Executive Summary of the
Emission Summary and Dispersion Modelling Report
For the Heritage Pool Station
Dated August 27, 2018

Union Gas Limited (Union Gas) retained ORTECH Consulting Inc. (ORTECH) to update an Emission Summary and Dispersion Modelling (ESDM) Report for the Heritage Pool Station (the Facility) located at 454 Bickford Line, Lot 26 Concession 1, St. Clair Township, County of Lambton, Ontario.

An original ESDM (ORTECH Report No. 90550-2, August 22, 2008) was prepared by ORTECH to support the application for the Province-wide Environmental Compliance Approval (PWECA) Number 1949-7KRMC5 issued on November 28, 2008. An updated ESDM (ORTECH Report NO. 91115-2-19, March 13, 2013) was prepared by ORTECH to include a catalytic converter installed on the reciprocating engine. The PWECA has been amended in 2014 (Number 3468-9DUJMT dated March 7, 2014) and 2017 (Number 7550-AHJU6T dated January 20, 2017 and Number 2592-AQPSJ2 dated September 20, 2017) without any modifications to the Facility. Therefore, the Facility currently operates under the PW ECA (Number 2592-AQPSJ2 dated September 20, 2017).

This ESDM Report is to assess the proposed modifications listed below:

- Replacement of previously approved dehydrator/reboiler with a new line heater;
- Administration changes of as-building exhaust details for the existing Waukesha F18GSI 400 HP reciprocating engine (compressor).

The Facility includes one (1) existing Waukesha F18GSI 400 HP reciprocating engine (compressor) and one (1) new 3.5 MMBtu/hr NATCO 5B36-248 line heater.

The Facility provides is used to compress natural gas for transmission and storage 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 emission 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) "Procedure for Preparing an Emission Summary and Dispersion Modelling Report, April 2018, Version 4.1," (the Procedure)(PIBs #3614e04.1), and "Air Dispersion Modelling Guideline for Ontario, February 2017, Version 3.0" (the ADMGO)(PIBs #5165e03), and references the Union Gas "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 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 annual values and should not be used for such purposes.

The Emission Summary Table (Table 1) shows:

- all of the significant sources and associated air contaminants;
- the maximum total facility emission rates and maximum 1-hour and 24-hour POI concentrations calculated by air dispersion modelling;
- the Ministry "Air Contaminants Benchmarks (ACB) List" Version 2.0 – April 2018 (Ministry POI Limits) used to evaluate all significant contaminant concentrations; and
- the maximum percentages of the Ministry POI Limits, where available, or the applicable alternative.

As shown in Table 1, the predicted maximum POI concentrations of nitrogen oxides resulting from the maximum emission scenario are below the Ministry POI Limits. Under the worst-case operation conditions described in Section 4 and exhaust parameters presented in Table 3, the new dry line heater and the existing reciprocating engine (compressor) comply with Ministry POI Limits and no further mitigation measures are required.

Table 1: Emission Summary Table

Contaminant Name	Contaminant CAS #	Total Facility Emission Rate (g/s)	Air Dispersion Model Used (include version code)	Maximum POI Concentration [1] (µg/m^3)	Averaging Period (hours)	Ministry POI Limit [2] (µg/m^3)	Limiting Effect	Regulation Schedule # [3]	Percentage of Ministry POI Limit (%)
Nitrogen Oxides	10102-44-0	1.96E-01	AERMOD 16216r	49.9	1	400	Health	3	12%
				30.7	24	200	Health	3	15%

Note:

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

[2] "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).

[3] Schedule 3 indicates a standard listed in the corresponding schedule of O. Reg. 419/05.