

**MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
AIR QUALITY DIVISION**

September 19, 2023

**PERMIT TO INSTALL
6-12A**

ISSUED TO
Excelsior Compressor Station

LOCATED AT
4963 State Road NE
Kalkaska, Michigan 49646

IN THE COUNTY OF
Kalkaska

STATE REGISTRATION NUMBER
B7196

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environment, Great Lakes, and Energy. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203: June 28, 2023	
DATE PERMIT TO INSTALL APPROVED: September 19, 2023	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

Table of Contents

COMMON ACRONYMS 2

POLLUTANT / MEASUREMENT ABBREVIATIONS..... 3

GENERAL CONDITIONS 4

EMISSION UNIT SPECIAL CONDITIONS..... 6

 EMISSION UNIT SUMMARY TABLE 6

 EUEXGLYDEH 7

FLEXIBLE GROUP SPECIAL CONDITIONS..... 11

 FLEXIBLE GROUP SUMMARY TABLE 11

 FGMACTHHHSMALL 12

APPENDIX A 14

 Appendix B 15

 Emission Calculations 15

COMMON ACRONYMS

AQD	Air Quality Division
BACT	Best Available Control Technology
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CEMS	Continuous Emission Monitoring System
CFR	Code of Federal Regulations
COMS	Continuous Opacity Monitoring System
Department/department/EGLE	Michigan Department of Environment, Great Lakes, and Energy
EU	Emission Unit
FG	Flexible Group
GACS	Gallons of Applied Coating Solids
GC	General Condition
GHGs	Greenhouse Gases
HVLP	High Volume Low Pressure*
ID	Identification
IRSL	Initial Risk Screening Level
ITSL	Initial Threshold Screening Level
LAER	Lowest Achievable Emission Rate
MACT	Maximum Achievable Control Technology
MAERS	Michigan Air Emissions Reporting System
MAP	Malfunction Abatement Plan
MSDS	Material Safety Data Sheet
NA	Not Applicable
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standard for Hazardous Air Pollutants
NSPS	New Source Performance Standards
NSR	New Source Review
PS	Performance Specification
PSD	Prevention of Significant Deterioration
PTE	Permanent Total Enclosure
PTI	Permit to Install
RACT	Reasonable Available Control Technology
ROP	Renewable Operating Permit
SC	Special Condition
SCR	Selective Catalytic Reduction
SNCR	Selective Non-Catalytic Reduction
SRN	State Registration Number
TBD	To Be Determined
TEQ	Toxicity Equivalence Quotient
USEPA/EPA	United States Environmental Protection Agency
VE	Visible Emissions

*For HVLP applicators, the pressure measured at the gun air cap shall not exceed 10 psig.

POLLUTANT / MEASUREMENT ABBREVIATIONS

acfm	Actual cubic feet per minute
BTU	British Thermal Unit
°C	Degrees Celsius
CO	Carbon Monoxide
CO ₂ e	Carbon Dioxide Equivalent
dscf	Dry standard cubic foot
dscm	Dry standard cubic meter
°F	Degrees Fahrenheit
gr	Grains
HAP	Hazardous Air Pollutant
Hg	Mercury
hr	Hour
HP	Horsepower
H ₂ S	Hydrogen Sulfide
kW	Kilowatt
lb	Pound
m	Meter
mg	Milligram
mm	Millimeter
MM	Million
MW	Megawatts
NMOC	Non-Methane Organic Compounds
NO _x	Oxides of Nitrogen
ng	Nanogram
PM	Particulate Matter
PM10	Particulate Matter equal to or less than 10 microns in diameter
PM2.5	Particulate Matter equal to or less than 2.5 microns in diameter
pph	Pounds per hour
ppm	Parts per million
ppmv	Parts per million by volume
ppmw	Parts per million by weight
psia	Pounds per square inch absolute
psig	Pounds per square inch gauge
scf	Standard cubic feet
sec	Seconds
SO ₂	Sulfur Dioxide
TAC	Toxic Air Contaminant
Temp	Temperature
THC	Total Hydrocarbons
tpy	Tons per year
µg	Microgram
µm	Micrometer or Micron
VOC	Volatile Organic Compounds
yr	Year

GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**
2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environment, Great Lakes, and Energy, P.O. Box 30260, Lansing, Michigan 48909-7760, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**
3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to Rule 210 (R 336.1210), operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**
4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**
5. The terms and conditions of this Permit to Install shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to Rule 219 and the Department approves the request, this permit will be amended to reflect the change of ownership or operational control. The request must include all of the information required by subrules (1)(a), (b), and (c) of Rule 219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environment, Great Lakes, and Energy. **(R 336.1219)**
6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**
7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal condition or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**
8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.
9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.
10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of Rule 301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with Rule 303 (R 336.1303). **(R 336.1301)**
 - a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
 - b) A visible emission limit specified by an applicable federal new source performance standard.
 - c) A visible emission limit specified as a condition of this Permit to Install.
12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in Rule 370(2). **(R 336.1370)**
13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with Rule 1001 and Rule 1003, under any of the conditions listed in Rule 1001. **(R 336.2001)**

EMISSION UNIT SPECIAL CONDITIONS

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Flexible Group ID
EUEXGLYDEH	Glycol Dehydration Unit with maximum process capacity of 11.458 MMscf/hr of natural gas. The glycol dehydration unit includes a natural gas fired reboiler with a heat input capacity of 0.5 MMBtu/Hr.	FGMACTHHHSMA LL

Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1291.

**EUEXGLYDEH
 EMISSION UNIT CONDITIONS**

DESCRIPTION

Glycol Dehydration Unit with maximum process capacity of 11.458 MMscf/hr of natural gas. The glycol dehydration unit includes a natural gas fired reboiler with a heat input capacity of 0.5 MMBtu/Hr.

Flexible Group ID: FGMACTHHHSMALL

POLLUTION CONTROL EQUIPMENT

Thermal Oxidizer and Condenser

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. VOC	108.0 pounds	Daily	EUEXGLYDEHY	SC VI.5	R 336.1205(1) R 336.1702(a) R 336.1901
2. VOC	18.3 tons	12 month rolling time period as determined at the end of each calendar month	EUEXGLYDEHY	SC VI.5	R 336.1205(1) R 336.1702(a) R 336.1901

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The glycol dehydration unit shall not be operated unless it is equipped with a thermal oxidizer or a condenser. The condenser or thermal oxidizer, including any associated monitoring equipment, shall be operated properly. **(R 336.1702(a), R 336.1910)**
2. The permittee shall not operate the glycol dehydration system during a thermal oxidizer malfunction event unless the condenser exhaust temperature is 48.9 °C (120 °F) or less. **(R 336.1205(1), R 336.1702(a), R 336.1901)**
3. The glycol dehydration unit shall not be operated unless the glycol separator is installed and operating properly. A properly operating glycol separator will volatilize organic compounds out of the rich glycol stream and route them to the glycol regenerator reboiler burner or thermal oxidizer. **(R 336.1205(1), R 336.1702(a), R 336.1901)**
4. The permittee shall not operate the glycol dehydration system unless the thermal oxidizer is operating at a temperature of at least 760 °C (1400 °F), and the VOC destruction efficiency is at least 95 % by weight, except during a thermal oxidizer malfunction event. **(R 336.1205(1), R 336.1702(a), R 336.1901)**
5. The natural gas used as fuel in the glycol dehydration unit shall not contain more than 20 grains of total sulfur per 100 cubic feet of natural gas. The permittee may also incinerate emissions from the glycol separator in the glycol reboiler burner. **(R 336.1301(1)(a), R 336.1702(a), R 336.1901)**

6. The glycol dehydration unit shall not be operated while the thermal oxidizer is malfunctioning for more than 4,500 hours per 12-month rolling time period as determined at the end of each calendar month. **(R 336.1205(1), R 336.1702(a), R 336.1910)**
7. The permittee shall not use stripping gas in the glycol dehydration unit. **(R 336.1702(a))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The glycol dehydration unit shall be equipped with any combination of glycol pump(s) that have a combined capacity no greater than 16 gpm. **(R 336.1205(1), R 336.1702(a), R 336.1901)**
2. The thermal oxidizer shall be designed and equipped with a temperature monitor to continuously monitor the operating temperature and also be designed and equipped with an alarm system that will alarm if the operating temperature is less than 1400°F. **(R 336.1702(a), R 336.1201(3))**
3. The glycol condenser shall be designed and equipped with an exhaust gas temperature monitor to continuously monitor the operating temperature and also be designed and equipped with an alarm system that will alarm if the operating temperature is greater than 120°F. **(R 336.1702(a), R 336.1201(3))**
4. If the glycol dehydration unit is controlled by the thermal oxidizer, then the thermal oxidizer shall maintain a minimum retention time of 0.5 seconds. **(R 336.1205(1), R 336.1702(a), R 336.1901)**
5. The permittee shall not operate the glycol dehydration system unless the glycol regenerator is equipped with a properly installed and operating thermal oxidizer except as specified in SC III.2. **(R 336.1205(1), R 336.1702(a), R 336.1901)**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall determine the composition, including the VOC and benzene content, of the natural gas processed in the glycol dehydration system at least once every five calendar years. The natural gas composition shall be determined by a method or methods which are standard in the natural gas industry, subject to approval by the Air Quality Division. **(R 336.1205(1), R 336.1702(a), R 336.1901)**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall monitor the alarm events (alarm actuated because temperature of control equipment was outside the acceptable range) from the primary control device, either the thermal oxidizer or the condenser. The day and time of the alarm event shall be maintained in addition to the corrective action taken that resulted from the alarm event. If the primary control alarm system is not operating properly, then the permittee shall monitor and record the exhaust gas temperature from the control device once per day for all days the glycol dehydration unit is operating. If the alarm system is not operating properly, a written log of the daily control device operating temperatures shall be maintained. **(R 336.1702(a))**
2. The permittee shall retain calculations, for the thermal oxidizer when controlling the glycol dehydration unit, showing the VOC destruction efficiency is at least 95% by weight. The calculations shall be retained and performed in a manner acceptable to the Air Quality Division. **(R 336.1702(a),)**
3. The permittee shall record the hours of operation of the glycol dehydration unit for each calendar month and each 12-month rolling time period. **(R 336.1205(1), R 336.1702(a), R 336.1901)**
4. The permittee shall record the primary emission control device for the dehydration unit for each day the unit is in operation. The information shall be available to the AQD upon request no later than the 15th of the next calendar month. **(R 336.1910)**

5. The permittee shall calculate and record the daily VOC emissions from the glycol dehydration unit at the end of each calendar month, using the method specified in Appendix B of this permit. The permittee shall calculate and record the VOC emissions for the calendar month by adding up emissions from the applicable days, and shall calculate and record the annual VOC emissions based on a 12-month rolling time period by summing emissions from the applicable months. The VOC emission records shall be available to the AQD upon request no later than the 15th of the next calendar month. **(R 336.1702(a))**
6. The permittee shall monitor and record the total hours of operation of the glycol dehydration system when the thermal oxidizer is malfunctioning for each calendar month and each 12-month rolling time period. **(R 336.1213(3)(a))**
7. The permittee shall monitor and record the amount of natural gas processed by the glycol dehydration system on a daily basis and maintain records of the annual glycol natural gas throughput each year. **(R 336.1205(1), R 336.1702(a), R 336.1901)**
8. The permittee shall calculate and record VOC and benzene emissions for the glycol dehydration system on a monthly and 12 month rolling time period basis in tons and tons per year, respectively. Monthly and 12 month rolling time period records shall be made available to the AQD upon request no later than the 15th of the month for the previous calendar month. **(R 336.1205(1), R 336.1702(a))**
9. The permittee shall retain calculations, for the thermal oxidizer when controlling the glycol dehydration unit, showing the VOC destruction efficiency is at least 95 % by weight. The calculations shall be retained and performed in a manner acceptable to the Air Quality Division. **(R 336.1205(1), R 336.1702(a), R 336.1901)**
10. The permittee shall monitor and record the thermal oxidizer operating temperature on a daily basis when the glycol dehydration system is operating except during times of thermal oxidizer malfunction. **(R 336.1205(1), R 336.1702(a), R 336.1901)**
11. The permittee shall monitor and record the condenser exhaust gas temperature on a daily basis when the glycol dehydration system is operating during times of thermal oxidizer malfunction. **(R 336.1205(1), R 336.1702(a), R 336.1901)**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter / Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
SVEX008 (condenser)	2 ¹	20 ¹	R 336.1901
SVEX009 (oxidizer)	NA	20 ¹	R 336.1901

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all applicable requirements of 40 CFR Part 63, Subpart A and Subpart HHH, National Emission Standards for Hazardous Air Pollutants (NESHAP) from Natural Gas Transmission and Storage Facilities. **(40 CFR Part 63, Subpart HHH, 40 CFR 63.1274(d)(2))**

Footnotes:

¹ This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

FLEXIBLE GROUP SPECIAL CONDITIONS

FLEXIBLE GROUP SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGMACTHHHSMALL	Requirements for an existing small glycol dehydrator (<0.9 Mg/yr benzene emissions) at major sources of Hazardous Air Pollutants per 40 CFR Part 63, Subpart HHH.	EUEXGLYDEH

**FGMACTHHHSMALL
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Requirements for an existing small glycol dehydrator (<0.9 Mg/yr benzene emissions) at major sources of Hazardous Air Pollutants per 40 CFR Part 63, Subpart HHH.

Emission Unit: EUEXGLYDEH

POLLUTION CONTROL EQUIPMENT

Thermal Oxidizer and Condenser

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. BTEX	Calculated using Equation 1 of 40 CFR Part 63 Subpart HHH (Appendix A)	Annual	EUEXGLYDEHY	SC V.2, SC V.4, SC V.5	40 CFR 63.1275(b)(1)(iii)
2. Benzene	<0.9 Mg/yr	Annual	EUEXGLYDEHY	SC V.2	40 CFR 63.1275(b)(1)(iii)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The process vent from each glycol dehydration unit shall be vented to a control device or a combination of control devices through a closed-vent system except when the permittee is following the requirements of 40 CFR 1275(c) (SC III.6). **(40 CFR 63.1275(b)(1)(iii)(A), 40 CFR 63.1275(c))**
2. The control device(s) used to meet the BTEX emission limit calculated in 40 CFR 63.1275(b)(1)(iii) (SC I.1), shall be one of those specified below and must be designed and operated in accordance with the following requirements: **(40 CFR 63.1281(f)(1))**
 - a. An enclosed combustion device (thermal oxidizer) that is designed and operated to meet the levels specified in paragraphs (f)(1)(i)(A) or (B) of §63.1281. If a boiler or process heater is used as the control device, then the vent stream shall be introduced into the flame zone of the boiler or process heater. **(40 CFR 63.1281(f)(1)(i))**
 - i. The mass content of BTEX in the gases vented to the device is reduced as determined in accordance with the requirements of § 63.1282(d).
 - ii. The concentration of either TOC or total HAP in the exhaust gases at the outlet of the device is reduced to a level equal to or less than 20 parts per million by volume on a dry basis corrected to 3 percent oxygen as determined in accordance with the requirements of § 63.1282(e).
 - b. A vapor recovery device (e.g., carbon adsorption system or condenser) or other non-destructive control device that is designed and operated to reduce the mass content of BTEX in the gases vented to the device as determined in accordance with the requirements of § 63.1282(d). **(40 CFR 63.1281(f)(1)(ii))**

3. The permittee shall operate each control device in accordance with the requirements specified below:
(40 CFR 63.1281(f)(2))
 - a. Each control device used to comply with this subpart shall be operating at all times. More than one unit may be vented to a control device. **(40 CFR 63.1281(f)(2)(i))**
 - b. For each control device monitored in accordance with requirements of 40 CFR 63.1283(d) (SC IV.2, SC VI. 11-19), the permittee shall demonstrate compliance according to the requirements of 40 CFR 63.1282(e) or (h). **(40 CFR 63.1281(f)(2)(ii))**
4. At all times, the permittee must operate and maintain each glycol dehydrator, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. **(40 CFR 63.1274(h))**
5. In all cases where the provisions of 40 CFR 63 Subpart HHH require the permittee to repair leaks by a specified time after the leak is detected, it is a violation of 40 CFR 63 Subpart HHH to fail to take action to repair the leak(s) within the specified time. If action is taken to repair the leak(s) within the specified time, failure of that action to successfully repair the leak(s) is not a violation of this standard. However, if the repairs are unsuccessful, and a leak is detected, the permittee shall take further action as required by the applicable provisions of this subpart. **(40 CFR 63.1274(g))**
6. As an alternative to the requirements of paragraph 40 CFR 63.1275(b), the permittee may comply with one of the following: **(40 CFR 63.1275(c))**
 - a) The permittee shall control air emissions by connecting the process vent to a process natural gas line. **(40 CFR 63.1275(c)(1))**
 - b) Control of HAP emissions from a GCG separator (flash tank) vent is not required if the permittee demonstrates, to the Administrator's satisfaction, that total emissions to the atmosphere from the glycol dehydration unit process vent are reduced by one of the levels specified in paragraph 40 CFR 63.1275(c)(3)(i) through (iv) through the installation and operation of controls as specified in paragraph 40 CFR 63.1275(b)(1). **(40 CFR 63.1275(c)(3))**

For each existing small glycol dehydration unit, BTEX emissions are reduced to a level less than the limit calculated in Equation 1 of §63.1275

APPENDIX A

Emission Calculations

The permittee shall use the following equation, or alternate equation approved by the AQD, in conjunction with monitoring, testing or recordkeeping data to determine compliance with the emission limit of BTEX referenced in FGMACTHHHSMALL, SC I.1, BTEX emissions (40 CFR 63.1275 equation 1):

$$EL_{BTEX} = 3.10 \times 10^{-4} \cdot \text{Throughput} \cdot C_{i,BTEX} \cdot 365 \frac{\text{days}}{\text{yr}} \cdot \frac{1 \text{ Mg}}{1 \times 10^6 \text{ grams}} \quad \text{Equation 1}$$

Where:

EL_{BTEX} = Unit-specific BTEX emission limit, megagrams per year.

3.10×10^{-4} = BTEX emission limit, grams BTEX/standard cubic meter-ppmv.

Throughput = Annual average daily natural gas throughput, standard cubic meters per day.

$C_{i,BTEX}$ = Annual average BTEX concentration of the natural gas at the inlet to the glycol dehydration unit, ppmv.

Appendix B Emission Calculations

The permittee shall use the following calculations in conjunction with monitoring, testing or recordkeeping data to determine compliance with the applicable requirements referenced in EUEXGLYDEH. Alternative calculations shall be approved by the AQD District Supervisor.

Glycol Dehydration Unit

Using an emission factor:

Daily VOC emissions =(Volume of natural gas processed through the system in that day X EF)

Where EF is an emission factor expressed as pounds of VOC emitted per volume of gas processed; so long as it is mathematically correct it may be expressed in any convenient unit of volume.

The emission factor may be determined using the model GRI-GLY Calc™ Version 3.0 or higher. The EF shall be periodically recalculated, using GlyCalc™, as more current data becomes available. The recalculated EF is subject to approval by the District Supervisor of the AQD.

Alternatively, the EF could be based on results of a stack test approved by the AQD.

Monthly and 12 Month Emissions:

VOC emissions per calendar month shall be calculated by summing the emissions from each day of that month. Emissions per 12 month rolling time period shall be calculated by summing the emissions from each month of that time period.

VOC Destruction Efficiency for the glycol dehydration unit

$[1-(\text{outlet}/\text{inlet})] * 100\% = \% \text{ destruction efficiency}$

inlet = VOC concentration entering the thermal oxidizer

outlet = VOC concentration exiting the thermal oxidizer