

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION**

August 3, 2011

**PERMIT TO INSTALL  
23-11**

**ISSUED TO**  
Merit Energy Company LLC

**LOCATED AT**  
1080 Prough Road SW  
Kalkaska, Michigan

**IN THE COUNTY OF**  
Kalkaska

**STATE REGISTRATION NUMBER**  
B4292

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. 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:

**April 28, 2011**

DATE PERMIT TO INSTALL APPROVED:

**August 3, 2011**

SIGNATURE:

DATE PERMIT VOIDED:

SIGNATURE:

DATE PERMIT REVOKED:

SIGNATURE:

## PERMIT TO INSTALL

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**Common Abbreviations / Acronyms**

<b>Common Acronyms</b>		<b>Pollutant/Measurement Abbreviations</b>	
AQD	Air Quality Division	BTU	British Thermal Unit
ANSI	American National Standards Institute	°C	Degrees Celsius
BACT	Best Available Control Technology	CO	Carbon Monoxide
CAA	Clean Air Act	dscf	Dry standard cubic foot
CEM	Continuous Emission Monitoring	dscm	Dry standard cubic meter
CFR	Code of Federal Regulations	°F	Degrees Fahrenheit
COM	Continuous Opacity Monitoring	gr	Grains
EPA	Environmental Protection Agency	Hg	Mercury
EU	Emission Unit	hr	Hour
FG	Flexible Group	H <sub>2</sub> S	Hydrogen Sulfide
GACS	Gallon of Applied Coating Solids	hp	Horsepower
GC	General Condition	lb	Pound
HAP	Hazardous Air Pollutant	m	Meter
HVLP	High Volume Low Pressure *	mg	Milligram
ID	Identification	mm	Millimeter
LAER	Lowest Achievable Emission Rate	MM	Million
MACT	Maximum Achievable Control Technology	MW	Megawatts
MAERS	Michigan Air Emissions Reporting System	ng	Nanogram
MAP	Malfunction Abatement Plan	NO <sub>x</sub>	Oxides of Nitrogen
MDEQ	Michigan Department of Environmental Quality (Department)	PM	Particulate Matter
MIOSHA	Michigan Occupational Safety & Health Administration	PM10	PM less than or equal to 10 microns diameter
MSDS	Material Safety Data Sheet	PM2.5	PM less than or equal 2.5 microns diameter
NESHAP	National Emission Standard for Hazardous Air Pollutants	pph	Pound per hour
NSPS	New Source Performance Standards	ppm	Parts per million
NSR	New Source Review	ppmv	Parts per million by volume
PS	Performance Specification	ppmw	Parts per million by weight
PSD	Prevention of Significant Deterioration	psia	Pounds per square inch absolute
PTE	Permanent Total Enclosure	psig	Pounds per square inch gauge
PTI	Permit to Install	scf	Standard cubic feet
RACT	Reasonably Available Control Technology	sec	Seconds
ROP	Renewable Operating Permit	SO <sub>2</sub>	Sulfur Dioxide
SC	Special Condition	THC	Total Hydrocarbons
SCR	Selective Catalytic Reduction	tpy	Tons per year
SRN	State Registration Number	µg	Microgram
TAC	Toxic Air Contaminant	VOC	Volatile Organic Compounds
TEQ	Toxicity Equivalence Quotient	yr	Year
VE	Visible Emissions		

\* For High Volume Low Pressure (HVLP) applicators, the pressure measured at the HVLP gun air cap shall not exceed ten (10) pounds per square inch gauge (psig).

### 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 Environmental Quality, 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 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 R 336.1219 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 R 336.1219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality. **(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 conditions 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 R 336.1301, 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 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 R 336.1370(2). **(R 336.1370)**
  
13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R 336.2001 and R 336.2003, under any of the conditions listed in R 336.2001. **(R 336.2001)**

**SPECIAL CONDITIONS**

**EMISSION UNIT SUMMARY TABLE**

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

<b>Emission Unit ID</b>	<b>Emission Unit Description (Process Equipment &amp; Control Devices)</b>	<b>Installation Date / Modification Date</b>	<b>Flexible Group ID</b>
EU-KGPS	Refrigerated lean oil absorption natural gas liquid recovery process consisting of a lean oil absorber, a rich oil demethanizer, and a rich oil still to separate the natural gas liquids from the lean oil. This is a closed system; emissions due to upsets/emergencies are controlled by the Kalkaska Gas Plant South (KGPS) flare.	3-1-1973	NA
EU-KGPS-DEHY	Ethylene glycol hydrate prevention system. The flash tank emissions are controlled by the KGPS flare. The regenerator emissions are controlled by a condenser followed by the KGPS flare.	12-31-1974 / Date of PTI	NA
EU-KGPS-TURB-A	19,750 hp natural gas-fired G.E. Frame 5 turbine with a 7.5 MW electrical generator.	3-1-1973 / 3-1-1979	FG-KGPS-TURB
EU-KGPS-TURB-B	19,750 hp natural gas-fired G.E. Frame 5 turbine with a 7.5 MW electrical generator.	3-1-1973 / 3-1-1979	FG-KGPS-TURB
EU-KGPS-WHRU-A	Waste heat recovery unit (WHRU) with a 55 MMBtu/hr natural gas-fired duct burner associated with EU-KGPS-TURB-A	3/1/1973	FG-KGPS-HEATERS
EU-KGPS-WHRU-B	Waste heat recovery unit (WHRU) with a 55 MMBtu/hr natural gas-fired duct burner associated with EU-KGPS-TURB-B	3/1/1973	FG-KGPS-HEATERS
EU-KGPS-MED	20 MMBtu/hr natural gas-fired Heat Medium Heater	3/1/1973	FG-KGPS-HEATERS
EU-KGPS-FRAC	18.5 MMBtu/hr natural gas-fired Fractionization Heater	3/1/1973	FG-KGPS-HEATERS
EU-KGPS-STAB	14 MMBtu/hr natural gas-fired Stabilizer Heater	3/1/1973	FG-KGPS-HEATERS
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 336.1290.			

**The following conditions apply to: EU-KGPS**

**DESCRIPTION:** Refrigerated lean oil absorption natural gas liquid recovery process consisting of a lean oil absorber, a rich oil demethanizer, and a rich oil still to separate the natural gas liquids from the lean oil. This is a closed system.

**Flexible Group ID:** NA

**POLLUTION CONTROL EQUIPMENT:** Emissions due to upsets/emergencies are controlled by the KGPS flare.

**I. EMISSION LIMITS**

1. NA

**II. MATERIAL LIMITS**

1. The permittee shall not process more than 350 million cubic feet of natural gas in EU-KGPS per calendar day. **(R 336.1205(1)(a) and (b), R 336.1225, R 336.1702(a))**

**III. PROCESS/OPERATIONAL RESTRICTIONS**

1. The permittee shall not operate any process equipment in EU-KGPS unless a malfunction abatement plan (MAP) as described in Rule 911(2), has been submitted to the AQD District Supervisor within 180 days of re-start of EU-KGPS, and is implemented and maintained. The MAP shall, at a minimum, specify the following:
  - a. A complete preventative maintenance program including identification of the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of air-cleaning devices, a description of the items or conditions that shall be inspected, the frequency of the inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement.
  - b. An identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures.
  - c. A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

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 336.1911)**

2. The permittee shall route the flash gas from the rich oil demethanizer to the plant fuel system or the sales gas pipeline. **(R 336.1205(1)(a) and (b))**
3. The permittee shall not operate any process equipment controlled by the KGPS flare unless the flare is installed, maintained, and operated in a satisfactory manner. Satisfactory operation includes operating and

maintaining the flare in accordance with an approved MAP as required in SC III.1. **(R 336.1205(1)(a) and (b), R 336.1225, R 336.1702, R 336.1910)**

#### **IV. DESIGN/EQUIPMENT PARAMETERS**

1. The permittee shall equip and maintain the flare with a flame detector. **(R 336.1205(1)(a) and (b), R 336.1225, R 336.1702, R 336.1910)**
2. The permittee shall operate a continuously burning pilot flame at the flare. **(R 336.1205(1)(a) and (b), R 336.1225, R 336.1702, R 336.1910)**

#### **V. TESTING/SAMPLING**

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

1. NA

#### **VI. MONITORING/RECORDKEEPING**

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

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205(1)(a) and (b), R 336.1225, R 336.1702(a), R 336.1910)**
2. The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor and record the natural gas processing rate of EU-KGPS on a continuous basis. **(R 336.1205(1)(a) and (b), R 336.1225, R 336.1702(a))**
3. The permittee shall keep, in a satisfactory manner, calendar day records of the natural gas processing rate in EU-KGPS. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1205(1)(a) and (b), R 336.1225, R 336.1702(a))**

#### **VII. REPORTING**

1. NA

#### **VIII. STACK/VENT RESTRICTIONS**

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

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter/Dimensions (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1. SV-KGPS-FLARE	42	60	R 336.1225, R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d)

**IX. OTHER REQUIREMENTS**

1. NA

**Footnotes:**

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

**The following conditions apply to: EU-KGPS-DEHY**

**DESCRIPTION:** Ethylene glycol hydrate prevention system.

**Flexible Group ID:** NA

**POLLUTION CONTROL EQUIPMENT:** The flash tank emissions are controlled by the KGPS flare. The regenerator emissions are controlled by a condenser followed by the KGPS flare.

**I. EMISSION LIMITS**

<b>Pollutant</b>	<b>Limit</b>	<b>Time Period /Operating Scenario</b>	<b>Equipment</b>	<b>Testing / Monitoring Method</b>	<b>Underlying Applicable Requirements</b>
1. VOC	1.5 tons per year	12-month rolling time period as determined at the end of each calendar month	EU-KGPS-DEHY	SC V.1, VI.2, VI.3	R 336.1225, R 336.1702(a)

**II. MATERIAL LIMITS**

1. NA

**III. PROCESS/OPERATIONAL RESTRICTIONS**

1. The permittee shall not operate EU-KGPS-DEHY unless a malfunction abatement plan (MAP) as described in Rule 911(2), has been submitted to the AQD District Supervisor within 180 days of re-start of EU-KGPS-DEHY, and is implemented and maintained. The MAP shall, at a minimum, specify the following:
  - a. A complete preventative maintenance program including identification of the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of air-cleaning devices, a description of the items or conditions that shall be inspected, the frequency of the inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement.
  - b. An identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures.
  - c. A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

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 336.1911)**

2. The permittee shall not operate EU-KGPS-DEHY unless the regenerator condenser off-gas and the flash tank off-gas are controlled by the KGPS flare and the flare is installed, maintained, and operated in a

satisfactory manner. Satisfactory operation includes operating and maintaining the flare in accordance with an approved MAP as required in SC III.1. **(R 336.1225, R 336.1702(a), R 336.1910)**

#### **IV. DESIGN/EQUIPMENT PARAMETERS**

1. The permittee shall equip and maintain the flare with a flame detector. **(R 336.1225, R 336.1702, R 336.1910)**
2. The permittee shall operate a continuously burning pilot flame at the flare. **(R 336.1225, R 336.1702, R 336.1910)**

#### **V. TESTING/SAMPLING**

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

1. The permittee shall sample and analyze the EU-KGPS-DEHY wet gas stream at least once each calendar year. The permittee shall analyze the wet gas for nitrogen, carbon dioxide, hydrogen sulfide, C1 through C6 series hydrocarbons, benzene, toluene, xylene, ethylbenzene, and heptanes plus. **(R 336.1225, R 336.1702(a))**

#### **VI. MONITORING/RECORDKEEPING**

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

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1225, R 336.1702(a))**
2. The permittee shall keep, in a satisfactory manner, records of the wet gas composition as determined through analysis of wet gas samples for EU-KGPS-DEHY, as required by SC V.1. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1225, R 336.1702(a))**
3. The permittee shall calculate the VOC emission rates from EU-KGPS-DEHY for each calendar month and 12-month rolling time period using GRI-GLYCalc (Version 4.0 or higher). The inputs to the model shall be representative of actual operating conditions of EU-KGPS-DEHY and shall include the most recent gas analysis data obtained as required by SC V.1. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1225, R 336.1702(a))**

#### **VII. REPORTING**

1. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation of EU-KGPS. **(R 336.1201(7)(a))**

**VIII. STACK/VENT RESTRICTIONS**

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

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter/Dimensions (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1. SV-KGPS-FLARE	42	60	R 336.1225, R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d)

**IX. OTHER REQUIREMENTS**

1. NA

**Footnotes:**

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

**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
FG-KGPS-TURB	Two 19,750 hp natural gas-fired G.E. Frame 5 turbines, each with a 7.5 MW electrical generator, located at KGPS.	EU-KGPS-TURB-A EU-KGPS-TURB-B
FG-KGPS-HEATERS	Two waste heat recovery units (WHRU), each with a 55 MMBtu/hr natural gas-fired duct burner; 20 MMBtu/hr natural gas-fired Heat Medium Heater; 18.5 MMBtu/hr natural gas-fired Fractionization Heater; and 14 MMBtu/hr natural gas-fired Stabilizer Heater, all located at KGPS.	EU-KGPS-WHRU-A EU-KGPS-WHRU-B EU-KGPS-MED EU-KGPS-FRAC EU-KGPS-STAB

**The following conditions apply to: FG-KGPS-TURB**

**DESCRIPTION:** Two 19,750 hp natural gas-fired G.E. Frame 5 turbines, each with a 7.5 MW electrical generator, located at KGPS.

**Emission Units:** EU-KGPS-TURB-A, EU-KGPS-TURB-B

**POLLUTION CONTROL EQUIPMENT:** NA

**I. EMISSION LIMITS**

<b>Pollutant</b>	<b>Limit</b>	<b>Time Period/ Operating Scenario</b>	<b>Equipment</b>	<b>Testing / Monitoring Method</b>	<b>Underlying Applicable Requirements</b>
1. NOx	88.48 pph	Test protocol will specify averaging time	Each turbine in FG-KGPS-TURB	SC V.1, V.2	R 336.1205(1)(a) and (b), R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)
2. CO	22.67 pph	Test protocol will specify averaging time	Each turbine in FG-KGPS-TURB	SC V.3	R 336.1205(1)(a) and (b), R 336.2804, 40 CFR 52.21(d)
3. PM10	1.8 pph	Test protocol will specify averaging time	Each turbine in FG-KGPS-TURB	SC V.3	R 336.1205(1)(a) and (b), R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)
4. PM2.5	1.8 pph	Test protocol will specify averaging time	Each turbine in FG-KGPS-TURB	SC V.3	R 336.1205(1)(a) and (b), R 336.2804, 40 CFR 52.21(d)

**II. MATERIAL LIMITS**

1. The permittee shall not combust more than 3,410 MMscf of natural gas per 12-month rolling time period, as determined at the end of each calendar month, in FG-KGPS-TURB. **(R 336.1205(1)(a) and (b))**
2. The permittee shall not burn any gas in FG-KGPS-TURB containing more than 1 grain of hydrogen sulfide or more than 5 grains of total sulfur per 100 standard cubic feet. **(R 336.1205(3))**

**III. PROCESS/OPERATIONAL RESTRICTIONS**

1. The permittee shall not operate FG-KGPS-TURB unless a malfunction abatement plan (MAP) as described in Rule 911(2), has been submitted to the AQD District Supervisor within 180 days of the date of this permit, and is implemented and maintained. The MAP shall, at a minimum, specify the following:
  - a. A complete preventative maintenance program including identification of the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of air-cleaning devices, a description of the items or conditions that shall be inspected, the frequency of the inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement.
  - b. An identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures.
  - c. A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.
  - d. A description of the corrective procedures or operational changes that shall be taken in the event of visible emissions observed from either turbine in FG-KGPS-TURB.

- e. Identification of the source, and operating variables and ranges for varying loads, shall be monitored and recorded. The normal operating range of these variables and a description of the method of monitoring shall be 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 336.1911)**

#### **IV. DESIGN/EQUIPMENT PARAMETERS**

1. NA

#### **V. TESTING/SAMPLING**

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

1. Within 180 days but no later than 12 months after commencement of trial operation of EU-KGPS, the permittee shall verify NO<sub>x</sub> emission rates from each turbine in FG-KGPS-TURB at 50%, 75%, and 100% loads or other loads as approved by the AQD, by testing at owner's expense, in accordance with Department requirements. Testing shall consist of a minimum of two tests at the prescribed loads, one in the winter season and one in the summer season. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD. 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 within 60 days following the last date of the test. **(R 336.1205(1)(a) and (b), R 336.2001, R 336.2003, R 336.2004, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**
2. No later than five years after completion of the testing required by SC V.1, the permittee shall verify NO<sub>x</sub> emission rates from each turbine in FG-KGPS-TURB at the conditions (load and season) at which the highest NO<sub>x</sub> emission rate was observed during the testing required by SC V.1, as approved by the AQD, by testing at owner's expense, in accordance with Department requirements. The permittee must complete the testing once every five years, thereafter. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD. 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 within 60 days following the last date of the test. **(R 336.1205(1)(a) and (b), R 336.2001, R 336.2003, R 336.2004, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**
3. Within 180 days but no later than 12 months after commencement of trial operation of EU-KGPS, the permittee shall verify PM<sub>10</sub>, PM<sub>2.5</sub>, and CO emission rates from each turbine in FG-KGPS-TURB at maximum routine operating conditions, by testing at owner's expense, in accordance with Department requirements. The permittee must complete the testing once every five years, thereafter. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD. 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 within 60 days following the last date of the test. **(R 336.1205(1)(a) and (b), R 336.2001, R 336.2003, R 336.2004, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**
4. Verification of H<sub>2</sub>S and/or sulfur content of the natural gas burned in KGPS may be required upon request by the AQD District Supervisor. **(R 336.1205(3))**

## **VI. MONITORING/RECORDKEEPING**

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

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor and make them available by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205(1)(a) and (b), R 336.2803, R 336.2804, 40 CFR 51.21(c) and (d))**
2. The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor and record the natural gas usage for each turbine included in FG-KGPS-TURB on a continuous basis. **(R 336.1205(1)(a) and (b), R 336.2803, R 336.2804, 40 CFR 51.21(c) and (d))**
3. The permittee shall maintain records of all information necessary for all notifications and reports as specified in these special conditions as well as that information necessary to demonstrate compliance with the emission limits of this permit. This information shall include, but shall not be limited to the following: **(R 336.1205(1)(a) and (b), R 336.1301, R 336.1331, R 336.1912, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**
  - a. Compliance tests and any testing conducted;
  - b. Monitoring data;
  - c. Amount of fuel combusted in each turbine in FG-KGPS-TURB for each calendar month and 12-month rolling time period, as determined at the end of each calendar month;
  - d. Records of the duration of all times each turbine in FG-KGPS-TURB is operated under start-up or shutdown conditions;
  - e. All calculations necessary to show compliance with the limits contained in this permit.
4. The permittee shall keep a record demonstrating that the fuel burned in FG-KGPS-TURB meets the definition of natural gas in 40 CFR 60.331(u). **(40 CFR 60.334(h)(3))**

## **VII. REPORTING**

1. NA

## **VIII. STACK/VENT RESTRICTIONS**

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

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter/Dimensions (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1. SV-KGPS-TURBA	124.5 x 98.5	48.9	R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d)
2. SV-KGPS-TURBB	124.5 x 98.5	48.9	R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d)

**IX. OTHER REQUIREMENTS**

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 and GG, as they apply each turbine in FG-KGPS-TURB. **(40 CFR Part 60 Subparts A & GG)**

**Footnotes:**

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

**The following conditions apply to: FG-KGPS-HEATERS**

**DESCRIPTION:** Two waste heat recovery units (WHRU), each with a 55 MMBtu/hr natural gas-fired duct burner; 20 MMBtu/hr natural gas-fired Heat Medium Heater; 18.5 MMBtu/hr natural gas-fired Fractionization Heater; and 14 MMBtu/hr natural gas-fired Stabilizer Heater, all located at KGPS.

**Emission Units:** EU-KGPS-WHRUA, EU-KGPS-WHRUB, EU-KGPS-MED, EU-KGPS-FRAC, EU-KGPS-STAB

**POLLUTION CONTROL EQUIPMENT:** NA

**I. EMISSION LIMITS**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. NOx	5.5 pph	Test protocol will specify averaging time	Each WHRU in FG-KGPS-HEATERS	SC V.1	R 336.1205(1)(a) and (b), R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)
2. CO	4.62 pph	Test protocol will specify averaging time	Each WHRU in FG-KGPS-HEATERS	SC V.1	R 336.1205(1)(a) and (b), R 336.2804, 40 CFR 52.21(d)
3. PM10	0.41 pph	Test protocol will specify averaging time	Each WHRU in FG-KGPS-HEATERS	SC V.1	R 336.1205(1)(a) and (b), R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)
4. PM2.5	0.41 pph	Test protocol will specify averaging time	Each WHRU in FG-KGPS-HEATERS	SC V.1	R 336.1205(1)(a) and (b), R 336.2804, 40 CFR 52.21(d)

**II. MATERIAL LIMITS**

1. The permittee shall not combust more than 860.5 MMscf of natural gas per 12-month rolling time period, as determined at the end of each calendar month, in FG-KGPS-HEATERS. **(R 336.1205(1)(a) and (b))**
2. The permittee shall not burn any gas in FG-KGPS-HEATERS containing more than 1 grain of hydrogen sulfide or more than 5 grains of total sulfur per 100 standard cubic feet. **(R 336.1205(3))**

**III. PROCESS/OPERATIONAL RESTRICTIONS**

1. The permittee shall not operate any process equipment in FG-KGPS-HEATERS unless a malfunction abatement plan (MAP) as described in Rule 911(2), has been submitted to the AQD District Supervisor within 180 days of the date of this permit, and is implemented and maintained. The MAP shall, at a minimum, specify the following:
  - a. A complete preventative maintenance program including identification of the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of air-cleaning devices, a description of the items or conditions that shall be inspected, the frequency of the inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement.
  - b. An identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures.
  - c. A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

- d. A description of the corrective procedures or operational changes that shall be taken in the event of visible emissions observed from any emission unit in FG-KGPS-HEATERS.

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. **(R 336.1911)**

#### **IV. DESIGN/EQUIPMENT PARAMETERS**

1. NA

#### **V. TESTING/SAMPLING**

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

1. Within 180 days but no later than 12 months after commencement of trial operation of EU-KGPS, the permittee shall verify NO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and CO emission rates from each WHRU in FG-KGPS-HEATERS at maximum routine operating conditions, by testing at owner's expense, in accordance with Department requirements. The permittee must complete the testing once every five years, thereafter. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD. 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 within 60 days following the last date of the test. **(R 336.1205(1)(a) and (b), R 336.2001, R 336.2003, R 336.2004, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**
2. Verification of H<sub>2</sub>S and/or sulfur content of the natural gas burned in FG-KGPS-HEATERS may be required upon request by the AQD District Supervisor. **(R 336.1205(3))**

#### **VI. MONITORING/RECORDKEEPING**

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

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor and make them available by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205(1)(a) and (b), R 336.2803, R 336.2804, 40 CFR 51.21(c) and (d))**
2. The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor and record the natural gas usage for FG-KGPS-HEATERS on a continuous basis. **(R 336.1205(1)(a) and (b), R 336.2803, R 336.2804, 40 CFR 51.21(c) and (d))**
3. The permittee shall maintain records of all information necessary for all notifications and reports as specified in these special conditions as well as that information necessary to demonstrate compliance with the emission limits of this permit. This information shall include, but shall not be limited to the following: **(R 336.1205(1)(a) and (b), R 336.1301, R 336.1331, R 336.1912, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**
  - a. Compliance tests and any testing conducted;
  - b. Monitoring data;
  - c. Amount of fuel combusted in FG-KGPS-HEATERS for each calendar month and 12-month rolling time period, as determined at the end of each calendar month;
  - d. All calculations necessary to show compliance with the limits contained in this permit.

**VII. REPORTING**

1. NA

**VIII. STACK/VENT RESTRICTIONS**

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

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter/Dimensions (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1. SV-KGPS-MED-HTR	54	41.6	R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d)
2. SV-KGPS-FRAC-HTR	41	45.8	R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d)
3. SV-KGPS-STAB-HTR	36	45.1	R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d)
4. SV-KGPS-WHRU-A1	103	54	R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d)
5. SV-KGPS-WHRU-A2	103	54	R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d)
6. SV-KGPS-WHRU-B1	103	54	R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d)
7. SV-KGPS-WHRU-B2	103	54	R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d)

**IX. OTHER REQUIREMENTS**

1. NA

**Footnotes:**

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