EXECUTIVE SUMMARY

Union Gas Limited retained ORTECH Consulting Inc. (ORTECH) to update the Emission Summary and Dispersion Modelling (ESDM) Report for the Parkway West Compressor Station (the Facility). The Facility is located at 6679 Eighth Line in Milton, Ontario.

This ESDM report was updated to reflect the following modifications:

- Addition of catalytic convertors to two emergency generators (EG1 and EG2);
- The rated capacity, stack release type and stack height for two emergency generators (EG1 and EG2) are updated;
- The release type and release height for two firewater pumps (FP1 and FP2) are updated;
- New operation scenarios are added to assess that only one of two firewater pumps is operated at one time;
- The coordinates for the property line, buildings and sources are updated, based on the latest Google Earth satellite images.

The proposed Parkway West Compressor Station is intended to compress natural gas for transmission purposes. The NAICS Code applicable to the facility is '486210 – Pipeline Transportation of Natural Gas'. Facilities described by this NAICS Code are not listed on Schedules 4 or 5 of Ontario Regulation 419/05 and are therefore not required to demonstrate air compliance using advanced modelling with Schedule 3 standards under section 20(4) of O.Reg. 419/05 until February 1, 2020. However, Union Gas has applied for and received a s.20 speed-up notice for nitrogen oxides (NO_X) emitted from their compressor stations (#7353-7G6LPK, issued November 28, 2008) and therefore, Schedule 3 standards have been used to assess NO_X emissions from the Facility.

This ESDM Report follows the requirements of O.Reg. 419/05 (the Regulation) and the Ontario Ministry of the Environment, Conservation and Parks (Ministry) Guideline A-10 "Procedure for Preparing an Emission Summary and Dispersion Modelling Report, March 2018, Version 4.1," (the Procedure) (PIBs #3614e04), and Guideline A-11 "Air Dispersion Modelling Guideline for Ontario, February 2017, Version 3.0" (the ADMGO) (PIBs #5165e03), and references the Union Gas's "Assessment Protocol for Compressor Stations "prepared by ORTECH (the Protocol dated February 27, 2014).

The ESDM report includes the quantification of nitrogen oxides (NO_X) emission rates for all significant sources of contaminants at the Facility and an estimation of the aggregate maximum point-of-impingement (POI) concentrations of NO_X.

The emission rates that have been calculated in this ESDM report are for maximum 1-hour and 24-hour operating scenarios as per O.Reg. 419/05 Schedule 3 regulatory requirements. Due to the underlying assumptions used for this scenario, the emission rates cannot be realistically extrapolated to other time periods and should not be used for such purposes.

As shown on Table 1, the predicted maximum NO_X POI concentrations resulting from the maximum emission scenario of both the turbines operating at full load are below the corresponding Ministry POI limits. The maximum 1-hour NO_X POI concentration resulting from a maximum emission scenario of all equipment operating at full load, including the turbines, as well as testing all emergency generators and the firewater pump simultaneously, is also below the relevant Ministry NOx POI limits.

This ESDM Report also includes an assessment of compliance with Ministry Guideline A-5: Atmospheric Emissions from Stationary Combustion Turbines for the proposed new turbine units. The primary requirement of Guideline A-5 is achieving designated maximum concentrations of NO_X, CO and SO_2 in the exhaust flow. The design specifications indicate that the units will exceed the requirements. All turbines subject to Guideline A-5 emission limits must be tested to confirm compliance with the limits.

Table 1 - Emission Summary Table

Scenario [1]	Contaminant Name	CAS#	Maximum Emission Rate (g/s)	Air Dispersion Model Used	Maximum POI Concentration [2] (µg/m^3)	Averaging Period (hr)	Ministry POI Limit [3] (µg/m^3)	Limiting Effect	Regulation Schedule #	Maximum % of POI Limit
Turbines (Turbines C and D)	Nitrogen Oxides	10102-44-0	9.24	AERMOD 16216r	108.4	1	400	Health	3	27%
					47.4	24	200	Health	3	24%
All_S1 (Turbine C and D, Emergency Generator 1 & 2, Admin Building Emergency Generator, Firewater Pump 1)	Nitrogen Oxides	10102-44-0	10.63	AERMOD 16216r	552.3	0.5	1880	Health	[4]	29%
All_S2 (Turbine C and D, Emergency Generator 1 & 2, Admin Building Emergency Generator, Firewater Pump 2)	Nitrogen Oxides	10102-44-0	10.63	AERMOD 16216r	519.6	0.5	1880	Health	[4]	28%

Note:

[1] "Turbines", "All_S1" and "All_S2" are group names in the AERMOD model.

[2] Meteorological outliers have been removed from the results in accordance with Section 6.5 of the ADMGO.

[3] "Air Contaminants Benchmarks (ACB) List: Standards, guidelines and screening levels for assessing point of impingement concentrations of air contaminants, April 2018, Version 2.0" (Ministry POI Limits).

[4] 0.5 hr screening limit of 1,880 ug/m^3 is given in the Ministry publication 7976e "Emergency Generator Checklist, Supplement to Application for Approval, EPA s.9", November 2010.