# Appendix

## Clarington CLC Meeting Notes – November 23, 2017

### Questions and Answers (Q/A)

The below responses correlate with questions that were captured throughout the presentations identified in the notes, in addition to others raised during the question/answer period. Hydro One, Stantec and Cole Engineering's responses have been incorporated below.

### Responses to questions from notes

***Question 1a:*** **A member of the EEA read the following statement and asked whether Stantec considered the statement to be correct.**

"When sand lenses are encountered a hydrologist must consider that these sand lenses are connected. This is considered to be true unless scientific data can prove otherwise".

**Response:** Mr. Freymond explained that in order to reach a conclusion about whether sand lenses are connected, it is paramount to rely on data collected from the geologic unit in question. Mr. Freymond explained that a great amount of detailed data has been collected from the Newmarket Till at the Clarington TS site. This data describes the project site hydrogeology and demonstrates that the Newmarket Till is not permeable and is protective of the deeper Thorncliffe aquifer and private wells.

**Question 1b): A member of the EEA read the following statement and asked whether Stantec considered the statement to be correct.**

"When aquitards are encountered, a hydrologist must consider that these aquitards are fractured, cracked or tunneled until scientific data can or will be presented to refute these conditions".

**Response:** Mr. Freymond explained that the best way to examine whether an aquitard is fractured or cracked is to install monitoring wells within the till in order to examine the data provided. Mr. Freymond explained that several monitoring wells have been installed within the Newmarket Till at various depths. These were installed alongside a group of other local researchers including representatives from the G360 Institute for Groundwater Research and hydrogeology students form McMaster University. This data, in conjunction with the other hydraulic and water quality data collected throughout the monitoring program, confirm that there are no hydraulically connected fractures and no vertical sand lenses connecting the upper sand unit to the intermediate sand unit.

Mr. Freymond's presentation to the CLC described the groundwater quality and quantity data which he used to draw this conclusion, including differences in the water levels as well as groundwater chemistry between on-site monitoring wells installed within the shallow overburden compared to much deeper wells installed within the Newmarket Till.

**Question 1c): Resident asked whether benzo-a-pyrene identified in a private well was linked to construction activities on-site**

**Response:** Stantec stated that the well in question being referred to is located in an entirely different watershed from the site, and that construction activities at the site could not have been responsible for any changes in water quality of the private well in question.

Hydro One would like to reiterate that our team has been committed to ensuring that the groundwater and surface water quality and quantity remains protected throughout the construction and operation of Clarington TS. We take well complaints from residents very seriously and on each occasion where a formal complaint has been received, we have followed the Well Interference Response Plan to determine if there is any connection between the well interference in question and our on-site activities.

For each well interference complaint received to date, Stantec has completed an initial assessment of the complaint and has determined that there has not been any connection to the Clarington TS project. Stantec hydrogeologists have also discussed each well interference complaint and outcome with the well owner to explain how this conclusion was reached.

Hydro One remains committed to ensuring that Clarington TS does not adversely affect well water for neighbours in the area and will continue to follow this process and take appropriate action as necessary if future well interference complaints are brought forth.

**Question 2: How can Hydro One construct the Enfield TS near Harmony creek without conducting further research on-site?**

**Response:** Enfield TS will be built as described in the Environmental Study Report filed with the Ministry of Environment and Climate Change in 2008. While some changes are necessary to accommodate the connection of Enfield TS directly to the newly-constructed Clarington TS, these changes will not result in any additional environmental effects beyond those that were described in the Enfield ESR.

During the Class EA for the Clarington TS project, several environmental studies were conducted on the same property which confirmed that the surrounding environment had remained largely unchanged since the Enfield TS Class EA. We have also since implemented an on-site Groundwater and Surface Water Monitoring Program since December 2013, which has deepened our understanding of the site.

**Question 3: Why was the Clarington TS project not identified at the onset of Enfield TS EA process?**

**Response:** In 2008, Hydro One completed a Class Environmental Assessment (EA) process for Enfield TS. As communicated at that time, the need for the station was to transform power from the 230 kV transmission system to a lower distribution voltage which could safely be delivered and used by homes and businesses in Oshawa and Clarington. As a result of the economic downturn and subsequent reduction in local electricity demand, construction of the station was put on hold until a time when the need was reconfirmed.

Throughout the Class EA process, it was discussed that the former Ontario Power Authority (OPA, 2006), now the IESO, the organization responsible for planning the provincial power system at the time, had identified a future need for two 500/230 kV-transformers and a 230-kV switchyard. As captured in the final ESR for the project, the need date for these additional Oshawa Area JCT station facilities was dependent on developments for Darlington NGS expansion and/or Pickering NGS refurbishment.

As such at the time of the Enfield TS EA process, details surrounding the closure of Pickering NGS were not known and Hydro One had not received direction from the OPA to build a station with the capacity of Clarington TS. However, in 2012 the OPA determined that Clarington TS would be required to ensure an adequate and reliable supply of power in the Eastern GTA.

## Responses to questions from general Q&A

**Question 4: Has Stantec reviewed the McMaster thesis? If so, has the research presented caused Stantec to revisit its conclusions?**

**Response:** Mr. Freymond confirmed that Stantec completed an initial review of the McMaster thesis and reiterated that Stantec welcomes any new information about this site for review. Mr. Freymond stated that their review of the thesis did not compel Stantec to change their conceptual model of the site, nor its conclusions that were previously drawn using the data collected through the monitoring program.

**Question #5: Can Hydro One clarify whether the CLC Process can continue and how information will continue to be shared?**

**Response:** In 2014, Hydro One formed the Community Liaison Committee ("CLC") for the Clarington TS project for the purpose of disseminating and exchanging information between Hydro One and members of the community throughout the construction of the project. The formation of this committee was one of the conditions included in the Decision made by the Minister of the Environment and Climate Change's ("MOECC") in 2014. In fall 2017, Hydro One communicated that station construction was complete and some connections were made to bring the station into operation, with additional connections planned for April 2018.

In November 2017, Hydro One informed the MOECC that station construction was complete and the station was operational with additional connections to be made in 2018. We also reiterated that we remain committed to communicating and interacting with community members on an individual basis. In response, the MOECC confirmed that following the CLC meeting of November 2017, Hydro One will have satisfied the CLC condition of the Minister's Decision and that no further CLC meetings will be required.

Hydro One is open to discussing which methods are most effective to ensure community members continue to have an opportunity to meet with Hydro One to ask questions and have any concerns addressed. Hydro One will continue to share the annual reports for the groundwater and surface water monitoring program publicly, and Stantec will continue to send individual results to well owners throughout the duration of the program. Hydro One and Stantec staff will remain available to discuss any aspects of the project and the monitoring program results on an individual basis, as questions or concerns arise.

**Question # 6: Can clarification be provided on whether power transformed from Clarington TS is delivered to Ottawa instead of the Eastern GTA?**

**Response:** Hydro One stated that while the 230 kV and 500 kV circuits and their associated infrastructure extend to the Ottawa area, the general flow of electricity is from east to west (towards Toronto and the GTA). Hydro One clarified that the role of Clarington TS is to ensure that the transmission system can deliver an adequate supply of power and improved service reliability for communities in Durham Region. This will be especially important when Pickering Nuclear Generating Station is retired.

**Question #7: Can clarification be provided on the MOECC's participation at the CLC meeting?**

**Response:** Hydro One clarified that the MOECC was informed of the meeting date and an invitation to attend was extended to them. Hydro One confirmed that all CLC meeting materials would be circulated with staff for review.

**Question #8: Can clarification be provided on whether data collected by the rotosonic well data collected through the CLOCA license be shared with the EEA and members of the general public?**

**Response:** Hydro One continues to support regional research efforts in the Municipality of Clarington, including through the license agreement established with CLOCA and signed in January 2017. Hydro One clarified that data collected through the rotosonic well is owned by CLOCA. Dr. Rick Gerber followed up to provide clarification on the rotosonic well research initiative. He clarified the intent of the data sharing agreement is to share data with all interested parties.

**Question #9:**

**Members of the EEA expressed concern about the validity of the MW5 well cluster as an appropriate baseline measure.**

**Response:** Cole Engineering and Stantec explained that the MW5 well nest is strategically situated to be near and immediately downgradient from the transformers and oil-water separator, and is an excellent representation of the conditions immediately below the Clarington TS. However, MW5 is one of several on-site data points that have fed information into the Site Conceptual Model. Observations and data

collected from other boreholes and monitoring wells (including those on all sides of the TS as well as from within the TS footprint), as well as the secondary source data collected from previous studies and reports in the area, are all largely consistent and have all been taken into consideration in the development of the Site Conceptual Model for the Clarington TS property.

**Question #10: Why was a pump down test request deemed not required to identify sand lenses?**

**Response:** Mr. Gill clarified that through collaboration and agreement with Stantec, MOECC, CLOCA and SLR, a borehole investigation was completed at the central location of where the oil/water separators would be located prior to construction. The borehole (BH9-15) was advanced to a depth of 10.1 m below grade in the presence of representatives from each of Stantec, the MOECC, CLOCA and SLR, and encountered only dense Newmarket Till. Importantly, it did not encounter sand or gravel lens. Following completion of this exploratory borehole, the open hole was found to be dry (no groundwater collected at the bottom of the hole), which is an indication of how dense the Till soil is beneath the Clarington TS. Due to the consistency of the dense till encountered within this borehole in this central location, regulatory agencies MOECC and CLOCA (and observed by peer reviewing consultant SLR) agreed with Stantec that a pumping test would not yield useful results and would not be of any benefit. The dense Newmarket Till encountered beneath the Station limits both horizontal and vertical groundwater flow; effectively protecting shallow and deep groundwater systems.

**Question #11: Why hasn't the rotosonic well been installed?**

**Response:** Hydro One and Dr. Gerber clarified that the advancement of the rotosonic drilling program is currently contingent upon the logistics of the rotosonic drilling and well installation work, which Dr. Gerber is currently determining in conjunction with his research partners.

**Question #12a: Have sand lenses been identified through boreholes other than the one dug for the pump down test?**

**Response:** Mr. Gill explained that at the MW5 location, a sand layer was observed at surface, as well as one deeper sand layer at approximately 55 m below ground surface. Mr. Gill explained that, as described in Roger Freymond's presentation, and based on the drilling investigations within the Project Area, it has been confirmed that there is no continuous sand and gravel layer across the site at depths intersecting the grading within the station area.

Mr. Gill also reiterated that a borehole investigation was completed at the central location of where the oil/water separators are located prior to construction. The borehole (BH9-15) was advanced to a depth of 10.1 m below grade, encountered only dense Newmarket Till, and importantly, did not encounter a sand or gravel lens. Following completion of this exploratory borehole, the open hole was found to be dry (no groundwater collected at the bottom of the hole), which is an indication of how dense the till soil is beneath Clarington TS. Due to the consistency of the dense till encountered within this borehole in this central location, regulatory agencies MOECC and CLOCA (and observed by peer reviewing consultant SLR) agreed with Stantec that a pumping test would not yield useful results and would not be required. The dense Newmarket Till encountered beneath the Station limits both horizontal and vertical groundwater flow; effectively protecting shallow and deep groundwater systems.

Analyses completed for the deeper boreholes/wells drilled in the MW5 nest are presented in Addendum #2 of the Baseline Conditions Report. The refined hydrogeologic model of the site (presented in Section 4.0 of BCR Addendum #2) describes the Newmarket Till layer as extending to depths of 55 – 65 m BGS and containing "thin isolated lenses with more sand or gravel content" at depths well below any excavation or construction work required for Clarington TS.

**Question #12b: Can clarification be provided as to why a borehole for the pump down test wasn't conducted in another location in addition to the one drilled in the centre?**

**Answer:** Mr. Gill clarified that the purpose of a pump down test is to determine if there was a connection between onsite activities and nearby private wells. A borehole investigation was completed at the central location of where the oil/water separators are now located prior to their construction. The borehole (BH9-15) was advanced to a depth of 10.1 m below grade, encountered only dense Newmarket Till, and importantly, did not encounter a sand or gravel lens. Following completion of this exploratory borehole, the open hole was found to be dry (no groundwater collected at the bottom of the hole), which is an indication of how dense the till soil is beneath the Clarington TS. Due to the consistency of the dense till encountered within this borehole in this central location, regulatory agencies MOECC and CLOCA (and observed by peer reviewing consultant SLR) agreed with Stantec that a pumping test would not yield useful results and would not be required. The dense Newmarket Till encountered beneath the Station limits both horizontal and vertical groundwater flow; effectively protecting shallow and deep groundwater systems.

The borehole drilled at the centre of the station was appropriate as it the most technically suitable location to determine whether there may be a hydraulic connection between the location of the transformers and oil/water separators and the nearest private shallow well in comparison to the MW5 borehole.

**Question #12c: Does a pump down test tell you whether there is any connectivity between two watersheds?**

**Answer:** Mr. Gill explained that, depending on the scale of the test being performed, a pump down test could be used to demonstrate connectivity between two watersheds. To measure whether there is connectivity; the test would need to pump water from a well that could produce enough water for continuous pumping. As water is being pumped, a series of nearby monitoring wells would need to be monitored to determine whether water levels change in response to pumping. For the Clarington project, the 10m hole drilled produced no water; therefore, no pumping test was required. The dense Newmarket Till encountered beneath the Station limits both horizontal and vertical groundwater flow; effectively protecting shallow and deep groundwater systems.

**Question #12d: Can clarification be provided on whether the Harmony and Farwell subwatersheds are separate?**

**Response:** Mr. Gill stated that when the shallow groundwater contours (water levels) are mapped, they show very clearly that there is a shallow groundwater divide between the Station site and Langmaid Rd. to the east. Likewise, it can be concluded based on surface topography that surface water in the Harmony Creek watershed does not flow into the Farewell Creek watershed in the vicinity of the project area. Mr. Gill also stated that within deeper groundwater aquifers (such as those at depths of 65 – 75 m BGS), groundwater flow generally originates from the Oak Ridges Moraine in the north and flows southward towards Lake Ontario.

Figure 3-3 in the Clarington TS ESR, and found on our project website, show the watershed/subwatershed boundaries for the area surrounding the Clarington TS.

**Question #12e: Was baseline monitoring completed before the construction of Clarington TS?**

**Response:** Hydro One clarified that the on-site monitoring activities commenced in the fall of 2013 and quarterly samplings were conducted in the winter and spring of 2014. While some lines relocation work began in 2014, Hydro One confirmed that a total of five sampling events took place prior to the commencement of station construction in summer 2015.

**Question #13: Can the transformers on the Clarington TS site be modified to perform the same function as those of Wilson TS?**

**Answer:** Hydro One stated that the transformers at Clarington TS will transform power form the 500 kV system to the regional 230 kV system, which in turn (via stations such as the Enfield TS) will supply the various local distribution systems in the eastern GTA and Durham Region. Hydro One confirmed that the transformers on the Clarington TS site cannot be modified to perform the same function as those of Wilson TS.

**Question #14a: Was an update on the connection of lines to the station provided?**

**Answer:** Throughout the project our team has worked hard to share and disseminate important construction milestones and relevant information with the community. One of the goals of each of each CLC is to review construction accomplishments. As such, the update on the connections was included during our in person CLC meeting.

**Question 14b: Were baseline EMF measurements taken before line connections were made?**

On November 29, 2017 Hydro One retained Kinectrics, an independent inspection and certification company, to complete an assessment of EMF measurements at the time partial connections to Clarington TS were made.

Hydro One will have a separate study completed once all final connections are made.

**Question 15: Request that a follow-up meeting be arranged to discuss how future meetings/discussions will be formatted moving forward.**

***Response:*** While the remainder of work on-site continues, we are open to discussing what methods are most effective in ensuring community members continue to have an opportunity to meet with Hydro One to ask questions and have any concerns addressed.

Hydro One and Stantec staff will remain available to discuss any aspects of the project and the monitoring program results on an individual basis, as questions or concerns arise. Following the CLC, members of Hydro One's team has continued to respond to inquiries from community members as requested.