

## DRAFT

### OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY AIR QUALITY DIVISION

#### MEMORANDUM

May 18, 2016

**TO:** Phillip Fielder, P.E., Permits and Engineering Group Manager

**THROUGH:** Rick Groshong, Senior Manager, Compliance and Enforcement

**THROUGH:** Phil Martin, P.E., Manager, Existing Source Permits Section

**THROUGH:** Peer Review

**FROM:** John Howell, P.E., Existing Source Permits Section

**SUBJECT:** Evaluation of Permit Application No. **2016-0278-TVR2**  
Green Country Energy, LLC  
Gas Turbine Electric Power Plant Fac ID# 3594  
12307 S. Florence Ave., Jenks, Tulsa County  
35.985°N, 95.936°W at northwest corner of fenced area  
Section 4, T17N, R13E, approximately 126<sup>th</sup> Street and Arkansas River  
and 4 miles east of US 75

#### I. INTRODUCTION

Green Country Energy, LLC has requested the second renewal of the Title V permit for their Gas Turbine Electric Power Plant located in Jenks, OK. This facility began operations on February 6, 2002, under Construction Permits No. 99-010-C (PSD) and 99-010-C (PSD)(M-1). The facility currently operates under Permit No. 2008-050-TVR (M-1), issued November 26, 2012. The generating facility (SIC Code 4911) consists of three combined cycle gas turbines, each with a heat recovery steam generator [equipped with duct burners] powering a steam turbine. There are two operating scenarios; combustion turbines (CTs) operating with duct burners and CTs operating without duct burners. The initial construction permit required Prevention of Significant Deterioration (PSD) analysis and Tier III public review. The facility is a PSD-major source, a fossil fuel-fired electric generating plant of more than 250 MMBTUH heat input with permitted emissions of NO<sub>x</sub>, CO, VOC, and PM<sub>10/2.5</sub> greater than 100 TPY.

At present there is another application under review for this facility [Permit No. 2008-050-C (M-2), a Tier I construction permit in which the applicant has requested authorization to make the following modifications to the facility:

- Install the General Electric OpFlex modification, which involves both new process control software and replacement or modification to some components of the turbine gas path. This upgrade will increase the nominal heat input rating of each turbine from 1940 MMBTUH to 2010 MMBTUH, and also improve turbine efficiency, enabling the facility to recover generating capacity that has been lost since it commenced operation.

- Install additional duct burners to increase duct firing capacity for each Heat Recovery Steam Generator [HRSG] from 265 MMBTUH to 325 MMBTUH. The facility has requested a new permit limit such that the additional duct firing capacity be utilized not more than 2500 hours per year for each turbine, based on historical data on utilization of duct burners. However, it has been determined that this new limit is not for the purpose of avoiding PSD review, or any other applicable requirement.
- The applicant has determined that after the modification the facility can continue to operate within the current short term and annual emission limits and annual fuel usage limitations, and no change has been requested.

However, the facility modifications requested in the construction permit application are not addressed in this Title V renewal permit. The applicant has requested no changes to the terms and conditions of the present operating permit. However, as part of the TV renewal process the following changes will be implemented:

- Add language requiring compliance with the Cross State Air Pollution Rule [CSAPR].
- Add a requirement to conduct biannual CO stack testing for each turbine, per current AQD policy for “large” emission units. As an alternative, the units can be equipped with CO CEMS.

## II. PROCESS DESCRIPTION

The plant operates three combined-cycle gas turbines firing only natural gas. Maximum total combined rating of the entire facility is 800 MWe. Conservatively high estimates of emissions from each unit were generated using the following conditions. Each gas turbine is paired with a steam turbine powered by steam produced in a heat recovery steam generator (HRSG) using exhaust gas from the gas turbine. Exhaust gas from each turbine can be further heated by duct burners located in the HRSG, providing additional steam to the steam turbine. Low pressure exhaust steam is condensed; the waste heat is rejected through mechanical draft counter-flow cooling towers. An auxiliary boiler provides heat to facilitate start-up for all turbines by pre-heating the steam turbines. An emergency generator serves all three units as backup in the event of a power outage. A diesel fire pump is available for emergency use. Each turbine set has a 5-MMBTUH fuel pre-heater.

The gas turbines are GE Model PG7241FA, each with a nominal output of 194.4 MWe at base conditions of 0°F, with a nominal higher heat value (HHV) input of 1,940 MMBTUH. The turbines use dry low-NO<sub>x</sub> combustors. A typical dry low-NO<sub>x</sub> burner for a turbine consists of one diffusion flame pilot nozzle surrounded by several equally spaced premix flame main nozzles. The formation of NO<sub>x</sub> is influenced by how much gas is burned in the pilot flame and how much is burned in the surrounding combustor nozzles. The multinozzle design spreads the combustion volume into a wider, cooler, less concentrated flame. Typically, for natural gas fuel, approximately 7 to 10 % by volume of the total gas flow is sent through the pilot nozzle. Other than startup, shutdown, and malfunctions, each combustion turbine is operated at or above 70 percent rated turbine load to assure operations in the “pre-mix” mode. Pre-mix is the operating mode for the burner that optimizes combustion efficiency and produces the lowest NO<sub>x</sub>

emissions. However, elevated levels of NO<sub>x</sub> and CO can result during cold startups and/or in the “diffusion” mode. These turbines are designed to operate in the pre-mix mode almost immediately after light-off. Although cold starts can require as much as five hours to achieve fully loaded operation of each turbine set, the auxiliary boiler is used to heat the steam turbine to the proper temperature before the combustion turbine is lit. This technique allows for very quick stabilization of the set at optimum operating conditions.

The duct burners fire only natural gas at a nominal heat input rating of up to 265 MMBTUH for each unit. Each stack vents at 150' above grade and has a diameter of 18'. Combustion turbines and duct burners are authorized to operate continuously, or 8,760 hours per year.

Selective catalytic reduction (SCR) is applied to the exhaust stream by injecting ammonia downstream from the duct burners and upstream of a catalyst bed. This causes most NO<sub>x</sub> to be converted to nitrogen and water vapor, but allows some emissions of ammonia. This process was described in greater detail in the BACT analysis portion of the memorandum associated with the original construction permit.

The auxiliary boiler mentioned above is natural gas-fired and is used for steam seals and to set up a vacuum for steam turbine start, as well as to provide an alternate source of steam for facility heating. The auxiliary boiler has a rated steam output of 20,700 pounds per hour and a rated heat input of 23.6 MMBTUH. It fires a maximum of 3,000 hours per year and exhausts at 308°F through a 2' diameter stack at 83' above grade.

The diesel emergency generator is rated at 750 kW (8.4 MMBTUH) and the diesel fire pump is rated at 265 BHP (1.23 MMBTUH). These units will be operated less than 500 hours per year.

Diesel storage tanks associated with the emergency engines include a 360-gallon tank for the fire pump and an 800-gallon tank for the emergency generator.

Each of the cooling towers has four cells. Each cell vents 391,313 acfm at 85°F at 35' above grade.

### III. EQUIPMENT

#### EUG CC COMBUSTION TURBINE SETS

Emission Unit	Emission Point	Equipment	Nominal Rating	Const. Date
GT1	EP1	GE PG7241 FA NG-fired combustion turbine Serial Number 297465	194.4 MW	2/6/02
GT2	EP2	GE PG7241 FA NG-fired combustion turbine Serial Number 297466	194.4 MW	2/6/02
GT3	EP3	GE PG7241 FA NG-fired combustion turbine Serial Number 297467	194.4 MW	2/6/02
DB1	EP1	Duct burner	265 MMBTUH	2/6/02
DB1	EP2	Duct burner	265 MMBTUH	2/6/02
DB1	EP3	Duct burner	265 MMBTUH	2/6/02

**EUG AUX1            AUXILIARY BOILER**

<b>Emission Unit</b>	<b>Emission Point</b>	<b>Equipment</b>	<b>Rating</b>	<b>Const. Date</b>
AB1	EP4	Clayton natural gas-fired auxiliary boiler	23.6 MMBTUH	2/6/02

**EUG RICE    EMERGENCY ENGINES**

<b>Emission Unit</b>	<b>Emission Point</b>	<b>Equipment</b>	<b>Rating</b>	<b>Const. Date</b>
DEG	EP5	Diesel emergency generator	750 kW	pre-12/19/02
DFP	EP6	Diesel fire pump	265 hp	pre-12/19/02

**EUG IA        INSIGNIFICANT ACTIVITIES****Fuel Preheaters**

<b>Emission Unit</b>	<b>Emission Point</b>	<b>Equipment</b>	<b>Rating, MMBTUH</b>	<b>Const. Date</b>
FPH1	EP7	Fuel preheater	5.0	2/6/02
FPH2	EP8	Fuel preheater	5.0	2/6/02
FPH3	EP9	Fuel preheater	5.0	2/6/02

**Cooling Towers**

<b>Emission Unit</b>	<b>Emission Point</b>	<b>Equipment</b>	<b>Rating</b>	<b>Const. Date</b>
COOL1	EP10	Cooling tower	---	2/6/02
COOL2	EP11	Cooling tower	---	2/6/02
COOL3	EP12	Cooling tower	---	2/6/02

**IV.    EMISSIONS**

Emissions are generated by combustion at the turbines, at the duct burners, at the auxiliary boiler, and to a much smaller extent at the fuel pre-heaters, emergency generator, and fire pump. Each HRSG stack exhausts combustion emissions from its duct burners and related turbine. Very small emissions of VOC are expected from the diesel storage tank. Ammonia is supplied to the SCR process in amounts slightly above the stoichiometric requirement, so there are some emissions of ammonia, called "ammonia slip," in the exhaust. Since calculations demonstrated the facility exceeded the significance threshold for emissions of PM<sub>10</sub>, NO<sub>x</sub>, CO, SO<sub>2</sub> and VOC, the initial construction project was subject to full PSD review. Tier III public review, best available control technology (BACT), and ambient impacts analyses were required for that permit. Because EPA requires that short-term emissions be considered, the memorandum for permit 2008-050-TV2 proposed to review BACT considerations for both start up/shut down emissions and for emissions related to tuning. However, the facility elected not to include start up/shut down limits in the permit and the tuning limits were not fully addressed in the Memorandum. Subsequently, BACT for tuning was established in Permit No. 2008-050-TV (M-1).

The following table displays emissions based on best available data. Emission factors for the turbines and HRSGs are based on manufacturer’s guarantees. Pollutant concentrations in exhaust gases differ between turbine-only and turbine-duct burner cases (operation). The applicant expects normal operating mode to include the duct burners, but they will be used as demands for power require. Each factor is listed, but the higher factor is used as a conservative estimate of emissions for the project. Note that the NO<sub>x</sub> and CO values for the turbines and duct burners are based on ppmv dry at 15% O<sub>2</sub>. The emission estimate for SO<sub>2</sub> is conservatively based on twice the AP-42 value.

Pollutant	Mode	Concentration, ppmvd	Equivalent lb/MMBtu	Emissions		
				Each set	Totals for three sets	
NO <sub>x</sub>	CT	4.5		lb/hr	lb/hr	TPY
NO <sub>x</sub>	CT+DB	8.6	0.031	61.0	183	802
CO	CT	7.7				
CO	CT+DB	14.5	0.031	61.0	183	802
VOC	CT	3.7				
VOC	CT+DB	3.8		10.4	31.2	137
SO <sub>2</sub>	ALL		0.0013	2.7	8.1	35.4
TSP/PM <sub>2.5/10</sub>	ALL		0.009	18.8	56.4	247

Although NO<sub>x</sub> emissions are expected to increase during tuning, no other pollutants are expected to show increases. The facility estimates that tuning can be accomplished without exceeding NO<sub>x</sub> emissions of 25 ppmvd @ 15% O<sub>2</sub>. This is equivalent to 185.3 lbs/hr per unit. However, as tuning progresses, the ppmvd datum will decrease until the unit is in compliance with the normal operating standards. Assuming the unit is at 9 ppmvd @ 15% O<sub>2</sub> before tuning commences, the progression of values (all stated as ppmvd @ 15% O<sub>2</sub>) is expected to be 25 for the first 30 minutes, 19 for the next 30 minutes, 15.5 for the second hour, 13.0 for the third hour, 12.0 for the fourth hour, 10.0 for the fifth hour, and 8.4 for the sixth hour. Emissions before tuning, using 9 ppm as the initial condition, would be 66.7 lb/hr and 0.034 lb/MMBTU. Following the progression stated above, emissions in lb/hr would be 185.3, 140.9, 114.9, 96.4, 89.0, 74.1, and 62.3. Remembering that the first two values cover 30 minutes each, total emissions for the six-hour event would be 600 pounds. NO<sub>x</sub> emissions in units of pounds per MMBTU would have an initial condition of 0.034, followed by the tuning progression of 0.096, 0.073, 0.059, 0.050, 0.046, 0.038, and 0.032. The facility has not requested a relaxation of authorized annual emissions of NO<sub>x</sub>.

Emissions from the auxiliary boiler are calculated using factors from AP-42 (7/98) Tables 1.4-1 & 2. The auxiliary boiler is rated at 23.6 MMBTUH and is limited to 3,000 hours of operation per year. Heating value of the gas is taken to be 1,020 BTU/CF.

Pollutant	Factor Lb/MMCF	Emissions	
		Lb/hr	TPY
NO <sub>x</sub>	50	1.16	1.74
CO	84	1.94	2.92
SO <sub>2</sub>	0.6	0.01	0.02
VOC	5.5	0.13	0.19
TSP=PM <sub>10</sub>	7.6	0.18	0.26

Emissions from the emergency generator and diesel fire pump are calculated using factors from AP-42 (10/96) Tables 3.3-1 for uncontrolled diesel industrial engines less than 600 bhp. The 750 kW generator is rated at 8.4 MMBTUH and the diesel fire pump is rated at 1.23 MMBTUH. The generator and fire pump are limited to 500 operating hours each per year. Emissions from the one 800-gallon and one 360-gallon diesel storage tanks are insignificant.

Pollutant	Factor	Emissions (Lb/hr)		Emission total
	(Lb/MMBTU)	Generator	Fire pump	TPY
NO <sub>x</sub>	4.41	37.04	5.42	10.6
CO	0.95	7.98	1.17	2.29
SO <sub>2</sub>	0.29	2.44	0.36	0.70
VOC	0.36	3.02	0.44	0.87
TSP=PM <sub>10</sub>	0.31	2.60	0.38	0.75

The three fuel pre-heaters are treated as a single 15 MMBTUH source for calculating emissions, using factors from Tables 1.4-1 and 2 of AP-42 (7/98). Continuous operation is assumed.

Pollutant	Factor Lb/MMCF	Emissions	
		Lb/hr	TPY
NO <sub>x</sub>	100	1.47	6.44
CO	84	1.24	5.41
SO <sub>2</sub>	0.6	0.01	0.04
VOC	5.5	0.08	0.35
PM <sub>10</sub>	7.6	0.11	0.49

Emissions from the cooling towers were calculated assuming a drift ratio of 0.002% and total dissolved solids (TDS) of 12,000 ppm. Combining three towers of four cells each yields 9.03 lb/hr or 39.5 TPY of TSP. Per calculations outlined in EPA's Effects of Pathogenic and Toxic Material Transport Via Cooling Device Drift-Vol. 1 Technical Report (EPA 600 7-79-251a, Nov. 1979), 30.8% of the TSP exists as PM<sub>10</sub>. Resulting emission rates for the combined three towers are 2.78 lb/hr or 12.16 TPY of PM<sub>10</sub>. Non-contact cooling towers are considered to be trivial sources, so these calculations are presented only for completeness.

Total facility-wide emission totals are summarized in the table following.

**Facility-wide Permitted Emissions Summary, Criteria Pollutants, TPY**

Unit	NO <sub>x</sub>	CO	VOC	SO <sub>2</sub>	PM <sub>10/2.5</sub>
GT1,2,3	802*	802*	137*	35.4*	247*
AB1	1.74	2.92	0.19	0.02	0.26
EUG RICE	10.6	2.29	0.87	0.70	0.75
FPH1,2,3	6.44	5.41	0.35	0.04	0.49
COOL10,11,12	---	---	---	---	12.16
<b>Totals</b>	<b>821</b>	<b>813</b>	<b>138.4</b>	<b>35.8</b>	<b>260.7</b>

\*Total for 3 units

**HAPs and Toxics**

The following table reviews emissions of ammonia, sulfuric acid and HAPs, although formaldehyde from the turbine sets is currently the most important HAP. The ammonia slip emission factor is guaranteed not to exceed 10 ppm. Calculations for sulfuric acid emissions are based on conservative assumptions for conversion of SO<sub>2</sub> to acid mist of 3% from both the combustion turbine and duct burner. Heating value of the gas is taken to be 1,020 BTU/CF. Speciated HAP emission factors are taken from Tables 3.1-3 of AP-42 (4/00). Benzene emissions from the turbine include a margin to account for an emission estimate from the vendor which is higher than the AP-42 factor. Formaldehyde is treated separately in the third table following. The facility has chosen to use formaldehyde database factors accepted by California Air Resources Board for the diesel-fired equipment in addition to the AP-42 factors for the natural gas-fired sources (including the updated factor for large turbines with DLN technology).

Pollutant	HAP	Emission factor	Emissions		
			lb/hr/set	Total lb/hr	Total TPY
Ammonia	No	10 ppm	22.30	66.90	293.0
Sulfuric acid	Yes	Per SO <sub>2</sub> formation	0.124	0.370	1.621
1,3-Butadiene	Yes	4.3 × 10 <sup>-7</sup> lb/MMBTU	0.001	0.003	0.011
Acetaldehyde	Yes	4.0 × 10 <sup>-5</sup> lb/MMBTU	0.078	0.233	1.020
Acrolein	Yes	6.4 × 10 <sup>-6</sup> lb/MMBTU	0.012	0.037	0.163
Benzene	Yes	2.4 × 10 <sup>-5</sup> lb/MMBTU	0.047	0.140	0.612
Ethylbenzene	Yes	3.2 × 10 <sup>-5</sup> lb/MMBTU	0.062	0.186	0.816
Naphthalene	Yes	1.3 × 10 <sup>-6</sup> lb/MMBTU	0.003	0.008	0.033
PAHs	Yes	2.2 × 10 <sup>-6</sup> lb/MMBTU	0.004	0.013	0.056
Propylene oxide	Yes	2.9 × 10 <sup>-5</sup> lb/MMBTU	0.056	0.169	0.739
Toluene	Yes	1.3 × 10 <sup>-4</sup> lb/MMBTU	0.252	0.757	3.314
Xylene	Yes	6.4 × 10 <sup>-5</sup> lb/MMBTU	0.124	0.372	1.631

Similarly, speciated emissions are also calculated for the other combustion sources using AP-42 (3/98) Table 1.4-3 for the auxiliary boiler and AP-42 (10/96) Table 3.3-1 for the diesel engines. Other tables were reviewed, but only those factors giving rise to a minimum of one pound per year are shown here. The auxiliary boiler is rated at 23.6 MMBTUH and is limited to 3,000 hours of operation per year. Heating value of the gas is taken to be 1,020 BTU/CF. The combined heat rate of the generator and the fire pump is 9.63 MMBTUH. The generator and fire pump are

limited to 500 operating hours per year. Hexane is emitted by the duct burners, preheaters, and auxiliary boiler, but not by the combustion turbines, so it is considered by itself.

Pollutant	HAP	Factor	Emissions	
			Lb/hr	TPY
Hexane	Y	1.8 lb/MMCF	1.47	6.32

**FORMALDEHYDE**

Equipment	Emission Factor (Lb/MMBTU)	Emissions	
		Lb/hr	TPY
Combustion turbines (3)	0.0000359	0.070	0.92
Duct burners (3)	0.075	0.020	0.26
Auxiliary boiler	0.075	0.002	0.003
Diesel generator	0.00267	0.023	0.006
Diesel fire pump	0.00267	0.003	<.001
Preheaters (3)	0.075	<0.001	0.005
<b>Totals</b>			<b>1.19</b>

The total of all HAP is 15.96 TPY, and no single HAP has emissions greater than or equal to 10 TPY, so the facility is not major under the definition of 40 CFR 63.2.

**Greenhouse Gases [GHG]**

The facility has potential emissions of CO<sub>2</sub> in excess of 3,200,000 TPY based on permitted natural gas usage, and is therefore a PSD-major source for emissions of GHGs.

**V. OKLAHOMA AIR POLLUTION CONTROL RULES**

OAC 252:100-1 (General Provisions) [Applicable]  
 Subchapter 1 includes definitions but there are no regulatory requirements.

OAC 252:100-2 (Incorporation by Reference) [Applicable]  
 This subchapter incorporates by reference applicable provisions of Title 40 of the Code of Federal Regulations listed in OAC 252:100, Appendix Q. These requirements are addressed in the “Federal Regulations” section.

OAC 252:100-3 (Air Quality Standards and Increments) [Applicable]  
 Subchapter 3 enumerates the primary and secondary ambient air quality standards and the significant deterioration increments. At this time, all of Oklahoma is in “attainment” of these standards. In addition, modeled emissions from the proposed facility demonstrate that the facility does not have a significant impact on air quality.



OAC 252:100-5 (Registration, Emissions Inventory and Annual Operating Fees) [Applicable]  
Subchapter 5 requires sources of air contaminants to register with Air Quality, file emission inventories annually, and pay annual operating fees based upon total annual emissions of regulated pollutants. Emission inventories were submitted and fees paid for previous years as required.

OAC 252:100-8 (Permits for Part 70 Sources) [Applicable]  
Part 5 includes the general administrative requirements for Part 70 permits. Any planned changes in the operation of the facility that result in emissions not authorized in the permit and that exceed the “Insignificant Activities” or “Trivial Activities” thresholds require prior notification to AQD and may require a permit modification. Insignificant activities refer to those individual emission units either listed in Appendix I or whose actual calendar year emissions do not exceed the following limits.

- 5 TPY of any one criteria pollutant
- 2 TPY of any one hazardous air pollutant (HAP) or 5 TPY of multiple HAPs or 20% of any threshold less than 10 TPY for a HAP that the EPA may establish by rule

Emission limitations and operational requirements necessary to assure compliance with all applicable requirements for all sources are taken from the operating permit application, or are developed from the applicable requirement.

OAC 252:100-9 (Excess Emissions Reporting Requirements) [Applicable]  
Except as provided in OAC 252:100-9-7(a)(1), the owner or operator of a source of excess emissions shall notify the Director as soon as possible but no later than 4:30 p.m. the following working day of the first occurrence of excess emissions in each excess emission event. No later than thirty (30) calendar days after the start of any excess emission event, the owner or operator of an air contaminant source from which excess emissions have occurred shall submit a report for each excess emission event describing the extent of the event and the actions taken by the owner or operator of the facility in response to this event. Request for affirmative defense, as described in OAC 252:100-9-8, shall be included in the excess emission event report. Additional reporting may be required in the case of ongoing emission events and in the case of excess emissions reporting required by 40 CFR Parts 60, 61, or 63.

OAC 252:100-13 (Open Burning) [Applicable]  
Open burning of refuse and other combustible material is prohibited except as authorized in the specific examples and under the conditions listed in this subchapter.

OAC 252:100-19 (Particulate Matter (PM)) [Applicable]  
Section 19-4 regulates emissions of PM from new and existing fuel-burning equipment, with emission limits based on maximum design heat input rating. Fuel-burning equipment is defined in OAC 252:100-19 as any internal combustion engine or gas turbine, or other combustion device used to convert the combustion of fuel into usable energy. Thus, the following are subject to the requirements of this subchapter. The turbines, duct burners, auxiliary boiler, and fuel preheaters shall burn only commercial grade natural gas. Appendix C specifies a PM emission limitation of 0.60 lb/MMBTU for all equipment at this facility with a heat input rating of 10

Million BTU per hour (MMBTUH) or less. AP-42 (4/00), Sec. 3.1 lists total PM emissions from natural gas-fired turbines to be 0.0066 lbs/MMBTU.

Equipment	Maximum Rated Heat Input, (MMBTUH)	Emission Rate, (lb/MMBTU)	
		Appendix C	Calculated
Combustion turbines	1,940 each	0.18	0.01
Duct burners	265 each	0.26	0.01
Auxiliary boiler	23.6	0.49	0.01
Fuel preheaters	5 each	0.60	0.01
Emergency	8.4	0.60	0.31
Fire pump	1.23	0.60	0.31

OAC 252:100-25 (Visible Emissions and Particulates) [Applicable]  
 No discharge of greater than 20% opacity is allowed except for short-term occurrences that consist of not more than one six-minute period in any consecutive 60 minutes, not to exceed three such periods in any consecutive 24 hours. In no case shall the average of any six-minute period exceed 60% opacity. When burning natural gas there is very little possibility of exceeding the opacity standards.

OAC 252:100-29 (Fugitive Dust) [Applicable]  
 No person shall cause or permit the discharge of any visible fugitive dust emissions beyond the property line on which the emissions originated in such a manner as to damage or to interfere with the use of adjacent properties, or cause air quality standards to be exceeded, or to interfere with the maintenance of air quality standards. Under normal operating conditions, this facility has negligible potential to violate this requirement; therefore it is not necessary to require specific precautions to be taken.

OAC 252:100-31 (Sulfur Compounds) [Applicable]  
Part 5 limits sulfur dioxide emissions from new fuel-burning equipment (constructed after July 1, 1972). For gaseous fuels the limit is 0.2 lb/MMBTU heat input averaged over 3 hours. For fuel gas having a gross calorific value of approximately 1,020 Btu/scf, this limit corresponds to fuel sulfur content of approximately 1,227 ppmv.  
 Applicant assumes that the AP-42 of 0.6 lb/MMCF, multiplied by a factor of two, or approximately 0.0013 lb/MMBTU, is a conservatively high emission factor. Using the range of grains of sulfur per 100 dscf in normal Oklahoma gas contracts allows the calculation of maximum emissions to be 0.057 lb/MMBTU, with an annual expected average of 0.0013 lb/MMBTU. Burning only commercial natural gas provides compliance for the turbines and duct burners. The permit requires the use of natural gas as defined in Part 72 having 20.0 grains TRS/100 scf to ensure compliance with Subchapter 31.  
Part 5 also requires opacity and sulfur dioxide monitoring for equipment rated above 250 MMBTUH. Equipment burning gaseous fuel is exempt from the opacity monitor requirement, so the turbines and duct burners do not require such monitors.

OAC 252:100-33 (Nitrogen Oxides) [Applicable]  
 This subchapter limits new gas-fired fuel-burning equipment with rated heat input greater than or equal to 50 MMBTUH to emissions of 0.2 lbs of NO<sub>x</sub> per MMBTU, three-hour average. The

maximum one-hour emission rate for the turbines, based on the BACT requirement of 4.5 ppmvd corrected to 15% O<sub>2</sub> is 0.017 lb/MMBTU, which is in compliance. If the rate is based on the combined exhaust of the combustion turbines and HRSGs, the BACT requirement of 8.6 ppmvd @ 15% O<sub>2</sub> converts to 0.031 lb/MMBTU, which is still in compliance. Maximum emissions of 25 ppmvd @ 15% O<sub>2</sub> at the commencement of tuning converts to approximately 0.09 lb/MMBTU, which is also in compliance.

OAC 252:100-35 (Carbon Monoxide) [Not Applicable]  
This subchapter affects gray iron cupolas, blast furnaces, basic oxygen furnaces, petroleum catalytic cracking units, and petroleum catalytic reforming units. There are no affected sources.

OAC 252:100-37 (Volatile Organic Compounds) [Part 7 Applicable]  
Part 3 requires storage tanks constructed after December 28, 1974, with a capacity of 400 gallons or more and storing a VOC with a vapor pressure greater than 1.5 psia to be equipped with a permanent submerged fill pipe or with an organic vapor recovery system. The vapor pressure of diesel is less than 1.5 psia, therefore, Part 3 does not apply.  
Part 5 limits the VOC content of coating used in coating lines or operations. This facility will not normally conduct coating or painting operations except for routine maintenance of the facility and equipment, which is not an affected operation.  
Part 7 requires fuel-burning equipment to be operated and maintained so as to minimize VOC emissions. Temperature and available air must be sufficient to provide essentially complete combustion. Combustion control is a BACT requirement to minimize emissions.

OAC 252:100-39 (VOC in Nonattainment and Former Nonattainment Areas) [Not Applicable]  
This subchapter imposes additional conditions beyond those of Subchapter 37 on emissions of organic materials from new and existing facilities in Tulsa and Oklahoma Counties.  
Part 7 covers Specific Operations. Section 39-41(b) concerns the storage of VOC in tanks with storage capacity greater than 400 gallons. The low vapor pressure of diesel exempts the storage tanks from this section per §39-4.

OAC 252:100-42 (Toxic Air Contaminants (TAC)) [Applicable]  
This subchapter regulates toxic air contaminants (TAC) that are emitted into the ambient air in areas of concern (AOC). Any work practice, material substitution, or control equipment required by the Department prior to June 11, 2004, to control a TAC, shall be retained, unless a modification is approved by the Director. Since no AOC has been designated there are no specific requirements for this facility at this time.

OAC 252:100-43 (Testing, Monitoring, and Recordkeeping) [Applicable]  
This subchapter provides general requirements for testing, monitoring and recordkeeping and applies to any testing, monitoring or recordkeeping activity conducted at any stationary source. To determine compliance with emissions limitations or standards, the Air Quality Director may require the owner or operator of any source in the state of Oklahoma to install, maintain and operate monitoring equipment or to conduct tests, including stack tests, of the air contaminant source. All required testing must be conducted by methods approved by the Air Quality Director and under the direction of qualified personnel. A notice-of-intent to test and a testing protocol shall be submitted to Air Quality at least 30 days prior to any EPA Reference Method stack tests.

Emissions and other data required to demonstrate compliance with any federal or state emission limit or standard, or any requirement set forth in a valid permit shall be recorded, maintained, and submitted as required by this subchapter, an applicable rule, or permit requirement. Data from any required testing or monitoring not conducted in accordance with the provisions of this subchapter shall be considered invalid. Nothing shall preclude the use, including the exclusive use, of any credible evidence or information relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed.

**The following Oklahoma Air Pollution Control Rules are not applicable to this facility.**

OAC 252:100-11	Alternative Reduction	Not eligible
OAC 252:100-15	Mobile Sources	Not in source category
OAC 252:100-17	Incinerators	Not type of emission unit
OAC 252:100-23	Cotton Gins	Not type of emission unit
OAC 252:100-24	Feed & Grain Facility	Not in source category
OAC 252:100-47	Landfills	Not type of source category

## VI. FEDERAL REGULATIONS

PSD, 40 CFR Part 52

[Not Applicable to this permit]

The facility is a listed source as a fossil fuel-fired electric plant of more than 250 MMBTUH heat input with permitted emissions greater than 100 TPY. Upon review, it has been determined that PSD review is not required for this permit.

NSPS, 40 CFR Part 60

[Subparts GG, Da, and Dc Applicable]

Subpart GG affects stationary gas turbines with a heat input at peak load of greater than or equal to 10 MMBTUH based on the lower heating value (LHV) of the fuel and that commenced construction, reconstruction, or modification after October 3, 1977. The turbines have LHV heat input capacities greater than 10 MMBTUH and are subject. The turbines are governed by 40 CFR 60.332(b) and must satisfy the NO<sub>x</sub> standard set forth in §60.332(a)(1). As applied to these turbines, the formula yields an upper limit of 171 ppmvd. For NO<sub>x</sub> emissions, the BACT requirements of 4.5 ppmvd corrected to 15% O<sub>2</sub> for the turbine alone, 8.6 ppmvd @ 15% O<sub>2</sub> for the turbine with duct burners, and 25 ppmvd @ 15% O<sub>2</sub> for the turbine at the commencement of tuning, are more stringent than Subpart GG and are applicable. Testing fuel for nitrogen content was addressed in a letter dated May 17, 1996 from EPA Region 6. Monitoring of fuel nitrogen content shall not be required when pipeline-quality natural gas is the only fuel fired in the turbine. Sulfur dioxide standards specify that no fuel that exceeds 0.8% by weight sulfur shall be used, nor shall exhaust gases contain in excess of 150 ppm SO<sub>2</sub>. Monitoring of the sulfur content is required for gaseous fuels, using methods outlined in §60.334(h)(1). If the fuel meets the definition of natural gas found in §60.331(u), the owner/operator is not required to monitor the sulfur content.

For fuel supplies without intermediate bulk storage, the owner or operator shall either monitor the fuel nitrogen and sulfur content daily or develop custom schedules of fuel analysis based on the characteristics of the fuel supply; these custom schedules must be approved by the

Administrator before they can be used for compliance with monitoring requirements. The EPA Region 6 letter referenced above also states that when pipeline-quality natural gas is used exclusively, acceptable monitoring for sulfur is a quarterly statement from the gas supplier reflecting the sulfur analysis or a quarterly “stain tube” analysis.

Finally, the subpart allows custom fuel monitoring schedules, and the facility has received approval from EPA Region 6 for such a schedule. Under this plan, hydrogen sulfide must not exceed 1.0 grain/100 SCF and total sulfur may not exceed the 0.8%<sub>w</sub> standard. Testing for each will occur at the same time. The schedule begins with testing for four consecutive weeks, followed by monthly testing, followed by semiannual testing in the first and third quarters of each year. Failure of any of these tests requires that the schedule be re-examined for possible modification, and testing shall convert to weekly during any such period of re-examination. Testing done to date has shown numbers below the threshold values.

Subpart Da affects electric steam generating units with a design capacity greater than 250 MMBTUH, and combined cycle gas turbines that are capable of combusting more than 250 MMBTUH level in the heat recovery steam generator, that were constructed after September 18, 1978. Since duct burners in the HRSGs add 325 MMBTUH, they are subject to Da. Emission standards, monitoring requirements, and performance testing are described for PM (opacity), SO<sub>2</sub> and NO<sub>x</sub>.

The §60.42Da standard for PM is 0.03 lb/MMBTU. Maximum PM emissions from HRSG operation is 0.009 lb/MMBTU. This section also contains an opacity standard of no greater than 20% (six-minute average) except for one six-minute period per hour of no more than 27%. Sources using exclusively gaseous fuels and not using a post-combustion technology to reduce emissions of SO<sub>2</sub> or PM are exempt from continuous monitoring of opacity per §60.49Da(2)(ii). As further amended on March 21, 2011, §60.49Da(3) allows an exemption from opacity monitoring for duct burners that combust only natural gas. The exemption is granted.

The §60.43Da standard for SO<sub>2</sub> is 1.20 lb/MMBTU. Maximum SO<sub>2</sub> from HRSG emissions is 0.0013 lb/MMBTU. Sources where natural gas is the only fuel combusted, are exempt from continuous monitoring of SO<sub>2</sub> per §60.49Da(b).

The §60.44Da standard for NO<sub>x</sub> is 0.20 lb/MMBTU. Maximum NO<sub>x</sub> from HRSG emissions is less than 0.20 lb/MMBTU. Continuous monitoring of NO<sub>x</sub> is required per §60.47a(c).

Tests, Reference Methods, and reporting requirements are outlined in the Specific Conditions.

Subpart Db affects steam generating units with a design capacity greater than 100 MMBTUH heat input and which commenced construction, modification or reconstruction after June 19, 1984. Per 40 CFR 60.40b(e), steam units meeting the applicability requirements under Subpart Da are not subject to this Subpart.

Subpart Dc affects small industrial-commercial-institutional steam generating units with a design capacity between 10 and 100 MMBTUH heat input and which commenced construction or modification after June 9, 1989, so the 23.6 MMBTUH auxiliary boiler is an affected source. Particulate and SO<sub>2</sub> standards are not set for gas-fired units. The only applicable standards are initial notification per §60.48c(a) and a requirement to keep records of the fuels used per §60.48c(g).

Subpart III, Stationary Compression Ignition Internal Combustion Engines, affects stationary compression ignition (CI) internal combustion engines (ICE) based on power and displacement ratings, depending on date of construction, beginning with those constructed after July 11, 2005. The fire pump engine and the emergency generator were constructed before July 11, 2005 and are not affected facilities.

NESHAP, 40 CFR Part 61

[Not Applicable]

There are no emissions of any of the regulated pollutants: arsenic, asbestos, benzene, beryllium, coke oven emissions, radionuclides or vinyl chloride. The facility emits small amounts of mercury and benzene but it is not one of the applicable sources and is, therefore, exempt from this part.

NESHAP, 40 CFR Part 63

[Subpart ZZZZ Applicable]

Subpart YYYY (Stationary Combustion Turbines) was proposed on January 14, 2003. The MACT affects only turbines located at facilities that are major sources of HAP. As discussed in the emissions section above, this facility is not major for HAP. If the facility is modified in such a manner that it becomes major for HAPs, the turbines are required to be in compliance with Subpart YYYY on the date the facility becomes major. Air Quality reserves the right to reopen this permit if this or any other standard becomes applicable.

Subpart ZZZZ, (Reciprocating Internal Combustion Engines (RICE)) affects new and existing RICE located at major and area sources of HAP emissions. The fire pump engine and the emergency generator engine are affected facilities. Both engines were constructed before December 19, 2002, and are existing sources. Per 40 CFR 63.6603(a), published in the Federal Register on March 9, 2011, these engines must comply with the operating limits of Table 2d of this subpart.

CAM, 40 CFR Part 64

[Applicable]

Compliance Assurance Monitoring (CAM) applies to any pollutant-specific emissions unit at a major source that is required to obtain an operating permit, for any application for an initial operating permit submitted after April 18, 1998, that addresses "large emissions units" or any application that addresses "large emissions units" as a significant modification to an operating permit, or for any application for renewal of an operating permit, if it meets all of the following criteria.

- It is subject to an emission limit or standard for an applicable regulated air pollutant
- It uses a control device to achieve compliance with the applicable emission limit or standard
- It has potential emissions, prior to the control device, of the applicable regulated air pollutant of 100 TPY or 10/25 TPY of a HAP

The turbines are designed with dry low-NO<sub>x</sub> (DLN) burners to control emissions oxides of nitrogen. They also have selective catalytic reduction (SCR) as an add-on control for NO<sub>x</sub>. While DLN is not an active device, SCR is. NO<sub>x</sub> is a pollutant subject to limits and standards and uncontrolled emissions from each turbine would easily exceed 100 TPY, so the turbines would be subject to CAM with respect to NO<sub>x</sub>. However, the turbines are subject to monitoring under Subpart GG that is presumptively acceptable monitoring, because Subpart GG is an emission standard proposed by the Administrator after November 15, 1990, pursuant to section 111 or 112 of the Act.

Chemical Accident Prevention Provisions, 40 CFR Part 68

[Not Applicable]

The turbines burn natural gas only. Natural gas is a listed substance in the Clean Air Act Amendments 1990 (CAAA 90) Section 112(r). However, this substance is not stored on site. The small quantity that is in the pipelines on the facility is much less than the 10,000-pound

threshold and, therefore, is excluded from all requirements including the Risk Management Plan (RMP). The facility stores aqueous ammonia (29.9%) in three 3,000-gallon tanks. However, the tanks serve separate systems and are not manifolded together. Since the rupture of one tank would not cause the rupture of the other tanks, each tank is considered a separate "process" by EPA definitions. Aqueous ammonia has a density of approximately 0.86 gm/ml (7.177 lb/gal). Therefore, one tank contains 6,459 pounds, which is less than the threshold amount (20,000 pounds) for this substance.

Acid Rain, 40 CFR Part 72 (Permit Requirements) [Applicable]

This facility is an affected source since it commenced operation after November 15, 1990, and is not subject to any of the exemptions under 40 CFR 72.7, 72.8 or 72.14. The facility operates under Acid Rain Permit No. 2008-104-ARR, issued January 12, 2009.

Acid Rain, 40 CFR Part 73 (SO<sub>2</sub> Requirements) [Applicable]

This part provides for allocation, tracking, holding, and transferring of SO<sub>2</sub> allowances.

Acid Rain, 40 CFR Part 75 (Monitoring Requirements) [Applicable]

The facility shall comply with the emission monitoring and reporting requirements of this part.

Acid Rain, 40 CFR Part 76 (NO<sub>x</sub> Requirements) [Not Applicable]

This part provides for NO<sub>x</sub> limitations and reductions for coal-fired utility units only.

Stratospheric Ozone Protection, 40 CFR Part 82 [Applicable]

These standards require phase out of Class I & II substances and reductions of emissions of Class I & II substances to the lowest achievable level in all use sectors, and banning use of nonessential products containing ozone-depleting substances. Therefore, as currently operated, this facility is not subject to these requirements. To the extent that the facility has air-conditioning units that apply, the permit requires compliance with Part 82.

Federal NO<sub>x</sub> and SO<sub>2</sub> Trading Programs, 40 CFR Part 97 [Subpart BBBBB Applicable]

Subpart BBBBB, Transport Rule (TR) Ozone Season NO<sub>x</sub> Trading Program. The is subpart establishes allowance and monitoring provisions for the TR NO<sub>x</sub> Ozone Season Trading Program, under section 110 of the Clean Air Act and under a Federal Implementation Plan (FIP) codified as 40 CFR §52.38. Turbines #1 and #2 are considered to be TR NO<sub>x</sub> Ozone Season units subject to the requirements of this subpart. Under this subpart, the permittee is required to designate an official representative, monitor emissions, keep records, and make reports in accordance with §§97.530 through 97.535 and the monitoring program must comply with §§75.53, 75.62 and 75.73 or an alternative monitoring program must be requested and approved. TR NO<sub>x</sub> Ozone Season allowances are periodically allocated to the facility and, at the completion of the allowance transfer deadline for the control period in a given year, the permittee is required to hold, in the source's compliance account administered by the EPA Clean Air Markets Division (CAMD), sufficient allowances available for deduction for such control period under §97.524(a) in an amount not less than the tons of total NO<sub>x</sub> emissions for the control period from all TR NO<sub>x</sub> Ozone Season units at the facility. The control period starts on May 1 of a calendar year, except as provided in §97.506(c)(3), and ends on September 30 of the same year. For the TR Ozone Season NO<sub>x</sub> Trading Program the deadline for obtaining sufficient allowances is midnight of November 1 (if

November 1 is a business day) or midnight of the first business day after November 1 (if November 1 is not a business day). Fines and future allowance deductions will be levied as described in §97.506 if the permittee holds insufficient allowances at the completion of the allowance transfer deadline. The process of establishing an allowance account and requirements for administrating an account are included in §97.520. The recording of allowance allocations is described in §97.521. Submission and recording of allowance transfers is described in §§97.522 and 97.523. Compliance with ozone season emissions limitations and assurance provisions are described in §§97.524 and 97.525. Extra allowances may be banked (see §97.526) and these vintage allowances may be used in later years with certain restrictions. These allowances do not constitute a property right. No title V permit revision is required for any allocation, holding, deduction, or transfer of allowances in accordance with this subpart. The permit includes the requirement to comply with all applicable requirements of this subpart.

## **VII. COMPLIANCE**

### **Inspection**

On September 3, 2013, a full compliance evaluation was conducted at the Green Country Gas Turbine electrical Power Plant in Jenks, OK. Caysie Martin and Drake Hanna, Environmental Programs Specialist, and Thomas Eipp, Student Assistant, with the Oklahoma Department of Environmental Quality, Air Quality Division (DEQ), conducted the unannounced onsite evaluation. Mr. Rick Shackelford, Plant Manager, Linné Rollins, Compliance Supervisor, and Greg Holler, Instrumentation Technician) represented the company. No violations of Air Quality rules or permit conditions were noted.

### **Testing**

Initial performance testing occurred February 5–9, 2002. RATA testing has been done each year afterwards. All results were satisfactory.

### **Tier Classification and Public Review**

This application has been classified as **Tier II** based on the request for the second renewal of the Title V operating permit. Public and EPA review of the application and draft permit are required.

The applicant submitted an affidavit that they are not seeking a permit for land use or for any operation upon land owned by others without their knowledge. The affidavit certifies that the applicant owns the real property.

### **Public Review**

The facility will publish notice of the application filing with DEQ in a newspaper in Tulsa County. A public notice for the draft permit will be filed when a draft is available.

### **EPA Review**

Subsequent to public review, the permit will be sent to EPA Region 6 for a review period of 45 days.

### **Fee Paid**

The fee for a Title V renewal permit is \$7,500, which has been paid.



**IX. SUMMARY**

The facility is constructed and operated as described in the permit application. Ambient air quality standards are not threatened at this site. There are no active Air Quality compliance or enforcement issues concerning this facility. Issuance of the operating permit is recommended, contingent upon public and EPA review.

**DRAFT**

**PERMIT TO OPERATE  
AIR POLLUTION CONTROL FACILITY  
SPECIFIC CONDITIONS**

**Green Country Energy, LLC  
Gas Turbine Electric Power Plant**

**Permit Number 2016-0278-TVR2**

The permittee is authorized to operate in conformity with the specifications submitted to Air Quality on March 16, 2016 with supplemental information received on various dates thereafter. The Evaluation Memorandum dated May 18, 2016, explains the derivation of applicable permit requirements and estimates of emissions; however, it does not contain operating limitations or permit requirements. Continuing operations under this permit constitutes acceptance of, and consent to, the conditions contained herein.

1. Points of emissions and emissions limitations for each point. [OAC 252:100-8-6(a)]

**EUG CC COMBUSTION TURBINE SETS**

<b>Emission Unit</b>	<b>Emission Point</b>	<b>Equipment</b>	<b>Nominal Rating</b>	<b>Const. Date</b>
GT1	EP1	GE PG7241 FA NG-fired combustion turbine Serial Number 297465	194.4 MW	2/6/02
GT2	EP2	GE PG7241 FA NG-fired combustion turbine Serial Number 297466	194.4 MW	2/6/02
GT3	EP3	GE PG7241 FA NG-fired combustion turbine Serial Number 297467	194.4 MW	2/6/02
DB1	EP1	Duct burner	265 MMBTUH	2/6/02
DB1	EP2	Duct burner	265 MMBTUH	2/6/02
DB1	EP3	Duct burner	265 MMBTUH	2/6/02

<b>Each of Three (3) Combustion Turbines, including Duct Burners where indicated</b>					
<b>Pollutant</b>	<b>Operating Mode</b>	<b>Concentration, in ppmvd @ 15% O<sub>2</sub>, 1-hour average</b>	<b>Mass-Based Emissions Factors</b>		
			<b>lb/MMBtu</b>	<b>lb/hr</b>	<b>TPY</b>
NO <sub>x</sub>	CT	4.5		61.0	267
NO <sub>x</sub>	CT+DB	8.6	0.031		
CO	CT	7.7		61.0	267
CO	CT+DB	14.5	0.031		
VOC	CT	3.7		10.4	45.6
VOC	CT+DB	3.8			
SO <sub>2</sub>	ALL		0.0013		11.8
PM <sub>10</sub>	ALL		0.009	18.8	82.3

CT = Combustion Turbine only

CT+DB = Combustion Turbine and Duct Burners

Short-term NO<sub>x</sub> limits for the combustion turbines during tuning events shall be 25 ppmvd @ 15% O<sub>2</sub> and 600 pounds per six-hour event per unit. The short-term NO<sub>x</sub> limits shown in the preceding tables shall not apply during tuning events.

**EUG AUX1                      AUXILIARY BOILER**

<b>Emission Unit</b>	<b>Emission Point</b>	<b>Equipment</b>	<b>Rating</b>	<b>Const. Date</b>
AB1	EP4	Clayton natural gas-fired auxiliary boiler	23.6 MMBTUH	2/6/02

**EUG RICE      EMERGENCY ENGINES**

<b>Emission Unit</b>	<b>Emission Point</b>	<b>Equipment</b>	<b>Rating</b>	<b>Const. Date</b>
DEG	EP5	Diesel emergency generator	750 kW	pre-12/19/02
DFP	EP6	Diesel fire pump	265 hp	pre-12/19/02

**EUG IA                      INSIGNIFICANT ACTIVITIES**

**Fuel Preheaters**

<b>Emission Unit</b>	<b>Emission Point</b>	<b>Equipment</b>	<b>Rating, MMBTUH</b>	<b>Const. Date</b>
FPH1	EP7	Fuel preheater	5.0	2/6/02
FPH2	EP8	Fuel preheater	5.0	2/6/02
FPH3	EP9	Fuel preheater	5.0	2/6/02

**Cooling Towers**

<b>Emission Unit</b>	<b>Emission Point</b>	<b>Equipment</b>	<b>Rating</b>	<b>Const. Date</b>
COOL1	EP10	Cooling tower	---	2/6/02
COOL2	EP11	Cooling tower	---	2/6/02
COOL3	EP12	Cooling tower	---	2/6/02

Emissions of HAP shall be less than 10 TPY for any individual HAP and less than 25 TPY for the aggregate of all HAP.

2. Compliance with the authorized emission limits of Specific Condition No. 1 shall be demonstrated by CEMS for NO<sub>x</sub> and by fuel usage and initial performance testing designed to satisfy the requirements of Federal NSPS. Use of only commercial-grade natural gas is limited to 16,994,400 MMBTU (HHV) per year at each combustion turbine and 2,321,400 MMBTU per year at each HRSG set of duct burners. [OAC 252:100-8-6(a)]

3. A serial number or another acceptable form of permanent (non-removable) identification shall be on each combustion turbine. [OAC 252:100-43]

4. Subordinate to the overall fuel usage limitations listed above, the permittee shall be authorized to operate the turbines and HRSGs continuously (24 hours per day, every day of the year). Tuning

of the turbine sets shall be restricted to no more than 100 hours per year per unit. Tuning commences and ends when the facility so decides, except that tuning cannot occur for any turbine while the related HRSG duct burners are in operation.

Annual firing of duct burners in each HRSG shall be subject to the following hourly limitations.

Firing at 265 MMBTUH or less

8760 hr/yr

The auxiliary boiler shall be limited to 3,000 hours per 12-month rolling period. The emergency generator and emergency fire pump shall each be limited to 500 hours of operation per 12-month rolling period to preserve insignificant status. [OAC 252:100-8]

5. The permittee shall satisfy BACT requirements by the following means.

- a. Each HRSG shall contain a properly operated and maintained SCR.
- b. Each combustion turbine shall have dry low-NO<sub>x</sub> burners.

6. The fire pump and emergency generator shall be fitted with non-resettable hour-meters.

7. The turbines are subject to federal New Source Performance Standards, 40 CFR 60, Subpart GG, and shall comply with all applicable requirements. [40 CFR 60.330 et seq]

- a. 60.330 Applicability
- b. 60.331 Definitions
- c. 60.332: Standard for nitrogen oxides
- d. 60.333: Standard for sulfur dioxide
- e. 60.334: Monitoring of operations
- f. 60.335: Test methods and procedures

8. The duct burners and associated stationary combustion turbines are subject to federal New Source Performance Standards, 40 CFR 60, Subpart Da, and shall comply with all applicable requirements. [40 CFR 60.40a et seq]

- a. 60.40a Applicability
- b. 60.41a Definitions
- c. 60.42a: Standard for particulate matter
- d. 60.43a(b): Standard for sulfur dioxide
- e. 60.44a(a): Standard for nitrogen oxides
- f. 60.45a Standard for mercury
- g. 60.47a Commercial demonstration permit
- h. 60.48a Compliance provisions
- i. 60.49a: Emission monitoring
- j. 60.50a: Compliance determination procedures and methods
- k. 60.51a: Reporting requirements
- l. 60.52a Recordkeeping requirements

9. The auxiliary boiler is subject to federal New Source Performance Standards, 40 CFR 60, Subpart Dc, and shall comply with all applicable requirements. The permittee shall maintain a record of the amount of natural gas burned in the auxiliary boiler. [40 CFR 60.40c et seq]

10. Monitoring of fuel nitrogen content under NSPS Subpart GG shall not be required if the owner or operator does not claim an allowance for fuel bound nitrogen. The owner or operator may elect not to monitor the total sulfur content of the gaseous fuel combusted in the turbine, if the gaseous fuel is demonstrated to meet the definition of natural gas in §60.331(u), regardless of whether an existing custom schedule approved by the administrator for subpart GG requires such monitoring. The owner or operator shall use one of the following sources of information to make the required demonstration.

(i) The gas quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the gaseous fuel, specifying that the maximum total sulfur content of the fuel is 20.0 grains/100 scf or less.

(ii) Representative fuel sampling data that show that the sulfur content of the gaseous fuel does not exceed 20 grains/100 scf. At a minimum, the amount of fuel sampling data specified in section 2.3.1.4 or 2.3.2.4 of appendix D to part 75 of this chapter is required.

[40 CFR 60.334(h)]

11. The permittee shall comply with all acid rain control permitting requirements, and with continuous emissions monitoring and reporting.

[2008-104-ARR, 40 CFR 72, 73, & 75]

12. The permittee shall maintain records as listed below. These records shall be maintained on site or at a local field office for at least five years after the date of recording and shall be provided to regulatory personnel upon request. [OAC 252:100-43]

- a. CEMS data required by the Acid Rain program.
- b. Operating hours for the auxiliary boiler (monthly and rolling 12-months).
- c. Total CT operating hours during turbine set tuning (monthly and rolling 12-months).
- d. Total NO<sub>x</sub> emissions in pounds for each tuning event.
- e. Operating hours for the emergency generator and fire pump (rolling 12-months).
- f. Fuel consumption for each turbine and for each HRSG (monthly and rolling 12-months).
- g. Total sulfur content and hydrogen sulfide content of natural gas (as required by the custom fuel monitoring schedule described in SC #10).
- h. Records required by NESHAP Subpart ZZZZ.

13. The owner/operator shall comply with all applicable requirements of the NESHAP: Reciprocating Internal Combustion Engines, Subpart ZZZZ, for each affected facility including but not limited to: [40 CFR 63.6580 through 63.6675]

What This Subpart Covers

- i. § 63.6580 What is the purpose of subpart ZZZZ?
- ii. § 63.6585 Am I subject to this subpart?
- iii. § 63.6590 What parts of my plant does this subpart cover?
- iv. § 63.6595 When do I have to comply with this subpart?

Emission and Operating Limitations

- v. § 63.6603 What emission limitations and operating limitations must I meet if I own or operate an existing stationary RICE located at an area source of HAP emissions?

General Compliance Requirements

- vi. § 63.6605 What are my general requirements for complying with this subpart?

Testing and Initial Compliance Requirements

- vii. § 63.6625 What are my monitoring, installation, operation, and maintenance requirements?  
viii. § 63.6630 How do I demonstrate initial compliance with the emission limitations and operating limitations?

Continuous Compliance Requirements

- ix. § 63.6640 How do I demonstrate continuous compliance with the emission limitations and operating limitations?

Notifications, Reports, and Records

- x. § 63.6650 What reports must I submit and when?  
xi. § 63.6655 What records must I keep?  
xii. § 63.6660 In what form and how long must I keep my records?

Other Requirements and Information

- xiii. § 63.6665 What parts of the General Provisions apply to me?  
xiv. § 63.6670 Who implements and enforces this subpart?  
xv. § 63.6675 What definitions apply to this subpart?

14. The Permit Shield (Standard Conditions, Section VI) is extended to the following requirements that have been determined to be inapplicable to this facility.

[OAC 252:100-8-6(d)(2)]

- a) OAC 252:100-11 Alternative Emissions Reduction
- b) OAC 252:100-15 Mobile Sources
- c) OAC 252:100-17 Incinerators
- d) OAC 252:100-23 Cotton Gins
- e) OAC 252:100-24 Grain Elevators
- f) OAC 252:100-35 Carbon Monoxide
- g) OAC 252:100-47 Municipal Solid Waste Landfills

15. No later than 30 days after each anniversary date of the issuance of the original TV permit (July 29, 2003), the permittee shall submit to Air Quality Division of DEQ, with a copy to the US EPA, Region 6, a certification of compliance with the terms and conditions of this permit. Details covering this certification may be found in Section IV of the Standard Conditions of this permit, and the format of such certification is available in the Air Quality section of the DEQ website.

[OAC 252:100-8-6 (c)(5)(A), (C) & (D)]

16. Turbines GT1, GT2, and GT3 are subject to the Transport Rule (TR) Ozone Season NO<sub>x</sub> Trading Program. The permittee shall comply with all applicable requirements including but not limited to:

[40 CFR §97.501 to §97.535]

- a. §97.501 Purpose.
- b. §97.502 Definitions.
- c. §97.503 Measurements, abbreviations, and acronyms.
- d. §97.504 Applicability.
- e. §97.505 Retired unit exemption.
- f. §97.506 Standard requirements.
- g. §97.507 Computation of time.
- h. §97.508 Administrative appeal procedures.
- i. §97.510 State NO<sub>x</sub> Ozone Season trading budgets, new unit set-asides, Indian country new unit set-aside, and variability limits.
- j. §97.511 Timing requirements for TR NO<sub>x</sub> Ozone Season allowance allocations.
- k. §97.512 TR NO<sub>x</sub> Ozone Season allowance allocations to new units.
- l. §97.513 Authorization of designated representative and alternate designated representative.
- m. §97.514 Responsibilities of designated representative and alternate designated representative.
- n. §97.515 Changing designated representative and alternate designated representative; changes in owners and operators; changes in units at the source.
- o. §97.516 Certificate of representation.
- p. §97.517 Objections concerning designated representative and alternate designated representative.
- q. §97.518 Delegation by designated representative and alternate designated representative.
- r. §97.520 Establishment of compliance accounts, assurance accounts, and general accounts.
- s. §97.521 Recordation of TR NO<sub>x</sub> Ozone Season allowance allocations and auction results.
- t. §97.522 Submission of TR NO<sub>x</sub> Ozone Season allowance transfers.
- u. §97.523 Recordation of TR NO<sub>x</sub> Ozone Season allowance transfers.
- v. §97.524 Compliance with TR NO<sub>x</sub> Ozone Season emissions limitation.
- w. §97.525 Compliance with TR NO<sub>x</sub> Ozone Season assurance provisions.
- x. §97.526 Banking.
- y. §97.527 Account error.
- z. §97.528 Administrator's action on submissions.
- aa. §97.530 General monitoring, recordkeeping, and reporting requirements.
- bb. §97.531 Initial monitoring system certification and recertification procedures.
- cc. §97.532 Monitoring system out-of-control periods.
- dd. §97.533 Notifications concerning monitoring.
- ee. §97.534 Recordkeeping and reporting.
- ff. §97.535 Petitions for alternatives to monitoring, recordkeeping, or reporting requirements.

17. The permittee shall conduct, at least once every eight calendar quarters, compliance testing of each of the turbines for emissions of CO. If a turbine is off-line (does not operate) in the eighth calendar quarter since the quarter of the previous CO test, the test shall be performed in the quarter in which the turbine recommences operation. Performance testing shall be conducted under representative conditions. [OAC 252:100-8-6(a)(3)(A)]

- a. The following USEPA methods shall be used for testing of emissions, unless otherwise approved by Air Quality:
  - i. Method 1: Sample and Velocity Traverses for Stationary Sources.
  - ii. Method 2: Determination of Stack Gas Velocity and Volumetric Flow Rate.
  - iii. Method 3: Gas Analysis for Carbon Dioxide, Excess Air, and Dry Molecular Weight.
  - iv. Method 4: Determination of Moisture in Stack Gases.
  - v. Method 10: Determination of Carbon Monoxide Emissions from Stationary Sources.
- b. Performance testing shall be conducted while the units are operating under representative conditions.
- c. Testing for CO may occur concurrently with RATA testing.
- d. A written testing protocol shall be submitted to the AQD for review and approval at least 30 days prior to the start of such testing. The protocol shall describe how the testing will be performed.
- e. A written report documenting the results of emissions testing shall be submitted within 60 days of completion of on-site testing.

18. Upon issuance of this operating permit, all previous operating permits for this facility are superseded and cancelled.





# PART 70 PERMIT

AIR QUALITY DIVISION  
STATE OF OKLAHOMA  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
707 N. ROBINSON STREET, SUITE 4100  
P.O. BOX 1677  
OKLAHOMA CITY, OKLAHOMA 73101-1677

Permit No. 2016-0278-TVR2

Green Country Energy, LLC,

having complied with the requirements of the law, is hereby granted permission to operate three gas-fired combustion turbines and three heat recovery steam generators to power steam turbines, with ancillary equipment, all for electrical generation at the Green Country Energy, LLC facility, 12307 S. Florence Avenue, Jenks, Tulsa County, Oklahoma,  
subject to standard conditions dated July 21, 2009 and specific conditions, both attached.

This permit shall expire five (5) years after the issuance date listed below, except as authorized under Section VIII of the Standard Conditions.

\_\_\_\_\_  
Division Director, Air Quality Division

\_\_\_\_\_  
Date

**DRAFT**

**MAJOR SOURCE AIR QUALITY PERMIT  
STANDARD CONDITIONS  
(July 21, 2009)**

**SECTION I. DUTY TO COMPLY**

A. This is a permit to operate / construct this specific facility in accordance with the federal Clean Air Act (42 U.S.C. 7401, et al.) and under the authority of the Oklahoma Clean Air Act and the rules promulgated there under. [Oklahoma Clean Air Act, 27A O.S. § 2-5-112]

B. The issuing Authority for the permit is the Air Quality Division (AQD) of the Oklahoma Department of Environmental Quality (DEQ). The permit does not relieve the holder of the obligation to comply with other applicable federal, state, or local statutes, regulations, rules, or ordinances. [Oklahoma Clean Air Act, 27A O.S. § 2-5-112]

C. The permittee shall comply with all conditions of this permit. Any permit noncompliance shall constitute a violation of the Oklahoma Clean Air Act and shall be grounds for enforcement action, permit termination, revocation and reissuance, or modification, or for denial of a permit renewal application. All terms and conditions are enforceable by the DEQ, by the Environmental Protection Agency (EPA), and by citizens under section 304 of the Federal Clean Air Act (excluding state-only requirements). This permit is valid for operations only at the specific location listed.

[40 C.F.R. §70.6(b), OAC 252:100-8-1.3 and OAC 252:100-8-6(a)(7)(A) and (b)(1)]

D. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit. However, nothing in this paragraph shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in assessing penalties for noncompliance if the health, safety, or environmental impacts of halting or reducing operations would be more serious than the impacts of continuing operations. [OAC 252:100-8-6(a)(7)(B)]

**SECTION II. REPORTING OF DEVIATIONS FROM PERMIT TERMS**

A. Any exceedance resulting from an emergency and/or posing an imminent and substantial danger to public health, safety, or the environment shall be reported in accordance with Section XIV (Emergencies). [OAC 252:100-8-6(a)(3)(C)(iii)(I) & (II)]

B. Deviations that result in emissions exceeding those allowed in this permit shall be reported consistent with the requirements of OAC 252:100-9, Excess Emission Reporting Requirements. [OAC 252:100-8-6(a)(3)(C)(iv)]

C. Every written report submitted under this section shall be certified as required by Section III (Monitoring, Testing, Recordkeeping & Reporting), Paragraph F. [OAC 252:100-8-6(a)(3)(C)(iv)]

**SECTION III. MONITORING, TESTING, RECORDKEEPING & REPORTING**

A. The permittee shall keep records as specified in this permit. These records, including monitoring data and necessary support information, shall be retained on-site or at a nearby field office for a period of at least five years from the date of the monitoring sample, measurement, report, or application, and shall be made available for inspection by regulatory personnel upon request. Support information includes all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Where appropriate, the permit may specify that records may be maintained in computerized form.

[OAC 252:100-8-6 (a)(3)(B)(ii), OAC 252:100-8-6(c)(1), and OAC 252:100-8-6(c)(2)(B)]

B. Records of required monitoring shall include:

- (1) the date, place and time of sampling or measurement;
- (2) the date or dates analyses were performed;
- (3) the company or entity which performed the analyses;
- (4) the analytical techniques or methods used;
- (5) the results of such analyses; and
- (6) the operating conditions existing at the time of sampling or measurement.

[OAC 252:100-8-6(a)(3)(B)(i)]

C. No later than 30 days after each six (6) month period, after the date of the issuance of the original Part 70 operating permit or alternative date as specifically identified in a subsequent Part 70 operating permit, the permittee shall submit to AQD a report of the results of any required monitoring. All instances of deviations from permit requirements since the previous report shall be clearly identified in the report. Submission of these periodic reports will satisfy any reporting requirement of Paragraph E below that is duplicative of the periodic reports, if so noted on the submitted report.

[OAC 252:100-8-6(a)(3)(C)(i) and (ii)]

D. If any testing shows emissions in excess of limitations specified in this permit, the owner or operator shall comply with the provisions of Section II (Reporting Of Deviations From Permit Terms) of these standard conditions.

[OAC 252:100-8-6(a)(3)(C)(iii)]

E. In addition to any monitoring, recordkeeping or reporting requirement specified in this permit, monitoring and reporting may be required under the provisions of OAC 252:100-43, Testing, Monitoring, and Recordkeeping, or as required by any provision of the Federal Clean Air Act or Oklahoma Clean Air Act.

[OAC 252:100-43]

F. Any Annual Certification of Compliance, Semi Annual Monitoring and Deviation Report, Excess Emission Report, and Annual Emission Inventory submitted in accordance with this permit shall be certified by a responsible official. This certification shall be signed by a responsible official, and shall contain the following language: "I certify, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete."

[OAC 252:100-8-5(f), OAC 252:100-8-6(a)(3)(C)(iv), OAC 252:100-8-6(c)(1), OAC 252:100-9-7(e), and OAC 252:100-5-2.1(f)]

G. Any owner or operator subject to the provisions of New Source Performance Standards (“NSPS”) under 40 CFR Part 60 or National Emission Standards for Hazardous Air Pollutants (“NESHAPs”) under 40 CFR Parts 61 and 63 shall maintain a file of all measurements and other information required by the applicable general provisions and subpart(s). These records shall be maintained in a permanent file suitable for inspection, shall be retained for a period of at least five years as required by Paragraph A of this Section, and shall include records of the occurrence and duration of any start-up, shutdown, or malfunction in the operation of an affected facility, any malfunction of the air pollution control equipment; and any periods during which a continuous monitoring system or monitoring device is inoperative.

[40 C.F.R. §§60.7 and 63.10, 40 CFR Parts 61, Subpart A, and OAC 252:100, Appendix Q]

H. The permittee of a facility that is operating subject to a schedule of compliance shall submit to the DEQ a progress report at least semi-annually. The progress reports shall contain dates for achieving the activities, milestones or compliance required in the schedule of compliance and the dates when such activities, milestones or compliance was achieved. The progress reports shall also contain an explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures adopted. [OAC 252:100-8-6(c)(4)]

I. All testing must be conducted under the direction of qualified personnel by methods approved by the Division Director. All tests shall be made and the results calculated in accordance with standard test procedures. The use of alternative test procedures must be approved by EPA. When a portable analyzer is used to measure emissions it shall be setup, calibrated, and operated in accordance with the manufacturer’s instructions and in accordance with a protocol meeting the requirements of the “AQD Portable Analyzer Guidance” document or an equivalent method approved by Air Quality.

[OAC 252:100-8-6(a)(3)(A)(iv), and OAC 252:100-43]

J. The reporting of total particulate matter emissions as required in Part 7 of OAC 252:100-8 (Permits for Part 70 Sources), OAC 252:100-19 (Control of Emission of Particulate Matter), and OAC 252:100-5 (Emission Inventory), shall be conducted in accordance with applicable testing or calculation procedures, modified to include back-half condensables, for the concentration of particulate matter less than 10 microns in diameter (PM<sub>10</sub>). NSPS may allow reporting of only particulate matter emissions caught in the filter (obtained using Reference Method 5).

K. The permittee shall submit to the AQD a copy of all reports submitted to the EPA as required by 40 C.F.R. Part 60, 61, and 63, for all equipment constructed or operated under this permit subject to such standards. [OAC 252:100-8-6(c)(1) and OAC 252:100, Appendix Q]

#### **SECTION IV. COMPLIANCE CERTIFICATIONS**

A. No later than 30 days after each anniversary date of the issuance of the original Part 70 operating permit or alternative date as specifically identified in a subsequent Part 70 operating permit, the permittee shall submit to the AQD, with a copy to the US EPA, Region 6, a certification of compliance with the terms and conditions of this permit and of any other applicable requirements which have become effective since the issuance of this permit.

[OAC 252:100-8-6(c)(5)(A), and (D)]

B. The compliance certification shall describe the operating permit term or condition that is the basis of the certification; the current compliance status; whether compliance was continuous or intermittent; the methods used for determining compliance, currently and over the reporting period. The compliance certification shall also include such other facts as the permitting authority may require to determine the compliance status of the source.

[OAC 252:100-8-6(c)(5)(C)(i)-(v)]

C. The compliance certification shall contain a certification by a responsible official as to the results of the required monitoring. This certification shall be signed by a responsible official, and shall contain the following language: "I certify, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete."

[OAC 252:100-8-5(f) and OAC 252:100-8-6(c)(1)]

D. Any facility reporting noncompliance shall submit a schedule of compliance for emissions units or stationary sources that are not in compliance with all applicable requirements. This schedule shall include a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with any applicable requirements for which the emissions unit or stationary source is in noncompliance. This compliance schedule shall resemble and be at least as stringent as that contained in any judicial consent decree or administrative order to which the emissions unit or stationary source is subject. Any such schedule of compliance shall be supplemental to, and shall not sanction noncompliance with, the applicable requirements on which it is based, except that a compliance plan shall not be required for any noncompliance condition which is corrected within 24 hours of discovery.

[OAC 252:100-8-5(e)(8)(B) and OAC 252:100-8-6(c)(3)]

## **SECTION V. REQUIREMENTS THAT BECOME APPLICABLE DURING THE PERMIT TERM**

The permittee shall comply with any additional requirements that become effective during the permit term and that are applicable to the facility. Compliance with all new requirements shall be certified in the next annual certification.

[OAC 252:100-8-6(c)(6)]

## **SECTION VI. PERMIT SHIELD**

A. Compliance with the terms and conditions of this permit (including terms and conditions established for alternate operating scenarios, emissions trading, and emissions averaging, but excluding terms and conditions for which the permit shield is expressly prohibited under OAC 252:100-8) shall be deemed compliance with the applicable requirements identified and included in this permit.

[OAC 252:100-8-6(d)(1)]

B. Those requirements that are applicable are listed in the Standard Conditions and the Specific Conditions of this permit. Those requirements that the applicant requested be determined as not applicable are summarized in the Specific Conditions of this permit.

[OAC 252:100-8-6(d)(2)]

**SECTION VII. ANNUAL EMISSIONS INVENTORY & FEE PAYMENT**

The permittee shall file with the AQD an annual emission inventory and shall pay annual fees based on emissions inventories. The methods used to calculate emissions for inventory purposes shall be based on the best available information accepted by AQD.

[OAC 252:100-5-2.1, OAC 252:100-5-2.2, and OAC 252:100-8-6(a)(8)]

**SECTION VIII. TERM OF PERMIT**

A. Unless specified otherwise, the term of an operating permit shall be five years from the date of issuance. [OAC 252:100-8-6(a)(2)(A)]

B. A source's right to operate shall terminate upon the expiration of its permit unless a timely and complete renewal application has been submitted at least 180 days before the date of expiration. [OAC 252:100-8-7.1(d)(1)]

C. A duly issued construction permit or authorization to construct or modify will terminate and become null and void (unless extended as provided in OAC 252:100-8-1.4(b)) if the construction is not commenced within 18 months after the date the permit or authorization was issued, or if work is suspended for more than 18 months after it is commenced. [OAC 252:100-8-1.4(a)]

D. The recipient of a construction permit shall apply for a permit to operate (or modified operating permit) within 180 days following the first day of operation. [OAC 252:100-8-4(b)(5)]

**SECTION IX. SEVERABILITY**

The provisions of this permit are severable and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

[OAC 252:100-8-6 (a)(6)]

**SECTION X. PROPERTY RIGHTS**

A. This permit does not convey any property rights of any sort, or any exclusive privilege.

[OAC 252:100-8-6(a)(7)(D)]

B. This permit shall not be considered in any manner affecting the title of the premises upon which the equipment is located and does not release the permittee from any liability for damage to persons or property caused by or resulting from the maintenance or operation of the equipment for which the permit is issued. [OAC 252:100-8-6(c)(6)]

**SECTION XI. DUTY TO PROVIDE INFORMATION**

A. The permittee shall furnish to the DEQ, upon receipt of a written request and within sixty (60) days of the request unless the DEQ specifies another time period, any information that the DEQ may request to determine whether cause exists for modifying, reopening, revoking,

reissuing, terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the DEQ copies of records required to be kept by the permit.

[OAC 252:100-8-6(a)(7)(E)]

B. The permittee may make a claim of confidentiality for any information or records submitted pursuant to 27A O.S. § 2-5-105(18). Confidential information shall be clearly labeled as such and shall be separable from the main body of the document such as in an attachment.

[OAC 252:100-8-6(a)(7)(E)]

C. Notification to the AQD of the sale or transfer of ownership of this facility is required and shall be made in writing within thirty (30) days after such sale or transfer.

[Oklahoma Clean Air Act, 27A O.S. § 2-5-112(G)]

## **SECTION XII. REOPENING, MODIFICATION & REVOCATION**

A. The permit may be modified, revoked, reopened and reissued, or terminated for cause. Except as provided for minor permit modifications, the filing of a request by the permittee for a permit modification, revocation and reissuance, termination, notification of planned changes, or anticipated noncompliance does not stay any permit condition.

[OAC 252:100-8-6(a)(7)(C) and OAC 252:100-8-7.2(b)]

B. The DEQ will reopen and revise or revoke this permit prior to the expiration date in the following circumstances:

[OAC 252:100-8-7.3 and OAC 252:100-8-7.4(a)(2)]

- (1) Additional requirements under the Clean Air Act become applicable to a major source category three or more years prior to the expiration date of this permit. No such reopening is required if the effective date of the requirement is later than the expiration date of this permit.
- (2) The DEQ or the EPA determines that this permit contains a material mistake or that the permit must be revised or revoked to assure compliance with the applicable requirements.
- (3) The DEQ or the EPA determines that inaccurate information was used in establishing the emission standards, limitations, or other conditions of this permit. The DEQ may revoke and not reissue this permit if it determines that the permittee has submitted false or misleading information to the DEQ.
- (4) DEQ determines that the permit should be amended under the discretionary reopening provisions of OAC 252:100-8-7.3(b).

C. The permit may be reopened for cause by EPA, pursuant to the provisions of OAC 100-8-7.3(d).

[OAC 100-8-7.3(d)]

D. The permittee shall notify AQD before making changes other than those described in Section XVIII (Operational Flexibility), those qualifying for administrative permit amendments, or those defined as an Insignificant Activity (Section XVI) or Trivial Activity (Section XVII). The notification should include any changes which may alter the status of a "grandfathered source," as defined under AQD rules. Such changes may require a permit modification.

[OAC 252:100-8-7.2(b) and OAC 252:100-5-1.1]

E. Activities that will result in air emissions that exceed the trivial/insignificant levels and that are not specifically approved by this permit are prohibited. [OAC 252:100-8-6(c)(6)]

### **SECTION XIII. INSPECTION & ENTRY**

A. Upon presentation of credentials and other documents as may be required by law, the permittee shall allow authorized regulatory officials to perform the following (subject to the permittee's right to seek confidential treatment pursuant to 27A O.S. Supp. 1998, § 2-5-105(18) for confidential information submitted to or obtained by the DEQ under this section):

- (1) enter upon the permittee's premises during reasonable/normal working hours where a source is located or emissions-related activity is conducted, or where records must be kept under the conditions of the permit;
- (2) have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit;
- (3) inspect, at reasonable times and using reasonable safety practices, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit; and
- (4) as authorized by the Oklahoma Clean Air Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit.

[OAC 252:100-8-6(c)(2)]

### **SECTION XIV. EMERGENCIES**

A. Any exceedance resulting from an emergency shall be reported to AQD promptly but no later than 4:30 p.m. on the next working day after the permittee first becomes aware of the exceedance. This notice shall contain a description of the emergency, the probable cause of the exceedance, any steps taken to mitigate emissions, and corrective actions taken.

[OAC 252:100-8-6 (a)(3)(C)(iii)(I) and (IV)]

B. Any exceedance that poses an imminent and substantial danger to public health, safety, or the environment shall be reported to AQD as soon as is practicable; but under no circumstance shall notification be more than 24 hours after the exceedance. [OAC 252:100-8-6(a)(3)(C)(iii)(II)]

C. An "emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under this permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation, or operator error. [OAC 252:100-8-2]

D. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs or other relevant evidence that: [OAC 252:100-8-6 (e)(2)]



- (1) an emergency occurred and the permittee can identify the cause or causes of the emergency;
- (2) the permitted facility was at the time being properly operated;
- (3) during the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit.

E. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency shall have the burden of proof. [OAC 252:100-8-6(e)(3)]

F. Every written report or document submitted under this section shall be certified as required by Section III (Monitoring, Testing, Recordkeeping & Reporting), Paragraph F. [OAC 252:100-8-6(a)(3)(C)(iv)]

## **SECTION XV. RISK MANAGEMENT PLAN**

The permittee, if subject to the provision of Section 112(r) of the Clean Air Act, shall develop and register with the appropriate agency a risk management plan by June 20, 1999, or the applicable effective date. [OAC 252:100-8-6(a)(4)]

## **SECTION XVI. INSIGNIFICANT ACTIVITIES**

Except as otherwise prohibited or limited by this permit, the permittee is hereby authorized to operate individual emissions units that are either on the list in Appendix I to OAC Title 252, Chapter 100, or whose actual calendar year emissions do not exceed any of the limits below. Any activity to which a State or Federal applicable requirement applies is not insignificant even if it meets the criteria below or is included on the insignificant activities list.

- (1) 5 tons per year of any one criteria pollutant.
- (2) 2 tons per year for any one hazardous air pollutant (HAP) or 5 tons per year for an aggregate of two or more HAP's, or 20 percent of any threshold less than 10 tons per year for single HAP that the EPA may establish by rule.

[OAC 252:100-8-2 and OAC 252:100, Appendix I]

## **SECTION XVII. TRIVIAL ACTIVITIES**

Except as otherwise prohibited or limited by this permit, the permittee is hereby authorized to operate any individual or combination of air emissions units that are considered inconsequential and are on the list in Appendix J. Any activity to which a State or Federal applicable requirement applies is not trivial even if included on the trivial activities list.

[OAC 252:100-8-2 and OAC 252:100, Appendix J]

## **SECTION XVIII. OPERATIONAL FLEXIBILITY**

A. A facility may implement any operating scenario allowed for in its Part 70 permit without the need for any permit revision or any notification to the DEQ (unless specified otherwise in the

permit). When an operating scenario is changed, the permittee shall record in a log at the facility the scenario under which it is operating. [OAC 252:100-8-6(a)(10) and (f)(1)]

B. The permittee may make changes within the facility that:

- (1) result in no net emissions increases,
- (2) are not modifications under any provision of Title I of the federal Clean Air Act, and
- (3) do not cause any hourly or annual permitted emission rate of any existing emissions unit to be exceeded;

provided that the facility provides the EPA and the DEQ with written notification as required below in advance of the proposed changes, which shall be a minimum of seven (7) days, or twenty four (24) hours for emergencies as defined in OAC 252:100-8-6 (e). The permittee, the DEQ, and the EPA shall attach each such notice to their copy of the permit. For each such change, the written notification required above shall include a brief description of the change within the permitted facility, the date on which the change will occur, any change in emissions, and any permit term or condition that is no longer applicable as a result of the change. The permit shield provided by this permit does not apply to any change made pursuant to this paragraph. [OAC 252:100-8-6(f)(2)]

#### **SECTION XIX. OTHER APPLICABLE & STATE-ONLY REQUIREMENTS**

A. The following applicable requirements and state-only requirements apply to the facility unless elsewhere covered by a more restrictive requirement:

- (1) Open burning of refuse and other combustible material is prohibited except as authorized in the specific examples and under the conditions listed in the Open Burning Subchapter. [OAC 252:100-13]
- (2) No particulate emissions from any fuel-burning equipment with a rated heat input of 10 MMBTUH or less shall exceed 0.6 lb/MMBTU. [OAC 252:100-19]
- (3) For all emissions units not subject to an opacity limit promulgated under 40 C.F.R., Part 60, NSPS, no discharge of greater than 20% opacity is allowed except for: [OAC 252:100-25]
  - (a) Short-term occurrences which consist of not more than one six-minute period in any consecutive 60 minutes, not to exceed three such periods in any consecutive 24 hours. In no case shall the average of any six-minute period exceed 60% opacity;
  - (b) Smoke resulting from fires covered by the exceptions outlined in OAC 252:100-13-7;
  - (c) An emission, where the presence of uncombined water is the only reason for failure to meet the requirements of OAC 252:100-25-3(a); or
  - (d) Smoke generated due to a malfunction in a facility, when the source of the fuel producing the smoke is not under the direct and immediate control of the facility and the immediate constriction of the fuel flow at the facility would produce a hazard to life and/or property.

- (4) No visible fugitive dust emissions shall be discharged beyond the property line on which the emissions originate in such a manner as to damage or to interfere with the use of adjacent properties, or cause air quality standards to be exceeded, or interfere with the maintenance of air quality standards. [OAC 252:100-29]
- (5) No sulfur oxide emissions from new gas-fired fuel-burning equipment shall exceed 0.2 lb/MMBTU. No existing source shall exceed the listed ambient air standards for sulfur dioxide. [OAC 252:100-31]
- (6) Volatile Organic Compound (VOC) storage tanks built after December 28, 1974, and with a capacity of 400 gallons or more storing a liquid with a vapor pressure of 1.5 psia or greater under actual conditions shall be equipped with a permanent submerged fill pipe or with a vapor-recovery system. [OAC 252:100-37-15(b)]
- (7) All fuel-burning equipment shall at all times be properly operated and maintained in a manner that will minimize emissions of VOCs. [OAC 252:100-37-36]

## SECTION XX. STRATOSPHERIC OZONE PROTECTION

A. The permittee shall comply with the following standards for production and consumption of ozone-depleting substances: [40 CFR 82, Subpart A]

- (1) Persons producing, importing, or placing an order for production or importation of certain class I and class II substances, HCFC-22, or HCFC-141b shall be subject to the requirements of §82.4;
- (2) Producers, importers, exporters, purchasers, and persons who transform or destroy certain class I and class II substances, HCFC-22, or HCFC-141b are subject to the recordkeeping requirements at §82.13; and
- (3) Class I substances (listed at Appendix A to Subpart A) include certain CFCs, Halons, HBFCs, carbon tetrachloride, trichloroethane (methyl chloroform), and bromomethane (Methyl Bromide). Class II substances (listed at Appendix B to Subpart A) include HCFCs.

B. If the permittee performs a service on motor (fleet) vehicles when this service involves an ozone-depleting substance refrigerant (or regulated substitute substance) in the motor vehicle air conditioner (MVAC), the permittee is subject to all applicable requirements. Note: The term “motor vehicle” as used in Subpart B does not include a vehicle in which final assembly of the vehicle has not been completed. The term “MVAC” as used in Subpart B does not include the air-tight sealed refrigeration system used as refrigerated cargo, or the system used on passenger buses using HCFC-22 refrigerant. [40 CFR 82, Subpart B]

C. The permittee shall comply with the following standards for recycling and emissions reduction except as provided for MVACs in Subpart B: [40 CFR 82, Subpart F]

- (1) Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to § 82.156;
- (2) Equipment used during the maintenance, service, repair, or disposal of appliances must

- comply with the standards for recycling and recovery equipment pursuant to § 82.158;
- (3) Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to § 82.161;
  - (4) Persons disposing of small appliances, MVACs, and MVAC-like appliances must comply with record-keeping requirements pursuant to § 82.166;
  - (5) Persons owning commercial or industrial process refrigeration equipment must comply with leak repair requirements pursuant to § 82.158; and
  - (6) Owners/operators of appliances normally containing 50 or more pounds of refrigerant must keep records of refrigerant purchased and added to such appliances pursuant to § 82.166.

## **SECTION XXI. TITLE V APPROVAL LANGUAGE**

A. DEQ wishes to reduce the time and work associated with permit review and, wherever it is not inconsistent with Federal requirements, to provide for incorporation of requirements established through construction permitting into the Source's Title V permit without causing redundant review. Requirements from construction permits may be incorporated into the Title V permit through the administrative amendment process set forth in OAC 252:100-8-7.2(a) only if the following procedures are followed:

- (1) The construction permit goes out for a 30-day public notice and comment using the procedures set forth in 40 C.F.R. § 70.7(h)(1). This public notice shall include notice to the public that this permit is subject to EPA review, EPA objection, and petition to EPA, as provided by 40 C.F.R. § 70.8; that the requirements of the construction permit will be incorporated into the Title V permit through the administrative amendment process; that the public will not receive another opportunity to provide comments when the requirements are incorporated into the Title V permit; and that EPA review, EPA objection, and petitions to EPA will not be available to the public when requirements from the construction permit are incorporated into the Title V permit.
- (2) A copy of the construction permit application is sent to EPA, as provided by 40 CFR § 70.8(a)(1).
- (3) A copy of the draft construction permit is sent to any affected State, as provided by 40 C.F.R. § 70.8(b).
- (4) A copy of the proposed construction permit is sent to EPA for a 45-day review period as provided by 40 C.F.R. § 70.8(a) and (c).
- (5) The DEQ complies with 40 C.F.R. § 70.8(c) upon the written receipt within the 45-day comment period of any EPA objection to the construction permit. The DEQ shall not issue the permit until EPA's objections are resolved to the satisfaction of EPA.
- (6) The DEQ complies with 40 C.F.R. § 70.8(d).
- (7) A copy of the final construction permit is sent to EPA as provided by 40 CFR § 70.8(a).
- (8) The DEQ shall not issue the proposed construction permit until any affected State and EPA have had an opportunity to review the proposed permit, as provided by these permit conditions.
- (9) Any requirements of the construction permit may be reopened for cause after incorporation into the Title V permit by the administrative amendment process, by

DEQ as provided in OAC 252:100-8-7.3(a), (b), and (c), and by EPA as provided in 40 C.F.R. § 70.7(f) and (g).

- (10) The DEQ shall not issue the administrative permit amendment if performance tests fail to demonstrate that the source is operating in substantial compliance with all permit requirements.

B. To the extent that these conditions are not followed, the Title V permit must go through the Title V review process.

## **SECTION XXII. CREDIBLE EVIDENCE**

For the purpose of submitting compliance certifications or establishing whether or not a person has violated or is in violation of any provision of the Oklahoma implementation plan, nothing shall preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed.

[OAC 252:100-43-6]

Rick Shackelford, Plant Manager  
Green Country Energy, LLC  
12307 S. Florence Avenue  
Jenks, OK 74037

Re: Title V Permit No. **2016-0278-TVR2**  
Combustion Turbines and HRSGs  
Green Country Energy LLC, Jenks, OK  
Fac ID# 3594

Dear Mr. Shackelford:

Air Quality Division has completed the initial review of your permit application referenced above. This application has been determined to be a Tier II. In accordance with 27A O.S. § 2-14-302 and OAC 252:002-4-7-13(c) the enclosed draft permit is now ready for public review. The requirements for public review include the following steps, which you must accomplish:

1. Publish at least one legal notice (one day) in at least one newspaper of general circulation within the county where the facility is located. (Instructions enclosed)
2. Provide for public review (for a period of 30 days following the date of the newspaper announcement) a copy of this draft permit and a copy of the application at a convenient public location within the county of the facility such as the public library in the county seat.
3. Send to AQD a copy of the proof of publication notice from Item #1 above together with any additional comments or requested changes that you may have on the draft permit.

If no public comments are received on the draft permit, the draft permit will be deemed the “proposed” permit. A copy of the proposed permit will be sent to EPA Region VI for a 45-day review period

Thank you for your cooperation. If you have any questions, please refer to the permit number above and contact me at (405) 702-4100.

Sincerely,

John Howell, P.E.  
Existing Source Permits Section  
**AIR QUALITY DIVISION**

<p><b>NOTICE OF DRAFT PERMIT TIER II or TIER III AIR QUALITY PERMIT APPLICATION</b></p>
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**APPLICANT RESPONSIBILITIES**

Permit applicants are required to give public notice that a Tier II or Tier III draft permit has been prepared by DEQ. The notice must be published in one newspaper local to the site or facility. Upon publication, a signed affidavit of publication must be obtained from the newspaper and sent to AQD. Note that if either the applicant or the public requests a public meeting, this must be arranged through the Customer Services Division of the DEQ.

**REQUIRED CONTENT** (27A O.S. § 2-14-302 and OAC 252:4-7-13(c))

1. A statement that a Tier II or Tier III draft permit has been prepared by DEQ;
2. Name and address of the applicant;
3. Name, address, driving directions, legal description and county of the site or facility;
4. The type of permit or permit action being sought;
5. A description of activities to be regulated, including an estimate of emissions from the facility;
6. Location(s) where the application and draft permit may be reviewed (a location in the county where the site/facility is located must be included);
7. Name, address, and telephone number of the applicant and DEQ contacts;
8. Any additional information required by DEQ rules or deemed relevant by applicant;
9. A 30-day opportunity to request a formal public meeting on the draft permit.

**SAMPLE NOTICE on page 2.**

**SAMPLE NOTICE** (*Italicized print is to be filled in by the applicant.*):

**DEQ NOTICE OF TIER ...II or III... DRAFT PERMIT**

**A Tier ...II or III... application for an air quality ...type of permit or permit action being sought (e.g., Construction Permit for a Major Facility)... has been filed with the Oklahoma Department of Environmental Quality (DEQ) by applicant, ...name and address.**

**The applicant requests approval to ...brief description of purpose of application... at the ...site/facility name ... [proposed to be] located at ...physical address (if any), driving directions, and legal description including county....**

**In response to the application, DEQ has prepared a draft permit [modification] (Permit Number: ...xx-xxx-x...), which may be reviewed at ...locations (one must be in the county where the site/facility is located)... or at the Air Quality Division's main office (see address below). The draft permit is also available for review in the Air Quality Section of DEQ's Web Page: <http://www.deq.state.ok.us/>**

**This draft permit would authorize the facility to emit the following regulated pollutants: (list each pollutant and amounts in tons per year (TPY))**

**The public comment period ends 30 days after the date of publication of this notice. Any person may submit written comments concerning the draft permit to the Air Quality Division contact listed below. [Modifications only, add: Only those issues relevant to the proposed modification(s) are open for comment.] A public meeting on the draft permit [modification] may also be requested in writing at the same address. Note that all public meetings are to be arranged and conducted by DEQ/CSD staff.**

In addition to the public comment opportunity offered under this notice, this draft permit is subject to U.S. Environmental Protection Agency (EPA) review, EPA objection, and petition to EPA, as provided by 40 CFR § 70.8. **[For Construction Permits, add: The requirements of the construction permit will be incorporated into the Title V permit through the administrative amendment process. Therefore, no additional opportunity to provide comments or EPA review, EPA objection, and petitions to EPA will be available to the public when requirements from the construction permit are incorporated into the Title V permit.]**

**If the Administrator (EPA) does not object to the proposed permit, the public has 60 days following the Administrator's 45 day review period to petition the Administrator to make such an objection as provided in 40 CFR 70.8(d) and in OAC 252:100-8-8(j). Information on all permit actions and applicable review time lines is available in the Air Quality section of the DEQ Web page: <http://www.deq.state.ok.us/>.**

**For additional information, contact ...names, addresses and telephone numbers of contact persons for the applicant, or contact DEQ at: Chief Engineer, Permits & Engineering Group, Air Quality Division, 707 N. Robinson, Suite 4100, P.O. Box 1677, Oklahoma City, OK, 73101-1677. Phone No. (405) 702-4100.**