	µg/L	n/v	5^{FG}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bis(2-Chloroisopropyl)ether	µg/L	n/v	120^{FG}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroaniline, 4-	µg/L	n/v	10^{FG}	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorophenol, 2- (ortho-Chlorophenol)	µg/L	n/v	8.9^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorobenzidine, 3,3'-	µg/L	n/v	0.5^{FG}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorophenol, 2,4-	µg/L	900^{B} 0.3_{f}^{C}	20^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethylphenol, 2,4-	µg/L	n/v	59^{FG}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dinitrophenol, 2,4-	µg/L	n/v	10^{FG}	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Dinitrotoluene, 2,4-	µg/L	n/v	5_{s13}^{FG}	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Dinitrotoluene, 2,4 & 2,6-	µg/L	n/v	5_{s13}^{FG}	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35
Dinitrotoluene, 2,6-	µg/L	n/v	5_{s13}^{FG}	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Pentachlorophenol	µg/L	60^{B} 30_{f}^{C}	30^{FG}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenol	µg/L	n/v	890^{FG}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichlorobenzene, 1,2,4-	µg/L	n/v	3^{F} 70^{G}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Trichlorophenol, 2,4,5-	µg/L	n/v	8.9^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Trichlorophenol, 2,4,6-	µg/L	5^{B} 2_{f}^{C}	2^{FG}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

See notes on last page

Table 4
Summary of Groundwater Analytical Results - 2019 Monitoring Wells
Clarington Tranformer Station
Hydro One Networks Inc.

Sample Location				MW7-14						TRIP BLANK		FIELD BLANK	
Sample Date				9-Apr-19	9-Apr-19	9-Apr-19	9-Apr-19	22-Oct-19	22-Oct-19	10-Apr-19	23-Oct-19	10-Apr-19	23-Oct-19
Sample ID				WG-160900764-20190409-RD04	WG-160900764-20190409-RD05	WG-160900764-20190409-RD04A	WG-160900764-20190409-RD05A	WG-160900764-20191022-RD03	WG-160900764-20191022-RD03A	TRIP BLANK	TRIP BLANK	FIELD BLANK	FIELD BLANK
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				MAXX	MAXX	MAXX	MAXX	BV	BV	MAXX	BV	MAXX	BV
Laboratory Work Order				B993774	B993774	B993774	B993774	B9T8219	B9T8219	B995634	B9T9857	B995634	B9T9857
Laboratory Sample ID				JKK731	JKK733	JKK732	JKK734	LCQ642	LCQ643	JKU508	LCZ143	JKU506	LCZ144
Filtered				Field Filtered Metals	Field Filtered Metals	Lab Filtered SVOC	Lab Filtered SVOC	Field Filtered Metals	Lab Filtered SVOC				
Sample Type	Units	ODWS	Ontario SCS		Field Duplicate		Field Duplicate			Trip Blank	Trip Blank	Field Blank	Field Blank
Volatile Organic Compounds													
Acetone	µg/L	n/v	2,700^{FG}	<10	<10	-	-	<10	-	<10	<10	<10	<10
Bromodichloromethane	µg/L	n/v	16^{FG}	<0.50	<0.50	-	-	<0.50	-	<0.50	<0.50	<0.50	<0.50
Bromoform (Tribromomethane)	µg/L	n/v	5^{F} 25^{G}	<1.0	<1.0	-	-	<1.0	-	<1.0	<1.0	<1.0	<1.0
Bromomethane (Methyl bromide)	µg/L	n/v	0.89^{FG}	<0.50	<0.50	-	-	<0.50	-	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride (Tetrachloromethane)	µg/L	2^{B}	0.2^{F} 0.79^{G}	<0.20	<0.20	-	-	<0.20	-	<0.20	<0.20	<0.20	<0.20
Chlorobenzene (Monochlorobenzene)	µg/L	80^{B} 30$_{f}^{C}$	30^{FG}	<0.20	<0.20	-	-	<0.20	-	<0.20	<0.20	<0.20	<0.20
Chloroform (Trichloromethane)	µg/L	n/v	2^{F} 2.4^{G}	<0.20	<0.20	-	-	<0.20	-	<0.20	<0.20	<0.20	<0.20
Dibromochloromethane	µg/L	n/v	25^{FG}	<0.50	<0.50	-	-	<0.50	-	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,2-	µg/L	200^{B} 3$_{f}^{C}$	3^{FG}	<0.50	<0.50	-	-	<0.50	-	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,3-	µg/L	n/v	59^{FG}	<0.50	<0.50	-	-	<0.50	-	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,4-	µg/L	5^{B} 1$_{f}^{C}$	0.5^{F} 1^{G}	<0.50	<0.50	-	-	<0.50	-	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane (Freon 12)	µg/L	n/v	590^{FG}	<1.0	<1.0	-	-	<1.0	-	<1.0	<1.0	<1.0	<1.0
Dichloroethane, 1,1-	µg/L	n/v	5^{FG}	<0.20	<0.20	-	-	<0.20	-	<0.20	<0.20	<0.20	<0.20
Dichloroethane, 1,2-	µg/L	5^{B}	0.5^{F} 1.6^{G}	<0.50	<0.50	-	-	<0.50	-	<0.50	<0.50	<0.50	<0.50
Dichloroethene, 1,1-	µg/L	14^{B}	0.5^{F} 1.6^{G}	<0.20	<0.20	-	-	<0.20	-	<0.20	<0.20	<0.20	<0.20
Dichloroethene, cis-1,2-	µg/L	n/v	1.6^{FG}	<0.50	<0.50	-	-	<0.50	-	<0.50	<0.50	<0.50	<0.50
Dichloroethene, trans-1,2-	µg/L	n/v	1.6^{FG}	<0.50	<0.50	-	-	<0.50	-	<0.50	<0.50	<0.50	<0.50
Dichloropropane, 1,2-	µg/L	n/v	0.58^{F} 5^{G}	<0.20	<0.20	-	-	<0.20	-	<0.20	<0.20	<0.20	<0.20
Dichloropropene, 1,3- (sum of isomers cis + trans)	µg/L	n/v	0.5$_{s11}^{FG}$	<0.50	<0.50	-	-	<0.50	-	<0.50	<0.50	<0.50	<0.50
Dichloropropene, cis-1,3-	µg/L	n/v	$_{s11}^{FG}$	<0.30	<0.30	-	-	<0.30	-	<0.30	<0.30	<0.30	<0.30
Dichloropropene, trans-1,3-	µg/L	n/v	$_{s11}^{FG}$	<0.40	<0.40	-	-	<0.40	-	<0.40	<0.40	<0.40	<0.40
Ethylene Dibromide (Dibromoethane, 1,2-)	µg/L	n/v	0.2^{FG}	<0.20	<0.20	-	-	<0.20	-	<0.20	<0.20	<0.20	<0.20
Hexane (n-Hexane)	µg/L	n/v	5^{F} 51^{G}	<1.0	<1.0	-	-	<1.0	-	<1.0	<1.0	<1.0	<1.0
Methyl Ethyl Ketone (MEK) (2-Butanone)	µg/L	n/v	1,800^{FG}	<10	<10	-	-	<10	-	<10	<10	<10	<10
Methyl Isobutyl Ketone (MIBK)	µg/L	n/v	640^{FG}	<5.0	<5.0	-	-	<5.0	-	<5.0	<5.0	<5.0	<5.0
Methyl tert-butyl ether (MTBE)	µg/L	15^{C}	15^{FG}	<0.50	<0.50	-	-	<0.50	-	<0.50	<0.50	<0.50	<0.50
Methylene Chloride (Dichloromethane)	µg/L	50^{B}	26^{F} 50^{G}	<2.0	<2.0	-	-	<2.0	-	<2.0	<2.0	<2.0	<2.0
Styrene	µg/L	n/v	5.4^{FG}	<0.50	<0.50	-	-	<0.50	-	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,1,2-	µg/L	n/v	1.1^{FG}	<0.50	<0.50	-	-	<0.50	-	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,2,2-	µg/L	n/v	0.5^{F} 1^{G}	<0.50	<0.50	-	-	<0.50	-	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene (PCE)	µg/L	10^{B}	0.5^{F} 1.6^{G}	<0.20	<0.20	-	-	<0.20	-	<0.20	<0.20	<0.20	<0.20
Trichloroethane, 1,1,1-	µg/L	n/v	23^{F} 200^{G}	<0.20	<0.20	-	-	<0.20	-	<0.20	<0.20	<0.20	<0.20
Trichloroethane, 1,1,2-	µg/L	n/v	0.5^{F} 4.7^{G}	<0.50	<0.50	-	-	<0.50	-	<0.50	<0.50	<0.50	<0.50
Trichloroethene (TCE)	µg/L	5^{B}	0.5^{F} 1.6^{G}	<0.20	<0.20	-	-	<0.20	-	<0.20	<0.20	<0.20	<0.20
Trichlorofluoromethane (Freon 11)	µg/L	n/v	150^{FG}	<0.50	<0.50	-	-	<0.50	-	<0.50	<0.50	<0.50	<0.50
Trihalomethanes	µg/L	100$_{b}^{B}$	n/v	<1.0	<1.0	-	-	<1.0	-	-	-	-	-
Vinyl Chloride	µg/L	1^{B}	0.5^{FG}	<0.20	<0.20	-	-	<0.20	-	<0.20	<0.20	<0.20	<0.20

See notes on last page

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Table 4
Summary of Groundwater Analytical Results - 2019 Monitoring Wells
Clarington Tranformer Station
Hydro One Networks Inc.

Notes:

ODWS	O.Reg 169/03 - Ontario Drinking Water Quality Standards (January 1, 2018); Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines (MOE, 2006), in support of O.Reg 169/03
A	Schedule 1 - Microbiological Standards (expressed as a maximum)
B	Schedule 2 - Chemical Standards (expressed as a maximum acceptable concentration)
C	ODWS Table 4 - Chemical/Physical Objectives and Guidelines, Aesthetic Objectives
D	ODWS Table 4 - Medical Officer of Health Reporting Limit
E	ODWS Table 4 - Chemical/Physical Objectives and Guidelines, Operational Guidelines
Ontario SCS	Soil, Ground Water and Sediment Standards for Use under Part XV.I of the Environmental Protection Act (MOE, 2011) Site Condition Standards (SCS)
F	Table 6 - All Types of Property Use - Coarse Textured Soils
G	Table 8 - All Types of Property Use
6.5^{A}	Concentration exceeds the indicated standard.
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / not available.
b	Expressed as a running annual average of quarterly results.
d	Where both nitrate and nitrite are present, the total of the two should not exceed 10 mg/L (as nitrogen).
f	Refer to ODWS Table 2 for health related standard
g^{CD}	The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.
h	When sulfate levels exceed 500 mg/L, water may have a laxative effect on some people.
i	Applicable for all waters at the point of consumption.
j	The operational guidelines for filtration processes are provided as performance criteria in the Procedure for Disinfection of Drinking Water in Ontario.
n/a^{FG}	Not applicable.
$s1^{FG}$	Standard is applicable to total xylenes, and m & p-xylenes and o-xylenes should be summed for comparison.
$s2^{FG}$	Standard is for benzo(b)fluoranthene; however, the analytical laboratory can not distinguish between benzo(b)fluoranthene and benzo(j)fluoranthene, and therefore, the result is a combination of the two isomers, against which the standard has been compared.
$s3^{FG}$	Standard is applicable to both 1-methylnaphthalene and 2-methylnaphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.
$s7^{FG}$	Standard is applicable to PHC in the F1 range minus BTEX.
$s8^{FG}$	Standard is applicable to PHC in the F3 range, minus PAHs (other than naphthalene). If PAHs were not analyzed, the standard is applied to F3.
$s10^{FG}$	If baseline is not reached during F4 analysis, then gravimetric analysis is to be performed, and the standard is applied to the higher of the two results.
$s11^{FG}$	Standard is applicable to 1,3-Dichloropropene, and the individual isomers (cis + trans) should be added for comparison.
$s13^{FG}$	The criterion is applicable to the total sum of 2,4 & 2,6-Dinitrotoluene, and the individual isomers (2,4 & 2,6) should be added for comparison.
$s14^{FG}$	Standard is applicable to total PCBs, and the individual Aroclors should be added for comparison.
$s15^{FG}$	Standard is applicable to PHC in the F2 range minus naphthalene. If naphthalene was not analyzed, the standard is applied to F2.
DB	Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.
MI	Detection limit was raised due to matrix interferences.
NC	Not calculated.

Table 5
Summary of Groundwater Analytical Results - 2019 Private Wells
Clarington Transformer Station
Hydro One Networks Inc.

Sample Location			PW-01		PW-02		PW-03		PW-04	
Aquifer			Shallow Overburden		Other/Unconfirmed		Shallow Overburden		Other/Unconfirmed	
Sample Date			9-Apr-19	22-Oct-19	10-Apr-19	22-Oct-19	10-Apr-19	22-Oct-19	8-Apr-19	22-Oct-19
Sample ID			WG-160900764-20190409-JK11	WG-160900764-20191022-JK16	WG-160900764-20190410-JK23	WG-160900764-20191022-JK18	WG-160900764-20190410-JK22	WG-160900764-20191022-JK17	WG-160900764-20190408-JK8	WG-160900764-20191022-JK13
Water Type			Raw	Raw	Raw	Raw	Raw	Raw	Raw	Raw
Sample Tap			Outside (Back House)	Outside (Back House)	Inside (Basement)	Inside (Basement)	Outside (Barn) (No Purge)	Outside (Barn) (No Purge)	Outside (Back house)	Outside (Back house)
Treatment Type			None	None	None	None	None	None	None	None
Sampling Company			STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory			MAXX	BV	MAXX	BV	MAXX	BV	MAXX	BV
Laboratory Work Order			B993757	B9T8232	B994478	B9T8232	B994478	B9T8232	B992358	B9T8232
Laboratory Sample ID			JKK541	LCQ715	JKN952	LCQ717	JKN951	LCQ716	JKD220	LCQ712
Filtered	**Units**	**ODWS**	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals
General Chemistry										
Acidity	mg/L	n/v	23	25	21	33	27	15	39	26
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	320	310	300	310	310	310	350	290
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	1.7	2.2	1.7	2.2	1.8	2.8	2.0	2.1
Alkalinity, Total (as CaCO3)	mg/L	$30\text{-}500^{E}$	320	310	300	310	320	320	350	300
Ammonia (as N)	mg/L	n/v	<0.050	<0.050	<0.050	<0.050	0.058	<0.050	<0.050	<0.050
Anion Sum	meq/L	n/v	7.15	7.21	9.10	9.33	8.98	8.42	8.68	7.77
Cation Sum	meq/L	n/v	6.90	7.44	9.09	9.88	9.30	8.98	8.53	8.54
Chloride	mg/L	250^{C}	11	13	81	79	75	44	15	15
Cyanide (Free)	µg/L	200^{B}	<1	<1	<1	<1	<1	<1	<1	<1
Dissolved Organic Carbon (DOC)	mg/L	5^{C}	0.90	1.0	0.71	0.82	1.4	1.2	1.2	1.0
Electrical Conductivity, Lab	µmhos/cm	n/v	660	660	890	880	870	790	790	740
Fluoride	mg/L	1.5^{B}	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Hardness (as CaCO3)	mg/L	$80\text{-}100^{E}$	**330^{E}**	**350^{E}**	**410^{E}**	**440^{E}**	**380^{E}**	**390^{E}**	**390^{E}**	**400^{E}**
Ion Balance	%	n/v	1.78	1.57	0.0400	2.87	1.71	3.24	0.870	4.78
Langelier Index (at 20 C)	none	n/v	0.867	1.03	0.855	1.00	0.923	1.15	0.950	0.959
Langelier Index (at 4 C)	none	n/v	0.618	0.779	0.607	0.754	0.675	0.898	0.702	0.711
Nitrate (as N)	mg/L	10.0_{d}^{B}	2.86	3.95	0.62	0.75	2.22	5.36	7.04	8.67
Nitrate + Nitrite (as N)	mg/L	10.0_{d}^{B}	2.86	3.95	0.62	0.75	2.22	5.36	7.04	8.67
Nitrite (as N)	mg/L	1.0_{d}^{B}	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Orthophosphate (as P)	mg/L	n/v	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
pH, lab	S.U.	$6.5\text{-}8.5^{E}$	7.74	7.88	7.77	7.87	7.78	7.98	7.79	7.87
Saturation pH (at 20 C)	none	n/v	6.88	6.85	6.91	6.87	6.86	6.83	6.85	6.91
Saturation pH (at 4 C)	none	n/v	7.13	7.10	7.16	7.12	7.11	7.08	7.09	7.16
Sulfate	mg/L	500_{h}^{C}	14	13	34	37	19	22	37	39
Total Dissolved Solids	mg/L	500^{C}	380	370	**515^{C}**	**525^{C}**	**525^{C}**	460	460	465
Total Organic Carbon	mg/L	n/v	1.0	1.0	0.94	0.70	1.6	1.1	1.2	1.1
Total Suspended Solids	mg/L	n/v	<10	<10	<10	<10	<10	<10	<10	<10
Turbidity, Lab	NTU	$5_{i}^{C}\,_{j}^{E}$	<0.1	<0.1	3.7	2.3	0.2	<0.1	<0.1	0.2
Metals										
Aluminum	µg/L	100^{E}	<5	<5	<5	<5	<5	8.7	<5	<5
Antimony	µg/L	6^{B}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Arsenic	µg/L	10^{B}	<1	<1	<1	<1	<1	<1	<1	<1
Barium	µg/L	$1{,}000^{B}$	41	47	66	69	54	57	120	110
Beryllium	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron	µg/L	$5{,}000^{B}$	<10	13	10	10	14	15	13	10
Cadmium	µg/L	5^{B}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Calcium	µg/L	n/v	120,000	120,000	120,000	130,000	130,000	130,000	120,000	120,000
Chromium	µg/L	50^{B}	<5	<5	<5	<5	<5	<5	<5	<5
Chromium (Hexavalent)	µg/L	n/v	0.51	0.60	<0.50	<0.50	<0.50	0.54	0.91	1.0
Cobalt	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper	µg/L	$1{,}000^{C}$	8.4	7.3	6.7	11	<1	<1	9	6.7
Iron	µg/L	300^{C}	<100	<100	**740^{C}**	**730^{C}**	<100	<100	<100	<100
Lead	µg/L	10^{B}	<0.5	<0.5	1.6	0.78	<0.5	<0.5	<0.5	1.2
Magnesium	µg/L	n/v	11,000	12,000	27,000	29,000	12,000	13,000	23,000	25,000
Manganese	µg/L	50^{C}	<2	<2	7.6	5.8	<2	<2	2.9	<2
Mercury	µg/L	1^{B}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel	µg/L	n/v	<1	<1	<1	<1	<1	<1	<1	<1
Phosphorus	µg/L	n/v	<100	120	<100	120	<100	120	<100	140
Potassium	µg/L	n/v	770	1,000	1,800	2,000	1,000	1,500	10,000	8,200
Selenium	µg/L	50^{B}	<2	<2	<2	<2	<2	<2	<2	<2
Silicon	µg/L	n/v	5,600	6,500	6,900	7,100	5,300	6,500	7,900	9,100
Silver	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Sodium	µg/L	$200{,}000_{g}^{C}\ 20{,}000_{g}^{D}$	5,600	7,300	19,000	**25,000^{D}**	**40,000^{D}**	**27,000^{D}**	11,000	6,000
Strontium	µg/L	n/v	210	220	280	280	260	260	290	290
Thallium	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Titanium	µg/L	n/v	<5	<5	<5	<5	<5	<5	<5	<5
Uranium	µg/L	20^{B}	0.53	0.56	16	12	1	1.1	1.3	1.2
Vanadium	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	µg/L	$5{,}000^{C}$	7.7	<5	<5	15	<5	<5	96	170
Zirconium	µg/L	n/v	<1	<1	<1	<1	<1	<1	<1	<1
Microbiological Analysis										
Escherichia coli (E.Coli)	cfu/100mL	0^{A}	0	0	0	0	**1^{A}**	**1^{A}**	0	0
Total Coliform Background	cfu/100mL	n/v	8	42	0	0	0	78	0	74
Total Coliforms	cfu/100mL	0^{A}	0	**18^{A}**	0	0	**2^{A}**	**9^{A}**	0	**15^{A}**
BTEX and Petroleum Hydrocarbons										
Benzene	µg/L	1^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	$60^{B}\ 24^{C}$	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	$140^{B}\ 1.6^{C}$	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Xylene, m & p-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Xylene, o-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Xylenes, Total	µg/L	90^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
PHC F1 (C6-C10 range)	µg/L	n/v	<25	<25	<25	<25	<25	<25	<25	<25
PHC F1 (C6-C10 range) minus BTEX	µg/L	n/v	<25	<25	<25	<25	<25	<25	<25	<25
PHC F2 (>C10-C16 range)	µg/L	n/v	<100	<100	<100	<100	<100	<100	<100	<100
PHC F3 (>C16-C34 range)	µg/L	n/v	<200	<200	<200	<200	<200	<200	<200	<200
PHC F4 (>C34-C50 range)	µg/L	n/v	<200	<200	<200	<200	<200	<200	<200	<200
Chromatogram to baseline at C50	none	n/v	YES	YES	YES	YES	YES	YES	YES	YES
Polychlorinated Biphenyls										
Aroclor 1242	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1248	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1254	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1260	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Polychlorinated Biphenyls (PCBs)	µg/L	3^{B}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

See notes on last page

Table 5
Summary of Groundwater Analytical Results - 2019 Private Wells
Clarington Transformer Station
Hydro One Networks Inc.

Sample Location			PW-01		PW-02		PW-03		PW-04	
Aquifer			Shallow Overburden		Other/Unconfirmed		Shallow Overburden		Other/Unconfirmed	
Sample Date			9-Apr-19	22-Oct-19	10-Apr-19	22-Oct-19	10-Apr-19	22-Oct-19	8-Apr-19	22-Oct-19
Sample ID			WG-160900764-20190409-JK11	WG-160900764-20191022-JK16	WG-160900764-20190410-JK23	WG-160900764-20191022-JK18	WG-160900764-20190410-JK22	WG-160900764-20191022-JK17	WG-160900764-20190408-JK8	WG-160900764-20191022-JK13
Water Type			Raw	Raw	Raw	Raw	Raw	Raw	Raw	Raw
Sample Tap			Outside (Back House)	Outside (Back House)	Inside (Basement)	Inside (Basement)	Outside (Barn) (No Purge)	Outside (Barn) (No Purge)	Outside (Back house)	Outside (Back house)
Treatment Type			None	None	None	None	None	None	None	None
Sampling Company			STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory			MAXX	BV	MAXX	BV	MAXX	BV	MAXX	BV
Laboratory Work Order			B993757	B9T8232	B994478	B9T8232	B994478	B9T8232	B992358	B9T8232
Laboratory Sample ID			JKK541	LCQ715	JKN952	LCQ717	JKN951	LCQ716	JKD220	LCQ712
Filtered	Units	ODWS	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals
Semi-Volatile Organic Compounds										
Acenaphthene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Acenaphthylene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Anthracene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)anthracene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/L	0.01^{B}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b/j)fluoranthene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Biphenyl	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Bis(2-Chloroethyl)ether	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bis(2-Chloroisopropyl)ether	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bis(2-Ethylhexyl)phthalate (DEHP)	µg/L	n/v	<1	<1	<1	<1	<1	<1	<1	<1
Chloroaniline, 4-	µg/L	n/v	<1	<1	<1	<1	<1	<1	<1	<1
Chlorophenol, 2- (ortho-Chlorophenol)	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenzo(a,h)anthracene	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorobenzidine, 3,3'-	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorophenol, 2,4-	µg/L	900^{B} 0.3_{f}^{C}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Diethyl Phthalate	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethyl Phthalate	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethylphenol, 2,4-	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dinitrophenol, 2,4-	µg/L	n/v	<2	<2	<2	<2	<2	<2	<6 MI	<2
Dinitrotoluene, 2,4-	µg/L	n/v	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Dinitrotoluene, 2,4 & 2,6-	µg/L	n/v	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35
Dinitrotoluene, 2,6-	µg/L	n/v	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Fluoranthene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Fluorene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Indeno(1,2,3-cd)pyrene	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methylnaphthalene (Total)	µg/L	n/v	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28
Methylnaphthalene, 1-	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methylnaphthalene, 2-	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Pentachlorophenol	µg/L	60^{B} 30_{f}^{C}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenol	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichlorobenzene, 1,2,4-	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Trichlorophenol, 2,4,5-	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Trichlorophenol, 2,4,6-	µg/L	5^{B} 2_{f}^{C}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Volatile Organic Compounds										
Acetone	µg/L	n/v	<10	<10	<10	<10	<10	<10	<10	<10
Bromodichloromethane	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	2.8	0.83
Bromoform (Tribromomethane)	µg/L	n/v	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane (Methyl bromide)	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride (Tetrachloromethane)	µg/L	2^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene (Monochlorobenzene)	µg/L	80^{B} 30_{f}^{C}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chloroform (Trichloromethane)	µg/L	n/v	<0.20	0.67	<0.20	<0.20	<0.20	<0.20	5.4	1.1
Dibromochloromethane	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	1.6	0.78
Dichlorobenzene, 1,2-	µg/L	200^{B} 3_{f}^{C}	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,3-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,4-	µg/L	5^{B} 1_{f}^{C}	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane (Freon 12)	µg/L	n/v	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dichloroethane, 1,1-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloroethane, 1,2-	µg/L	5^{B}	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethene, 1,1-	µg/L	14^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloroethene, cis-1,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethene, trans-1,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropane, 1,2-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloropropene, 1,3- (sum of isomers cis + trans)	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropene, cis-1,3-	µg/L	n/v	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Dichloropropene, trans-1,3-	µg/L	n/v	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Ethylene Dibromide (Dibromoethane, 1,2-)	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Hexane (n-Hexane)	µg/L	n/v	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl Ethyl Ketone (MEK) (2-Butanone)	µg/L	n/v	<10	<10	<10	<10	<10	<10	<10	<10
Methyl Isobutyl Ketone (MIBK)	µg/L	n/v	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl tert-butyl ether (MTBE)	µg/L	15^{C}	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride (Dichloromethane)	µg/L	50^{B}	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Styrene	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,1,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,2,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene (PCE)	µg/L	10^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichloroethane, 1,1,1-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichloroethane, 1,1,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethene (TCE)	µg/L	5^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichlorofluoromethane (Freon 11)	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trihalomethanes	µg/L	100_{b}^{B}	<1.0	0.67	<1.0	<1.0	<1.0	<1.0	9.8	2.71
Vinyl Chloride	µg/L	1^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

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Table 5
Summary of Groundwater Analytical Results - 2019 Private Wells
Clarington Transformer Station
Hydro One Networks Inc.

Sample Location			PW-05		PW-06	PW-08		PW-09	
Aquifer			Thorncliffe Formation		Thorncliffe Formation	Shallow Overburden		Shallow Overburden	
Sample Date			8-Apr-19	21-Oct-19	25-Apr-19	9-Apr-19	22-Oct-19	9-Apr-19	23-Oct-19
Sample ID			WG-160900764-20190408-JK1	WG-160900764-20191021-JK1	WG-160900764-20190425-RW1	WG-160900764-20190409-JK17	WG-160900764-20191022-JK10	WG-160900764-20190409-JK18	WG-160900764-20191023-JK21
Water Type			Raw	Raw	Raw	Treated	Treated	Raw	Raw
Sample Tap			Outside (Driveway)	Outside (Driveway)	Inside (Kitchen)	Inside (Kitchen)	Inside (Kitchen)	Outside (Back house)	Outside (Back house)
Treatment Type			None	None	None	Softener	Softener	None	None
Sampling Company			STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory			MAXX	BV	MAXX	MAXX	BV	MAXX	BV
Laboratory Work Order			B992358	B9T6722	B9A8892	B993757	B9T8232	B993757	B9T7788
Laboratory Sample ID			JKD213	LCI929	JNR398	JKK547	LCQ709	JKK548	LCO327
Filtered	Units	ODWS	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals
General Chemistry									
Acidity	mg/L	n/v	6.0	5.0	<5.0	20	11	18	22
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	180	180	150	240	270	310	330
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	2.2	2.1	2.4	1.6	2.9	2.4	2.4
Alkalinity, Total (as CaCO3)	mg/L	30-500^{E}	190	180	150	240	280	320	330
Ammonia (as N)	mg/L	n/v	0.14	0.27	2.7	0.14	0.36	0.058	<0.050
Anion Sum	meq/L	n/v	4.02	3.92	3.59	16.6	19.2	8.06	8.22
Cation Sum	meq/L	n/v	4.13	4.09	3.93	16.0	19.5	7.89	8.65
Chloride	mg/L	250^{C}	1.7	1.9	3.8	**390^{C}**	**460^{C}**	39	34
Cyanide (Free)	µg/L	200^{B}	<1	<1	<1	<1	<1	<1	<1
Dissolved Organic Carbon (DOC)	mg/L	5^{C}	0.71	0.72	0.74	0.89	0.94	1.2	1.2
Electrical Conductivity, Lab	µmhos/cm	n/v	370	350	340	1,800	2,100	760	760
Fluoride	mg/L	1.5^{B}	0.16	0.15	0.18	<0.10	<0.10	<0.10	<0.10
Hardness (as CaCO3)	mg/L	80-100^{E}	**190^{E}**	**180^{E}**	**160^{E}**	**220^{E}**	**27^{E}**	**340^{E}**	**380^{E}**
Ion Balance	%	n/v	1.31	2.19	4.58	1.74	0.670	1.05	2.54
Langelier Index (at 20 C)	none	n/v	0.677	0.655	0.573	0.392	-0.428	1.02	1.07
Langelier Index (at 4 C)	none	n/v	0.427	0.405	0.323	0.146	-0.674	0.771	0.822
Nitrate (as N)	mg/L	10.0_{d}^{B}	<0.10	<0.10	<0.10	0.26	<0.10	4.61	4.99
Nitrate + Nitrite (as N)	mg/L	10.0_{d}^{B}	<0.10	0.10	<0.10	0.26	0.10	4.61	-
Nitrite (as N)	mg/L	1.0_{d}^{B}	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Orthophosphate (as P)	mg/L	n/v	<0.010	<0.010	<0.010	<0.010	0.018	<0.010	<0.010
pH, lab	S.U.	6.5-8.5^{E}	8.10	8.10	8.23	7.83	8.05	7.91	7.89
Saturation pH (at 20 C)	none	n/v	7.42	7.44	7.66	7.44	8.48	6.89	6.82
Saturation pH (at 4 C)	none	n/v	7.67	7.69	7.91	7.69	8.72	7.14	7.07
Sulfate	mg/L	500_{h}^{C}	11	11	19	34	32	16	16
Total Dissolved Solids	mg/L	500^{C}	205	205	155	**890^{C}**	**1,120^{C}**	445	445
Total Organic Carbon	mg/L	n/v	0.70	0.73	0.79	1.0	0.94	1.4	1.2
Total Suspended Solids	mg/L	n/v	<10	<10	<10	<10	<10	<10	<10
Turbidity, Lab	NTU	$5_{i}^{C}{}_{j}^{E}$	**7.8^{C}**	**8.5^{C}**	2.3	<0.1	0.7	<0.1	<0.1
Metals									
Aluminum	µg/L	100^{E}	<5	<5	<5	<5	<5	<5	5.4
Antimony	µg/L	6^{B}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Arsenic	µg/L	10^{B}	<1	<1	<1	<1	<1	<1	<1
Barium	µg/L	1,000^{B}	180	170	130	47	8.8	56	59
Beryllium	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron	µg/L	5,000^{B}	20	20	38	24	23	14	13
Cadmium	µg/L	5^{B}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Calcium	µg/L	n/v	49,000	49,000	33,000	51,000	4,400	120,000	130,000
Chromium	µg/L	50^{B}	<5	<5	<5	<5	<5	<5	<5
Chromium (Hexavalent)	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	0.77	0.60
Cobalt	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper	µg/L	1,000^{C}	8	12	7.2	27	11	5.6	7.9
Iron	µg/L	300^{C}	**1,000^{C}**	**1,200^{C}**	**550^{C}**	<100	230	<100	<100
Lead	µg/L	10^{B}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Magnesium	µg/L	n/v	16,000	15,000	18,000	23,000	3,800	11,000	13,000
Manganese	µg/L	50^{C}	20	18	10	16	3	<2	<2
Mercury	µg/L	1^{B}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	µg/L	n/v	0.85	0.7	0.87	0.55	<0.5	<0.5	<0.5
Nickel	µg/L	n/v	<1	<1	<1	<1	<1	<1	<1
Phosphorus	µg/L	n/v	<100	<100	<100	<100	140	<100	140
Potassium	µg/L	n/v	1,100	1,000	590	1,400	740	2,700	2,500
Selenium	µg/L	50^{B}	<2	<2	<2	<2	<2	<2	<2
Silicon	µg/L	n/v	12,000	12,000	7,900	7,100	8,500	5,300	6,700
Silver	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Sodium	µg/L	$200{,}000_{g}^{C}$ $20{,}000_{g}^{D}$	6,700	7,100	12,000	**260,000^{CD}**	**430,000^{CD}**	**25,000^{D}**	**23,000^{D}**
Strontium	µg/L	n/v	260	240	380	200	19	220	240
Thallium	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Titanium	µg/L	n/v	<5	<5	<5	<5	<5	<5	<5
Uranium	µg/L	20^{B}	<0.1	<0.1	<0.1	0.27	<0.1	0.26	0.3
Vanadium	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	µg/L	5,000^{C}	53	10	10	97	19	9.5	7.7
Zirconium	µg/L	n/v	<1	<1	<1	<1	<1	<1	<1
Microbiological Analysis									
Escherichia coli (E.Coli)	cfu/100mL	0^{A}	0	0	0	0	0	0	0
Total Coliform Background	cfu/100mL	n/v	1	120	0	0	90	0	1
Total Coliforms	cfu/100mL	0^{A}	0	**3^{A}**	0	0	**1^{A}**	0	0
BTEX and Petroleum Hydrocarbons									
Benzene	µg/L	1^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60^{B} 24^{C}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140^{B} 1.6^{C}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Xylene, m & p-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Xylene, o-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Xylenes, Total	µg/L	90^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
PHC F1 (C6-C10 range)	µg/L	n/v	<25	<25	<25	<25	<25	<25	<25
PHC F1 (C6-C10 range) minus BTEX	µg/L	n/v	<25	<25	<25	<25	<25	<25	<25
PHC F2 (>C10-C16 range)	µg/L	n/v	<100	<100	<100	<100	<100	<100	<100
PHC F3 (>C16-C34 range)	µg/L	n/v	<200	<200	<200	<200	<200	<200	<200
PHC F4 (>C34-C50 range)	µg/L	n/v	<200	<200	<200	<200	<200	<200	<200
Chromatogram to baseline at C50	none	n/v	YES	YES	YES	YES	YES	YES	YES
Polychlorinated Biphenyls									
Aroclor 1242	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1248	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1254	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1260	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Polychlorinated Biphenyls (PCBs)	µg/L	3^{B}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

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Hydro One Networks Inc.

Sample Location			PW-05		PW-06	PW-08		PW-09	
Aquifer			Thorncliffe Formation		Thorncliffe Formation	Shallow Overburden		Shallow Overburden	
Sample Date			8-Apr-19	21-Oct-19	25-Apr-19	9-Apr-19	22-Oct-19	9-Apr-19	23-Oct-19
Sample ID			WG-160900764-20190408-JK1	WG-160900764-20191021-JK1	WG-160900764-20190425-RW1	WG-160900764-20190409-JK17	WG-160900764-20191022-JK10	WG-160900764-20190409-JK18	WG-160900764-20191023-JK21
Water Type			Raw	Raw	Raw	Treated	Treated	Raw	Raw
Sample Tap			Outside (Driveway)	Outside (Driveway)	Inside (Kitchen)	Inside (Kitchen)	Inside (Kitchen)	Outside (Back house)	Outside (Back house)
Treatment Type			None	None	None	Softener	Softener	None	None
Sampling Company			STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory			MAXX	BV	MAXX	MAXX	BV	MAXX	BV
Laboratory Work Order			B992358	B9T6722	B9A8892	B993757	B9T8232	B993757	B9T7788
Laboratory Sample ID			JKD213	LCI929	JNR398	JKK547	LCQ709	JKK548	LCO327
Filtered	Units	ODWS	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals
Semi-Volatile Organic Compounds									
Acenaphthene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Acenaphthylene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Anthracene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)anthracene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/L	0.01^{B}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b/j)fluoranthene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Biphenyl	µg/L	n/v	<0.1	<0.3	<0.1	<0.1	<0.1	<0.1	<0.1
Bis(2-Chloroethyl)ether	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bis(2-Chloroisopropyl)ether	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bis(2-Ethylhexyl)phthalate (DEHP)	µg/L	n/v	<1	<1	<1	<1	<1	<1	<1
Chloroaniline, 4-	µg/L	n/v	<1	<1	<1	<1	<1	<1	<1
Chlorophenol, 2- (ortho-Chlorophenol)	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenzo(a,h)anthracene	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorobenzidine, 3,3'-	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorophenol, 2,4-	µg/L	900^{B} 0.3_{f}^{C}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Diethyl Phthalate	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethyl Phthalate	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethylphenol, 2,4-	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dinitrophenol, 2,4-	µg/L	n/v	<6 MI	<2	<2	<2	<2	<2	<2
Dinitrotoluene, 2,4-	µg/L	n/v	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Dinitrotoluene, 2,4 & 2,6-	µg/L	n/v	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35
Dinitrotoluene, 2,6-	µg/L	n/v	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Fluoranthene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Fluorene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Indeno(1,2,3-cd)pyrene	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methylnaphthalene (Total)	µg/L	n/v	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28
Methylnaphthalene, 1-	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methylnaphthalene, 2-	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Pentachlorophenol	µg/L	60^{B} 30_{f}^{C}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenol	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichlorobenzene, 1,2,4-	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Trichlorophenol, 2,4,5-	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Trichlorophenol, 2,4,6-	µg/L	5^{B} 2_{f}^{C}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Volatile Organic Compounds									
Acetone	µg/L	n/v	<10	<10	<10	<10	<10	<10	<10
Bromodichloromethane	µg/L	n/v	<0.50	<0.50	<0.50	3.5	<0.50	5.5	<0.50
Bromoform (Tribromomethane)	µg/L	n/v	<1.0	<1.0	<1.0	1.9	<1.0	<1.0	<1.0
Bromomethane (Methyl bromide)	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride (Tetrachloromethane)	µg/L	2^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene (Monochlorobenzene)	µg/L	80^{B} 30_{f}^{C}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chloroform (Trichloromethane)	µg/L	n/v	<0.20	<0.20	<0.20	4.6	2.5	20	<0.20
Dibromochloromethane	µg/L	n/v	<0.50	<0.50	<0.50	4.4	<0.50	2.8	<0.50
Dichlorobenzene, 1,2-	µg/L	200^{B} 3_{f}^{C}	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,3-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,4-	µg/L	5^{B} 1_{f}^{C}	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane (Freon 12)	µg/L	n/v	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dichloroethane, 1,1-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloroethane, 1,2-	µg/L	5^{B}	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethene, 1,1-	µg/L	14^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloroethene, cis-1,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethene, trans-1,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropane, 1,2-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloropropene, 1,3- (sum of isomers cis + trans)	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropene, cis-1,3-	µg/L	n/v	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Dichloropropene, trans-1,3-	µg/L	n/v	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Ethylene Dibromide (Dibromoethane, 1,2-)	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Hexane (n-Hexane)	µg/L	n/v	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl Ethyl Ketone (MEK) (2-Butanone)	µg/L	n/v	<10	<10	<10	<10	<10	<10	<10
Methyl Isobutyl Ketone (MIBK)	µg/L	n/v	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl tert-butyl ether (MTBE)	µg/L	15^{C}	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride (Dichloromethane)	µg/L	50^{B}	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Styrene	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,1,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,2,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene (PCE)	µg/L	10^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichloroethane, 1,1,1-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichloroethane, 1,1,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethene (TCE)	µg/L	5^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichlorofluoromethane (Freon 11)	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trihalomethanes	µg/L	100_{b}^{B}	<1.0	<1.0	<1.0	14.4	2.5	28.3	<1.0
Vinyl Chloride	µg/L	1^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

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Table 5
Summary of Groundwater Analytical Results - 2019 Private Wells
Clarington Transformer Station
Hydro One Networks Inc.

Sample Location			PW-10		PW-11		PW-12		PW-13	
Aquifer			Thorncliffe Formation		Shallow Overburden		Shallow Overburden		Thorncliffe Formation	
Sample Date			8-Apr-19	21-Oct-19	9-Apr-19	21-Oct-19	9-Apr-19	22-Oct-19	9-Apr-19	22-Oct-19
Sample ID			WG-160900764-20190408-JK4	WG-160900764-20191021-JK5	WG-160900764-20190409-JK14	WG-160900764-20191021-JK7	WG-160900764-20190409-JK15	WG-160900764-20191022-JK11	WG-160900764-20190409-JK16	WG-160900764-20191022-JK12
Water Type			Raw	Raw	Raw	Raw	Treated	Raw	Treated	Treated
Sample Tap			Inside (Basement)	Inside (Kitchen)	Outside (Back Deck)	Outside (Back Deck)	Outside (Right house)	Outside (Right house)	Outside (Back house)	Outside (Back house)
Treatment Type			None	None	None	None	Softener	Softener	Softener	Softener
Sampling Company			STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory			MAXX	BV	MAXX	BV	MAXX	BV	MAXX	BV
Laboratory Work Order			B992358	B9T6722	B993757	B9T6722	B993757	B9T8232	B993757	B9T8232
Laboratory Sample ID			JKD216	LCI933	JKK544	LCI935	JKK545	LCQ710	JKK546	LCQ711
Filtered	Units	ODWS	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals
General Chemistry										
Acidity	mg/L	n/v	7.2	6.6	11	28	13	19	<5.0	<5.0
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	210	210	240	330	300	310	120	120
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	2.4	2.1	1.5	1.8	2.4	2.2	2.0	2.1
Alkalinity, Total (as CaCO3)	mg/L	30-500[E]	210	210	240	330	300	310	130	120
Ammonia (as N)	mg/L	n/v	<0.050	<0.050	0.082	<0.050	0.11	<0.050	0.17	0.10
Anion Sum	meq/L	n/v	5.65	5.65	5.90	10.1	7.20	8.84	3.28	3.18
Cation Sum	meq/L	n/v	5.71	5.97	5.83	10.6	6.94	8.87	3.16	3.27
Chloride	mg/L	250[C]	13	13	24	100	22	59	1.8	2.6
Cyanide (Free)	µg/L	200[B]	<1	<1	<1	<1	<1	<1	<1	<1
Dissolved Organic Carbon (DOC)	mg/L	5[C]	0.61	0.57	1.1	0.91	1.5	1.1	0.60	0.61
Electrical Conductivity, Lab	µmhos/cm	n/v	530	540	560	980	670	830	300	300
Fluoride	mg/L	1.5[B]	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.36	0.34
Hardness (as CaCO3)	mg/L	80-100[E]	**270[E]**	**280[E]**	**270[E]**	**450[E]**	**70[E]**	**390[E]**	90	93
Ion Balance	%	n/v	0.480	2.76	0.590	2.23	1.85	0.140	1.86	1.43
Langelier Index (at 20 C)	none	n/v	0.869	0.841	0.779	0.978	0.254	0.985	0.206	0.225
Langelier Index (at 4 C)	none	n/v	0.620	0.592	0.530	0.730	0.00600	0.737	-0.0450	-0.0250
Nitrate (as N)	mg/L	10.0$_{d}$[B]	<0.10	<0.10	3.51	2.79	0.85	1.58	<0.10	<0.10
Nitrate + Nitrite (as N)	mg/L	10.0$_{d}$[B]	<0.10	0.10	3.51	2.79	0.85	1.58	<0.10	0.10
Nitrite (as N)	mg/L	1.0$_{d}$[B]	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Orthophosphate (as P)	mg/L	n/v	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
pH, lab	S.U.	6.5-8.5[E]	8.09	8.03	7.82	7.76	7.92	7.87	8.24	8.28
Saturation pH (at 20 C)	none	n/v	7.22	7.19	7.04	6.79	7.67	6.89	8.03	8.05
Saturation pH (at 4 C)	none	n/v	7.47	7.44	7.29	7.03	7.92	7.14	8.28	8.30
Sulfate	mg/L	500$_{h}$[C]	51	53	5.5	23	22	40	33	33
Total Dissolved Solids	mg/L	500[C]	300	305	315	**580[C]**	390	475	175	190
Total Organic Carbon	mg/L	n/v	0.66	0.58	1.3	1.7	1.7	1.1	0.69	0.67
Total Suspended Solids	mg/L	n/v	<10	<10	<10	<10	<10	<10	<10	<10
Turbidity, Lab	NTU	5$_{i}$[C] [E]	**16[C]**	**16[C]**	<0.1	<0.1	0.1	**8.5[C]**	0.8	1.2
Metals										
Aluminum	µg/L	100[E]	<5	<5	<5	<5	<5	40	20	8.4
Antimony	µg/L	6[B]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Arsenic	µg/L	10[B]	<1	<1	<1	<1	<1	<1	2.8	2.9
Barium	µg/L	1,000[B]	83	83	25	70	5.9	61	33	33
Beryllium	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron	µg/L	5,000[B]	<10	<10	<10	15	<10	16	67	79
Cadmium	µg/L	5[B]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Calcium	µg/L	n/v	75,000	81,000	99,000	150,000	20,000	120,000	18,000	18,000
Chromium	µg/L	50[B]	<5	<5	<5	<5	<5	<5	<5	<5
Chromium (Hexavalent)	µg/L	n/v	<0.50	<0.50	<0.50	0.79	<0.50	<0.50	<0.50	<0.50
Cobalt	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper	µg/L	1,000[C]	<1	<1	4.4	12	27	23	2.6	<1
Iron	µg/L	300[C]	**2,000[C]**	**1,400[C]**	<100	<100	<100	<100	110	<100
Lead	µg/L	10[B]	<0.5	<0.5	<0.5	<0.5	0.73	1.3	<0.5	<0.5
Magnesium	µg/L	n/v	20,000	20,000	5,400	18,000	5,000	21,000	11,000	12,000
Manganese	µg/L	50[C]	40	21	<2	<2	<2	7.6	8.5	7.2
Mercury	µg/L	1[B]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	µg/L	n/v	0.98	1	<0.5	<0.5	<0.5	<0.5	5	5.2
Nickel	µg/L	n/v	<1	<1	<1	<1	<1	<1	<1	<1
Phosphorus	µg/L	n/v	<100	<100	<100	<100	<100	<100	<100	110
Potassium	µg/L	n/v	1,100	1,100	530	910	1,900	1,600	720	820
Selenium	µg/L	50[B]	<2	<2	<2	<2	<2	<2	<2	<2
Silicon	µg/L	n/v	4,800	5,200	3,500	7,400	4,500	6,700	6,500	6,800
Silver	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Sodium	µg/L	200,000$_{g}$[C] 20,000$_{g}$[D]	5,000	5,000	9,500	**36,000[D]**	**130,000[D]**	**25,000[D]**	**31,000[D]**	**32,000[D]**
Strontium	µg/L	n/v	230	230	170	290	32	250	360	360
Thallium	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Titanium	µg/L	n/v	<5	<5	<5	<5	<5	<5	<5	<5
Uranium	µg/L	20[B]	<0.1	<0.1	0.17	0.47	1.8	5.3	0.44	0.47
Vanadium	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	µg/L	5,000[C]	<5	<5	6.6	14	<5	<5	9	<5
Zirconium	µg/L	n/v	<1	<1	<1	<1	<1	<1	<1	<1
Microbiological Analysis										
Escherichia coli (E.Coli)	cfu/100mL	0[A]	0	0	0	**10[A]**	0	0	0	0
Total Coliform Background	cfu/100mL	n/v	0	41	28	1,400	78	540	7	0
Total Coliforms	cfu/100mL	0[A]	0	0	**1[A]**	**85[A]**	**52[A]**	**130[A]**	0	0
BTEX and Petroleum Hydrocarbons										
Benzene	µg/L	1[B]	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60[B] 24[C]	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140[B] 1.6[C]	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Xylene, m & p-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Xylene, o-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Xylenes, Total	µg/L	90[B]	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
PHC F1 (C6-C10 range)	µg/L	n/v	<25	<25	<25	<25	<25	<25	<25	<25
PHC F1 (C6-C10 range) minus BTEX	µg/L	n/v	<25	<25	<25	<25	<25	<25	<25	<25
PHC F2 (>C10-C16 range)	µg/L	n/v	<100	<100	<100	<100	<100	<100	<100	<100
PHC F3 (>C16-C34 range)	µg/L	n/v	<200	<200	<200	<200	<200	<200	<200	<200
PHC F4 (>C34-C50 range)	µg/L	n/v	<200	<200	<200	<200	<200	<200	<200	<200
Chromatogram to baseline at C50	none	n/v	YES	YES	YES	YES	YES	YES	YES	YES
Polychlorinated Biphenyls										
Aroclor 1242	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1248	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1254	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1260	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Polychlorinated Biphenyls (PCBs)	µg/L	3[B]	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

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Table 5
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Clarington Transformer Station
Hydro One Networks Inc.

Sample Location			PW-10		PW-11		PW-12		PW-13	
Aquifer			Thorncliffe Formation		Shallow Overburden		Shallow Overburden		Thorncliffe Formation	
Sample Date			8-Apr-19	21-Oct-19	9-Apr-19	21-Oct-19	9-Apr-19	22-Oct-19	9-Apr-19	22-Oct-19
Sample ID			WG-160900764-20190408-JK4	WG-160900764-20191021-JK5	WG-160900764-20190409-JK14	WG-160900764-20191021-JK7	WG-160900764-20190409-JK15	WG-160900764-20191022-JK11	WG-160900764-20190409-JK16	WG-160900764-20191022-JK12
Water Type			Raw	Raw	Raw	Raw	Treated	Raw	Treated	Treated
Sample Tap			Inside (Basement)	Inside (Kitchen)	Outside (Back Deck)	Outside (Back Deck)	Outside (Right house)	Outside (Right house)	Outside (Back house)	Outside (Back house)
Treatment Type			None	None	None	None	Softener	Softener	Softener	Softener
Sampling Company			STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory			MAXX	BV	MAXX	BV	MAXX	BV	MAXX	BV
Laboratory Work Order			B992358	B9T6722	B993757	B9T6722	B993757	B9T8232	B993757	B9T8232
Laboratory Sample ID			JKD216	LCI933	JKK544	LCI935	JKK545	LCQ710	JKK546	LCQ711
Filtered	Units	ODWS	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals
Semi-Volatile Organic Compounds										
Acenaphthene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2
Acenaphthylene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2
Anthracene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05
Benzo(a)anthracene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/L	0.01^{B}	<0.01	<0.01	<0.01	<0.01	***<0.02***	<0.01	<0.01	<0.01
Benzo(b/j)fluoranthene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05
Biphenyl	µg/L	n/v	<0.1	<0.3	<0.1	<0.3	<0.2	<0.1	<0.1	<0.1
Bis(2-Chloroethyl)ether	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5
Bis(2-Chloroisopropyl)ether	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5
Bis(2-Ethylhexyl)phthalate (DEHP)	µg/L	n/v	<1	<1	<1	<1	<2	<1	<1	<1
Chloroaniline, 4-	µg/L	n/v	<1	<1	<1	<1	<2	<1	<1	<1
Chlorophenol, 2- (ortho-Chlorophenol)	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1
Chrysene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05
Dibenzo(a,h)anthracene	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1
Dichlorobenzidine, 3,3'-	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5
Dichlorophenol, 2,4-	µg/L	900^{B} 0.3_{f}^{C}	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1
Diethyl Phthalate	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1
Dimethyl Phthalate	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1
Dimethylphenol, 2,4-	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5
Dinitrophenol, 2,4-	µg/L	n/v	<6 MI	<2	<2	<2	<4	<2	<2	<2
Dinitrotoluene, 2,4-	µg/L	n/v	<0.3	<0.3	<0.3	<0.3	<0.5	<0.3	<0.3	<0.3
Dinitrotoluene, 2,4 & 2,6-	µg/L	n/v	<0.35	<0.35	<0.35	<0.35	<0.71	<0.35	<0.35	<0.35
Dinitrotoluene, 2,6-	µg/L	n/v	<0.3	<0.3	<0.3	<0.3	<0.5	<0.3	<0.3	<0.3
Fluoranthene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2
Fluorene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2
Indeno(1,2,3-cd)pyrene	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1
Methylnaphthalene (Total)	µg/L	n/v	<0.28	<0.28	<0.28	<0.28	<0.57	<0.28	<0.28	<0.28
Methylnaphthalene, 1-	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2
Methylnaphthalene, 2-	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2
Naphthalene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2
Pentachlorophenol	µg/L	60^{B} 30_{f}^{C}	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1
Phenanthrene	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1
Phenol	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5
Pyrene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05
Trichlorobenzene, 1,2,4-	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1
Trichlorophenol, 2,4,5-	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2
Trichlorophenol, 2,4,6-	µg/L	5^{B} 2_{f}^{C}	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2
Volatile Organic Compounds										
Acetone	µg/L	n/v	<10	<10	<10	<10	<10	<10	<10	<10
Bromodichloromethane	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform (Tribromomethane)	µg/L	n/v	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane (Methyl bromide)	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride (Tetrachloromethane)	µg/L	2^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene (Monochlorobenzene)	µg/L	80^{B} 30_{f}^{C}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chloroform (Trichloromethane)	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	1.5	<0.20	<0.20
Dibromochloromethane	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	0.59	<0.50	<0.50
Dichlorobenzene, 1,2-	µg/L	200^{B} 3_{f}^{C}	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,3-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,4-	µg/L	5^{B} 1_{f}^{C}	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane (Freon 12)	µg/L	n/v	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dichloroethane, 1,1-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloroethane, 1,2-	µg/L	5^{B}	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethene, 1,1-	µg/L	14^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloroethene, cis-1,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethene, trans-1,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropane, 1,2-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloropropene, 1,3- (sum of isomers cis + trans)	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropene, cis-1,3-	µg/L	n/v	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Dichloropropene, trans-1,3-	µg/L	n/v	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Ethylene Dibromide (Dibromoethane, 1,2-)	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Hexane (n-Hexane)	µg/L	n/v	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl Ethyl Ketone (MEK) (2-Butanone)	µg/L	n/v	<10	<10	<10	<10	<10	<10	<10	<10
Methyl Isobutyl Ketone (MIBK)	µg/L	n/v	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl tert-butyl ether (MTBE)	µg/L	15^{C}	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride (Dichloromethane)	µg/L	50^{B}	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Styrene	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,1,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,2,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene (PCE)	µg/L	10^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichloroethane, 1,1,1-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichloroethane, 1,1,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethene (TCE)	µg/L	5^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichlorofluoromethane (Freon 11)	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trihalomethanes	µg/L	100_{b}^{B}	<1.0	<1.0	<1.0	<1.0	<1.0	2.09	<1.0	<1.0
Vinyl Chloride	µg/L	1^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

See notes on last page

Table 5
Summary of Groundwater Analytical Results - 2019 Private Wells
Clarington Transformer Station
Hydro One Networks Inc.

Sample Location			**PW-14**		**PW-15**		**PW-16**		**PW-17**	
Aquifer			**Shallow Overburden**		**Thorncliffe Formation**		**Shallow Overburden**		**Thorncliffe Formation**	
Sample Date			**8-Apr-19**	**21-Oct-19**	**10-Apr-19**	**22-Oct-19**	**9-Apr-19**	**21-Oct-19**	**25-Apr-19**	**23-Oct-19**
Sample ID			**WG-160900764-20190408-JK5**	**WG-160900764-20191021-JK2**	**WG-160900764-20190410-JK19**	**WG-160900764-20191022-JK19**	**WG-160900764-20190409-JK13**	**WG-160900764-20191021-JK6**	**WG-160900764-20190425-RW2**	**WG-160900764-20191023-JK20**
Water Type			**Raw**	**Raw**	**Treated**	**Treated**	**Raw**	**Raw**	**Raw**	**Raw**
Sample Tap			**Inside (Kitchen)**	**Inside (Kitchen)**	**Outside (Back house)**	**Outside (Back house)**	**Outside (Back house)**	**Outside (Back house)**	**Outside (Back house)**	**Outside (Back house)**
Treatment Type			**None**	**None**	**Softener / UV**	**Softener / UV**	**None**	**None**	**None**	**None**
Sampling Company			**STANTEC**	**STANTEC**	**STANTEC**	**STANTEC**	**STANTEC**	**STANTEC**	**STANTEC**	**STANTEC**
Laboratory			**MAXX**	**BV**	**MAXX**	**BV**	**MAXX**	**BV**	**MAXX**	**BV**
Laboratory Work Order			**B992358**	**B9T6722**	**B994478**	**B9T8232**	**B993757**	**B9T6722**	**B9A8892**	**B9T7788**
Laboratory Sample ID			**JKD217**	**LCI930**	**JKN948**	**LCQ718**	**JKK543**	**LCI934**	**JNR399**	**LCO326**
Filtered	**Units**	**ODWS**	**Total Metals**	**Total Metals**	**Total Metals**	**Total Metals**	**Total Metals**	**Total Metals**	**Total Metals**	**Total Metals**
General Chemistry										
Acidity	mg/L	n/v	34	23	15	8.6	20	12	7.6	<5.0
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	330	310	330	220	280	260	220	210
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	2.0	2.0	3.4	2.8	1.6	1.6	2.5	2.2
Alkalinity, Total (as CaCO3)	mg/L	$30\text{-}500^{E}$	330	310	330	220	280	260	220	210
Ammonia (as N)	mg/L	n/v	<0.050	<0.050	<0.050	<0.050	0.15	<0.050	4.1	0.062
Anion Sum	meq/L	n/v	11.1	9.94	7.21	6.17	6.91	6.56	5.96	5.89
Cation Sum	meq/L	n/v	10.9	10.3	6.69	5.96	6.85	6.91	6.44	6.29
Chloride	mg/L	250^{C}	130	90	5.2	16	14	14	15	15
Cyanide (Free)	µg/L	200^{B}	<1	<1	<1	<1	<1	<1	<1	<1
Dissolved Organic Carbon (DOC)	mg/L	5^{C}	1.3	1.0	1.1	0.65	1.1	0.95	0.76	0.74
Electrical Conductivity, Lab	µmhos/cm	n/v	1,100	950	680	590	640	620	560	570
Fluoride	mg/L	1.5^{B}	<0.10	<0.10	<0.10	<0.10	<0.10	0.11	<0.10	<0.10
Hardness (as CaCO3)	mg/L	$80\text{-}100^{E}$	**420^{E}**	**420^{E}**	***<1.0***	***<1.0***	**330^{E}**	**330^{E}**	**290^{E}**	**300^{E}**
Ion Balance	%	n/v	0.790	1.77	3.70	1.72	0.430	2.59	3.83	3.29
Langelier Index (at 20 C)	none	n/v	0.978	0.991	NC	NC	0.857	0.857	0.920	0.857
Langelier Index (at 4 C)	none	n/v	0.730	0.743	NC	NC	0.608	0.608	0.671	0.608
Nitrate (as N)	mg/L	10.0_{d}^{B}	4.21	5.52	1.80	8.54	6.82	7.21	<0.10	<0.10
Nitrate + Nitrite (as N)	mg/L	10.0_{d}^{B}	4.242	5.52	1.8	8.54	6.846	7.21	<0.10	-
Nitrite (as N)	mg/L	1.0_{d}^{B}	0.032	<0.010	<0.010	<0.010	0.026	<0.010	<0.010	<0.010
Orthophosphate (as P)	mg/L	n/v	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
pH, lab	S.U.	$6.5\text{-}8.5^{E}$	7.81	7.83	8.04	8.13	7.79	7.81	8.09	8.04
Saturation pH (at 20 C)	none	n/v	6.83	6.84	NC	NC	6.94	6.96	7.17	7.19
Saturation pH (at 4 C)	none	n/v	7.08	7.08	NC	NC	7.19	7.21	7.42	7.43
Sulfate	mg/L	500_{h}^{C}	32	36	14	33	19	17	56	56
Total Dissolved Solids	mg/L	500^{C}	**645^{C}**	**525^{C}**	415	390	360	345	290	330
Total Organic Carbon	mg/L	n/v	1.3	0.94	1.3	0.69	1.3	0.99	0.88	0.71
Total Suspended Solids	mg/L	n/v	<10	<10	<10	<10	<10	13	<10	<10
Turbidity, Lab	NTU	$5_{i}^{C}\,_{j}^{E}$	<0.1	<0.1	<0.1	<0.1	<0.1	**7.7^{C}**	**20^{C}**	**22^{C}**
Metals										
Aluminum	µg/L	100^{E}	<5	<5	<5	<5	<5	39	<5	<5
Antimony	µg/L	6^{B}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Arsenic	µg/L	10^{B}	<1	<1	<1	<1	<1	<1	<1	<1
Barium	µg/L	$1{,}000^{B}$	67	63	<2	<2	43	43	45	46
Beryllium	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron	µg/L	$5{,}000^{B}$	17	20	<10	<10	<10	<10	10	<10
Cadmium	µg/L	5^{B}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Calcium	µg/L	n/v	140,000	140,000	<200	<200	110,000	110,000	81,000	82,000
Chromium	µg/L	50^{B}	<5	<5	<5	<5	<5	<5	<5	<5
Chromium (Hexavalent)	µg/L	n/v	<0.50	0.51	<0.50	0.50	0.76	0.79	<0.50	<0.50
Cobalt	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper	µg/L	$1{,}000^{C}$	25	44	19	9.2	4.3	4.8	2.8	3.3
Iron	µg/L	300^{C}	<100	<100	<100	<100	<100	<100	**$1{,}900^{C}$**	**$1{,}700^{C}$**
Lead	µg/L	10^{B}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Magnesium	µg/L	n/v	17,000	18,000	<50	<50	12,000	12,000	22,000	23,000
Manganese	µg/L	50^{C}	<2	<2	<2	<2	4.1	5.9	28	26
Mercury	µg/L	1^{B}	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
Molybdenum	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3.2	3.5
Nickel	µg/L	n/v	<1	<1	<1	<1	<1	<1	<1	<1
Phosphorus	µg/L	n/v	<100	<100	<100	100	<100	<100	<100	110
Potassium	µg/L	n/v	960	1,200	<200	<200	860	900	1,200	1,200
Selenium	µg/L	50^{B}	<2	<2	<2	<2	<2	<2	<2	<2
Silicon	µg/L	n/v	5,900	6,400	5,500	6,700	5,700	6,500	6,000	5,800
Silver	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Sodium	µg/L	$200{,}000_{g}^{C}$ $20{,}000_{g}^{D}$	**$56{,}000^{D}$**	**$43{,}000^{D}$**	**$150{,}000^{D}$**	**$140{,}000^{D}$**	5,100	6,000	4,200	4,900
Strontium	µg/L	n/v	290	260	<1	<1	200	190	290	280
Thallium	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Titanium	µg/L	n/v	<5	<5	<5	<5	<5	<5	<5	<5
Uranium	µg/L	20^{B}	1.3	1.6	0.54	0.8	0.52	0.57	0.69	0.78
Vanadium	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	µg/L	$5{,}000^{C}$	35	40	<5	<5	38	20	11	<5
Zirconium	µg/L	n/v	<1	<1	<1	<1	<1	<1	<1	<1
Microbiological Analysis										
Escherichia coli (E.Coli)	cfu/100mL	0^{A}	0	0	0	0	0	0	0	0
Total Coliform Background	cfu/100mL	n/v	7	130	0	5	24	190	0	0
Total Coliforms	cfu/100mL	0^{A}	0	**64^{A}**	0	**1^{A}**	**4^{A}**	**160^{A}**	0	0
BTEX and Petroleum Hydrocarbons										
Benzene	µg/L	1^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60^{B} 24^{C}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140^{B} 1.6^{C}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Xylene, m & p-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Xylene, o-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Xylenes, Total	µg/L	90^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
PHC F1 (C6-C10 range)	µg/L	n/v	<25	<25	<25	<25	<25	<25	<25	<25
PHC F1 (C6-C10 range) minus BTEX	µg/L	n/v	<25	<25	<25	<25	<25	<25	<25	<25
PHC F2 (>C10-C16 range)	µg/L	n/v	<100	<100	<100	<100	<100	<100	<100	<100
PHC F3 (>C16-C34 range)	µg/L	n/v	<200	<200	<200	<200	<200	<200	<200	<200
PHC F4 (>C34-C50 range)	µg/L	n/v	<200	<200	<200	<200	<200	<200	<200	<200
Chromatogram to baseline at C50	none	n/v	YES	YES	YES	YES	YES	YES	YES	YES
Polychlorinated Biphenyls										
Aroclor 1242	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1248	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1254	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1260	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Polychlorinated Biphenyls (PCBs)	µg/L	3^{B}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

See notes on last page

Table 5
Summary of Groundwater Analytical Results - 2019 Private Wells
Clarington Transformer Station
Hydro One Networks Inc.

Sample Location			PW-14		PW-15		PW-16		PW-17	
Aquifer			Shallow Overburden		Thorncliffe Formation		Shallow Overburden		Thorncliffe Formation	
Sample Date			8-Apr-19	21-Oct-19	10-Apr-19	22-Oct-19	9-Apr-19	21-Oct-19	25-Apr-19	23-Oct-19
Sample ID			WG-160900764-20190408-JK5	WG-160900764-20191021-JK2	WG-160900764-20190410-JK19	WG-160900764-20191022-JK19	WG-160900764-20190409-JK13	WG-160900764-20191021-JK6	WG-160900764-20190425-RW2	WG-160900764-20191023-JK20
Water Type			Raw	Raw	Treated	Treated	Raw	Raw	Raw	Raw
Sample Tap			Inside (Kitchen)	Inside (Kitchen)	Outside (Back house)	Outside (Back house)	Outside (Back house)	Outside (Back house)	Outside (Back house)	Outside (Back house)
Treatment Type			None	None	Softener / UV	Softener / UV	None	None	None	None
Sampling Company			STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory			MAXX	BV	MAXX	BV	MAXX	BV	MAXX	BV
Laboratory Work Order			B992358	B9T6722	B994478	B9T8232	B993757	B9T6722	B9A8892	B9T7788
Laboratory Sample ID			JKD217	LCI930	JKN948	LCQ718	JKK543	LCI934	JNR399	LCO326
Filtered	Units	ODWS	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals
Semi-Volatile Organic Compounds										
Acenaphthene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Acenaphthylene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Anthracene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)anthracene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/L	0.01[B]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b/j)fluoranthene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Biphenyl	µg/L	n/v	<0.1	0.4	<0.1	<0.1	<0.1	<0.3	<0.1	<0.1
Bis(2-Chloroethyl)ether	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bis(2-Chloroisopropyl)ether	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bis(2-Ethylhexyl)phthalate (DEHP)	µg/L	n/v	<1	<1	<1	<1	<1	<1	2	<1
Chloroaniline, 4-	µg/L	n/v	<1	<1	<1	<1	<1	<1	<1	<1
Chlorophenol, 2- (ortho-Chlorophenol)	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenzo(a,h)anthracene	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorobenzidine, 3,3'-	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorophenol, 2,4-	µg/L	900[B] 0.3$_f$[C]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Diethyl Phthalate	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethyl Phthalate	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethylphenol, 2,4-	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dinitrophenol, 2,4-	µg/L	n/v	<6 MI	<2	<10 MI	<2	<2	<2	<2	<2
Dinitrotoluene, 2,4-	µg/L	n/v	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Dinitrotoluene, 2,4 & 2,6-	µg/L	n/v	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35
Dinitrotoluene, 2,6-	µg/L	n/v	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Fluoranthene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Fluorene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Indeno(1,2,3-cd)pyrene	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methylnaphthalene (Total)	µg/L	n/v	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28
Methylnaphthalene, 1-	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methylnaphthalene, 2-	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Pentachlorophenol	µg/L	60[B] 30$_f$[C]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenol	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichlorobenzene, 1,2,4-	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Trichlorophenol, 2,4,5-	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Trichlorophenol, 2,4,6-	µg/L	5[B] 2$_f$[C]	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Volatile Organic Compounds										
Acetone	µg/L	n/v	<10	<10	<10	<10	<10	<10	<10	<10
Bromodichloromethane	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform (Tribromomethane)	µg/L	n/v	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane (Methyl bromide)	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride (Tetrachloromethane)	µg/L	2[B]	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene (Monochlorobenzene)	µg/L	80[B] 30$_f$[C]	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chloroform (Trichloromethane)	µg/L	n/v	<0.20	<0.20	<0.20	0.22	<0.20	<0.20	<0.20	<0.20
Dibromochloromethane	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,2-	µg/L	200[B] 3$_f$[C]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,3-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,4-	µg/L	5[B] 1$_f$[C]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane (Freon 12)	µg/L	n/v	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dichloroethane, 1,1-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloroethane, 1,2-	µg/L	5[B]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethene, 1,1-	µg/L	14[B]	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloroethene, cis-1,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethene, trans-1,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropane, 1,2-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloropropene, 1,3- (sum of isomers cis + trans)	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropene, cis-1,3-	µg/L	n/v	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Dichloropropene, trans-1,3-	µg/L	n/v	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Ethylene Dibromide (Dibromoethane, 1,2-)	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Hexane (n-Hexane)	µg/L	n/v	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl Ethyl Ketone (MEK) (2-Butanone)	µg/L	n/v	<10	<10	<10	<10	<10	<10	<10	<10
Methyl Isobutyl Ketone (MIBK)	µg/L	n/v	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl tert-butyl ether (MTBE)	µg/L	15[C]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride (Dichloromethane)	µg/L	50[B]	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Styrene	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,1,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,2,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene (PCE)	µg/L	10[B]	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichloroethane, 1,1,1-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichloroethane, 1,1,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethene (TCE)	µg/L	5[B]	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichlorofluoromethane (Freon 11)	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trihalomethanes	µg/L	100$_b$[B]	<1.0	<1.0	<1.0	0.22	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	µg/L	1[B]	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

See notes on last page

Table 5
Summary of Groundwater Analytical Results - 2019 Private Wells
Clarington Transformer Station
Hydro One Networks Inc.

Sample Location			PW-18		PW-19		PW-20		PW-21	PW-22
Aquifer			Thorncliffe Formation		Shallow Overburden		Shallow Overburden		Thorncliffe Formation	Thorncliffe Formation
Sample Date			8-Apr-19	22-Oct-19	8-Apr-19	21-Oct-19	9-Apr-19	22-Oct-19	10-Apr-19	10-Apr-19
Sample ID			WG-160900764-20190408-JK7	WG-160900764-20191022-JK14	WG-160900764-20190408-JK3	WG-160900764-20191021-JK4	WG-160900764-20190409-JK12	WG-160900764-20191022-JK15	WG-160900764-20190410-JK21	WG-160900764-20190410-JK20
Water Type			Raw	Raw	Raw	Raw	Raw	Raw	Raw	Raw
Sample Tap			Outside (Back house)	Outside (Back house)	Inside (Basement)	Inside (Basement)	Outside (Back house)	Outside (Back house)	Inside (Basement)	Inside (Kitchen)
Treatment Type			None	None	None	None	None	None	None	Charcoal Filter
Sampling Company			STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory			MAXX	BV	MAXX	BV	MAXX	BV	MAXX	MAXX
Laboratory Work Order			B992358	B9T8232	B992358	B9T6722	B993757	B9T8232	B994478	B994478
Laboratory Sample ID			JKD219	LCQ713	JKD215	LCI932	JKK542	LCQ714	JKN950	JKN949
Filtered	**Units**	**ODWS**	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals
General Chemistry										
Acidity	mg/L	n/v	9.0	5.2	24	15	21	26	6.2	<5.0
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	200	200	300	260	340	370	190	150
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	2.3	2.3	2.0	2.1	2.2	2.5	2.2	1.9
Alkalinity, Total (as CaCO3)	mg/L	30-500[E]	210	200	300	270	340	370	200	160
Ammonia (as N)	mg/L	n/v	0.13	0.19	0.051	0.051	0.063	<0.050	0.15	0.20
Anion Sum	meq/L	n/v	4.50	4.39	15.1	16.2	10.6	11.8	4.41	3.37
Cation Sum	meq/L	n/v	4.71	4.68	16.0	16.9	10.4	12.4	4.45	3.28
Chloride	mg/L	250[C]	2.4	2.3	**300[C]**	**350[C]**	110	130	2.3	1.0
Cyanide (Free)	µg/L	200[B]	<1	<1	<1	<1	<1	<1	<1	<1
Dissolved Organic Carbon (DOC)	mg/L	5[C]	1.2	1.2	1.8	0.90	1.6	1.6	1.3	0.58
Electrical Conductivity, Lab	µmhos/cm	n/v	410	410	1,600	1,700	1,000	1,100	410	310
Fluoride	mg/L	1.5[B]	0.11	0.11	<0.10	<0.10	<0.10	<0.10	<0.10	0.22
Hardness (as CaCO3)	mg/L	80-100[E]	**220[E]**	**220[E]**	**410[E]**	**410[E]**	**410[E]**	**490[E]**	**210[E]**	**130[E]**
Ion Balance	%	n/v	2.36	3.29	2.67	2.25	0.930	2.49	0.420	1.34
Langelier Index (at 20 C)	none	n/v	0.782	0.769	0.968	0.858	0.997	1.11	0.733	0.426
Langelier Index (at 4 C)	none	n/v	0.532	0.519	0.722	0.612	0.749	0.865	0.483	0.176
Nitrate (as N)	mg/L	10.0_{d}[B]	<0.10	<0.10	1.79	3.07	1.67	1.27	<0.10	<0.10
Nitrate + Nitrite (as N)	mg/L	10.0_{d}[B]	<0.10	0.10	1.79	3.07	1.67	1.27	<0.10	<0.10
Nitrite (as N)	mg/L	1.0_{d}[B]	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Orthophosphate (as P)	mg/L	n/v	<0.010	<0.010	<0.010	<0.010	0.012	<0.010	<0.010	<0.010
pH, lab	S.U.	6.5-8.5[E]	8.07	8.09	7.86	7.92	7.84	7.86	8.08	8.12
Saturation pH (at 20 C)	none	n/v	7.29	7.33	6.89	7.07	6.84	6.75	7.34	7.69
Saturation pH (at 4 C)	none	n/v	7.54	7.58	7.14	7.31	7.09	7.00	7.59	7.94
Sulfate	mg/L	500_{h}[C]	14	15	19	31	27	33	19	9.8
Total Dissolved Solids	mg/L	500[C]	240	255	**875[C]**	**940[C]**	**565[C]**	**630[C]**	245	150
Total Organic Carbon	mg/L	n/v	1.3	1.2	1.9	0.86	1.8	1.5	1.5	0.76
Total Suspended Solids	mg/L	n/v	<10	<10	<10	<10	<10	<10	<10	<10
Turbidity, Lab	NTU	5_{i}[C] $_{j}$[E]	**9.7[C]**	**11[C]**	<0.1	<0.1	<0.1	0.1	**5.3[C]**	1.3
Metals										
Aluminum	µg/L	100[E]	9	<5	<5	<5	<5	<5	<5	<5
Antimony	µg/L	6[B]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Arsenic	µg/L	10[B]	<1	<1	<1	<1	<1	<1	<1	1.6
Barium	µg/L	1,000[B]	180	180	79	160	73	97	140	120
Beryllium	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron	µg/L	5,000[B]	13	12	<10	<10	16	24	13	45
Cadmium	µg/L	5[B]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Calcium	µg/L	n/v	63,000	60,000	140,000	110,000	130,000	150,000	58,000	30,000
Chromium	µg/L	50[B]	<5	<5	<5	<5	<5	<5	<5	<5
Chromium (Hexavalent)	µg/L	n/v	<0.50	<0.50	<0.50	0.68	<0.50	<0.50	<0.50	<0.50
Cobalt	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper	µg/L	1,000[C]	2	1.9	2.8	3	8.8	8.4	<1	<1
Iron	µg/L	300[C]	**1,300[C]**	**2,200[C]**	<100	<100	<100	<100	**1,200[C]**	**430[C]**
Lead	µg/L	10[B]	<0.5	<0.5	0.65	0.94	0.62	<0.5	<0.5	<0.5
Magnesium	µg/L	n/v	16,000	16,000	11,000	31,000	21,000	29,000	16,000	14,000
Manganese	µg/L	50[C]	23	22	<2	<2	<2	<2	20	22
Mercury	µg/L	1[B]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	µg/L	n/v	0.61	0.55	<0.5	<0.5	<0.5	<0.5	0.64	1.2
Nickel	µg/L	n/v	<1	<1	<1	<1	<1	<1	<1	<1
Phosphorus	µg/L	n/v	<100	130	<100	<100	<100	130	<100	<100
Potassium	µg/L	n/v	1,000	990	860	2,400	1,500	2,200	870	790
Selenium	µg/L	50[B]	<2	<2	<2	<2	<2	<2	<2	<2
Silicon	µg/L	n/v	11,000	12,000	3,900	8,600	5,800	8,300	10,000	11,000
Silver	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Sodium	µg/L	$200,000_{g}$[C] $20,000_{g}$[D]	4,700	5,000	**180,000[D]**	**200,000[D]**	**51,000[D]**	**57,000[D]**	4,300	13,000
Strontium	µg/L	n/v	240	230	290	360	320	380	240	310
Thallium	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Titanium	µg/L	n/v	<5	<5	<5	<5	<5	<5	<5	<5
Uranium	µg/L	20[B]	<0.1	<0.1	0.36	0.81	0.94	1.3	<0.1	<0.1
Vanadium	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	µg/L	5,000[C]	10	<5	<5	<5	18	10	<5	<5
Zirconium	µg/L	n/v	<1	<1	<1	<1	<1	<1	<1	<1
Microbiological Analysis										
Escherichia coli (E.Coli)	cfu/100mL	0[A]	0	0	0	0	0	0	0	0
Total Coliform Background	cfu/100mL	n/v	3	110	460	280	82	1	0	0
Total Coliforms	cfu/100mL	0[A]	0	0	**14[A]**	**2[A]**	**2[A]**	0	0	0
BTEX and Petroleum Hydrocarbons										
Benzene	µg/L	1[B]	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60[B] 24[C]	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140[B] 1.6[C]	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Xylene, m & p-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Xylene, o-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Xylenes, Total	µg/L	90[B]	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
PHC F1 (C6-C10 range)	µg/L	n/v	<25	<25	<25	<25	<25	<25	<25	<25
PHC F1 (C6-C10 range) minus BTEX	µg/L	n/v	<25	<25	<25	<25	<25	<25	<25	<25
PHC F2 (>C10-C16 range)	µg/L	n/v	<100	<100	<100	<100	<100	<100	<100	<100
PHC F3 (>C16-C34 range)	µg/L	n/v	<200	760	<200	<200	<200	940	<200	<200
PHC F4 (>C34-C50 range)	µg/L	n/v	<200	290	<200	<200	<200	280	<200	<200
Chromatogram to baseline at C50	none	n/v	YES	YES	YES	YES	YES	YES	YES	YES
Polychlorinated Biphenyls										
Aroclor 1242	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1248	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1254	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1260	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Polychlorinated Biphenyls (PCBs)	µg/L	3[B]	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

See notes on last page

Table 5
Summary of Groundwater Analytical Results - 2019 Private Wells
Clarington Transformer Station
Hydro One Networks Inc.

Sample Location			PW-18		PW-19		PW-20		PW-21	PW-22
Aquifer			Thorncliffe Formation		Shallow Overburden		Shallow Overburden		Thorncliffe Formation	Thorncliffe Formation
Sample Date			8-Apr-19	22-Oct-19	8-Apr-19	21-Oct-19	9-Apr-19	22-Oct-19	10-Apr-19	10-Apr-19
Sample ID			WG-160900764-20190408-JK7	WG-160900764-20191022-JK14	WG-160900764-20190408-JK3	WG-160900764-20191021-JK4	WG-160900764-20190409-JK12	WG-160900764-20191022-JK15	WG-160900764-20190410-JK21	WG-160900764-20190410-JK20
Water Type			Raw	Raw	Raw	Raw	Raw	Raw	Raw	Raw
Sample Tap			Outside (Back house)	Outside (Back house)	Inside (Basement)	Inside (Basement)	Outside (Back house)	Outside (Back house)	Inside (Basement)	Inside (Kitchen)
Treatment Type			None	None	None	None	None	None	None	Charcoal Filter
Sampling Company			STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory			MAXX	BV	MAXX	BV	MAXX	BV	MAXX	MAXX
Laboratory Work Order			B992358	B9T8232	B992358	B9T6722	B993757	B9T8232	B994478	B994478
Laboratory Sample ID			JKD219	LCQ713	JKD215	LCI932	JKK542	LCQ714	JKN950	JKN949
Filtered	Units	ODWS	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals
Semi-Volatile Organic Compounds										
Acenaphthene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Acenaphthylene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Anthracene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)anthracene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/L	0.01^{B}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b/j)fluoranthene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Biphenyl	µg/L	n/v	<0.1	<0.1	<0.1	<0.3	<0.1	<0.1	<0.1	<0.1
Bis(2-Chloroethyl)ether	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bis(2-Chloroisopropyl)ether	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bis(2-Ethylhexyl)phthalate (DEHP)	µg/L	n/v	<1	<1	<1	<1	5	<1	<1	<1
Chloroaniline, 4-	µg/L	n/v	<1	<1	<1	<1	<1	<1	<1	<1
Chlorophenol, 2- (ortho-Chlorophenol)	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenzo(a,h)anthracene	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorobenzidine, 3,3'-	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorophenol, 2,4-	µg/L	900^{B} 0.3_{f}^{C}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Diethyl Phthalate	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethyl Phthalate	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethylphenol, 2,4-	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dinitrophenol, 2,4-	µg/L	n/v	<6 MI	<2	<6 MI	<2	<2	<2	<2	<10 MI
Dinitrotoluene, 2,4-	µg/L	n/v	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Dinitrotoluene, 2,4 & 2,6-	µg/L	n/v	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35
Dinitrotoluene, 2,6-	µg/L	n/v	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Fluoranthene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Fluorene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Indeno(1,2,3-cd)pyrene	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methylnaphthalene (Total)	µg/L	n/v	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28
Methylnaphthalene, 1-	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methylnaphthalene, 2-	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Pentachlorophenol	µg/L	60^{B} 30_{f}^{C}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenol	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichlorobenzene, 1,2,4-	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Trichlorophenol, 2,4,5-	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Trichlorophenol, 2,4,6-	µg/L	5^{B} 2_{f}^{C}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Volatile Organic Compounds										
Acetone	µg/L	n/v	<10	<10	<10	<10	<10	<10	<10	<10
Bromodichloromethane	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform (Tribromomethane)	µg/L	n/v	<1.0	<1.0	<1.0	<1.0	<1.0	3.8	<1.0	<1.0
Bromomethane (Methyl bromide)	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride (Tetrachloromethane)	µg/L	2^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene (Monochlorobenzene)	µg/L	80^{B} 30_{f}^{C}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chloroform (Trichloromethane)	µg/L	n/v	<0.20	<0.20	0.95	<0.20	<0.20	<0.20	<0.20	<0.20
Dibromochloromethane	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	0.85	<0.50	<0.50
Dichlorobenzene, 1,2-	µg/L	200^{B} 3_{f}^{C}	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,3-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,4-	µg/L	5^{B} 1_{f}^{C}	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane (Freon 12)	µg/L	n/v	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dichloroethane, 1,1-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloroethane, 1,2-	µg/L	5^{B}	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethene, 1,1-	µg/L	14^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloroethene, cis-1,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethene, trans-1,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropane, 1,2-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloropropene, 1,3- (sum of isomers cis + trans)	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropene, cis-1,3-	µg/L	n/v	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Dichloropropene, trans-1,3-	µg/L	n/v	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Ethylene Dibromide (Dibromoethane, 1,2-)	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Hexane (n-Hexane)	µg/L	n/v	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl Ethyl Ketone (MEK) (2-Butanone)	µg/L	n/v	<10	<10	<10	<10	<10	<10	<10	<10
Methyl Isobutyl Ketone (MIBK)	µg/L	n/v	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl tert-butyl ether (MTBE)	µg/L	15^{C}	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride (Dichloromethane)	µg/L	50^{B}	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Styrene	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,1,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,2,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene (PCE)	µg/L	10^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichloroethane, 1,1,1-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichloroethane, 1,1,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethene (TCE)	µg/L	5^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichlorofluoromethane (Freon 11)	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trihalomethanes	µg/L	100_{b}^{B}	<1.0	<1.0	0.95	<1.0	<1.0	4.65	<1.0	<1.0
Vinyl Chloride	µg/L	1^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

See notes on last page

Table 5
Summary of Groundwater Analytical Results - 2019 Private Wells
Clarington Transformer Station
Hydro One Networks Inc.

Sample Location			PW-23		PW-24		PW-25		PW-26	
Aquifer			Shallow Overburden		Shallow Overburden		Shallow Overburden		Shallow Overburden	
Sample Date			8-Apr-19	21-Oct-19	8-Apr-19	21-Oct-19	8-Apr-19	21-Oct-19	9-Apr-19	23-Oct-19
Sample ID			WG-160900764-20190408-JK9	WG-160900764-20191021-JK9	WG-160900764-20190408-JK6	WG-160900764-20191021-JK3	WG-160900764-20190408-JK2	WG-160900764-20191021-JK8	WG-160900764-20190409-JK10	WG-160900764-20191023-JK22
Water Type			Raw	Raw	Treated	Treated	Treated	Treated	Raw	Raw
Sample Tap			Inside (Garage)	Inside (Garage)	Outside (Front house)	Outside (Front house)	Outside (Side house)	Outside (Side house)	Outside Tap	Outside Tap
Treatment Type			None	None	Softener	Softener	Softener	Softener	None	None
Sampling Company			STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory			MAXX	BV	MAXX	BV	MAXX	BV	MAXX	BV
Laboratory Work Order			B992358	B9T6722	B992358	B9T6722	B992358	B9T6722	B993757	B9T7788
Laboratory Sample ID			JKD221	LCI937	JKD218	LCI931	JKD214	LCI936	JKK540	LCO328
Filtered	Units	ODWS	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals
General Chemistry										
Acidity	mg/L	n/v	19	22	49	45	16	12	75	73
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	310	310	360	360	260	290	440	410
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	1.8	2.1	1.6	1.6	2.1	2.2	1.2	1.7
Alkalinity, Total (as CaCO3)	mg/L	$30\text{-}500^{E}$	310	310	360	360	260	300	440	420
Ammonia (as N)	mg/L	n/v	<0.050	<0.050	0.053	<0.050	0.089	<0.050	0.058	<0.050
Anion Sum	meq/L	n/v	8.02	7.73	10.7	9.38	7.25	7.10	15.8	15.5
Cation Sum	meq/L	n/v	7.87	7.98	10.2	9.89	7.11	7.50	16.3	16.7
Chloride	mg/L	250^{C}	39	28	93	40	66	17	180	190
Cyanide (Free)	µg/L	200^{B}	<1	<1	<1	<1	<1	<1	<1	<1
Dissolved Organic Carbon (DOC)	mg/L	5^{C}	1.7	1.7	1.2	1.3	1.2	1.1	2.1	2.2
Electrical Conductivity, Lab	µmhos/cm	n/v	770	720	1,000	870	710	660	1,600	1,600
Fluoride	mg/L	1.5^{B}	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Hardness (as CaCO3)	mg/L	$80\text{-}100^{E}$	**350^{E}**	**350^{E}**	**310^{E}**	**470^{E}**	**270^{E}**	**350^{E}**	**610^{E}**	**630^{E}**
Ion Balance	%	n/v	0.900	1.60	2.04	2.63	0.980	2.74	1.57	3.74
Langelier Index (at 20 C)	none	n/v	0.890	0.987	0.743	0.946	0.906	1.00	0.905	1.05
Langelier Index (at 4 C)	none	n/v	0.642	0.738	0.495	0.698	0.657	0.751	0.659	0.800
Nitrate (as N)	mg/L	10.0_{d}^{B}	5.46	4.24	6.66	6.23	0.42	4.71	1.68	2.57
Nitrate + Nitrite (as N)	mg/L	10.0_{d}^{B}	5.46	4.24	6.66	6.23	0.42	4.71	1.68	-
Nitrite (as N)	mg/L	1.0_{d}^{B}	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.013
Orthophosphate (as P)	mg/L	n/v	<0.010	0.017	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
pH, lab	S.U.	$6.5\text{-}8.5^{E}$	7.78	7.86	7.68	7.68	7.94	7.90	7.48	7.63
Saturation pH (at 20 C)	none	n/v	6.89	6.87	6.94	6.73	7.04	6.90	6.58	6.58
Saturation pH (at 4 C)	none	n/v	7.14	7.12	7.18	6.98	7.29	7.15	6.82	6.83
Sulfate	mg/L	500_{h}^{C}	15	18	20	25	8.7	18	90	83
Total Dissolved Solids	mg/L	500^{C}	450	405	**545^{C}**	495	375	365	**940^{C}**	**955^{C}**
Total Organic Carbon	mg/L	n/v	1.8	1.8	1.3	1.3	1.2	1.2	2.2	2.2
Total Suspended Solids	mg/L	n/v	<10	<10	<10	<10	<10	<10	<10	<10
Turbidity, Lab	NTU	$5_{i}^{C}{}_{j}^{E}$	0.2	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1
Metals										
Aluminum	µg/L	100^{E}	5.6	<5	<5	<5	<5	<5	<5	<5
Antimony	µg/L	6^{B}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Arsenic	µg/L	10^{B}	<1	<1	<1	<1	<1	<1	<1	<1
Barium	µg/L	$1{,}000^{B}$	50	50	51	83	24	40	110	120
Beryllium	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron	µg/L	$5{,}000^{B}$	24	28	11	10	<10	<10	20	29
Cadmium	µg/L	5^{B}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Calcium	µg/L	n/v	120,000	120,000	97,000	150,000	98,000	120,000	210,000	220,000
Chromium	µg/L	50^{B}	<5	<5	<5	<5	<5	<5	<5	<5
Chromium (Hexavalent)	µg/L	n/v	<0.50	<0.50	0.87	0.90	<0.50	0.79	<0.50	<0.50
Cobalt	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper	µg/L	$1{,}000^{C}$	18	12	14	11	12	15	19	18
Iron	µg/L	300^{C}	<100	<100	<100	<100	<100	<100	<100	<100
Lead	µg/L	10^{B}	<0.5	0.52	<0.5	0.62	0.58	<0.5	<0.5	<0.5
Magnesium	µg/L	n/v	13,000	12,000	16,000	24,000	5,800	14,000	20,000	20,000
Manganese	µg/L	50^{C}	<2	23	<2	<2	<2	<2	2.1	5
Mercury	µg/L	1^{B}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel	µg/L	n/v	<1	<1	<1	<1	<1	<1	<1	<1
Phosphorus	µg/L	n/v	<100	<100	<100	<100	<100	<100	<100	130
Potassium	µg/L	n/v	2,000	2,000	2,100	1,700	220	540	1,100	1,400
Selenium	µg/L	50^{B}	<2	<2	<2	<2	<2	<2	<2	<2
Silicon	µg/L	n/v	5,500	6,300	8,700	9,800	3,500	6,500	4,300	5,300
Silver	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Sodium	µg/L	$200{,}000_{g}^{C}$ $20{,}000_{g}^{D}$	20,000	**$23{,}000^{D}$**	**$93{,}000^{D}$**	11,000	**$40{,}000^{D}$**	10,000	**$95{,}000^{D}$**	**$92{,}000^{D}$**
Strontium	µg/L	n/v	250	230	190	280	180	200	380	400
Thallium	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Titanium	µg/L	n/v	<5	<5	<5	<5	<5	<5	<5	<5
Uranium	µg/L	20^{B}	0.32	0.35	0.49	0.88	0.19	0.35	0.94	0.98
Vanadium	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	µg/L	$5{,}000^{C}$	25	24	9.9	12	39	32	9.9	10
Zirconium	µg/L	n/v	<1	<1	<1	<1	<1	<1	<1	<1
Microbiological Analysis										
Escherichia coli (E.Coli)	cfu/100mL	0^{A}	0	**NDOGT^{A}**	0	0	0	0	**18^{A}**	0
Total Coliform Background	cfu/100mL	n/v	76	NDOGT	24	9	16	980	92	52
Total Coliforms	cfu/100mL	0^{A}	**3^{A}**	**NDOGT^{A}**	**3^{A}**	0	**3^{A}**	**76^{A}**	**34^{A}**	**80^{A}**
BTEX and Petroleum Hydrocarbons										
Benzene	µg/L	1^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60^{B} 24^{C}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140^{B} 1.6^{C}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Xylene, m & p-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Xylene, o-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Xylenes, Total	µg/L	90^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
PHC F1 (C6-C10 range)	µg/L	n/v	<25	<25	<25	<25	<25	<25	<25	<25
PHC F1 (C6-C10 range) minus BTEX	µg/L	n/v	<25	<25	<25	<25	<25	<25	<25	<25
PHC F2 (>C10-C16 range)	µg/L	n/v	<100	<100	<100	<100	<100	<100	<100	<100
PHC F3 (>C16-C34 range)	µg/L	n/v	<200	<200	<200	<200	<200	<200	<200	<200
PHC F4 (>C34-C50 range)	µg/L	n/v	<200	<200	<200	<200	<200	<200	<200	<200
Chromatogram to baseline at C50	none	n/v	YES	YES	YES	YES	YES	YES	YES	YES
Polychlorinated Biphenyls										
Aroclor 1242	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1248	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1254	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1260	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Polychlorinated Biphenyls (PCBs)	µg/L	3^{B}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

See notes on last page

Table 5
Summary of Groundwater Analytical Results - 2019 Private Wells
Clarington Transformer Station
Hydro One Networks Inc.

Sample Location			PW-23		PW-24		PW-25		PW-26	
Aquifer			Shallow Overburden		Shallow Overburden		Shallow Overburden		Shallow Overburden	
Sample Date			8-Apr-19	21-Oct-19	8-Apr-19	21-Oct-19	8-Apr-19	21-Oct-19	9-Apr-19	23-Oct-19
Sample ID			WG-160900764-20190408-JK9	WG-160900764-20191021-JK9	WG-160900764-20190408-JK6	WG-160900764-20191021-JK3	WG-160900764-20190408-JK2	WG-160900764-20191021-JK8	WG-160900764-20190409-JK10	WG-160900764-20191023-JK22
Water Type			Raw	Raw	Treated	Treated	Treated	Treated	Raw	Raw
Sample Tap			Inside (Garage)	Inside (Garage)	Outside (Front house)	Outside (Front house)	Outside (Side house)	Outside (Side house)	Outside Tap	Outside Tap
Treatment Type			None	None	Softener	Softener	Softener	Softener	None	None
Sampling Company			STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory			MAXX	BV	MAXX	BV	MAXX	BV	MAXX	BV
Laboratory Work Order			B992358	B9T6722	B992358	B9T6722	B992358	B9T6722	B993757	B9T7788
Laboratory Sample ID			JKD221	LCI937	JKD218	LCI931	JKD214	LCI936	JKK540	LCO328
Filtered	Units	ODWS	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals	Total Metals
Semi-Volatile Organic Compounds										
Acenaphthene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2
Acenaphthylene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2
Anthracene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05
Benzo(a)anthracene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05
Benzo(a)pyrene	µg/L	0.01^{B}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	***<0.02***	<0.01
Benzo(b/j)fluoranthene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05
Benzo(g,h,i)perylene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05
Benzo(k)fluoranthene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05
Biphenyl	µg/L	n/v	<0.1	<0.3	<0.1	<0.3	<0.1	<0.3	<0.2	<0.1
Bis(2-Chloroethyl)ether	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5
Bis(2-Chloroisopropyl)ether	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5
Bis(2-Ethylhexyl)phthalate (DEHP)	µg/L	n/v	<1	<1	<1	<1	<1	<1	<2	<1
Chloroaniline, 4-	µg/L	n/v	<1	<1	<1	<1	<1	<1	<2	<1
Chlorophenol, 2- (ortho-Chlorophenol)	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1
Chrysene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05
Dibenzo(a,h)anthracene	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1
Dichlorobenzidine, 3,3'-	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5
Dichlorophenol, 2,4-	µg/L	900^{B} 0.3_{f}^{C}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1
Diethyl Phthalate	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1
Dimethyl Phthalate	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1
Dimethylphenol, 2,4-	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5
Dinitrophenol, 2,4-	µg/L	n/v	<6 MI	<2	<6 MI	<2	<6 MI	<2	<4	<2
Dinitrotoluene, 2,4-	µg/L	n/v	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.5	<0.3
Dinitrotoluene, 2,4 & 2,6-	µg/L	n/v	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.71	<0.35
Dinitrotoluene, 2,6-	µg/L	n/v	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.5	<0.3
Fluoranthene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2
Fluorene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2
Indeno(1,2,3-cd)pyrene	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1
Methylnaphthalene (Total)	µg/L	n/v	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.57	<0.28
Methylnaphthalene, 1-	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2
Methylnaphthalene, 2-	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2
Naphthalene	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2
Pentachlorophenol	µg/L	60^{B} 30_{f}^{C}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1
Phenanthrene	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1
Phenol	µg/L	n/v	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5
Pyrene	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05
Trichlorobenzene, 1,2,4-	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1
Trichlorophenol, 2,4,5-	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2
Trichlorophenol, 2,4,6-	µg/L	5^{B} 2_{f}^{C}	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2
Volatile Organic Compounds										
Acetone	µg/L	n/v	<10	<10	<10	<10	<10	<10	<10	<10
Bromodichloromethane	µg/L	n/v	<0.50	<0.50	<0.50	2.1	<0.50	<0.50	<0.50	<0.50
Bromoform (Tribromomethane)	µg/L	n/v	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane (Methyl bromide)	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride (Tetrachloromethane)	µg/L	2^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene (Monochlorobenzene)	µg/L	80^{B} 30_{f}^{C}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chloroform (Trichloromethane)	µg/L	n/v	0.75	0.49	0.49	2.8	<0.20	<0.20	<0.20	<0.20
Dibromochloromethane	µg/L	n/v	<0.50	<0.50	<0.50	1.9	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,2-	µg/L	200^{B} 3_{f}^{C}	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,3-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,4-	µg/L	5^{B} 1_{f}^{C}	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane (Freon 12)	µg/L	n/v	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dichloroethane, 1,1-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloroethane, 1,2-	µg/L	5^{B}	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethene, 1,1-	µg/L	14^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloroethene, cis-1,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethene, trans-1,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropane, 1,2-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloropropene, 1,3- (sum of isomers cis + trans)	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropene, cis-1,3-	µg/L	n/v	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Dichloropropene, trans-1,3-	µg/L	n/v	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Ethylene Dibromide (Dibromoethane, 1,2-)	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Hexane (n-Hexane)	µg/L	n/v	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl Ethyl Ketone (MEK) (2-Butanone)	µg/L	n/v	<10	<10	<10	<10	<10	<10	<10	<10
Methyl Isobutyl Ketone (MIBK)	µg/L	n/v	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl tert-butyl ether (MTBE)	µg/L	15^{C}	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride (Dichloromethane)	µg/L	50^{B}	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Styrene	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,1,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,2,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene (PCE)	µg/L	10^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichloroethane, 1,1,1-	µg/L	n/v	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichloroethane, 1,1,2-	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethene (TCE)	µg/L	5^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichlorofluoromethane (Freon 11)	µg/L	n/v	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trihalomethanes	µg/L	100_{b}^{B}	0.75	0.49	0.49	6.8	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	µg/L	1^{B}	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Notes:

ODWS	O.Reg 169/03 - Ontario Drinking Water Quality Standards (January 1, 2018); Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines (MOE, 2006), in support of O.Reg 169/03
A	Schedule 1 - Microbiological Standards (expressed as a maximum)
B	Schedule 2 - Chemical Standards (expressed as a maximum acceptable concentration)
C	ODWS Table 4 - Chemical/Physical Objectives and Guidelines, Aesthetic Objectives
D	ODWS Table 4 - Medical Officer of Health Reporting Limit
E	ODWS Table 4 - Chemical/Physical Objectives and Guidelines, Operational Guidelines
6.5^{A}	Concentration exceeds the indicated standard.
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / not available.
b	Expressed as a running annual average of quarterly results.
d	Where both nitrate and nitrite are present, the total of the two should not exceed 10 mg/L (as nitrogen).
f	Refer to ODWS Table 2 for health related standard
g	The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.
h	When sulfate levels exceed 500 mg/L, water may have a laxative effect on some people.
i	Applicable for all waters at the point of consumption.
j	The operational guidelines for filtration processes are provided as performance criteria in the Procedure for Disinfection of Drinking Water in Ontario.
NC	Not calculated.
NDOGT	No data due to overgrowth.
MI	Detection limit was raised due to matrix interferences.
NC	Not calculated.

APPENDIX C:
Groundwater and Surface Water Monitoring Plan and Approvals

Stantec Consulting Ltd.
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June 13, 2014
File: 160900764

Attention: Mr. Paul Dalmazzi
HydroOne
Environmental Engineering and Project Support
483 Bay Street, 6th Floor, South Tower
Toronto, ON M5G 2P5

Dear Mr. Dalmazzi,

Reference: Groundwater and Surface Water Monitoring Program, Clarington Transformer Station

Stantec Consulting Ltd. (Stantec) is pleased to submit to Hydro One Networks Inc. (Hydro One) our Groundwater and Surface Water Monitoring Program for the Clarington Transformer Station. The transformer station is to be located on Hydro One property ('*Project Area*') located in the Regional Municipality of Durham, in the Municipality of Clarington, on Part Lots 33, 34, and 35, Concession Road #7. The *Project Area* and the extents of the transformer station itself, hereinafter referred to as the '*Site*', are shown on Figure 1.

BACKGROUND

In their Class EA Project Environmental Study Report (Project ESR), Hydro One has committed to undertake a groundwater and surface water monitoring program that includes monitoring wells and surface water monitoring locations within its property boundaries (*Project Area*), and offering private well monitoring to well owners on properties immediately adjacent to the *Site*. This commitment is to cover pre, during, and post transformer station construction periods, and will include monitoring of water levels and water quality.

Stantec compiled available geotechnical and hydrogeological information as well as reviewed Ontario Ministry of the Environment (MOE) water well records, Ontario Geological Survey mapping, Oak Ridges Moraine Conservation Plan, and Ministry of Affairs and Housing Greenbelt Plan. Stratigraphy beneath the *Site* is found to consist of silt till overburden which is known as the Newmarket Till, with pockets of Halton Till at surface. The till contains occasional isolated sand to silty sand lenses, with several nearby private wells reportedly installed within these lenses. The MOE water well record database indicates the presence of a deep (greater than 75 m below ground surface) silty sand aquifer consisting of medium to fine sand and gravel which is regionally recognized as the Thorncliffe Aquifer.

OBJECTIVES

The following Groundwater and Surface Water Monitoring Program has three primary objectives: to fulfill Hydro One's commitment to implement a pre, during, and post transformer station construction groundwater and surface water monitoring program; to refine our understanding of the physical and chemical characteristics of the shallow and intermediate depth groundwater systems at the *Site*; and to establish a pre-construction baseline of groundwater conditions, including seasonal variations of groundwater quality, quantity, and surface water / groundwater interaction. The monitoring data collected will provide the technical foundation on which to assess whether adverse impacts occurred during or post construction.

Reference: Groundwater and Surface Water Monitoring Program, Clarington Transformer Station

MONITORING PROGRAM SCOPE

The Groundwater and Surface Water Monitoring Program includes several key tasks, including installing new groundwater monitoring wells (completed in Fall 2013), implementing a private well monitoring program, surface water monitoring, decommissioning of geotechnical monitoring wells (completed Fall 2013), water level and water quality monitoring, and preparing annual monitoring summary reports through the duration of the monitoring program.

Complementing the groundwater monitoring program, surface water features located on the north (wetland), west (creek), and south (drainage swale) sides of the *Site* will be monitored. Background water levels within three newly installed shallow piezometers (mini shallow wells) will be recorded prior to construction of the transformer station, and compared to monitoring results recorded during and post construction. The monitoring data collected will provide the technical foundation on which to further characterize our understanding of the shallow groundwater system, to assess whether adverse impacts occurred during or post construction, and to provide guidance for appropriate mitigation, if needed.

Owners of private wells on properties immediately adjacent to the east and south of the *Site* will be able to have the water level and water quality in their wells monitored prior to, during, and post construction of the transformer station. A baseline of seasonal normal groundwater levels and groundwater quality will be established prior to construction of the transformer station. Once construction of the transformer station begins, the well monitoring program will continue with observations compared to baseline conditions, allowing for an assessment of potential impacts on the natural environment and of the efficacy of the engineered containment structures and water treatment systems to be installed.

Groundwater and surface water data collected prior to construction of the transformer station will help define the relationship between the shallow and intermediate depth groundwater systems at the Site and how they interact with each other; providing a baseline to which monitoring data collected during construction and post construction will be compared. Specifically, the Groundwater and Surface Water Monitoring Program will allow for quantification of the following hydrogeological characteristics of the site:

- Refinement of Site geologic stratigraphy;
- Seasonal shallow and intermediate groundwater water levels across the site;
- Seasonal shallow and intermediate groundwater chemistry;
- Vertical groundwater gradients (identify areas of upward, neutral, or downward groundwater movement) between surface water and shallow groundwater system, and shallow and intermediate depth groundwater systems;
- Shallow and intermediate depth hydraulic conductivity, including variations in hydraulic conductivity associated with the different geologic materials identified during previous and recent drilling programs;
- Continuous (hourly) groundwater level monitoring to allow for observation and calculation of seasonal variations in surface water, groundwater, and private wells; and,
- Potential changes in shallow groundwater elevation associated with the cut portion (east side) of the grading area, including the potential radius of groundwater influence, and potential for private well interference.

The hydrogeologic conditions presented in the Project ESR will be confirmed through the analyses and interpretation of groundwater and surface water data collected prior to construction of the transformer station. The monitoring program will continue during and post construction of the transformer station in order to confirm that the mitigation measures and engineered containment structures designed to protect the natural form and function of the surface water system, shallow and intermediate groundwater systems, and the adjacent private water wells are functioning as designed.

MONITORING INSTALLATIONS

The Groundwater and Surface Water Monitoring Program takes into consideration potential adverse impacts of the project on the natural environment in the absence of implementing any mitigations measures (containment structures, water treatment, etc.). These include the introduction of chemical substances and changes to the natural form and function of the shallow and intermediate depth groundwater and surface water systems. As a result, the depths of the monitoring wells, monitoring frequency, and selected water quality analyses of the entire monitoring program have been selected with detection of potential changes to these receptors as their primary objective.

Site Monitoring Wells

The groundwater monitoring wells installed at the *Site* during the previous geotechnical investigations were all installed at an intermediate depth (screened between approximately 11 m and 15 m depth). These monitoring wells were located where excavations for footings or foundations are planned, and as a result, needed to be decommissioned prior to construction of these foundations.

In the Fall of 2013, this monitoring program was initiated by installing pairs of new monitoring wells on each side of the *Site* (Figure 1). The new intermediate depth (approximately 10 m to 15 m depth) wells have been paired with shallow depth wells (approximately 1 m to 3 m depth) intended to intersect the elevation of the shallow water table. By installing pairs of shallow and intermediate depth wells, changes in groundwater levels, groundwater chemistry and vertical hydraulic gradients (upward or downward movement of groundwater) will be able to be measured and monitored seasonally prior to, during, and post construction of the transformer station.

Drive point piezometers (shallow mini wells) have also been installed within the *Site*'s surface water features in order to monitor seasonal shallow groundwater and surface water levels within the wetland (north side), creek (west side) and drainage swale (south side) features found on-*Site*.

Reference: Groundwater and Surface Water Monitoring Program, Clarington Transformer Station

The new groundwater monitoring wells were installed according to the MOE Water Resource Act (O. Reg. 903). A licensed well drilling contractor was retained and has completed the following:

- Installation of three (3) stream/wetland drive-point piezometers;
- Drilling and installation of four (4) shallow and intermediate depth pairs of groundwater monitoring wells (8 wells in total); advanced to depth of approximately 1 to 3 m and 10 to 15 m, respectively;
- Complete grouting (sealing) of outer well annulus;
- Installation of protective and lockable well casing; and,
- Decommissioning of former geotechnical wells according to the MOE Water Resource Act (O. Reg. 903).

Upon completing installation of the new monitoring wells in December 2013, the water level in several wells were observed to have recovered slowly, with some not recovering sufficiently after several days to allow for a collection of water quality samples. Monitoring of the new wells will continue with the completion of a water level monitoring event in Winter 2014, noting if any wells are frozen.

In Spring 2014, the new wells will be developed, hydraulically tested (slug tests) to confirm estimates presented in the Project ESR, and sampled for groundwater quality. Selected representative soil samples obtained and preserved during drilling will be submitted for laboratory sieve grain size analyses.

Private Well Monitoring

The private well monitoring program will include providing notification to all potential groundwater users within 1,200 m of the *Site*, informing the property and/or well owners of the transformer station construction schedule, and the parameters of the private well monitoring program.

The distributed notification information will provide the details of the monitoring program, and include appropriate project contact information for Hydro One regarding construction concerns. During the door-to-door site visits, Stantec will also make note of and attempt to contact well owners that may not appear in the MOE's records for the purpose of offering participation in the private well monitoring program.

Participation in the private well monitoring program will only be completed with the owner's authorization, and will include water quality sampling and water level monitoring, depending on well accessibility. Water level monitoring involves installing an automated well water level logger (pressure transducer), which can only be completed at accessible wells by a licensed well contractor. The automated loggers will monitor 'continuous' water levels (at 5 to 60 minute intervals) from Spring 2014 until two years following completion of construction. The loggers would be removed at the end of the monitoring program.

Reference: Groundwater and Surface Water Monitoring Program, Clarington Transformer Station

Private well water quality samples will be collected from a raw water tap (prior to any treatment or filtration), where available. If no raw water tap is present, a sample may be collected directly from the well, depending on well accessibility and well owner authorization. After purging water from the well, the samples will be collected directly into laboratory supplied sample containers. The samples will not be field filtered and will be submitted for general chemistry, turbidity, metals, hydrocarbons (F1-F4 and BTEX), and bacteriological analyses. To supplement and provide quality assurance, temperature, conductivity, and pH data will be collected in the field at the time of sampling.

Individual private well analytical results will be presented in a letter to each resident following each sampling event along with the available water level data. Private well data will remain confidential, and is not permitted to be shared with the general public. However, monitoring reports for data collected on-*Site* will be prepared annually and made available to the public by Hydro One.

SURFACE WATER MONITORING

A Stantec terrestrial ecologist will monitor the *Site* prior to transformer station construction to confirm the presence or absence of groundwater seeps within the *Project Area*, identifying notable indicator parameters and plant species. Ecological monitoring will continue annually during construction of the transformer station, and for two years following completion of construction. Surface water levels and water quality samples will be collected from three (3) surface water monitoring locations (at piezometer installation locations) and submitted for laboratory analyses following the monitoring schedule discussed below.

WATER QUALITY ANALYSES

Groundwater water quality samples from each of the new on-*Site* monitoring wells and participating private wells will be collected according to laboratory protocols, preserved, and submitted for laboratory analyses (general chemistry, metals, and hydrocarbons (F1-F4 and BTEX)) to Maxxam Analytics, an accredited laboratory. Well water quality parameter analyses will be compared to Ontario Drinking Water Quality Standards (ODWQS).

Surface water quality samples will be collected from each of the three new surface water monitoring locations adjacent to the new piezometer installations (when surface water is present) according to laboratory protocols, preserved, and submitted for laboratory analyses (general chemistry, metals, and hydrocarbons (F1-F4 and BTEX)) to Maxxam Analytics. Surface water quality parameter analyses will be compared to Provincial Water Quality Objectives (PWQO).

A water quality parameter list is included in the attached Tables 1 and 2.

MONITORING SCHEDULE

The Groundwater and Surface Water Monitoring Program schedule frequency is designed to record groundwater levels continuously with the use of automated pressure transducers, and to seasonally (quarterly) collect groundwater and surface water quality samples for laboratory analyses for the first year of monitoring in order to establish potential seasonal variations in groundwater levels and chemistry. Table 1 presents the program water quality sampling schedule.

Reference: Groundwater and Surface Water Monitoring Program, Clarington Transformer Station

Following the first year of quarterly (seasonal) monitoring, the schedule will change to semi-annual monitoring (spring and fall). Upon completion of construction, monitoring of groundwater, surface water, and private wells will continue semi-annually for two years.

For scheduling purposes, it is anticipated that quarterly seasonal monitoring will take place from Fall 2013 to Summer 2014; semi-annual (construction) monitoring will continue from Fall 2014 through to Fall 2017; and semi-annual post-construction monitoring will extend for 2 years following completion of construction. Presently, construction is anticipated to be completed in Fall 2017, with this monitoring program continuing until Fall 2019.

Table 1 - Monitoring Schedule

Pre-Construction and Construction Monitoring Schedule											
2013				**2014**				**2015**			
Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
			X	X	X	X	X		X		X
2016				**2017**							
Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall				
	X		X		X		X				
Post-Construction Monitoring Schedule											
2018				**2019**							
Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall				
	X		X		X		X				

REPORTING

A *Baseline Conditions Report* will be prepared following the Fall 2014 monitoring event presenting the *Site* baseline groundwater and surface water data collected prior to construction of the transformer station (Fall 2013 through Fall 2014).

Subsequent annual monitoring program summary reports will be prepared following the annual Fall monitoring and sampling events. The reports will present continuous records of all on-Site groundwater and surface water monitoring data and a general summary of private well water level and water quality data. Private well owners will be provided with the data (water level and water quality) from their own individual well(s) only. In the event private water quality laboratory results indicate an exceedence of the ODWQS, the private well owner will be advised of the exceedence immediately upon receipt and review of the data.

Reference: Groundwater and Surface Water Monitoring Program, Clarington Transformer Station

IMPLEMENTATION

A Community Liaison Committee (CLC) was formed on May 29, 2014 and conducted its first meeting on June 5, 2014. The committee consists of representatives from HydroOne, local environmental organizations, local area residents and three First Nations. CLC meetings are also open to any other organizations and/or members of the public to observe, and observers are also given the opportunity to ask questions or to comment at the conclusion of each meeting. The CLC provides a forum for the exchange and dissemination of project information between Hydro One and the local community, as per Condition 5.1 of the Minister of the Environment's decision to deny the Part II Order Requests received for the Clarington TS Class Environmental Assessment.

CLC meetings will be the primary avenue for Hydro One to disseminate monitoring information and results to community members. A presentation was made at the initial CLC meeting on June 5, 2014 introducing the Monitoring Program, and questions and comments were received from CLC members and observers. The next CLC meeting is planned for late Fall 2014, in advance of the start of site grading and construction of the Clarington Transformer Station itself. The *Baseline Conditions Report* will be provided to the MOE, CLOCA, and CLC stakeholders in advance of the Fall 2014 meeting for review.

Hydro One will also actively disseminate information and engage in dialogue with members of the community through avenues other than the CLC. Hydro One will share information and interact with the community through newspaper ads, Project newsletters, personal communications with interested stakeholders, a dedicated project hotline and email inbox, and a project website: (http://www.hydroone.com/Projects/Clarington/Pages/default.aspx).

Hydro One will also be employing a dedicated Community Liaison Officer to be on-site during the construction phase of the project. All of the above-mentioned avenues for communication with the community will be used to share information about the Monitoring Program progress and results, where necessary.

The Monitoring Program will be adaptive. Changes to the monitoring program and/or laboratory analyses may be implemented, as determined by Hydro One and its environmental consultant, subject to approval of the MOE Central Region Director, with consideration of the monitoring results and professional interpretations derived from them. HydroOne will continue to encourage input from regulatory agencies, CLC stakeholders, and individual well owners as this project progresses from pre-construction through to completion and on to post-construction monitoring.

Reference: Groundwater and Surface Water Monitoring Program, Clarington Transformer Station

CLOSURE

This Groundwater and Surface Water Monitoring Program will fulfill the environmental monitoring commitments made by Hydro One in the Project's ESR by establishing background hydrogeological conditions and by providing a monitoring program that will identify and monitor the natural form and function of the shallow and intermediate depth groundwater system during and post construction.

Regards,

STANTEC CONSULTING LTD.

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Senior Hydrogeologist
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Attachment: Figure 1 – Groundwater and Surface Water Monitoring Locations
Figure 2 – Private Well Monitoring Program Area
Table 1 – General Chemistry and Hydrocarbon Water Quality Parameters
Table 2 – Semi-VOC and VOC Water Quality Parameters

c. Dan Eusebi - Stantec

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673000

673000

Legend

- Monitoring Well (Stantec, 2013)
- Piezometer (Stantec, 2013)
- Existing Power Feature
- New Infrastructure
- Topographic Contour (mAMSL)
- Watercourse
- Project Area
- Clarington TS Site

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2012.
3. Orthoimagery © First Base Solutions, 2012.

Stantec

February 2014
160960745

Client/Project
Hydro One Networks Inc.
Groundwater and Surface Water Monitoring Program
Clarington, Ontario

Figure No.
1

Title
Groundwater & Surface Water Monitoring Locations

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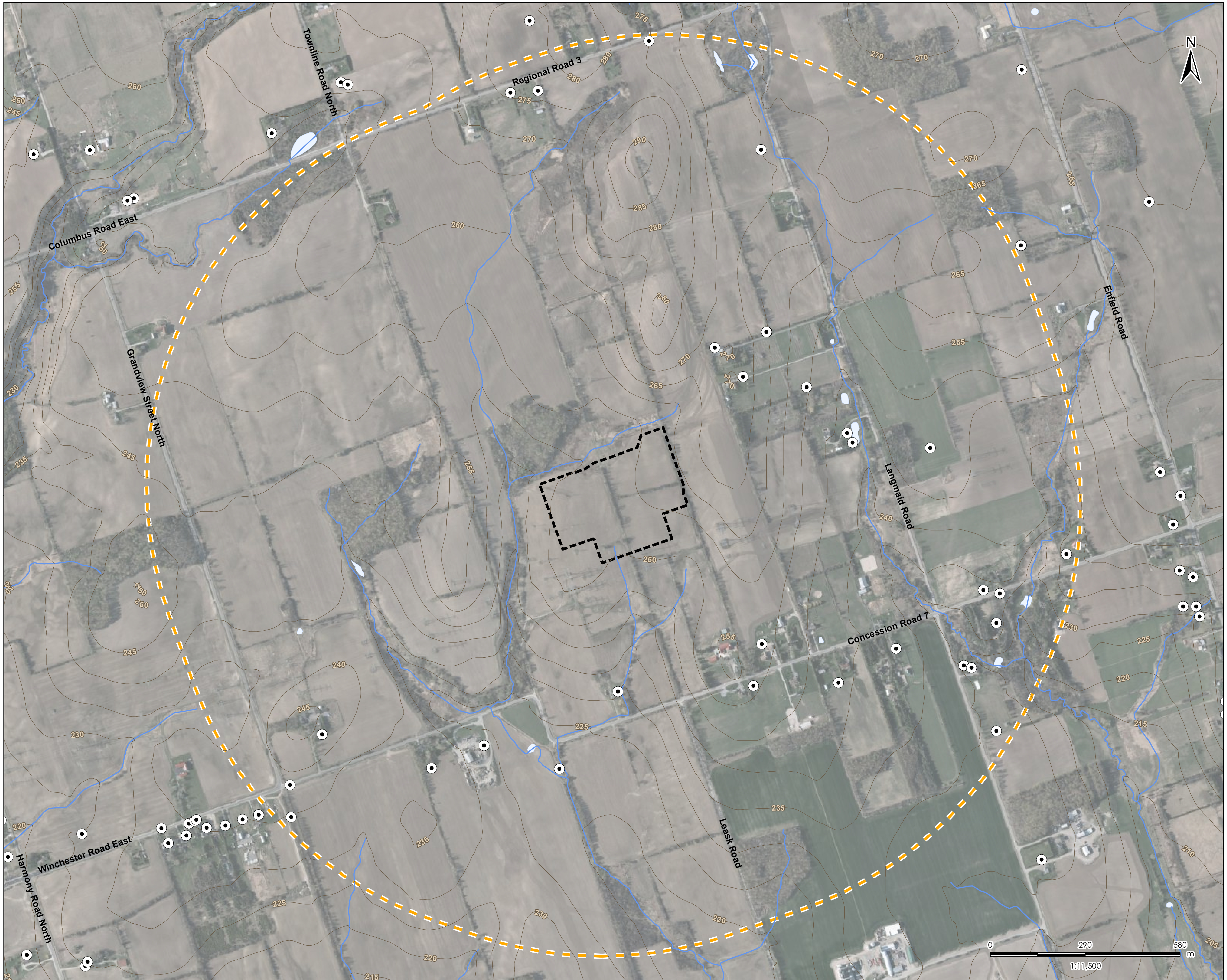
Revised: 2014-02-20 By: searles



Stantec

Legend

- Clarington Transformer Station
- Private Well Monitoring Area
- MOE Water Well Record
- Topographic Contour (mAMSL)
- Watercourse
- Waterbody

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2013.
3. Orthoimagery © First Base Solutions, 2012.
4. MOE Water well locations are approximate and have been positioned based on published UTM coordinates © Queen's Printer for Ontario, 2012.

June 2014
160960745

Client/Project

Hydro One Networks Inc.
Hydrogeologic & Hydrologic Assessment Report
Clarington, Ontario

Figure No.
2

Title

Private Well Monitoring

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Revised: 2014-06-13 By: searles

Table 1 - General Chemistry and Hydrocarbon Groundwater Parameters

General Chemistry		Limit
Acidity (as CaCO3)	mg/L	n/v
Alkalinity - Bicarbonate (as (CaCO3)	mg/L	n/v
Alkalinity - Carbonate (as CaCO3)	mg/L	n/v
Alkalinity - Total (as (CaCO3)	mg/L	25%
Anion Sum	meq/L	n/v
Cation Sum	meq/L	n/v
Chloride (Dissolved)	mg/L	n/v
Cyanide (Free)	mg/L	0.005
Dissolved Organic Carbon (DOC)	mg/L	n/v
Electrical Conductivity	µmhos/cm	n/v
Fluoride	mg/L	n/v
Total Hardness (CaCO3)	mg/L	n/v
Ion Balance	%	n/v
Nitrate (as N)	mg/L	n/v
Nitrate + Nitrite (as N)	mg/L	n/v
Nitrite (as N)	mg/L	n/v
Orthophosphate (as P)	mg/L	n/v
pH	S.U.	6.5 - 8.5
Phosphorus, Total	mg/L	0.02
Sulfate (Dissolved)	mg/L	n/v
Total Dissolved Solids	mg/L	n/v
Total Dissolved Solids (Calculated)	mg/L	n/v
Total Organic Carbon	mg/L	n/v
Total Suspended Sediment	mg/L	CCME*
Turbidity, Lab	ntu	CCME*

Dissolved Metals		Limit
Dissolved Aluminum (Al)	mg/L	0.075
Dissolved Mercury (Hg)	mg/L	0.0002
Total Metals		
Total Antimony (Sb)	mg/L	0.020
Total Arsenic (As)	mg/L	0.020
Total Barium (Ba)	mg/L	0.210
Total Beryllium (Be)	mg/L	0.011
Total Boron (B)	mg/L	0.200
Total Cadmium (Cd)	mg/L	0.008
Total Chromium VI	mg/L	0.08
Total Cobalt (Co)	mg/L	0.0009
Total Copper (Cu)	mg/L	0.05
Total Iron (Fe)	mg/L	0.300
Total Lead (Pb)	mg/L	0.12
Total Molybdenum (Mo)	mg/L	0.040
Total Nickel (Ni)	mg/L	0.15
Total Phosphorus (P)	mg/L	0.02
Total Selenium (Se)	mg/L	0.020
Total Thallium (Tl)	mg/L	0.0003
Total Vanadium (V)	mg/L	0.006
Total Zinc (Zn)	mg/L	0.040
Total Zirconium (Zr)	mg/L	0.004
BTEX & F1 Hydrocarbons		
F1 (C6-C10)	mg/L	0.025
F1 (C6-C10) - BTEX	mg/L	0.025
F2-F4 Hydrocarbons		
F2 (C10-C16 Hydrocarbons)	mg/L	0.010
F3 (C16-C34 Hydrocarbons)	mg/L	0.240
F4 (C34-C50 Hydrocarbons)	mg/L	0.120

Table 2 - Semivolatile and Volatile Organics

Semivolatile Organics			**Volatile Organics**		**Limit**
1,2,4-Trichlorobenzene	mg/L	*0.00005*	Acetone (2-Propanone)	mg/L	0.00050
1-Methylnaphthalene	mg/L	*0.00005*	Benzene	mg/L	0.00002
2,4,5-Trichlorophenol	mg/L	*0.0001*	Bromodichloromethane	mg/L	0.00005
2,4,6-Trichlorophenol	mg/L	*0.0001*	Bromoform	mg/L	0.00005
2,4-Dichlorophenol	mg/L	*0.0001*	Bromomethane	mg/L	0.00005
2,4-Dimethylphenol	mg/L	*0.0002*	Carbon Tetrachloride	mg/L	0.00005
2,4-Dinitrophenol	mg/L	*0.002*	Chlorobenzene	mg/L	0.00005
2,4-Dinitrotoluene	mg/L	*0.0005*	Chloroform	mg/L	0.00005
2,6-Dinitrotoluene	mg/L	*0.0005*	Dibromochloromethane	mg/L	0.00005
2-Chlorophenol	mg/L	*0.0001*	1,2-Dichlorobenzene	mg/L	0.00005
2-Methylnaphthalene	mg/L	*0.00005*	1,3-Dichlorobenzene	mg/L	0.00005
3,3'-Dichlorobenzidine	mg/L	*0.001*	1,4-Dichlorobenzene	mg/L	0.00005
Acenaphthene	mg/L	*0.00005*	Dichlorodifluoromethane (FREON 12)	mg/L	0.00005
Acenaphthylene	mg/L	*0.000093*	1,1-Dichloroethane	mg/L	0.00005
Anthracene	mg/L	*0.00005*	1,2-Dichloroethane	mg/L	0.00005
Benzo(a)anthracene	mg/L	*0.000095*	1,1-Dichloroethylene	mg/L	0.00005
Benzo(a)pyrene	mg/L	*0.00005*	cis-1,2-Dichloroethylene	mg/L	0.00005
Benzo(b/j)fluoranthene	mg/L	*0.0003*	trans-1,2-Dichloroethylene	mg/L	0.00005
Benzo(g,h,i)perylene	mg/L	*0.0002*	1,2-Dichloropropane	mg/L	0.00005
Benzo(k)fluoranthene	mg/L	*0.00005*	cis-1,3-Dichloropropene	mg/L	0.00005
Biphenyl	mg/L	*0.00005*	trans-1,3-Dichloropropene	mg/L	0.00005
Bis(2-chloroethyl)ether	mg/L	*0.0005*	Ethylbenzene	mg/L	0.00005
Bis(2-chloroisopropyl)ether	mg/L	*0.0005*	Ethylene Dibromide	mg/L	0.00005
Bis(2-ethylhexyl)phthalate	mg/L	*0.005*	Hexane	mg/L	0.00005
Chrysene	mg/L	*0.00018*	Methylene Chloride(Dichloromethane)	mg/L	0.00005
Dibenz(a,h)anthracene	mg/L	*0.0001*	Methyl Isobutyl Ketone	mg/L	0.0005
Diethyl phthalate	mg/L	*0.0005*	Methyl Ethyl Ketone (2-Butanone)	mg/L	0.0005
Dimethyl phthalate	mg/L	*0.0005*	Methyl t-butyl ether (MTBE)	mg/L	0.00005
Fluoranthene	mg/L	*0.00024*	Styrene	mg/L	0.00005
Fluorene	mg/L	*0.00005*	1,1,1,2-Tetrachloroethane	mg/L	0.00005
Indeno(1,2,3-cd)pyrene	mg/L	*0.00011*	1,1,2,2-Tetrachloroethane	mg/L	0.00005
Naphthalene	mg/L	*0.00005*	Tetrachloroethylene	mg/L	0.00005
p-Chloroaniline	mg/L	*0.0005*	Toluene	mg/L	0.0002
Pentachlorophenol	mg/L	*0.0001*	1,1,1-Trichloroethane	mg/L	0.00005
Phenanthrene	mg/L	*0.00019*	1,1,2-Trichloroethane	mg/L	0.00005
Phenol	mg/L	*0.0005*	Trichloroethylene	mg/L	0.00005
Pyrene	mg/L	*0.00019*	Vinyl Chloride	mg/L	0.00002
			p+m-Xylene	mg/L	-
PCBs			o-Xylene	mg/L	-
Total PCBs	mg/L	0.0003	Xylene (Total)	mg/L	0.00005
			Trichlorofluoromethane (Freon 11)	mg/L	0.00005

Stantec Consulting Ltd.
300 - 675 Cochrane Drive West Tower
Markham ON L3R 0B8
Tel: (905) 944-7777
Fax: (905) 474-9889

June 13, 2014
File: 160900764

Dear Property / Well Owner,

Reference: Private Well Monitoring Program
HydroOne Networks Inc. – Clarington Transformer Station

HydroOne Networks Inc. (Hydro One) is preparing to begin construction of the Clarington Transformer Station (Project). The Project includes the construction of a new transformer station, to be located north of Concession Rd. 7 and west of Langmaid Rd. within the Town of Clarington, Ontario in the Regional Municipality of Durham.

On behalf of HydroOne, Stantec Consulting Ltd. (Stantec) is conducting a door-to-door groundwater / well monitoring program in support of the proposed construction. The program is being completed to establish groundwater conditions prior to, during, and following Hydro One's construction activities. If interested, well owners within 1,200 metres of the transformer station may request to participate in the well monitoring program, which includes water quality sampling and water level monitoring of private water wells. Participation is not mandatory and is at the sole discretion of the well/property owner. Well owner's will be required to grant permission to HydroOne's environmental consultant Stantec to access individual wells in order to participate in the monitoring program.

As part of the monitoring program, Stantec will undertake the following activities at accessible wells prior to, during, and for two years following completion of the Clarington Transformer Station:

- Collect seasonal / semi-annual water quality samples from a raw water tap and submit them for laboratory analyses for metals, general chemistry, and bacteriological analyses (one sample prior to construction, one following site grading and installation of drainage, and semi-annually for two years following completion of the Project);
- Measure the water level within your private well, if accessible, under static conditions and during operation of your residential pump; and,
- Administer a voluntary well questionnaire to collect any relevant information about your private well.

Stantec will be completing baseline sampling, including a door-to-door survey in June 2014, with the next rounds of sampling occurring in Summer and Fall 2014.

Reference: Private Well Monitoring Program
HydroOne Networks Inc. – Clarington Transformer Station

Contact Information

If you have any questions or concerns regarding the private well monitoring program, please feel free to contact me directly using the contact information below.

Should you have any questions or concerns regarding HydroOne's construction activity, please contact Paul Dalmazzi from HydroOne at (416) 345-6145, or email at Paul.Dalmazzi@HydroOne.com.

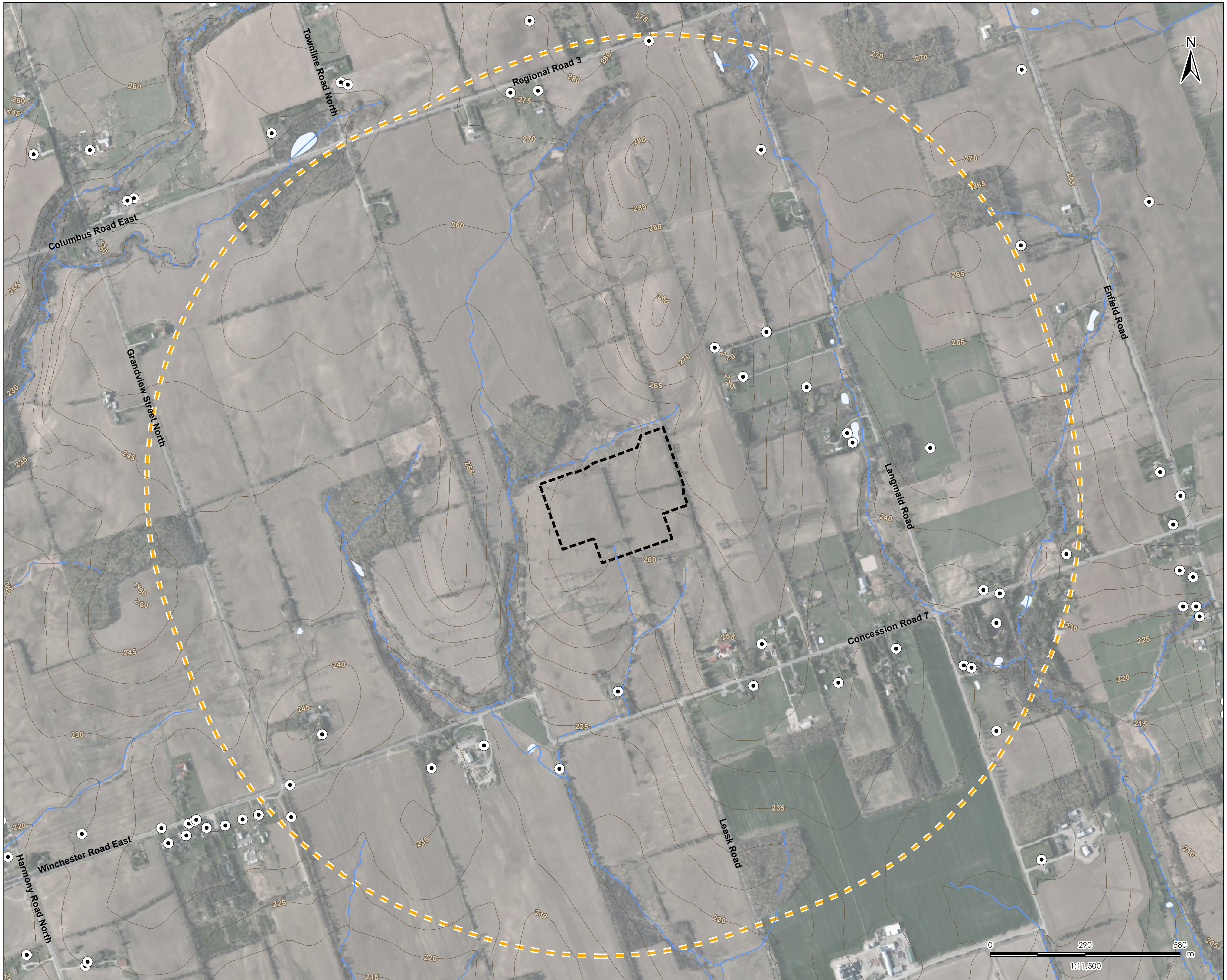
Regards,

STANTEC CONSULTING LTD.

J. Brant Gill, H.B.Sc., P.Geo.
Senior Hydrogeologist, Environmental Management
Phone: (905) 415-6330
Fax: (905) 474-9889
brant.gill@stantec.com

Attachment: Private Well Monitoring Area Figure

jbg let_Private Well Monitoring Program_CTS_13Jun2014_JBG.docx



Stantec

Legend

- Clarington Transformer Station
- Private Well Monitoring Area
- MOE Water Well Record
- Topographic Contour (mAMSL)
- Watercourse
- Waterbody

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2013.
3. Orthoimagery © First Base Solutions, 2012.
4. MOE Water well locations are approximate and have been positioned based on published UTM coordinates © Queen's Printer for Ontario, 2012.

June 2014
160960745

Client/Project

Hydro One Networks Inc.
Hydrogeologic & Hydrologic Assessment Report
Clarington, Ontario

Figure No.
1

Title
Private Well Monitoring

G:\active\60960745\drawing\MXD\Hydrogeology\GW_SW_Monitoring\160960745_GWSWM_Fig01_GW_SW_PrivateWellMon.mxd
Revised: 2014-06-13 By: searles

CONSENT FORM for PRIVATE WELL MONITORING PROGRAM

Re: Clarington Transformer Station Project of Hydro One Networks Inc.

Hydro One Networks Inc. ("Hydro One") hereby offers to arrange for monitoring of private wells within 1,200 metres (m) of Hydro One's Clarington Transformer Station, as part of its Groundwater and Surface Water Monitoring Program.

The well monitoring, which will be conducted by a third party environmental consultant in conjunction with a licensed well contractor retained by Hydro One, will occur prior to, during, and for two years following completion of construction. The program will include monitoring well water levels and completing periodic sampling of well water quality, including laboratory analyses for selected metals, general chemistry, and bacteriological parameters.

The monitoring results will be analyzed and used to determine whether the transformer station and its development have adversely affected the well water levels and/or water quality.

Signing of this consent form will allow for this monitoring program to be undertaken on the signatory's well by licensed contractors retained by Hydro One. Hydro One or the contractor will inform the signatory when the monitoring program will be undertaken. All results will be provided to the signatory by the contractor, with a copy going to Hydro One. Private well data will not be released to the public by Hydro One or its contractors.

I, ________________________________, of _____________________________________
Full Legal Name Address

agree to allow Hydro One's contractor to perform the activities described above on the terms described above.

Signed and dated at ___________________ on _________________2014.

Landowner:

____
Signature

Please submit the signed consent by mailing it to:

Hydro One Networks Inc.
Att'n: Paul Dalmazzi
483 Bay St., South Tower, 6th Floor
Toronto, Ontario M5G 2P5

or by e-mailing the scanned signed consent to: Paul.Dalmazzi@HydroOne.com

Ministry of the Environment

Central Region

5775 Yonge Street
8th Floor
Toronto, ON, M2M 4J1
Tel.: 416-325-6966
Fax: 416-325-6347

Ministère de l'Environnement

Région du Centre

5775, rue Yonge12e étage
8e étage
Toronto, ON, M2M 4J1
Tél.: 416-325-6966
Téléc: 41-325-6347

Ontario

June 24, 2014

File: EA01-05

Brian J. McCormick
Manager, Environmental Engineering and Project Support
Hydro One
483 Bay Street, 6th Floor, South Tower
Toronto, ON M5G 2P5

RE: Clarington Transformer Station
Groundwater and Surface Water Monitoring Program
Version dated June 13, 2014
Condition 1 of Minister's Decision

Dear Mr. McCormick,

The revised Groundwater and Surface Water Monitoring Program (the program) for the Clarington Transformer Station, as prepared by Stantec Consulting Ltd. and dated June 13, 2014, has been received and reviewed. It is my understanding that the program was submitted to address Condition 1 contained within the decision of the Minister of the Environment ("the Minister") dated January 2, 2014, on the Part II Order requests for the proposed Clarington Transformer Station Class Environmental Assessment.

Condition 1 states:

Prior to construction the Proponent shall submit a Groundwater Monitoring Plan to the Regional Director in Central Region for review and approval. The Plan shall be in accordance with the Hydrogeological and Hydrologic Assessment Report prepared for the Project by Stantec (2013) and shall include water level and quality sampling from on-site wells and adjacent private wells in order to document pre and post construction conditions to confirm no impacts. Once approved, the final report shall be posted on the Proponent's website.

Based on discussions with Hydro One, the following points are noted:

- The Ministry of the Environment (ministry) will be notified in advance of groundwater sampling in order for the ministry to have the opportunity to observe sampling on the site.
- Hydro One has agreed that the program will be adaptive, and changes may be implemented at the advice of Hydro One's expert consultant hydrogeologist, subsequent to approval by the ministry's Central Region Director and technical staff.

- Hydro One has committed to providing funding to the Municipality of Clarington for the hiring of a third-party consultant for the purpose of supporting the residents in their review and interpretation of the data and results of the Monitoring Program.
- Hydro One will expand the private well monitoring program to include residential water wells within 1200 m of the Clarington Transformer Station.

Given the points above, I am writing to approve the revised Groundwater and Surface Water Monitoring Program dated June 13, 2014 as it has been submitted in accordance with Condition 1 of the Minister's decision on the Part II Order requests for this project.

Sincerely,

Dolly Goyette
Director, Central Region

c. Dorothy Moszynski, Project Evaluator, Environmental Approvals Branch, MOE
Dan Delaquis, Supervisor (A), Air, Pesticides and Environmental Planning, MOE
Dan Orr, Manager, Technical Support Section, MOE
Dave Fumerton, Manager, York Durham District, MOE

Ministry of the Environment

Office of the Minister

77 Wellesley Street West
11th Floor, Ferguson Block
Toronto ON M7A 2T5
Tel.: 416-314-6790
Fax: 416-314-6748

Ministère de l'Environnement

Bureau du ministre

77, rue Wellesley Ouest
11ᵉ étage, edifice Ferguson
Toronto ON M7A 2T5
Tél.: 416-314-6790
Téléc: 416-314-6748

Ontario

JAN 0 2 2014

ENV1283MC2013-2616

Mr. Doug Magee
Environmental Planner
Hydro One Networks Inc.
483 Bay Street, South Tower, 6th Floor
Toronto ON M5G 2P5

Dear Mr. Magee:

Between November 15 and December 17, 2012, I received 56 Part II Order requests from local residents, local environmental groups, 18 school children from a local school and two Members of Provincial Parliament that Hydro one Network Incorporated (Proponent) be required to prepare an individual environmental assessment for the proposed Clarington Transformer Station Class Environment Assessment (Project), located in the Municipality of Clarington.

I am taking this opportunity to inform you that I have decided that an individual environmental assessment is not required. This decision was made after giving careful consideration to the issues raised in the request, the Project documentation, the provisions of the Class Environmental Assessment for Minor Transmission Facilities (Class Environmental Assessment), and other relevant matters required to be considered under subsection 16(4) of the Environmental Assessment Act. The reasons for my decision may be found in the attached letters to the requesters.

Despite my not requiring an individual EA be prepared, in reviewing the requests I noted that there are concerns with respect to this project which do warrant that further studies and consultation be undertaken as the Project proceeds into detail design and construction. Therefore, to ensure that the environment is protected, I am imposing the following conditions on the project:

1. Prior to construction the Proponent shall submit a Groundwater Monitoring Plan to the Regional Director in Central Region for review and approval. The Plan shall be in accordance with the Hydrogeological & Hydrologic Assessment Report prepared for the Project by Stantec (2013) and shall include water level and quality sampling from on-site wells and adjacent private wells in order to document pre and post construction conditions to confirm no impacts. Once approved, the final report shall be posted on the Proponent's website.

2. As part of the Ontario Water Resources Act Application for Sewage Works, the Proponent must submit to the Director of the Environmental Approvals Branch a Contingency and Pollution Prevention Plan for the Project in accordance with the ministry's requirements.

3. As part of the Environmental Compliance Approval for noise, the Proponent shall prepare a detailed Acoustic Assessment Report and submit it to the Director of the Environmental Approvals Branch for review as part of the application. The Acoustic Assessment Report must document all sources of noise at the facility, as well as any proposed noise control measures, and demonstrate that the Project is capable of operating in compliance with the applicable sound level limits at all affected Points of Reception.

4. For information purposes, the final Acoustic Assessment Report and Contingency and Pollution Prevention Plan shall be posted on the Proponent's website upon submission of the Environmental Compliance Approval application.

5.1 The Proponent shall be responsible for the formation of a Community Liaison Committee, should members of the public or other parties be interested in participating. The CLC shall be established by the Proponent within 6 months of the Minister's decision on the Part II Order requests for the Project. The CLC shall be established for the purposes of disseminating and exchanging information and monitoring results relevant to the project during detailed design and construction, and discussing any issues or concerns raised by CLC members.

5.2 The Proponents shall invite representative(s) of the Enniskillen Environmental Association and members of the public that expressed interest in the Project. Meetings shall be held as may be required or on an annual basis until Project operation. A notice of the CLC meeting shall be posted on the Proponent's website two weeks prior to the meeting, and sent to all CLC members.

6. Once Conditions 1-5 have been satisfied, the Proponent shall notify the Director of the Environmental Approvals Branch.

With this decision having been made, the Proponent can now proceed with the Project, subject to the conditions I have imposed and any other permits or approvals required. The Proponent must ensure the Project is implemented in the manner it was developed and designed, as set out in the Project documentation, inclusive of all mitigating measures, and environmental and other provisions therein.

Lastly, I would like to ensure that the Proponent understands that failure to comply with the Act, the provisions of the Class Environmental Assessment, and failure to implement the Project in the manner described in the planning documents, are contraventions of the Act and may result in prosecution under section 38 of the Act.

I am confident that the Proponent recognizes the importance and value of the Act and will ensure that its requirements and those of the Class Environmental Assessment are satisfied.

Yours sincerely,

Jim Bradley
Minister of the Environment

Attachment(s)

c: Requestors
MPP J. O'Toole (Durham)
MPP M. Harris (Kitchener-Conestoga)
EA File EA02-06

Hydro One Networks Inc.
483 Bay Street
South Tower, 6th Floor
Toronto, ON M5G 2P5
www.HydroOne.com

Tel: 416 345-6597
Email: Brian.Mccormick@HydroOne.com

Brian J. McCormick
Manager, Environmental Engineering and Project Support

October 16, 2014

Dolly Goyette
Director, Central Region
Ministry of the Environment and Climate Change
5775 Yonge St., 8th Floor
Toronto, ON
M2M 4J1

Re: Clarington TS – Municipality of Clarington Council Resolution D15.GE L04.HY

Dear Ms. Goyette,

On March 7, 2014, Hydro One submitted to the Director of the Ministry of Environment and Climate Change (MOECC) Central Region a Groundwater and Surface Water Monitoring Program ("the Monitoring Program") for the Clarington Transformer Station (TS) Project, as per the Minister of the Environment's decision dated January 2, 2014 to deny the Part II Order requests received for the Project. The Monitoring Program is meant to be adaptive in nature, such that data collected can be used to further refine the Monitoring Program if there is clear scientific rationale. On June 24, 2014, Hydro One received your written approval of the Monitoring Program, which agreed that the Program should be adaptive and that changes may be implemented at the advice of Hydro One's environmental consultant (Stantec) subsequent to approval by the Director, Central Region MOECC.

On October 2, 2014, the Municipality of Clarington issued a resolution (File No. D15.GE L04.HY) stating that a condition is being imposed on an easement to grant access via the Townline Road allowance (identified during the Class Environmental Assessment as the preferred access route by a number of stakeholders, including Central Lake Ontario Conservation Authority and the Municipality of Clarington Department of Planning) that requires installation of a monitoring well "drilled down to at least the Thorncliffe formation". Although neither Stantec nor Hydro One are of the opinion that there is scientific basis for a monitoring well to this depth given the planned use of the site as a transformer station, Hydro One intends to install this new well to the Thorncliffe formation in order to secure the preferred access route. Hydro One also intends to conduct groundwater quality and water level monitoring of this Thorncliffe depth well, and to include these data in subsequent Monitoring Program reports for the sole purpose of advancing public confidence that the construction and operation of the Clarington TS will not result in adverse effects on the Thorncliffe aquifer.

As per the resolution issued by the Clarington Council, Hydro One has reached out to Dr. Rick Gerber and Dr. John Cherry and has held an initial meeting to discuss the location of this new Thorncliffe depth well. When the well location has been chosen, Hydro One will inform the MOE Central Region and York/Durham District staff. Consistent with other potential amendments to the Monitoring Program, Hydro One will implement well monitoring on a forward-looking basis but without affecting the station construction schedule.

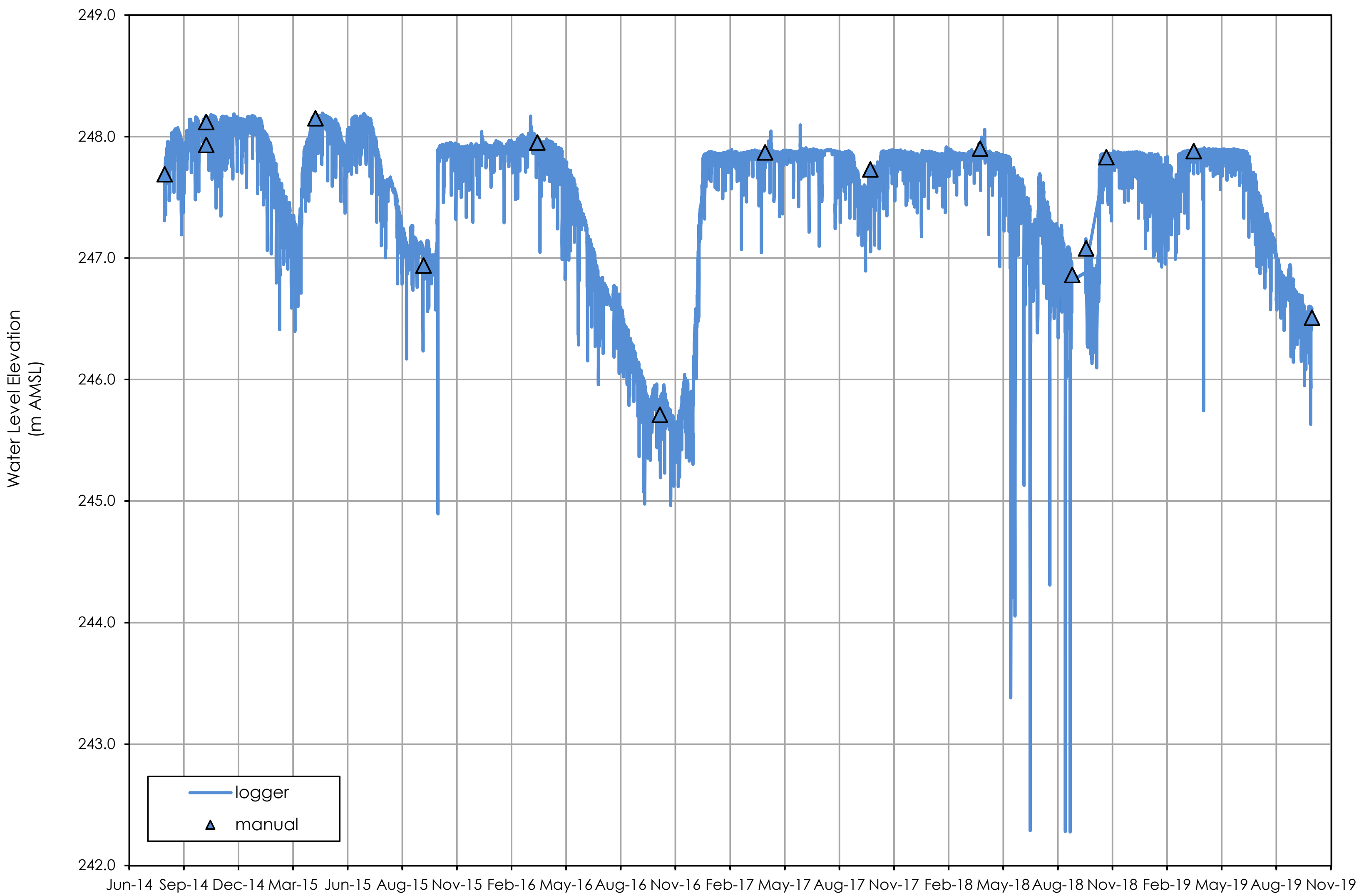
I trust that this letter provides sufficient information on Hydro One's position regarding the planned new borehole and monitoring well to the Thorncliffe aquifer. If you wish to further discuss this matter, please contact Paul Dalmazzi, Environmental Planner at (416) 345-6145 or Paul.Dalmazzi@HydroOne.com.

Sincerely,

Brian J. McCormick, Manager
Environmental Engineering and Project Support
Hydro One Networks

CC: Dan Orr, Manager, Technical Support Section, Central Region, MOECC
Dave Fumerton, Manager, York/Durham District, MOECC
Sandra Thomas, Issues Project Coordinator, York/Durham District, MOECC
Brad Bowness, Director, Project Management, Hydro One Networks
Denise Jamal, Manager, Public Affairs, Hydro One Networks
David Crome, Director, Department of Planning, Municipality of Clarington

APPENDIX D:
Private Well Data



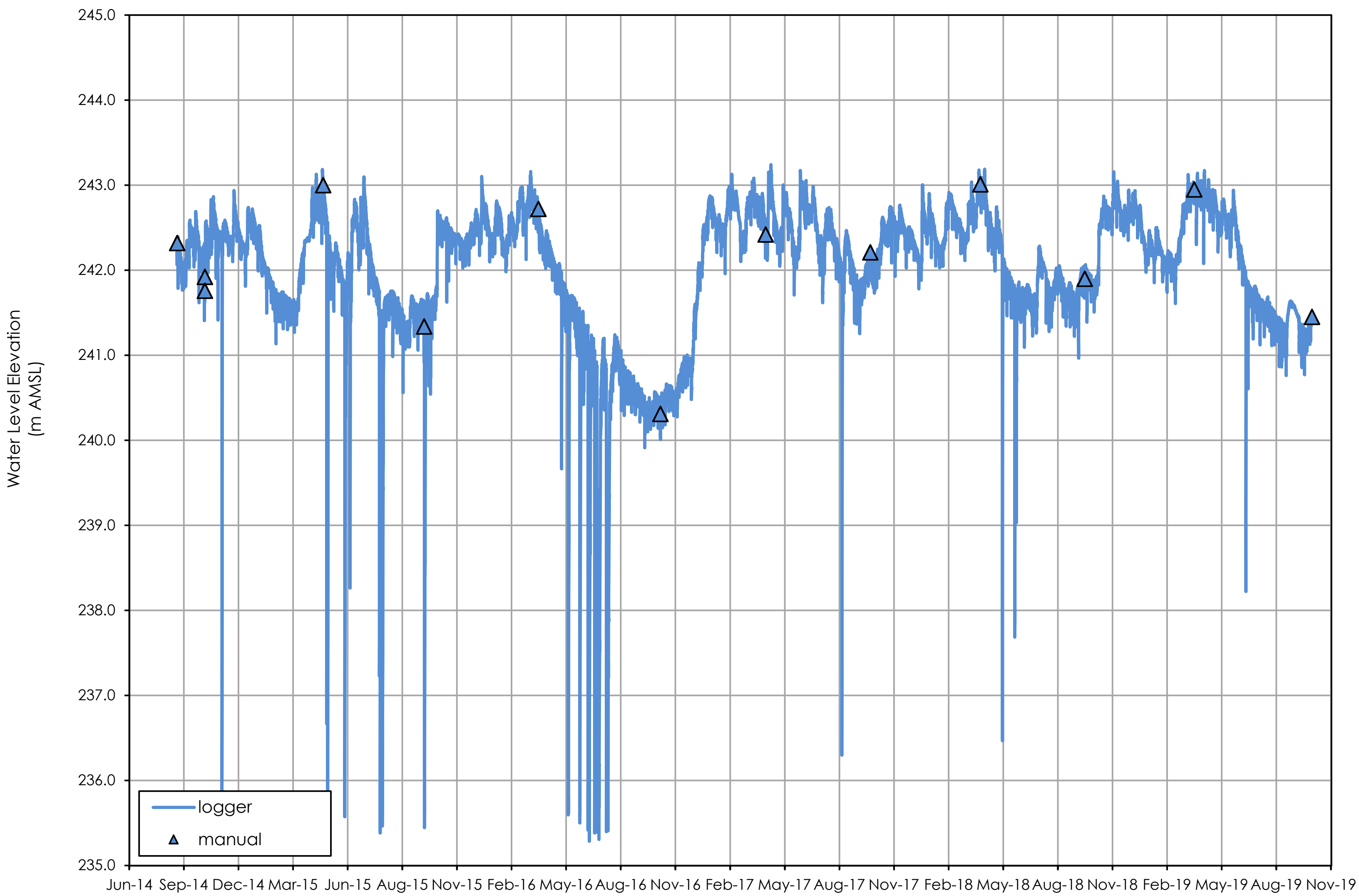
Client/Project

Hydro One Networks Inc.

Stantec

Title

Hydrograph 1 - Shallow Well



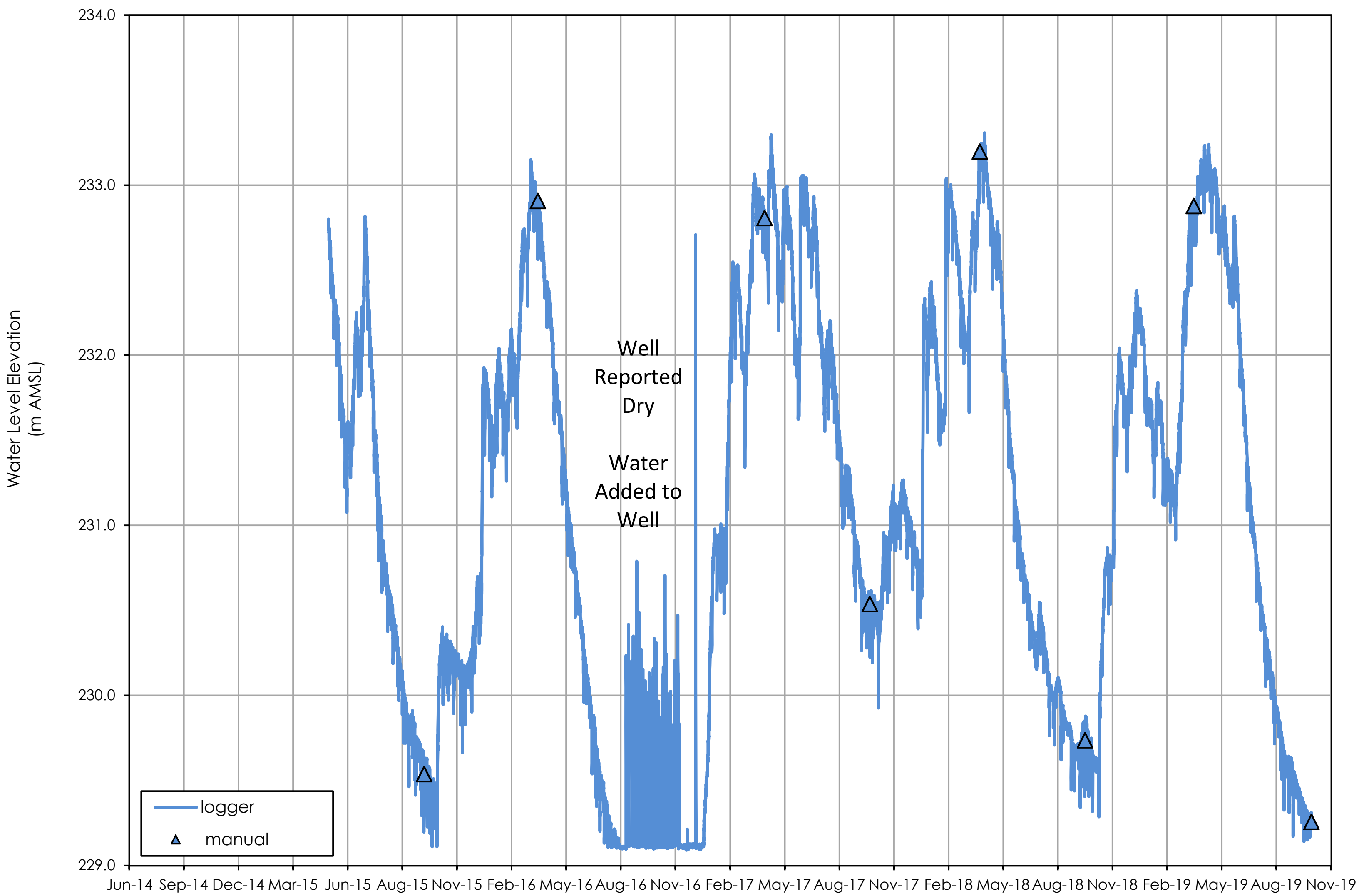
Client/Project

Hydro One Networks Inc.

Stantec

Title

Hydrograph 2 - Shallow Well



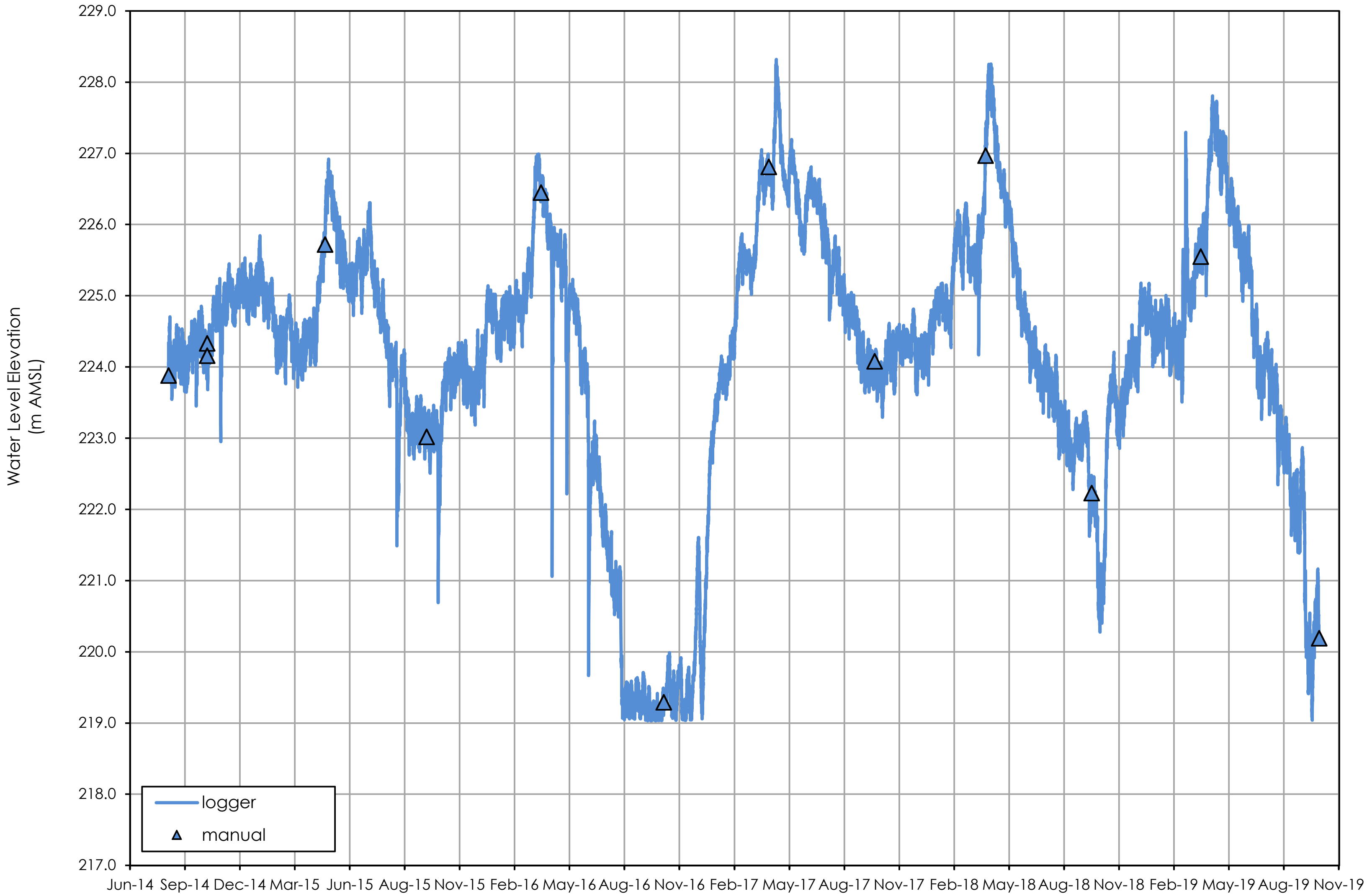
Client/Project

Hydro One Networks Inc.

Stantec

Title

Hydrograph 3 - Shallow Well



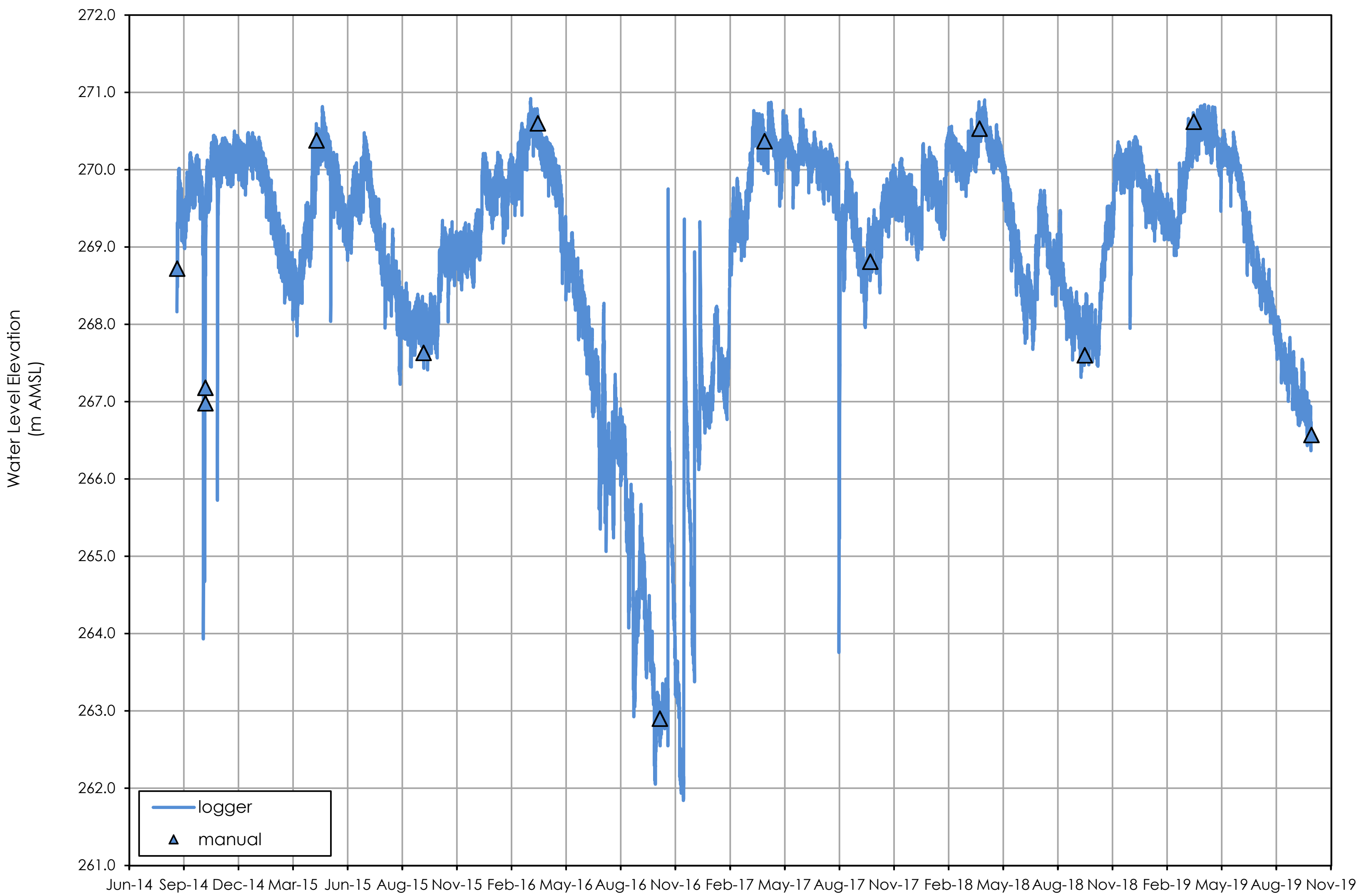
Client/Project

Hydro One Networks Inc.

Stantec

Title

Hydrograph 4 - Shallow Well



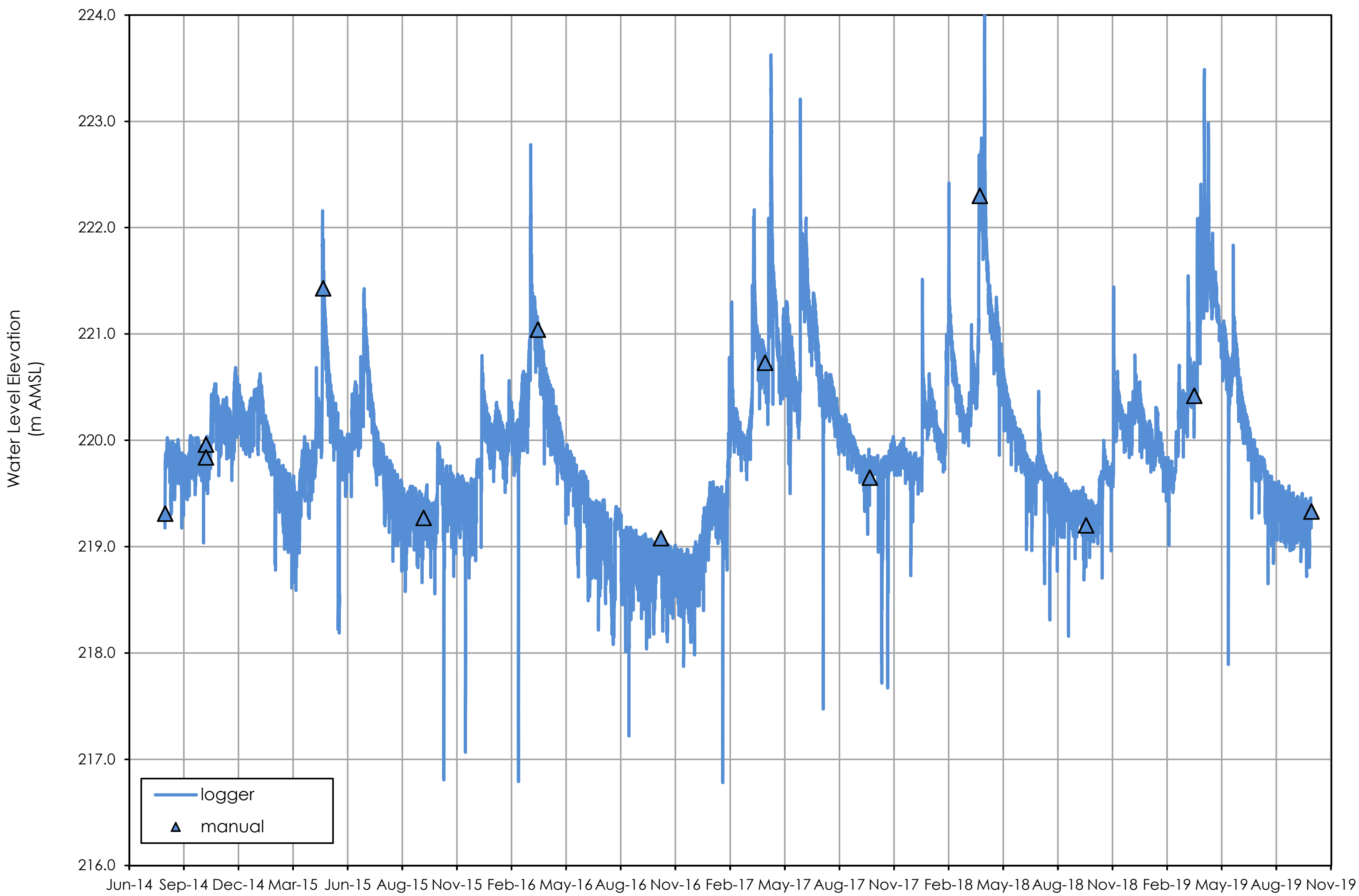
Stantec

Client/Project

Hydro One Networks Inc.

Title

Hydrograph 5 - Shallow Well



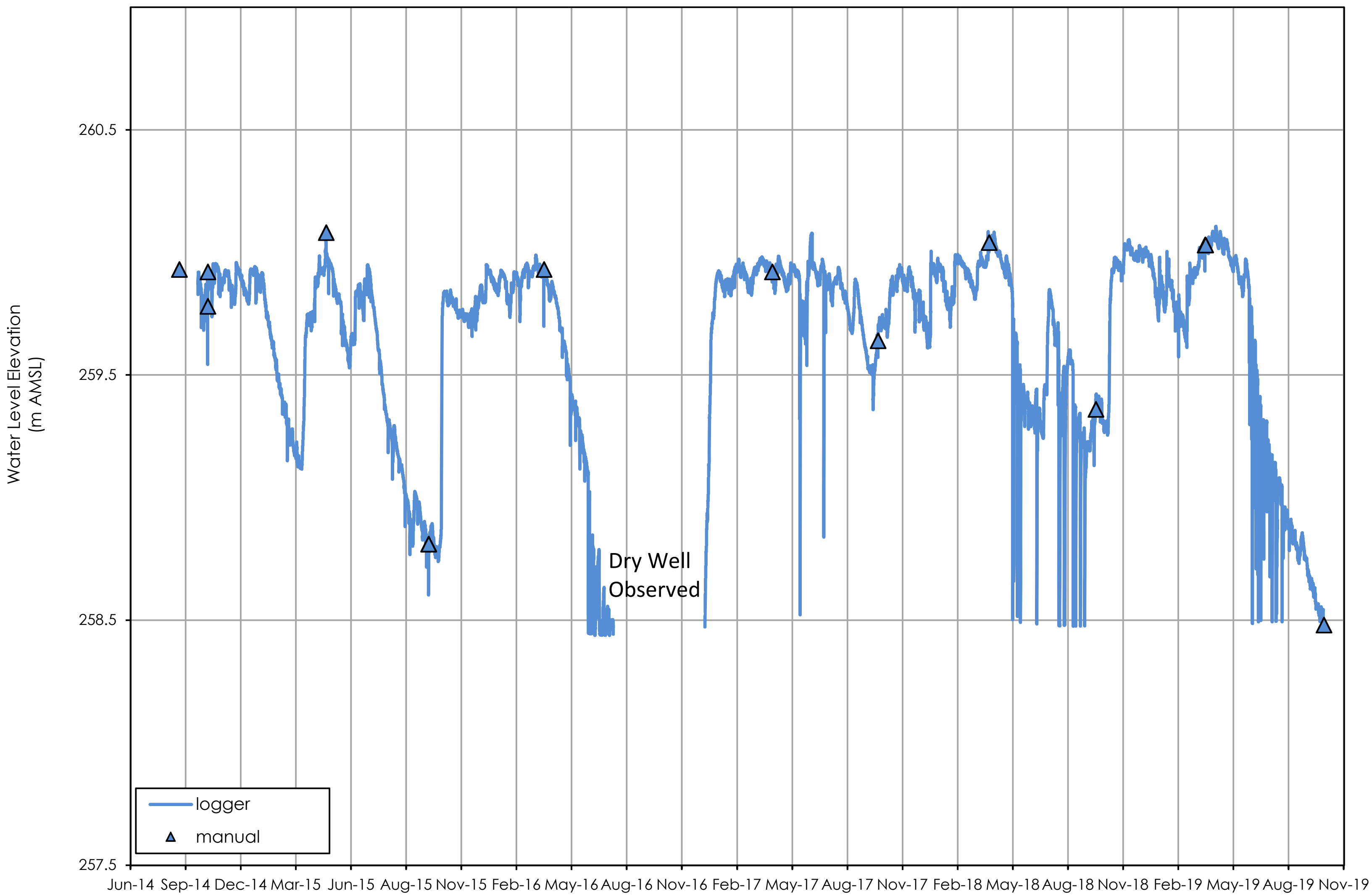
Stantec

Client/Project

Hydro One Networks Inc.

Title

Hydrograph 6 - Shallow Well



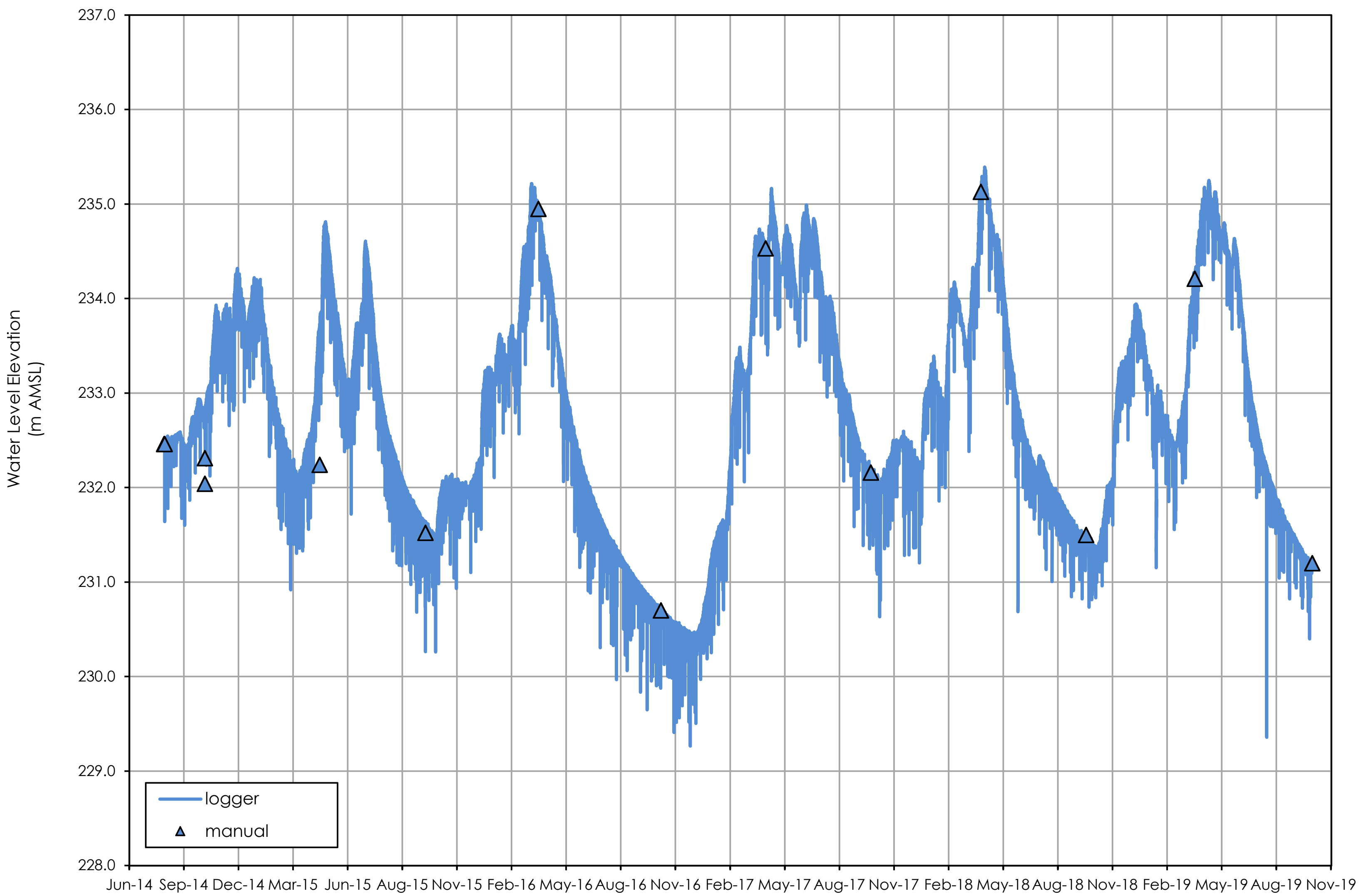
Client/Project

Hydro One Networks Inc.

Stantec

Title

Hydrograph 7 - Shallow Well



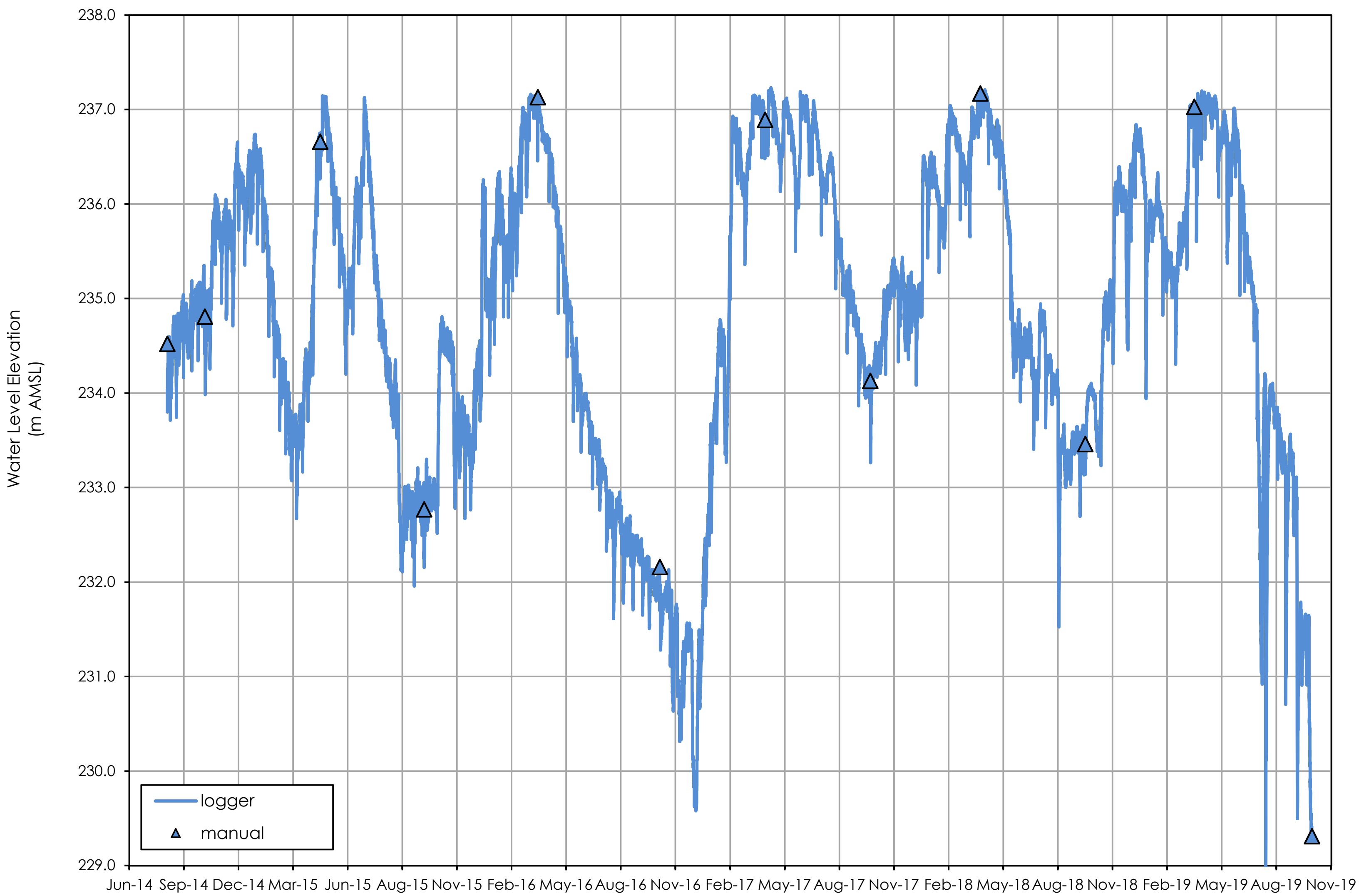
Client/Project

Hydro One Networks Inc.

Stantec

Title

Hydrograph 8 - Shallow Well



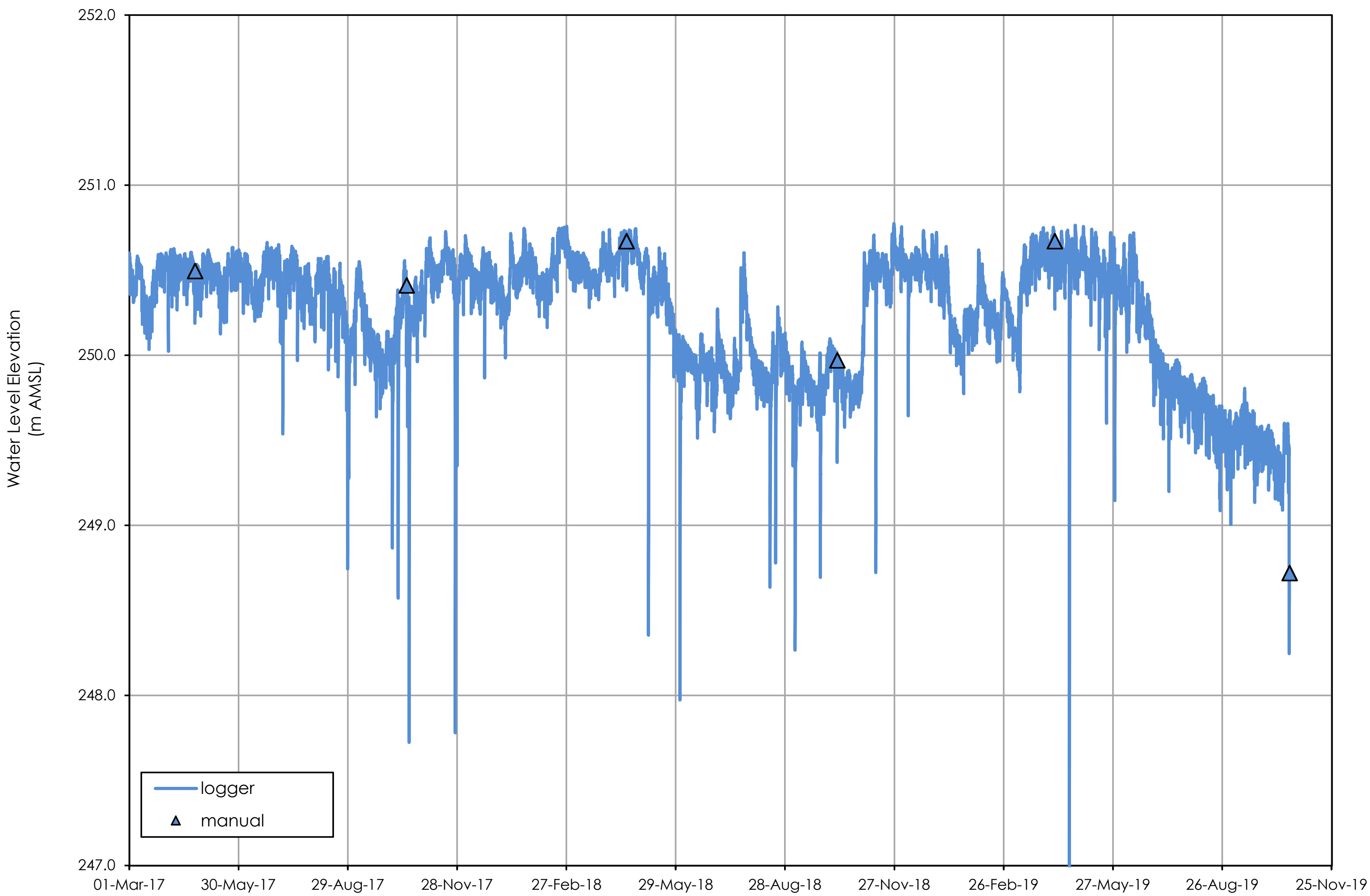
Client/Project

Hydro One Networks Inc.

Stantec

Title

Hydrograph 9 - Shallow Well



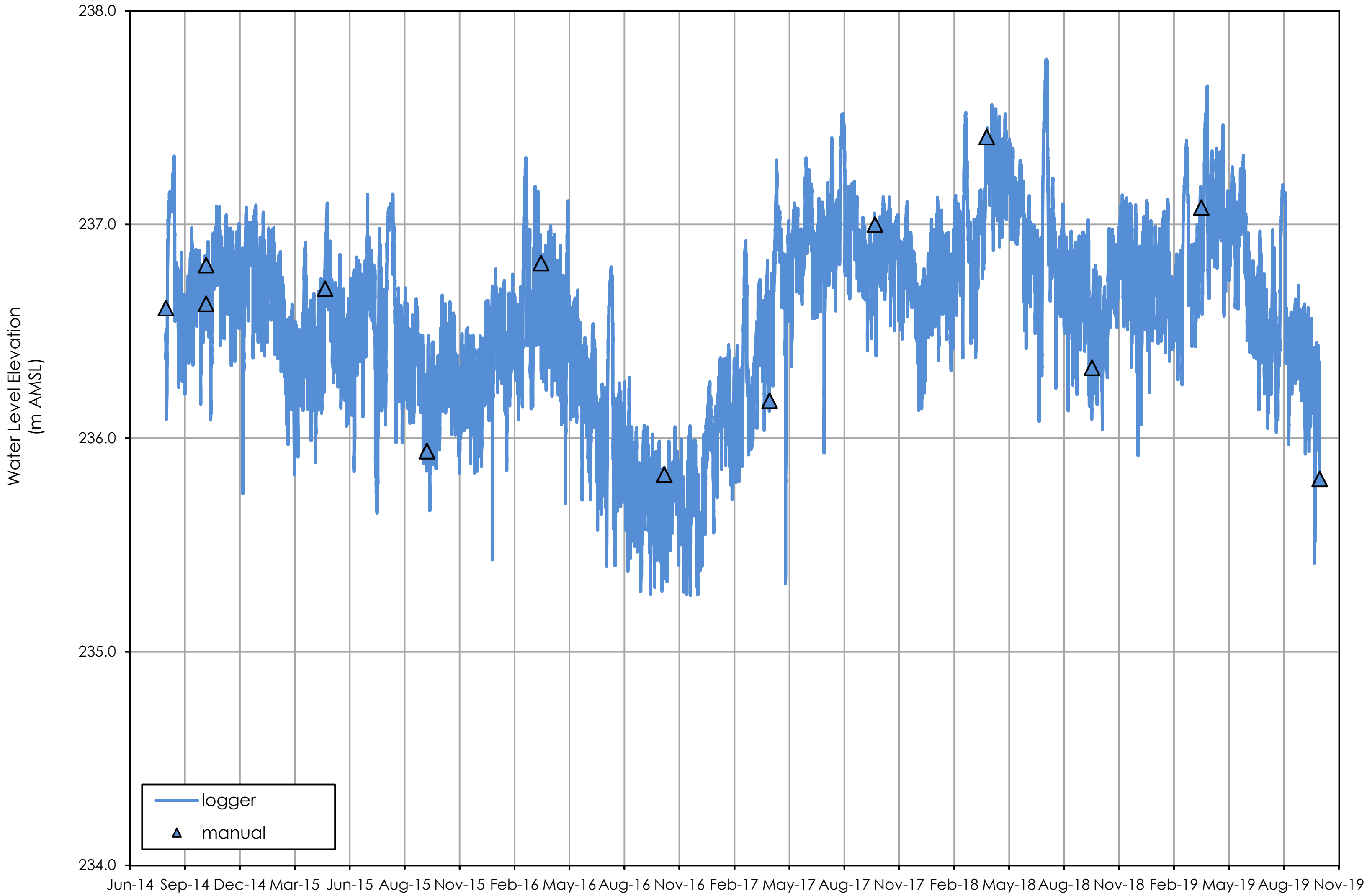
Client/Project

Hydro One Networks Inc.

Stantec

Title

Hydrograph 10 - Shallow Well



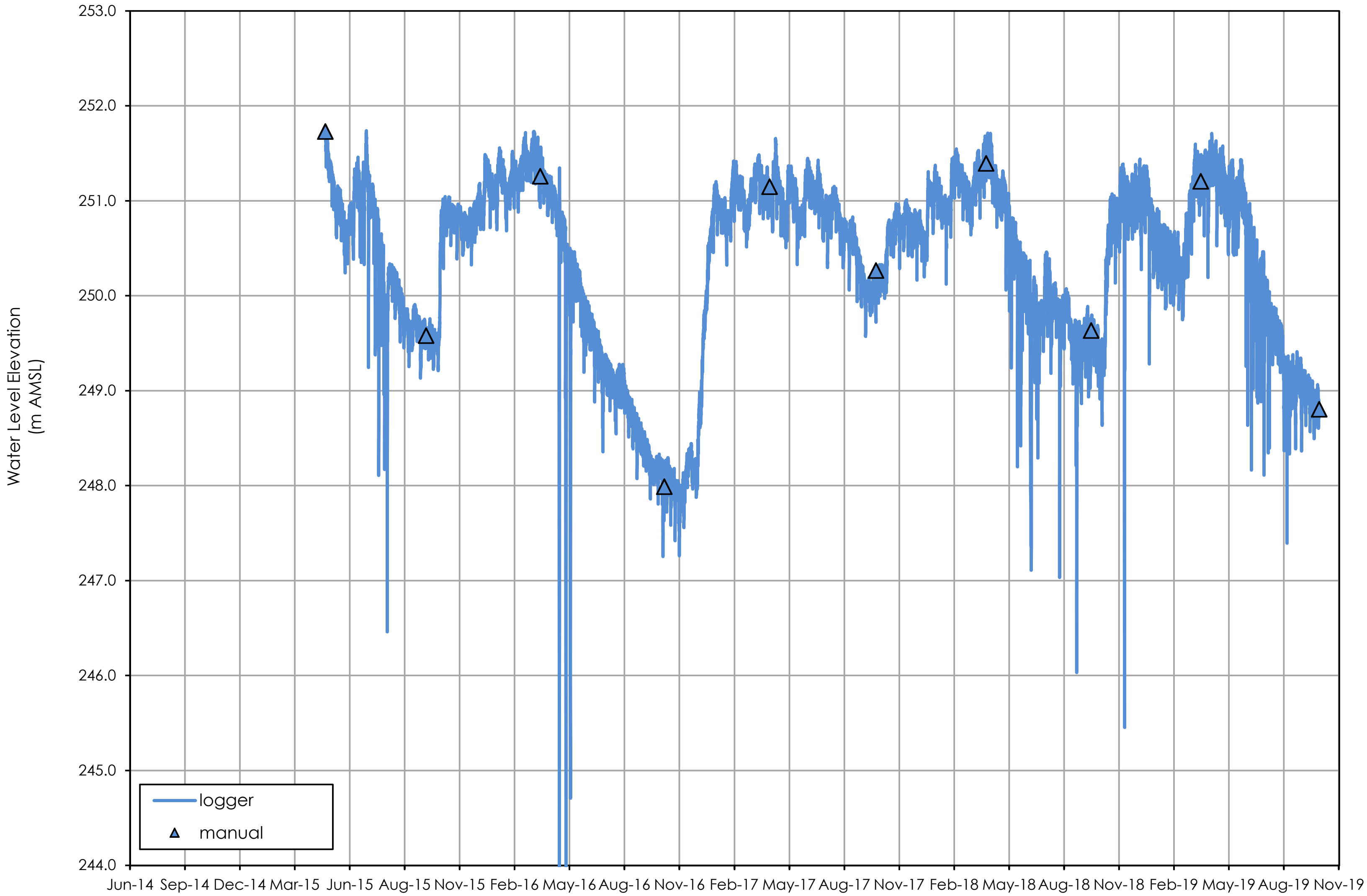
Client/Project

Hydro One Networks Inc.

Stantec

Title

Hydrograph 11 - Shallow Well



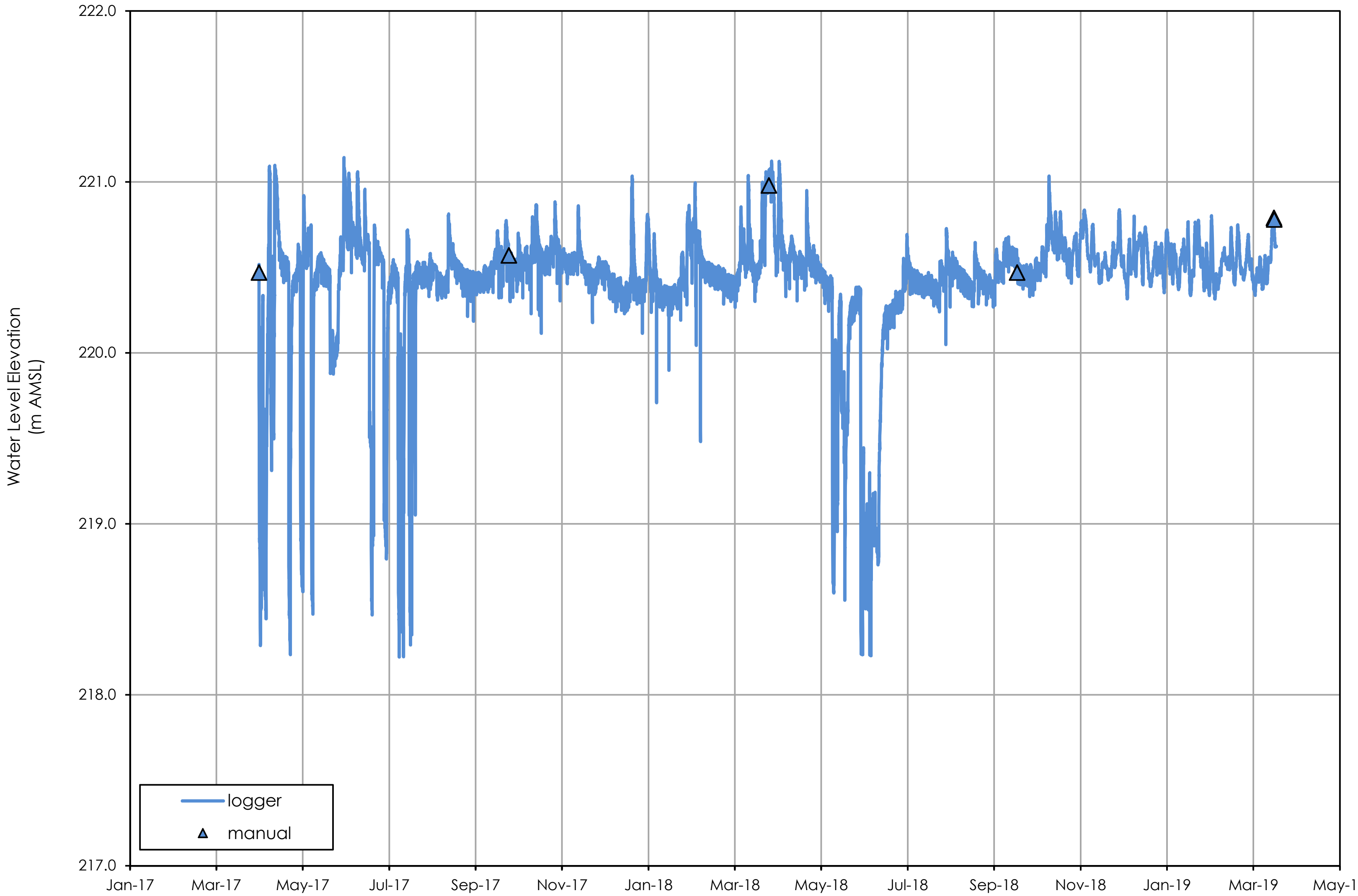
Stantec

Client/Project

Hydro One Networks Inc.

Title

Hydrograph 12 - Shallow Well



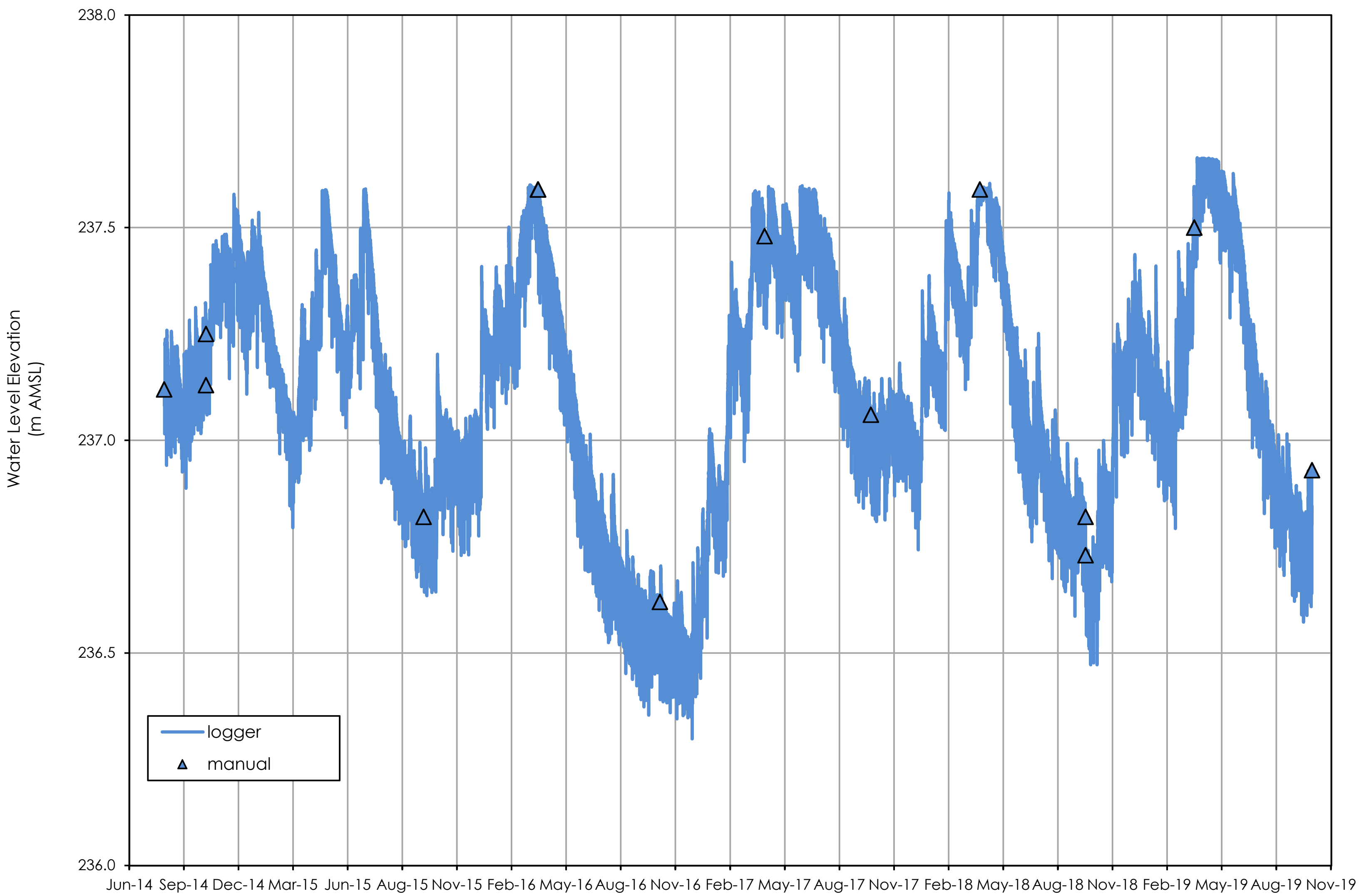
Client/Project

Hydro One Networks Inc.

Stantec

Title

Hydrograph 13 - Shallow Well



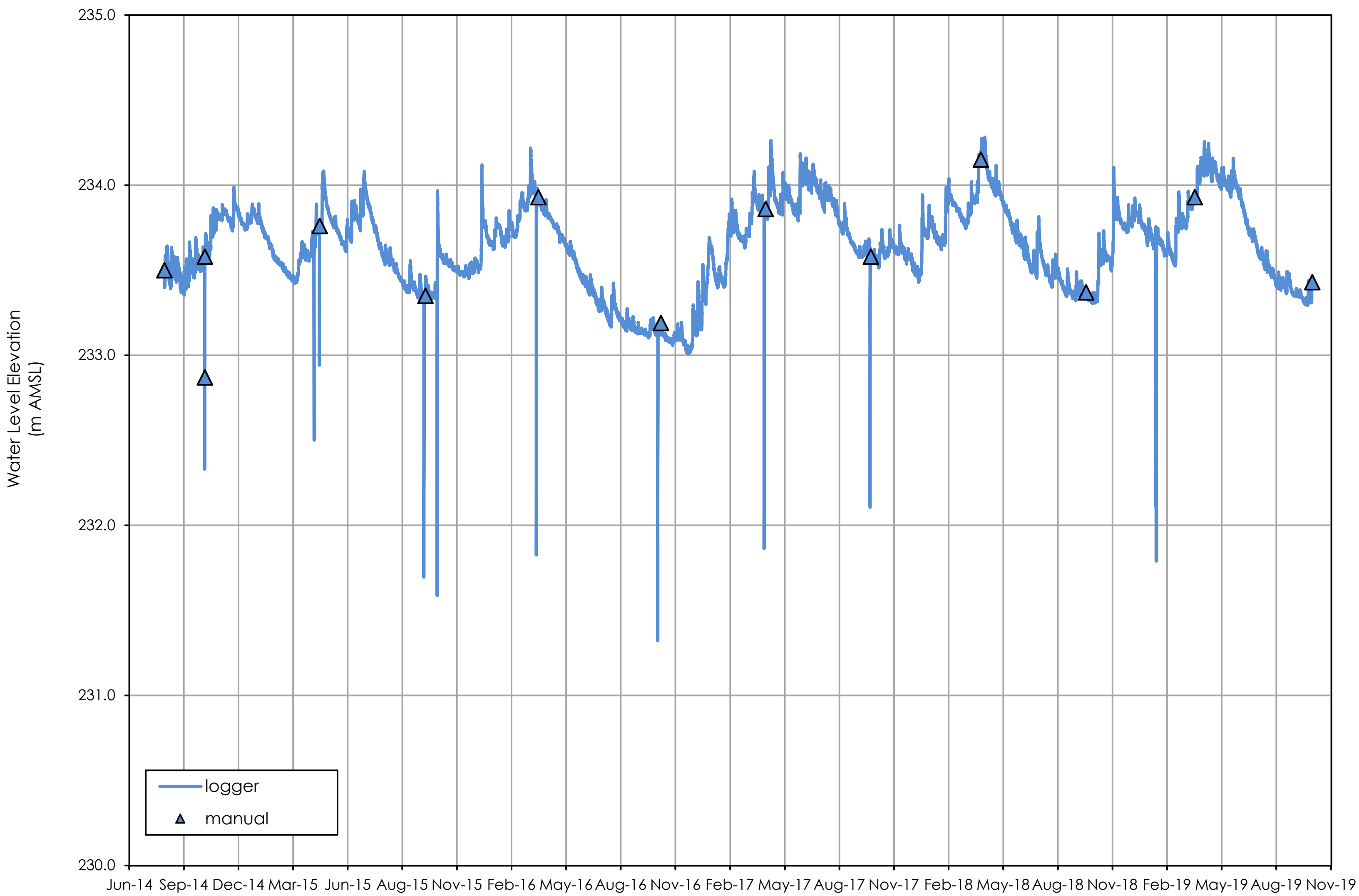
Stantec

Client/Project

Hydro One Networks Inc.

Title

Hydrograph 14 - Shallow Well



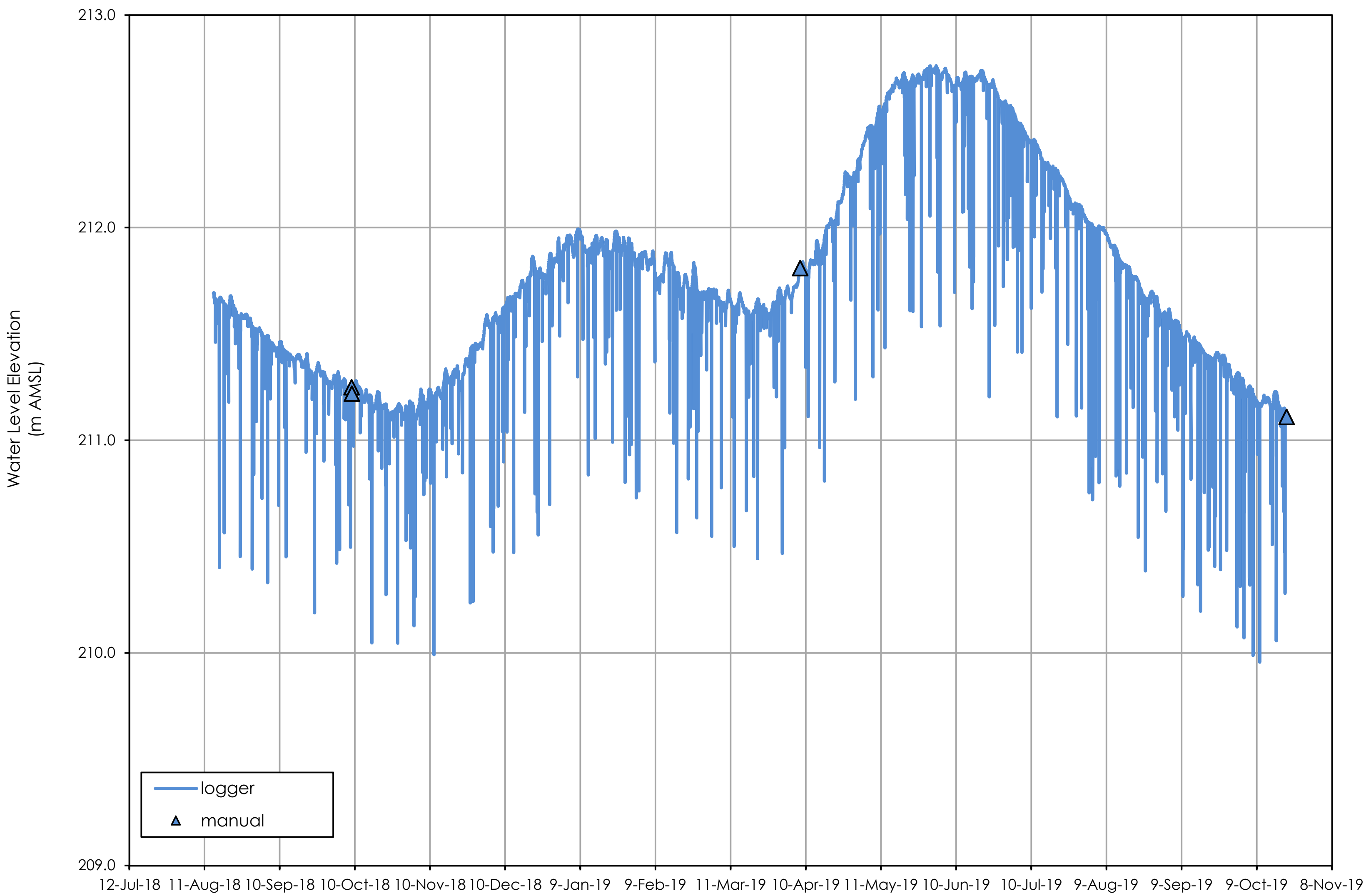
Client/Project

Hydro One Networks Inc.

Stantec

Title

Hydrograph 15- Shallow Well



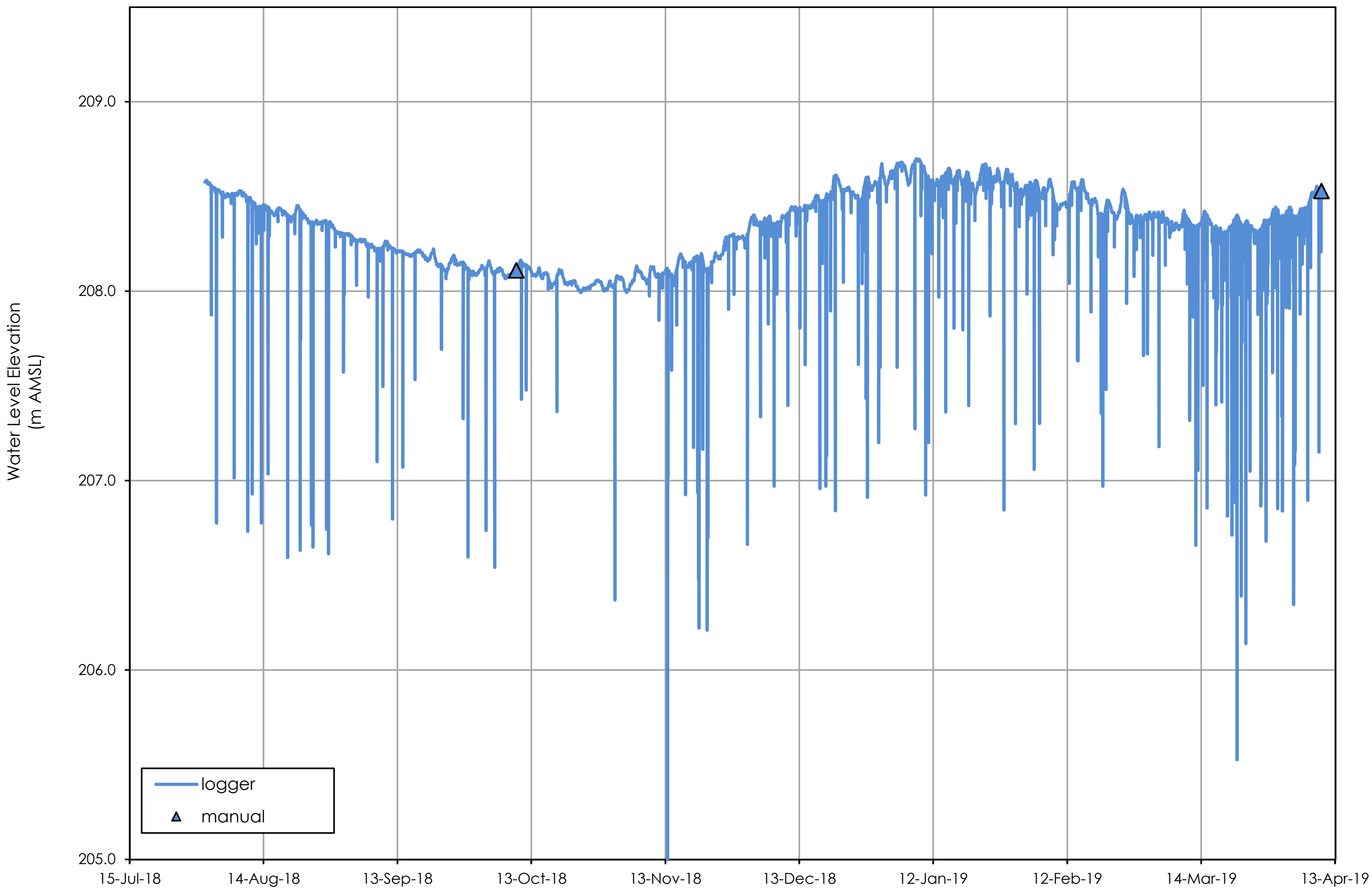
Stantec

Client/Project

Hydro One Networks Inc.

Title

Hydrograph 16 - Deep Well



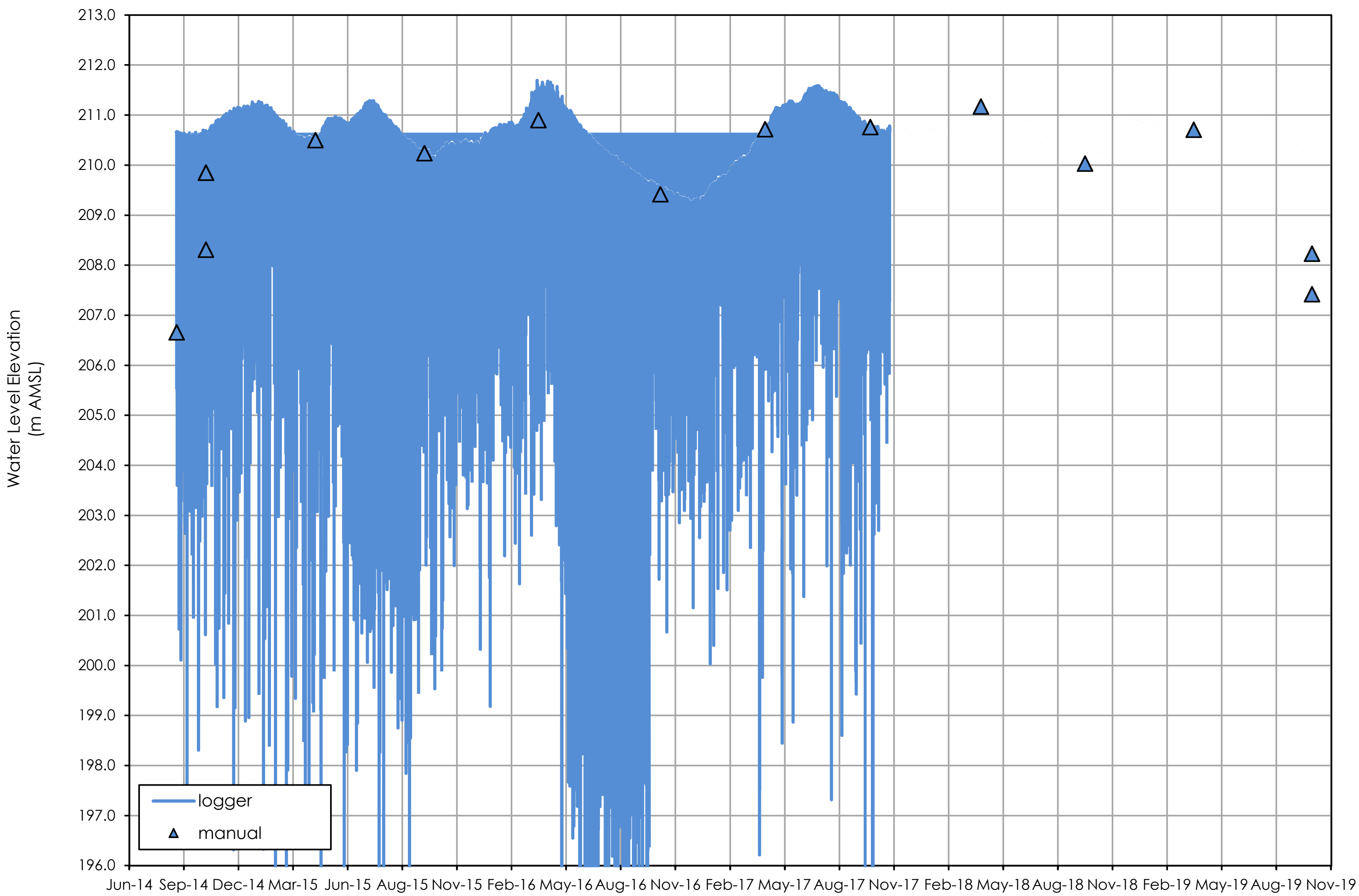
Stantec

Client/Project

Hydro One Networks Inc.

Title

Hydrograph 17 - Deep Well

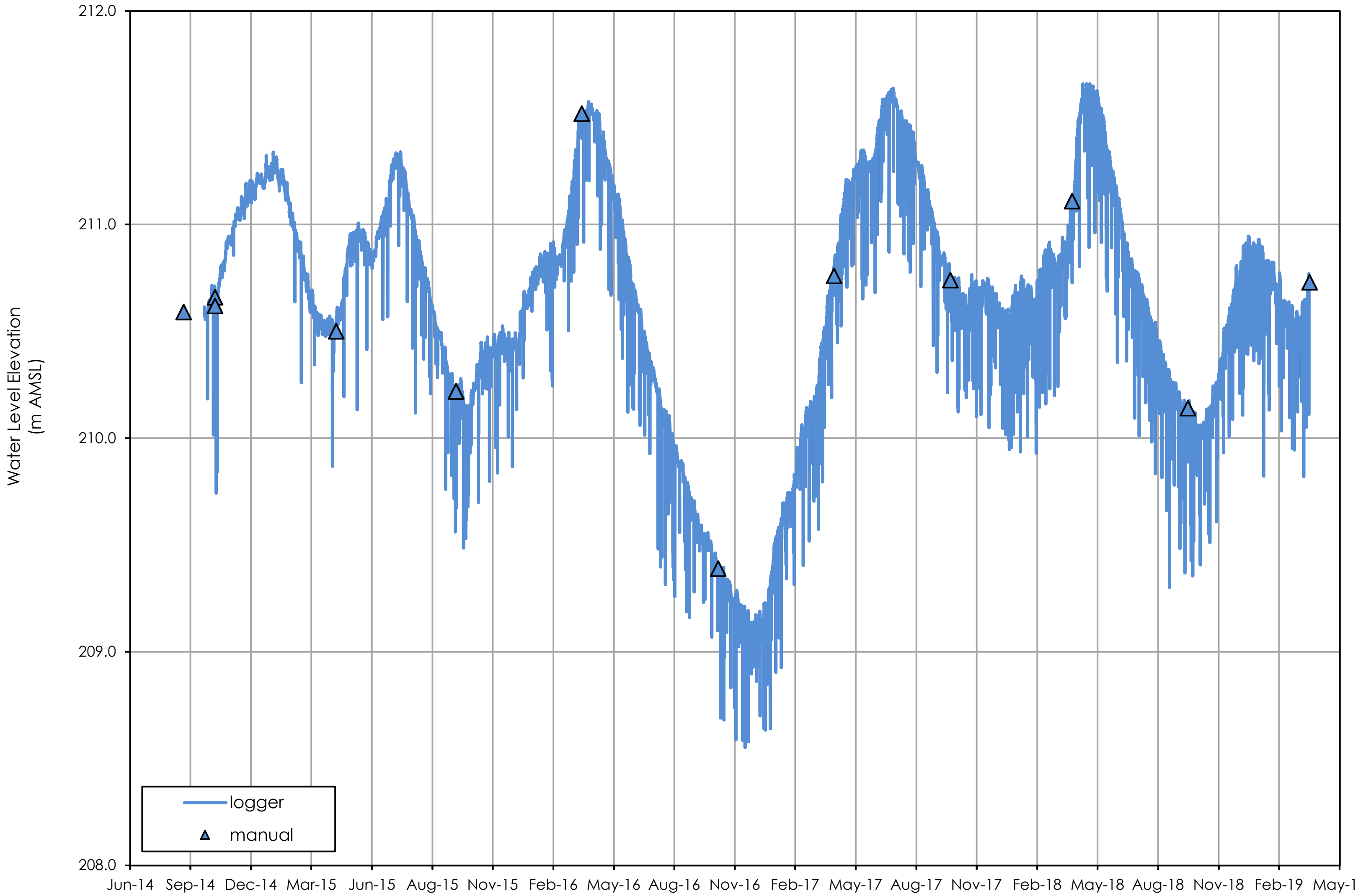


Client/Project

Hydro One Networks Inc.

Title

Hydrograph 18 - Deep Well



Client/Project

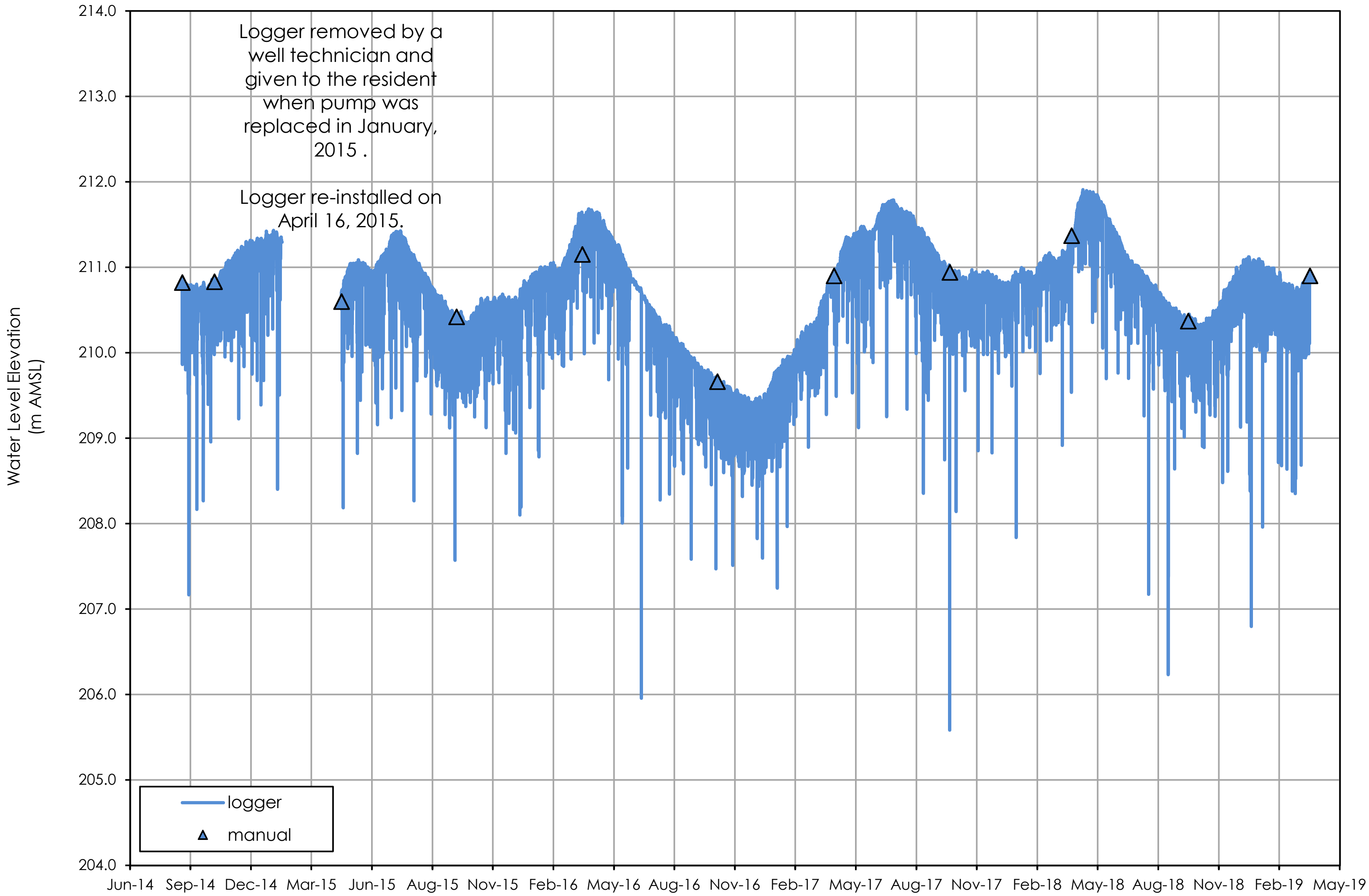
Hydro One Networks Inc.

Stantec

Title

Hydrograph 19 - Deep Well

PW-22.xlsx



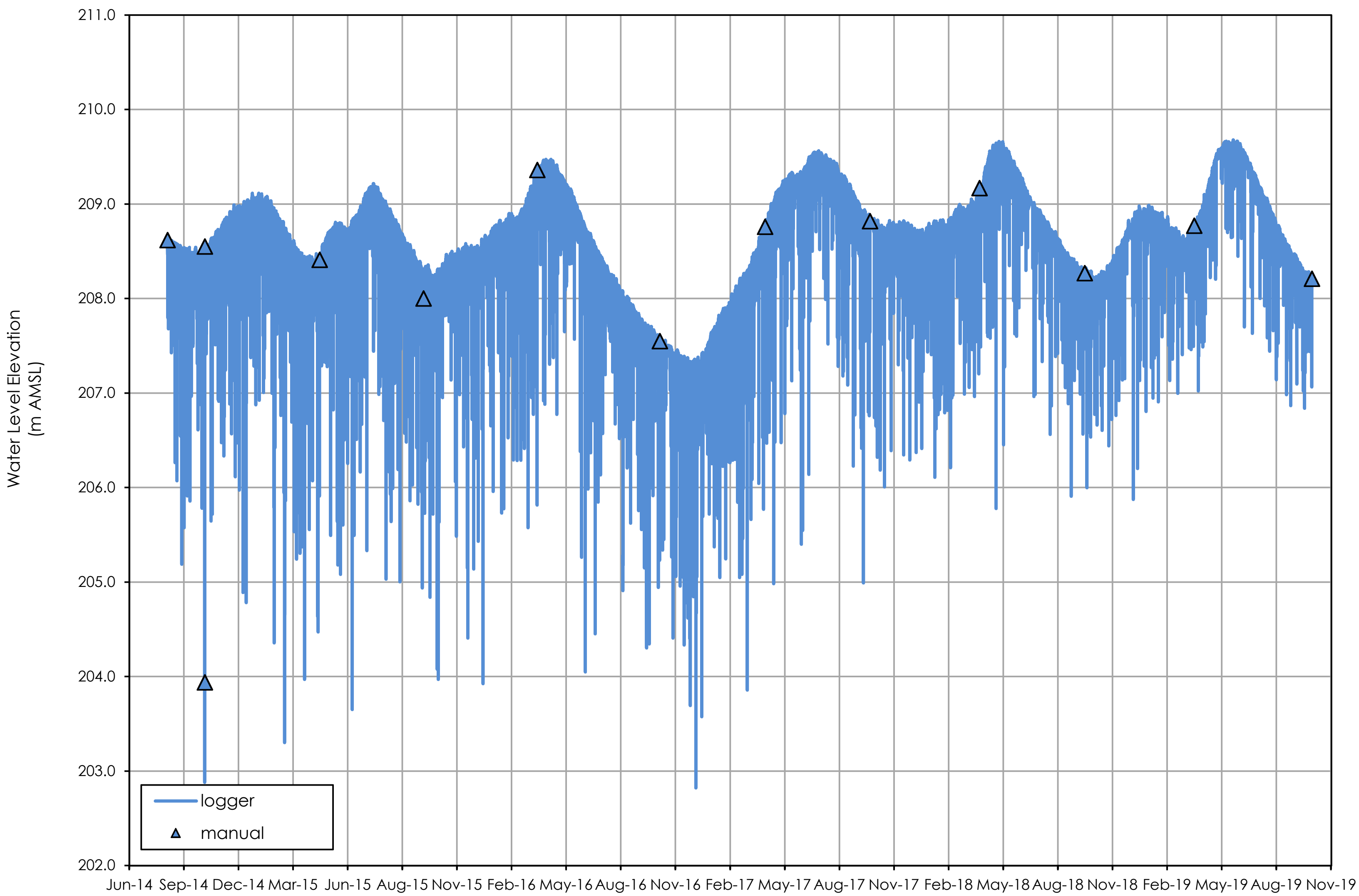
Client/Project

Hydro One Networks Inc.

Stantec

Title

Hydrograph 20 - Deep Well



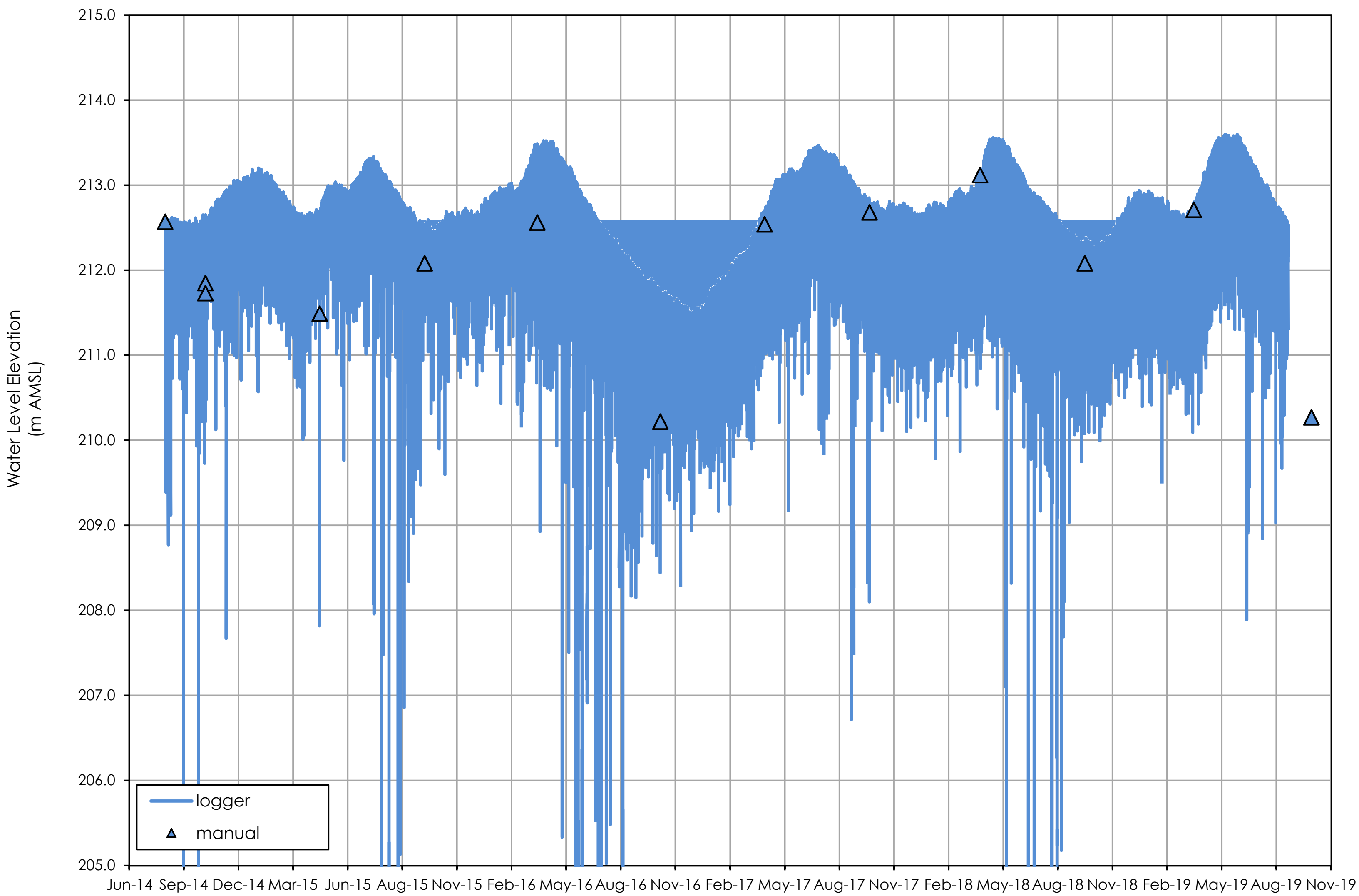
Client/Project

Hydro One Networks Inc.

Stantec

Title

Hydrograph 21 - Deep Well



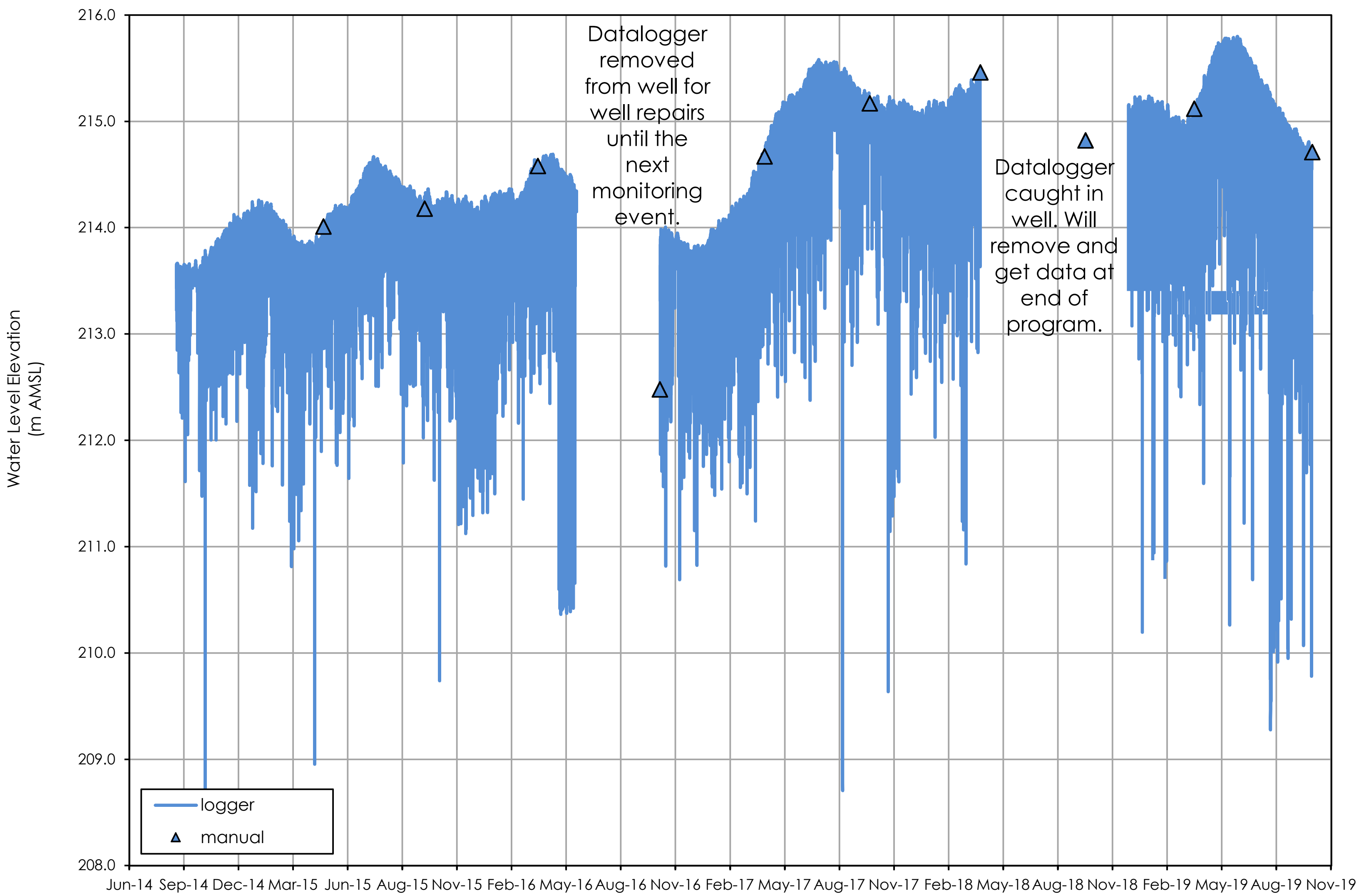
Client/Project

Hydro One Networks Inc.

Stantec

Title

Hydrograph 22 - Deep Well



Client/Project

Hydro One Networks Inc.

Stantec

Title

Hydrograph 23 - Deep Well

APPENDIX E:
Laboratory Certificates of Analysis (on CD)

APPENDIX F:

Historic Data Tables
2013 To 2019 (on CD)