

EXECUTIVE SUMMARY

Enbridge Gas Inc. operating at Union Gas (Enbridge) retained ORTECH Consulting Inc. to update the Emission Summary and Dispersion Modelling (ESDM) Report for the Hagar Compressor Station, which is located at 317 Northern Central Road, Hagar, Ontario (the Facility). The ESDM Report was previously updated to include a salt bath heater and modify the height of stacks, and assess the worst case scenarios and the new property line.

This ESDM is updated to identify and assess actual operating conditions during the liquefaction, storage, vaporization phases.

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, March 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’s Assessment Protocol for Compressor Stations (the Protocol).

The Facility is used to compress and liquefy natural gas for transmission and storage purposes respectively. The NAICS Code applicable to the facility is ‘486210 – Pipeline Transportation of Natural Gas’.

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 rate cannot be realistically extrapolated to other time periods and should not be used for such purposes.

The Emission Summary Table (Table 1) shows:

- 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 scenarios are below the Ministry POI Limits. Under the worst-case operation conditions described in Section 4 and exhaust parameters presented in Table 3, the Facility complies with Ministry POI Limits and no further mitigation measures are required.

Table 1 - Emission Summary Table

Operational Condition	Description	Equipment	Contaminant Name	CAS #	Emission Rate (g/s)	Air Dispersion Model Used (include version code)	Maximum POI Conc. [2] ($\mu\text{g}/\text{m}^3$)	Averaging Period (hours)	Ministry POI Limit [3] ($\mu\text{g}/\text{m}^3$)	Limiting Effect	Regulation Schedule #	Percentage of Ministry POI Limit (%)
Liquefaction	1 KVGR 1 JVG 1 Diesel Standby Generator	JVG, KVGR, EG1	NO _x	10102-44-0	4.79	AERMOD 19191	154	1	400	Health	3	38%
		JVG, KVGR, EG2	NO _x	10102-44-0	4.79	AERMOD 19191	71	24	200	Health	3	35%
Vaporization	2 Vaporizers 1 Turbine 2 Standby Generators	V1, V2, U1, EG1, EG2	NO _x	10102-44-0	2.60	AERMOD 19191	112	1	400	Health	3	28%
		V1, V2, U2, EG1, EG2	NO _x	10102-44-0	2.60	AERMOD 19191	45	24	200	Health	3	22%
		V1, V3, U1, EG1, EG2	NO _x	10102-44-0	2.60	AERMOD 19191	112	1	400	Health	3	28%
		V1, V3, U2, EG1, EG2	NO _x	10102-44-0	2.60	AERMOD 19191	45	24	200	Health	3	23%
		V2, V3, U1, EG1, EG2	NO _x	10102-44-0	2.60	AERMOD 19191	112	1	400	Health	3	28%
		V2, V3, U2, EG1, EG2	NO _x	10102-44-0	2.60	AERMOD 19191	45	24	200	Health	3	23%
Storage	1 Standby Generator 1 Standby Generator	EG1	NO _x	10102-44-0	1.16	AERMOD 19191	58	1/2	1880	Health	[1]	3%
		EG2	NO _x	10102-44-0	1.16	AERMOD 19191	55	1/2	1880	Health	[1]	3%

Note:

[1] From the Ministry publication 7976e "Emergency Generator Checklist, Supplement to Application for Approval, EPA s.9", November 2010.

[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).