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January 9, 2019

Lisa Trevisan, Director, Central Region
Ministry of the Environment, Conservation and Parks
Place Nouveau
5775 Yonge Street, Floor 8
North York, ON M2M 4J1

Dear Ms. Trevisan:

**RE: Durham York Energy Centre
Groundwater and Surface Water Monitoring Plan
Request to Amend Groundwater Monitoring Frequency
Environmental Compliance Approval 7(14)
MECP File #: EA-08-02**

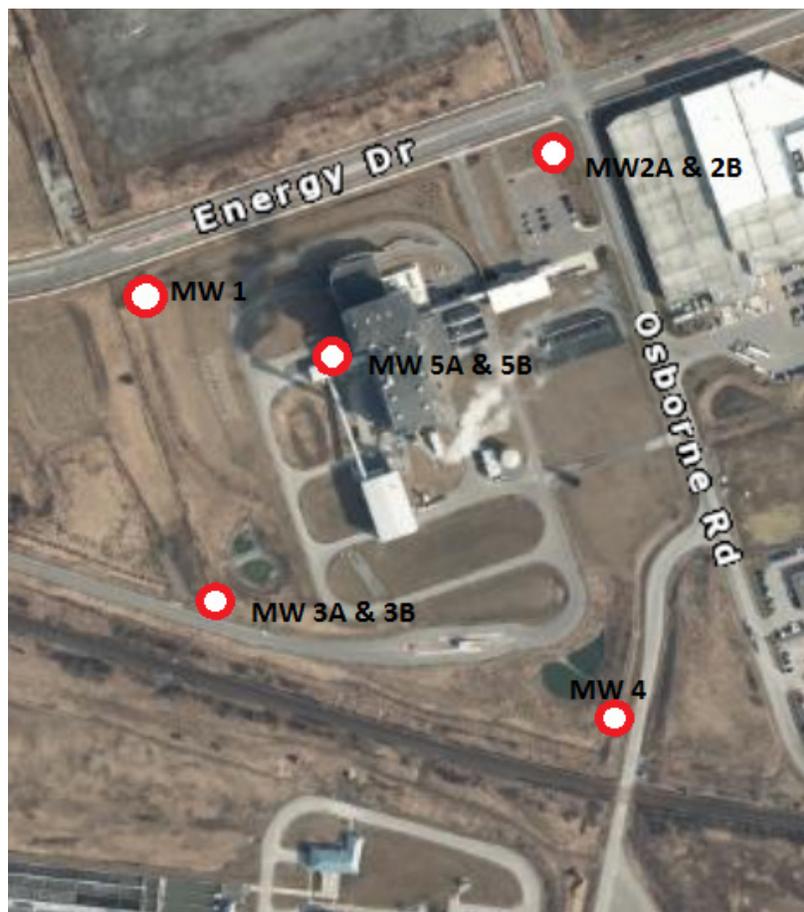
In accordance with Condition 20.4 of the Notice of Approval to Proceed with the Undertaking (Environmental Assessment (EA) Approval) and Condition 7(14) of the Environmental Compliance Approval (ECA), the Regional Municipality of Durham and the Regional Municipality of York (the Regions) have undertaken groundwater monitoring at the Durham York Energy Centre (DYEC) in accordance with the approved Groundwater and Surface Water Monitoring Plan (the Monitoring Plan). Sampling commenced in December 2011, prior to the start of facility construction, and has continued through facility construction and more than three years of DYEC operations. Sampling occurs three times per year in the spring, summer, and fall, and the results of the monitoring program are summarized in annual reports to the Ministry of Environment, Conservation and Parks (MECP).

As summarized in these annual reports, the groundwater monitoring program has shown no adverse impacts from DYEC operations. The Regions therefore propose that the Monitoring Plan be amended to reduce the required groundwater monitoring frequency from three times per year to once per year commencing in 2019. In accordance with Condition 20.5 of the EA Approval, amendments to the Monitoring Plan may be approved by the Director of the MECP Central Region Office. The Regions' rationale for requesting this change is summarized in the following sections.

Summary of Groundwater Monitoring Results

Groundwater is monitored at eight monitoring wells installed in five locations. The locations of the monitoring wells (MW) are shown on Figure 1 below. Based on observed water elevations in these wells, the direction of groundwater flow is interpreted to be toward the southwest. Borehole logs for the monitoring wells confirm that the facility is constructed on silty glacial till soils. Rising head tests performed at the time of monitoring well installation showed hydraulic conductivities ranging from a low of 1.6×10^{-8} m/s at MW3A to a high of 9.0×10^{-7} m/s at MW2A. Based on these hydraulic conductivities and the horizontal hydraulic gradients observed on the site, it is anticipated that groundwater will travel at a rate of approximately one metre per year or less. In the event that a groundwater contamination issue was to develop at the site, the low rate of groundwater flow would limit the rate of contaminant dispersion and provide the Regions with ample opportunity to undertake remediation.

Figure 1: DYEC Monitoring Well Locations



Analytical results for the required groundwater monitoring parameters have shown no significant trends since monitoring began in December 2011 with the exception of some de-icing salt influence observed at MW1, MW2B, MW4, and MW5B. Each of these wells are located directly adjacent to and downgradient from paved surfaces where road salt has been applied during winter months. The highest impacts have been observed at MW4, which reported a chloride concentration of 765 mg/L and a sodium concentration of 148 mg/L in August 2018. However, it should be noted that, while concentrations of salt-related constituents are elevated, concentrations of heavy metals and other contaminants typically associated with waste processing are not elevated. Further, it should be noted that MW3A and MW3B, which are located closer to the waste processing area than MW4, and more directly downgradient, do not currently report elevated concentrations of any monitoring parameter.

Groundwater analytical results to date show no significant seasonal trends and suggest that DYEC operations have not had an adverse effect on groundwater quality at the site. Graphs showing a seasonal comparison of parameter concentrations at each monitoring well are enclosed for reference.

Groundwater Protection Measures

Many design features were incorporated into the DYEC to protect groundwater. These features include the following:

- The DYEC is a zero-process water discharge facility.
- The refuse pit is constructed using one metre thick concrete conforming to Canadian Standards Association (CSA) A23.1 Class C-1 performance standards, which applies to structurally reinforced concrete that is exposed to chlorides at a wide range of temperature conditions.
- The refuse pit is lined on the exterior with a sodium bentonite waterproofing membrane to prevent leakage of water into or out of the pit.
- Refuse pit construction includes PVC water stops in the construction joints which form a continuous, watertight barrier that prevents the passage of fluid.
- Diesel tanks are of double-walled construction with leak detection system and are checked daily per the DYEC Containment Protocol.
- A containment dyke surrounds the ammonia tank. Daily general inspection of the ammonia tank for leaks and annual calibrations of the ammonia alarm are safeguards included in the DYEC Containment Protocol.

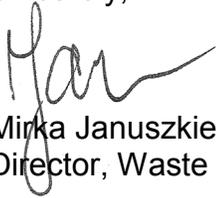
The DYEC also has an approved Spill Contingency and Emergency Response Plan in place which details the actions to be taken and the measures in place to mitigate on-site spills.

In conclusion, the DYEC facility design includes rigorous engineering controls and operating procedures to ensure groundwater protection. Monitoring results to date have demonstrated the effectiveness of these groundwater protection measures and have confirmed the absence of any impacts to groundwater resulting from waste processing operations. The Regions consider the risk associated with reducing the frequency of groundwater monitoring to once per year to be low.

Subject to MECP approval, the Regions would continue to sample groundwater once per year in the fall, commencing in 2019. There would be no other changes to groundwater monitoring parameters or procedures and the Regions would continue to provide an annual report by April 30 of each year for the monitoring results in the previous calendar year.

If you require any further information, please contact Mr. Gioseph Anello, Manager of Waste Planning and Technical Services, at 905-668-7711 extension 3445.

Sincerely,



Mirka Januszkiewicz, P.Eng.
Director, Waste Management Services

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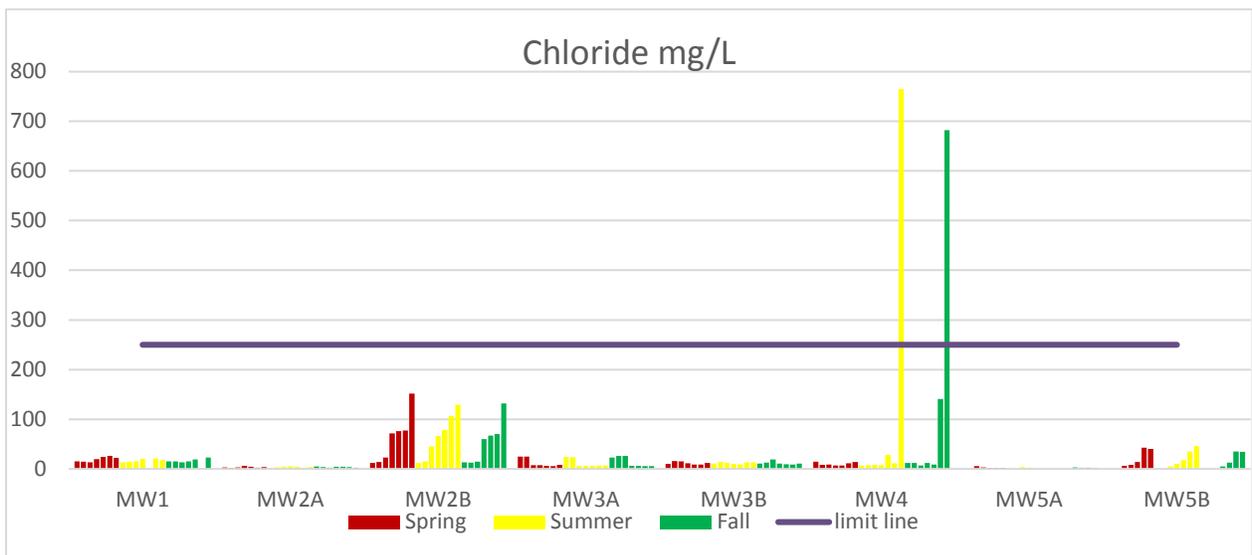
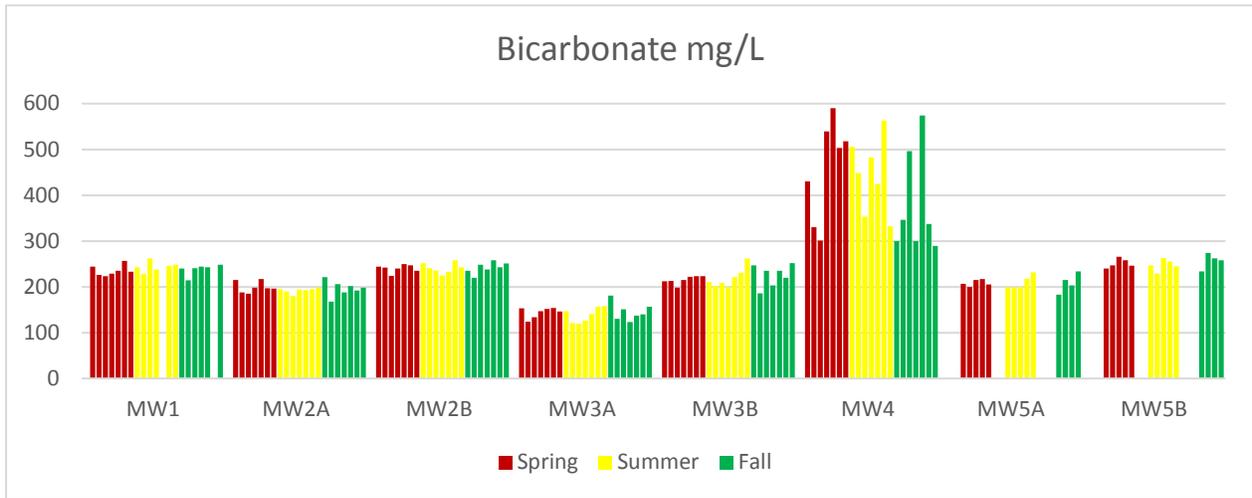
Laura McDowell, P.Eng.
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- A. Huxter, Environmental Specialist, Covanta
Energy from Waste Advisory Committee (EFWAC)
- C. Raynor, Regional Clerk, The Regional Municipality of York
- R. Walton, Regional Clerk, The Regional Municipality of Durham

Enclosure

Seasonal Comparisons of Parameter Concentrations at Monitoring Wells: MW1, MW2A, MW2B, MW3A, MW3B, MW4, MW5A, and MW5B for the Durham York Energy Centre



Seasonal Comparisons of Parameter Concentrations at Monitoring Wells: MW1, MW2A, MW2B, MW3A, MW3B, MW4, MW5A, and MW5B for the Durham York Energy Centre

