

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

MARCH 8, 2021

**PERMIT TO INSTALL
77-14C**

**ISSUED TO
BLUEWATER GAS STORAGE, LLC**

**LOCATED AT
333 SOUTH WALES CENTER ROAD
COLUMBUS TOWNSHIP, MICHIGAN 48063**

**IN THE COUNTY OF
ST. CLAIR**

**STATE REGISTRATION NUMBER
N7303**

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: February 26, 2021	
DATE PERMIT TO INSTALL APPROVED: March 8, 2021	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

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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	Malfuction 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 _{2e}	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
EUCOMP NORTH	10.1 MMBtu/hr heat input Caterpillar G3516 natural gas-fired 4-stroke, lean burn reciprocating internal combustion engine driving a compressor. Controlled with a catalytic oxidation system - North	FGENGINES
EUCOMPEAST	31.9 MMBtu/hr heat input Caterpillar G3616 natural gas-fired 4-stroke, lean burn reciprocating internal combustion engine driving a compressor. Controlled with a catalytic oxidation system - East	FGENGINES
EUCOMPWEST	31.9 MMBtu/hr heat input Caterpillar G3616 natural gas-fired 4-stroke, lean burn reciprocating internal combustion engine driving a compressor. Controlled with a catalytic oxidation system - West	FGENGINES
EUGEN	8.5 MMBtu/hr heat input Caterpillar G3516 natural gas-fired engine driving an emergency generator. Controlled with a catalytic oxidation system.	NA
EUDRAINTANK	2,500-gallon accumulator tank for the floor drains	NA
EUWGDEHY	Withdrawal Gas dehydration unit which contains a 3.26MMBTU/Hr glycol reboiler burner which is associated with SVREBOILER. Emissions from the reboiled glycol are controlled by a thermal oxidizer which is associated with SVTHERAMMOXIDIZER.	NA

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.

EUGEN EMISSION UNIT CONDITIONS

DESCRIPTION

8.5 MMBtu/hr heat input Caterpillar G3516 natural gas-fired engine driving an emergency generator. Controlled with a catalytic oxidation system.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

Catalytic Oxidation System

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate EUGEN for more than 500 hours per year on a 12-month rolling time period basis as determined at the end of each calendar month. **(R 336.1205(1)(a) & (3), R 336.1225, R 336.1702(a), 40 CFR 52.21(c) & (d))**
2. The permittee shall not burn any fuel in EUGEN other than pipeline quality natural gas. **(R 336.1702(a))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate EUGEN unless the catalytic oxidation system is installed, maintained, and operated in a satisfactory manner. Satisfactory operation includes cleaning the catalyst panels according to the procedures outlined in Appendix A or alternative plan as approved by the AQD District Supervisor. **(R 336.1205(1)(a) & (3), R 336.1225, R 336.1702(a), R 336.1910)**

V. TESTING/SAMPLING

NA

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall keep, in a satisfactory manner, a written log of the monthly hours of operation for EUGEN, as required by SC III.1. All records shall be made available to the Department upon request. **(R 336.1205(1)(a) & (3), R 336.1225, R 336.1702(a), 40 CFR 52.21(c) & (d))**
2. The permittee shall keep, in a satisfactory manner, records of all maintenance done on the catalytic oxidation system. All records shall be made available to the Department upon request. **(R 336.1205(1)(a) & (3), R 336.1225, R 336.1702(a), R 336.1910)**

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
1. SVGEN	12	25	R 336.1225, 40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all provisions of the National Emission Standards for Hazardous Air Pollutants, 40 CFR Part 63, Subpart ZZZZ, as they apply to EUGEN. **(40 CFR Part 63, Subpart ZZZZ)**

**EUWGDEHY
EMISSION UNIT CONDITIONS**

DESCRIPTION

Withdrawal Gas dehydration unit which contains a 3.26MMBTU/Hr glycol reboiler burner which is associated with SVREBOILER. Emissions from the reboiled glycol are controlled by a thermal oxidizer which is associated with SVTHERMOXIDIZER.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

Thermal Oxidizer

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. NO _x	5.14 tpy	12-month rolling time period as determined at the end of each calendar month	EUWGDEHY	SC VI.3	40 CFR 52.21(c) & (d)
2. VOC	2.57 tpy	12-month rolling time period as determined at the end of each calendar month	Thermal oxidizer	SC VI.3	R 336.1225 R 336.1702(a)

II. MATERIAL LIMIT(S)

Material	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. Natural gas processed	81,900 million standard cubic feet per year	12-month rolling time period as determined at the end of each calendar month	EUWGDEHY	SC VI.2 SC VI.4	R 336.1205(1) R 336.1225 R 336.1702(a)
2. Natural gas fuel	28.0 million standard cubic feet per year	12-month rolling time period as determined at the end of each calendar month	Glycol reboiler burner	SC VI.4	R 336.1205(1) R 336.1225 R 336.1702(a) 40 CFR 52.21(c) & (d)
3. Natural gas fuel	74.7 million standard cubic feet per year	12-month rolling time period as determined at the end of each calendar month	Thermal oxidizer	SC VI.4	R 336.1205(1) R 336.1225 R 336.1702(a) 40 CFR 52.21(c) & (d)

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The glycol re-circulation rate for EUWGDEHY shall not exceed a maximum of 8 gallons per minute. **(R 336.1205(1), R 336.1225, R 336.1702(a))**
2. The permittee shall not operate EUWGDEHY unless a malfunction abatement plan (MAP) as described in Rule 911(2), for the thermal oxidizer has been submitted within 60 days of permit issuance and is implemented

and maintained. If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1225, R 336.1331, R 336.1702(a), R 336.1910, R 336.1911, 40 CFR 52.21(c) & (d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not process natural gas in EUWGDEHY unless the flash tank is installed, maintained, and operated in a satisfactory manner. Satisfactory operation includes routing the flash tank exhaust gas to the thermal oxidizer. **(R 336.1225, R 336.1702(a), R 336.1910)**
2. The permittee shall not process natural gas in EUWGDEHY unless the thermal oxidizer is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the thermal oxidizer includes a minimum VOC destruction efficiency of 95% (by weight) and maintaining a minimum temperature of 1600 °F ±50 degrees Fahrenheit and a minimum retention time of 0.75 seconds. In lieu of a minimum temperature of 1600 °F ±50 degrees Fahrenheit, the permittee may use the temperature from the most recent approved destruction efficiency test as required by SC V.2. Satisfactory operation of the includes a minimum VOC control efficiency of 95% (by weight). **(R 336.1225, R 336.1702(a), R 336.1910)**
3. The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor and record the temperature of thermal oxidizer on a continuous basis. **(R 336.1225, R 336.1702(a), R 336.1910)**
4. The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor and record the natural gas fuel usage in the glycol reboiler burner and thermal oxidizer on a continuous basis. **(R 336.1225, R 336.1702(a), 40 CFR 52.21(c) & (d))**

V. TESTING/SAMPLING

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

1. At least once each calendar year, during the withdrawal season, the permittee shall obtain, by sampling, an analysis of the wet gas stream. The sample shall be analyzed for nitrogen, carbon dioxide, hydrogen sulfide, C1 through C6 series hydrocarbons, benzene, toluene, xylene, ethylbenzene, and heptanes plus. Any request for a change in the sampling frequency must be submitted to the AQD District Supervisor for review and approval. **(R 336.1225, R 336.1702(a))**
2. Within 180 days within permit issuance or upon request from the AQD District Supervisor the permittee shall verify VOC destruction efficiency from the thermal oxidizer by testing at the owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in 40 CFR Part 60, Appendix A. An alternate method, or a modification to the approved EPA Method, may be specified in an AQD approved Test Protocol. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing, including any modifications to the method in the test protocol that are proposed after initial submittal. The permittee must submit a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1205, R 336.1224, R 336.1225, R 336.1702, R 336.1902, R 336.2001, R 336.2003, R 336.2004, R 336.2804)**

VI. MONITORING/RECORDKEEPING

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

1. All required calculations shall be completed in a format acceptable to the AQD District Supervisor and made available by the 30th day of the calendar month, for the previous calendar month, unless otherwise specified in any recordkeeping, reporting or notification special condition. **(R 336.1225, R 336.1702(a), 40 CFR 52.21(c) & (d))**

2. The permittee shall monitor, in a satisfactory manner, the glycol recirculation rate and natural gas processed for EUWGDEHY on a continuous basis. **(R 336.1225, R 336.1702(a), R 336.1910)**
3. The permittee shall calculate the following pollutant emission rates from EUWGDEHY at the frequency indicated, using a method acceptable to the AQD District Supervisor:
 - a) NO_x - for each calendar month and 12-month rolling time period.
 - b) VOC - for each calendar month and 12-month rolling time period.
 - c) BTEX – annually.

If GRI-GLYCalc (Version 3.0 or higher) is used to calculate the VOC emission rates, the inputs to the model shall be representative of actual operating conditions of EUWGDEHY and shall include the most recent gas analysis data. Any request for a change in the calculation frequency must be submitted to the AQD District Supervisor for review and approval. Records of NO_x and VOC emission rates shall be kept on file for a period of at least five years and made available to the Department upon request. **(R 336.1225, R 336.1702(a), 40 CFR 52.21(c) & (d))**

4. The permittee shall keep, in a satisfactory manner, the following records for EUWGDEHY. The permittee shall keep all records on file at the facility and make them available to the Department upon request.
 - a) Monthly and 12-month rolling time period records of the natural gas processing rate, as required by SC II.1. **(R 336.1225, R 336.1702(a))**
 - b) Wet gas composition as determined through analysis of wet gas samples, as required by SC V.1. **(R 336.1225, R 336.1702(a))**
 - c) Monthly and 12-month rolling time period records of the natural gas fuel usage, as required by SC II.2 and II.3. **(R 336.1225, R 336.1702(a), 40 CFR 52.21(c) & (d))**
 - d) Continuous records of the glycol recirculation rate, as required by SC III.1. **(R 336.1225, R 336.1702(a))**
 - e) Continuous records of the thermal oxidizer exhaust gas temperature, while processing natural gas, as required by SC IV.3. **(R 336.1225, R 336.1702(a), R 336.1910)**

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
1. SVREBOILER	19.5	25	R 336.1225 40 CFR 52.21(c) & (d)
2. SVTHERMOXIDIZER	18	34	R 336.1225 40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENT(S)

NA

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
FGENGINES	Natural gas fired 4 stroke lean burn reciprocating internal combustion engines driving compressors. Controlled with catalytic oxidation systems.	EUCOMP NORTH EUCOMP EAST EUCOMP WEST

**FGENGINES
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Natural gas fired 4 stroke lean burn reciprocating internal combustion engines driving compressors. Controlled with catalytic oxidation systems.

Emission Unit: EUCOMP NORTH, EUCOMP EAST, EUCOMP WEST

POLLUTION CONTROL EQUIPMENT

Catalytic oxidation system

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. NO _x	4.5 pph	Test Protocol*	EUCOMP NORTH	SC V.1	40 CFR 52.21(c) & (d)
2. NO _x	7.4 pph	Test Protocol*	EUCOMP EAST	SC V.1	40 CFR 52.21(c) & (d)
3. NO _x	7.4 pph	Test Protocol*	EUCOMP WEST	SC V.1	40 CFR 52.21(c) & (d)
4. CO	0.40 pph	Test Protocol*	EUCOMP NORTH	SC V.1	40 CFR 52.21(c) & (d)
5. CO	1.85 pph	Test Protocol*	EUCOMP EAST	SC V.1	40 CFR 52.21(c) & (d)
6. CO	1.85 pph	Test Protocol*	EUCOMP WEST	SC V.1	40 CFR 52.21(c) & (d)
7. Formaldehyde	0.017 pph ¹	Test Protocol*	EUCOMP NORTH	SC V.2	R 336.1225
8. Formaldehyde	0.248 pph ¹	Test Protocol*	EUCOMP EAST	SC V.2	R 336.1225
9. Formaldehyde	0.248 pph ¹	Test Protocol*	EUCOMP WEST	SC V.2	R 336.1225

II. MATERIAL LIMIT(S)

Material	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. Natural gas fuel	323 million standard cubic feet per year	12-month rolling time period as determined at the end of each calendar month	EUCOMP EAST and EUCOMP WEST	SC VI.2	R 336.1205(1) R 336.1225 R 336.1702(a) 40 CFR 52.21(c) & (d)

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not burn any fuel in FGENGINES other than pipeline quality natural gas. **(R 336.1225, R 336.1702(a))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate FGENGINES unless the catalytic oxidation system on each engine is installed, maintained, and operated in a satisfactory manner. Satisfactory operation includes all of the following:

- a) Cleaning the catalyst panels on an annual basis in accordance with the procedures outlined in a plan approved by the AQD District Supervisor. The cleaning procedure plan shall be submitted within 60 days of the issue date of this permit.
- b) Inspect the converter housing on an annual basis to verify that the element gaskets are in proper working order and that untreated gases are not able to bypass the catalyst beds.
- c) After cleaning, the catalyst beds shall be re-installed in a reverse position so that the precious metals on the opposite side of the catalyst bed are impacted by the direct engine exhaust.

(R 336.1225, R 336.1702(a), R 336.1910)

V. TESTING/SAMPLING

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

- 1. Once every twelve months the permittee shall verify and quantify emission rates of NO_x and CO from each engine in FGENGINES by testing at owner's expense, in accordance with Department requirements. No less than 60 days prior to testing, the permittee shall submit to the AQD Technical Programs Unit and District Office a complete test plan. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(40 CFR 52.21(c) & (d))**
- 2. Once every five years a verification of formaldehyde emission rates from each engine included in FGENGINES, by testing at owner's expense, in accordance with Department requirements, will be required. No less than 60 days prior to testing, the permittee shall submit to the AQD Technical Programs Unit and District Office a complete test plan. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1225, R 336.2001, R 336.2003, R 336.2004)**

VI. MONITORING/RECORDKEEPING

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

- 1. The permittee shall keep, in a satisfactory manner, records for each measurement of NO_x and CO as required by SC V.1 for each engine included in FGENGINES. All records shall be made available to the Department upon request. **(40 CFR 52.21(c) & (d))**
- 2. The permittee shall monitor and calculate, in a satisfactory manner, the natural gas fuel use for EUCOMPEAST and EUCOMPWEST, monthly and 12-month rolling time period as required by SC II.1. All records shall be made available to the Department upon request. **(R 336.1225, R 336.1702(a), 40 CFR 52.21(c) & (d))**
- 3. The permittee shall keep, in a satisfactory manner, records of all maintenance done on each catalytic oxidation system as required by SC IV.1. All records shall be made available to the Department upon request. **(R 336.1225, R 336.1702(a), R 336.1910)**

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
1. SVCOMP NORTH	12	24.7	R 336.1225 40 CFR 52.21(c) & (d)

Stack & Vent ID	Maximum Exhaust Diameter / Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
2. SVCOMPEAST	31	41.2	R 336.1225 40 CFR 52.21(c) & (d)
3. SVCOMPWEST	31	41.2	R 336.1225 40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all provisions of the National Emission Standards for Hazardous Air Pollutants, 40 CFR Part 63, Subpart ZZZZ, as they apply to FGENGINES. **(40 CFR Part 63, Subpart ZZZZ)**

FGFACILITY CONDITIONS

DESCRIPTION

The following conditions apply source-wide to all process equipment including equipment covered by other permits, grand-fathered equipment, and exempt equipment.

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. NO _x	89.59 tpy	12-month rolling time period as determined at the end of each calendar month.	FGFACILITY	SC VI.1	R 336.1205(1)
2. CO	43 tpy	12-month rolling time period as determined at the end of each calendar month.	FGFACILITY	SC VI.1	R 336.1205(1)
3. VOC	21.1tpy	12-month rolling time period as determined at the end of each calendar month.	FGFACILITY	SC VI.1	R 336.1205(1)
4. Individual HAP	Less than 10 tpy	12-month rolling time period as determined at the end of each calendar month.	FGFACILITY	SC VI.1	R 336.1205(1)
5. Total HAPs	Less than 25 tpy	12-month rolling time period as determined at the end of each calendar month.	FGFACILITY	SC VI.1	R 336.1205(1)

II. MATERIAL LIMIT(S)

Material	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. Natural gas fuel	1,048 million standard cubic feet per year	12-month rolling time period as determined at the end of each calendar month.	FGFACILITY	SC VI.3	R 336.1205(1)

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

NA

VI. MONITORING/RECORDKEEPING

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

1. All required calculations shall be completed in a format acceptable to the AQD District Supervisor and made available by the 30th day of the calendar month, for the previous calendar month, unless otherwise specified in any recordkeeping, reporting or notification special condition. **(R336.1205(1), R336.1702(a))**
2. The permittee shall keep, in a satisfactory manner, monthly and 12-month rolling time period emission rate calculations for each emission unit included in FGFACILITY, then summed for FGFACILITY for all pollutants listed in SC I. EMISSION LIMITS. All records shall be made available to the Department upon request. **(R 336.1205(1))**
3. The permittee shall keep, in a satisfactory manner, monthly and 12-month rolling time period fuel use records for each emission unit included in FGFACILITY, then summed for FGFACILITY as required by SC II.1. The permittee shall keep all records on file at a location approved by the AQD District Supervisor and make them available to the Department upon request. **(R 336.1205(1))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subparts A, Dc and JJJJ, as they apply to FGFACILITY. **(40 CFR Part 60 Subparts A, Dc & JJJJ)**

APPENDIX A Procedure for Cleaning Maxim Catalyst Panels

1. The need for catalyst cleaning is most easily recognized when monitoring the emissions levels of the exhaust gas leaving the catalytic converter. Another indication is excessive pressure drop across the catalyst. Most new panels will have a pressure drop less than 2" H₂O. This is the drop across the panels only, not the drop across the complete unit. By monitoring, the pressure at some point upstream of the catalytic silencer from the beginning of operations, the user can tell if the pressure drop is increasing with time. Increases of pressure drop with time will usually be a measure of how much the catalyst pressure drop is increasing since the other elements in the system should not show an increase of pressure drop with time. An increase of 2" in pressure drop will indicate a need to clean the panels. All pressure drop monitoring should be done at the same load conditions on the engine (preferably at a typical "full load" condition), and at the same location in the exhaust system.
2. Care should be taken in handling catalyst panels to ensure that no catalyst poisons are allowed to enter the cells of the panel. Catalyst poisons include such materials as phosphorus, sulfur, sodium, lead, chloride, silicon, arsenic, antimony, zinc, copper, nickel, iron, tin and chrome.
3. Before cleaning the panels, check local environmental regulations in regard to the acceptable discharge of materials that will be used for cleaning. The catalyst panels themselves do not have any materials that are considered unsafe for the environment. However, contaminants or cleaning agents are a separate matter.
4. Remove the end door on the unit carefully to prevent damage to the high temperature gasket.
5. Individual catalyst panels may be removed by opening the four latches that hold each panel in place.
6. **BACK WASHING WITH DEIONIZED OR DISTILLED WATER.** Do not allow water into the catalyst panel cells if the panel will be exposed to freezing weather. All water that is used for cleaning should be distilled or deionized water, to ensure that none of the catalyst poisons mentioned above are introduced into the panels. The water should be applied with a 2" pressurized hose. The water flow rate should be adjusted so that a horizontally discharged jet of water exiting from the hose travels horizontally approximately 4" to 8" before falling vertically. The hose should then be held tightly against the back (clean) side of the panel, with the water exiting from the front (dirty) side of the panel. Start at the top of the vertically positioned panel and travel a complete path horizontally across the width of the panel before dropping down to the next lower horizontal path. This back flushing should remove the contaminants from the panel cells. However, if the contaminants have too much adhesion to the catalyst panel surfaces, then one of the cleaning methods shown below may be used.
7. **USE OF COMPRESSED AIR**
Three rules should be observed when using clean compressed air to back flush the panels. Pressure in hose should not be greater than 100 psig. The maximum size orifice or valve opening should be 1/4". The air hose should be at least 6" away from the back (clean) face of the panel.
8. **USE OF DILUTE POTASSIUM HYDROXIDE**
Dilute solutions of potassium hydroxide, having a PH of 9.0 or less may be used if water or compressed air will not remove the contaminants. Use a reservoir large enough to contain the panel and have excess room to allow agitating the panel up and down while it is completely immersed in the solution. The solution should be at room temperature. After agitating the panels in the solution a few times, let the panels soak for 10 to 15 minutes. Then remove the panels and let them drain dry. Rinse with large amounts of deionized water, and blow out with clean compressed air, taking precautions as required in the use of compressed air.
9. **USE OF DILUTE NITRIC ACID**
This method should be used only as a last resort and should only be performed once. A dilute solution of nitric acid, having a pH of 1.0 or greater, will successfully remove many tightly adhering contaminants. A solution that is approximately 6.5 parts by volume acid with 1000 parts by volume water should give this pH. Use a reservoir large enough to contain the panels and have excess room to allow agitating the panels up and down while they are completely immersed in the solution. The solution should be at room temperature.

After agitating a few times, let the panels soak for 10 to 15 minutes, remove and let dry. Rinse with large amounts of deionized water, and blow out with clean compressed air, taking precautions as required in the use of compressed air.

10. Allow the catalyst panels to completely dry before reinstalling them into the unit. A ¼" or 3/8" ceramic rope gasket should be laid between the panel and panel frame to insure no bypassing of gas during operation. Use the panel latches to pull the panel tightly into the frame so that it compresses the rope gasket.