EXECUTIVE SUMMARY

Union Gas Limited (Union Gas) retained ORTECH Environmental (ORTECH), a division of ORTECH Consulting Inc., to update the Emission Summary and Dispersion Modelling (ESDM) Report for the Hagar Compressor Station. The facility is located at 317 Northern Road, Sudbury, Ontario. The report was previously updated to include stack heights which were increased as part of an action plan.

The Hagar Compressor Station 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'. Facilities described by this NAICS Code are not listed on Schedules 4 or 5 of Ontario Regulation 419/05 and can demonstrate air compliance using Schedule 2 standards until February 1, 2020. However, Union Gas requested and received approval to use Schedule 3 standards under section 20(4) of O. Reg. 419/05 for this facility prior to the regulatory time frames.

This ESDM Report follows the requirements of the Ontario Regulation 419/05 Air Pollution – Local Air Quality and the Ontario Ministry of the Environment (MOE) "Procedure for Preparing an Emission Summary and Dispersion Modelling Report Version 3.0" dated March 2009 (the Procedure).

The ESDM report includes the quantification of emission rates for all significant sources of contaminants, specifically oxides of nitrogen (NO_X), at the facility and a calculation of the aggregate maximum 1-hour and 24-hour point-of-impingement (POI) concentrations for NO_X.

The NO_X emission rates that have been estimated in this report are for specific 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.

As shown on Table 1, the predicted maximum NO_X POI concentrations resulting from the maximum emission scenario (non-emergency) are below the corresponding MOE NO_X 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 emergency generators is 970 µg/m^3. These units were assessed against the MOE NO_X POI specific to testing emergency generators at non-sensitive receptors. The 24-hour averaging period is not applicable to emergency generators since the units are only to be operated during emergency situations with periodic testing (i.e., non-continuous operation). As indicated on Table 1, the maximum 1-hour NO_X concentration from this modelling scenario is below the MOE 1-hour NO_X POI specific to emergency generators.

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Table 1: Emission Summary Table

Contaminant Name	CAS#	Total Facility Maximum Emission Rate (g/s)	Air Dispersion Model Used	Maximum POI Concentration ($\mu g/m^3$)	Averaging Period (hr)	POI Limit ($\mu g/m^3$)	Limiting Effect	Regulation Schedule # or Alternative	Maximum % of POI Limit (%)
Nitrogen Oxides (as NO_2)	10102-44-0	3.63	AERMOD	267	1	400	Health	3	67%
				190	24	200	Health	3	95%
Nitrogen Oxides (as NO_2)	10102-44-0	7.96	AERMOD	970	1	1,567	Health	Emergency Generator Data Sheet[1]	62%

[1] MOE half-hour NO_X POI Limit of 1,880 $\mu g/m^3$ specific to natural gas-fired emergency generators (at non-sensitive receptors). Converted from ½-hour to 1-hour averaging period (1,880 $\mu g/m^3$ / 1.2 = 1,570 $\mu g/m^3$) as per the Procedure.