ORTECH Environmental
a division of ORTECH Consulting Inc.

www.ortech.ca Mississauga • Sarnia • Windsor
804 Southdown Road
Mississauga, ON
Canada L5J 2Y4
Tel 905-822-4120
877-774-6560
Fax 905-855-0406

**Executive Summary of the**
**Emission Summary and Dispersion Modelling Report**
**for the Airport Compressor Station**
**dated March 13, 2013**

Union Gas Limited (Union Gas) retained ORTECH Environmental to update the 2008 Emission Summary and Dispersion Modelling (ESDM) Report for their Airport Compressor Station (ORTECH Report No. 90550-1, August 22, 2008) in compliance with Province-wide Environmental Compliance Approval Number 1949-7KRMC5 issued on November 28, 2008. The facility is located at 4793 Mandaumin Road in St. Clair Township, County of Lambton, Ontario. This report was updated to include a catalytic converter installed on the reciprocating engine.

The Airport Compressor Station 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 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 an estimation of the aggregate maximum 1-hour and 24-hour point-of-impingement (POI) concentrations for $NO_X$.

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 ($NO_X$); the maximum source and site-wide $NO_X$ emission rates and maximum $NO_X$ 1-hour and 24-hour POI concentrations calculated by air dispersion modelling; the POI limits used to evaluate $NO_X$ concentrations (1-hour and 24-hour) and the maximum percentages of the $NO_X$ POI limits. As shown on Table 1, the predicted maximum $NO_X$ POI concentrations resulting from the maximum emission scenario resulted in the maximum $NO_X$ POI concentration of 268 $\mu g/m^3$ or 67% of the 1-hour MOE $NO_X$ Schedule 3 POI limit of 400 $\mu g/m^3$, and 132 $\mu g/m^3$ or 66% of the 24-hour $NO_X$ POI of 200 $\mu g/m^3$.

**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 | 0.71 | AERMOD | 268 | 1 | 400 | Health | 3 | 67% |
| | | | | 132 | 24 | 200 | Health | 3 | 66% |