

Clarington TS Groundwater And Surface Water Monitoring Program

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Agenda Topics

- Background
- Objectives of the Monitoring Program
 - Groundwater Analysis
 - Surface Water Analysis
 - Progress Reporting
- Residential Water Well Monitoring
- Q&A

- Commitment made by Hydro One during the Class EA
- Condition #1 as outlined by the Minister:

Prior to construction the Proponent (Hydro One) shall submit a Groundwater Monitoring Plan to the Regional Director in Central Region (MOE) for review and approval. The Plan shall be in accordance with the Hydrogeological & Hydrological 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.”

Objectives of the Monitoring Program

- Fulfill Hydro One's commitment to implementing shallow/intermediate groundwater and surface water monitoring pre-, during, post-construction
- Refine our understanding of the physical and hydrochemical characteristics of the shallow and intermediate depth groundwater systems
- Establish a pre-construction baseline of groundwater and surface water conditions on-site and in available private wells, including seasonal variations

Overview of the Monitoring Program

- Groundwater
 - Installation of new nested monitoring wells at each side of Clarington TS (completed Fall 2013)
 - 4 “nests” of two wells; on each side of the TS (N, S, E, W)
 - Each nest: one shallow (~3 mbgs) and one intermediate (~15 mbgs) well
 - Hydraulic testing
 - Groundwater quality analysis
 - Groundwater quantity analysis

Overview of the Monitoring Program

- Surface Water
 - Installation of drive point piezometers in three surface water features adjacent to Clarington TS (completed Spring 2014)
 - Surface water quality analyses
 - Surface/shallow GW level and gradient analyses
- Residential Water Well Testing



MP2
MW2-13

MW1-13

MP3
MW3-13

MP4
MW4-13

245

250

- In Spring 2014, Stantec completed hydraulic testing of the newly installed nested groundwater monitoring wells
- Tests consist of displacing the water column within the well and measuring the rate of recovery to static (pre-test) conditions
- Purpose of these tests are to confirm the conclusions from previous research and field studies
- Results will be presented in a Baseline Conditions Report once Fall 2014 monitoring has been completed

- Water samples from each monitoring well will be collected and analyzed seasonally
- Samples will be analyzed by an accredited third-party laboratory and compared to Ontario Drinking Water Quality Standards (ODWQS)
- Laboratory analysis will assess:
 - General Chemistry
 - Metals
 - Hydrocarbons (F1 - F4 and BTEX)

- Nested monitoring wells are installed with automated water level loggers recording data on an hourly basis
- When water quality samples are taken, the logger data are downloaded and analyzed
- Water level data must be corrected for external factors (e.g. barometric data) before providing useful information
- A hydrograph is then generated, showing the short-term and seasonal fluctuations in water level within each monitoring well

- Water samples will be collected from surface water features (adjacent to piezometer locations) seasonally
- Samples will be analyzed by an accredited third-party laboratory and compared to Provincial Water Quality Objectives (PWQO)
- Laboratory analysis will assess:
 - General Chemistry
 - Metals
 - Hydrocarbons (F1 - F4 and BTEX)

- Progress reports will be issued on an annual basis, beginning with a Baseline Conditions Report in Fall 2014
- Annual reporting allows for the analyses of seasonal variations... the “full picture”
- Reports will contain summaries of on-site data (private well data will not be shared publicly)
- Reports will be shared with the CLC and other stakeholders (CLOCA, MOE, EEA etc.) and interested residents

Residential Water Well Monitoring

- Hydro One and Stantec will be offering to monitor well water quality and quantity to well owners directly adjacent to the TS
- Eligible well owners must:
 1. Own or occupy a property directly adjacent to the Clarington TS site
 2. Have a water well that is accessible to Stantec staff
 3. Have signed a consent form allowing Stantec and Hydro One to collect water quality samples and install loggers

Residential Water Well Monitoring

- Similar in methods and scope to the groundwater analyses being completed at the Clarington TS site
- Hydro One will be notifying potentially eligible residents shortly, with follow-up contact and visits to be conducted by Stantec
- Information on residential water wells will not be disclosed publicly
- Well owners will be notified immediately should any health-related parameters exceed the ODWQS

Concluding Remarks

- The Groundwater and Surface Water Monitoring Program will be adaptive
- Changes may be implemented, as determined by Hydro One and Stantec, depending on the monitoring results and interpretations derived from them
- All changes to the program, and the scientific rationale behind them, will be communicated to the CLC and other interested stakeholders

Questions?