TECHNICAL REVIEW: STANDARD PERMIT ELECTRIC GENERATING UNITS

Permit No.:	124811	***Company Name:***	Shawnee Energy Center, LLC	***APD Reviewer:***	Mr. Joe Janecka, P.E.
Project No.:	220652	***Site/Area Name:***	Shawnee Energy Center / Shawnee Energy Center	***SP No.:***	6005

GENERAL INFORMATION			
Regulated Entity No.:	RN107817983	**Project Type:**	Standard Permit Application
Customer Reference No.:	CN604698092	**Date Received by TCEQ:**	October 29, 2014
Account No.:		**Date Received by Reviewer:**	November 17 2014
City/County:	Abbott, Hill	**Physical Location:**	from Abbott go 3.15 miles toward northeast on road 1242 go 1 mile toward south on County Road 3160 the site will be at southwest corner of intersection of County Road 3160 and County Road 3165

CONTACT INFORMATION					
Responsible Official/Primary Contact Name and Title:	Neil Odonovan Vp Project Delivery	**Phone No.:** **Fax No.:**	(312) 422-1608 (512) 767-7463	**Email:**	NODONOVAN@LINCOLNCLEAN.COM
Technical Contact/Consultant Name and Title:	Jason Tundermann Vp Development	**Phone No.:** **Fax No.:**	(303) 755-2358 (512) 767-7463	**Email:**	JTUNDERMANN@LINCOLNCLEAN.COM

GENERAL RULES CHECK	**YES**	**NO**	**COMMENTS**
Is confidential information included in the application?		X	
Are there associated authorizations at the site?		X	
Is the application for renewal of an existing standard permit?		X	
Will any New Source Review permit be directly affected by this project?		X	
Do NSPS, NESHAP, or MACT standards apply to this registration?	X		NSPS A and KKKK
Is the following documentation included with this registration? 1. The General Requirements Checklist demonstrating compliance with 30 TAC §§ 116.110 and 116.601-615 2. Process description 3. Project description 4. Descriptions of any equipment being installed 5. Emissions calculations including the basis of the calculations 6. Emission increases and/or decreases associated with this project (quantified) 7. Description of efforts to minimize any collateral emissions or collateral increases	X		The applicant did not use a checklist. However, a textual paragraph by paragraph summary was included to demonstrate compliance with the registration and standard permit requirements. An application update was made on 11/20/2014, after which all of the listed documents were included.
Are any requirements of § 116.110 circumvented by: (1) artificially limiting feed or production rates below the maximum capacity of the project<s equipment; (2) claiming a limited chemical list; or (3) dividing and registering a project in separate segments?		X	

STANDARD PERMIT RULES CHECK	**YES**	**NO**	**COMMENTS**
Will the EGU take credit for heat recovered from the exhaust of the combustion unit to meet the NOx emissions standards		X	
Will NOx emissions be certified by the manufacturer and displayed on a plate attached to the units	X		
Will the unit meet the emission standard and operating hours based on the region it is located in?	X		East Texas Region, more than 300 hours Enter the emissions standard: 0.14 lb/MWh
Will the owner or operator certify the unit every 16,000 hours of operation?	X		
Will the combusted fuel in the EGU consist of:	X		1. Natural gas containing no more than 10 grains of total sulfur per 100 dscf.

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DESCRIBE OVERALL PROCESS AT THE SITE

The Shawnee Energy Center (SEC) will consist of four Siemens SGT6-5000F or equivalent natural gas-fired turbines, two dew point heaters, and associated equipment including an ammonia storage and unloading system, and lube oil vent system.

These combustion turbines will be fired with pipeline-quality natural gas and operated in simple cycle configuration, with a nominal power generation capacity of 230 MW per combustion turbine (FIN/EPNs: 1, 2, 3, and 4). These turbines will be used to supply power to the grid during peak demand periods. Each combustion turbine will be equipped with an SCR system (to control post combustion NO_X emissions), and a catalytic oxidation system (to control CO and VOC emissions). The SCR system will use 19% aqueous ammonia.

In order to meet the peak demands in power all year long, the combustion turbines will require more frequent startup and shutdowns (SUSD).

SEC will use two natural gas-fired dew point heaters (FINs/EPNs: 5 and 6) with a maximum rated heat input of 5 MMBtu/hr, HHV. The dew point heaters will use pipeline-quality natural gas exclusively and is proposed to be authorized for 2,920 hours/year.

Additional MSS emissions result from Turbine maintenance, washing, filter maintenance, SCR and catalyst maintenance, small equipment VOC fugitive and ammonia maintenance, inspections, repairs, and calibration of CEMS

Aqueous ammonia (19% NH_3) used in the SCR system will be brought on-site via tank trucks and unloaded into pressurized horizontal storage tanks. The NH_3 unloading system will be equipped with a vapor return line to collect NH_3 vapors generated during unloading and will be routed back to the tank truck using a vacuum system.

Aqueous ammonia will be transferred to the SCR system using transfer pumps and pipelines. Therefore, the ammonia storage tanks and unloading operations are not considered as potential emission sources; however, fugitive emissions of NH_3 will be produced from equipment leaks from components in ammonia service (FIN/EPN: NH_3-FUG).

The combustion turbines and steam turbine(s) will contain a closed-loop lube oil recirculation system to lubricate moving parts of the turbine and generator. Oil vapor (VOC) and oil mist (PM) emissions will be generated by oil vaporization, due to heating of lube oil in the turbine and subsequent condensation of droplets when the vapor is cooled, Lube oil mist emissions will be controlled by mist eliminators and exhausted through a dedicated lube oil vent for each turbine (FIN/EPNs: LOV_1, LOV_2, LOV_3, and LOV_4).

DESCRIBE PROJECT AND INVOLVED PROCESS

This application consists of an EGU standard permit registration for four simple cycle gas-fired turbines using SCR controls and additional ancillary equipment. With controls, the four turbines will meet the required standard permit NO_X emissions limit based on location, hours of operation, and generating capacity.

The applicant represented an annual NO_X and CO emission cap of 248 tpy (each) for all four turbines that include normal operating conditions and estimated startup and shutdown activities. Determination of compliance with the caps will be accomplished by NO_X and CO CEMS to monitor and record actual emissions on a 12-month rolling period.

The applicant discussed a potential second application for the same site as a PSD project. The applicant was advised on the concerns regarding the start of construction on a site with two authorizations. Applicant understands the concern and commits to deciding on one authorization prior to start of construction.

TECHNICAL SUMMARY - DESCRIBE HOW THE PROJECT MEETS THE RULES

Applicable Standard Permit Rule: **Air Quality Standard Permit for Electric Generating Units, Effective Date May 16, 2007**

Administrative Requirements:

Section (3)(A), units that meet the conditions of the standard permit do not have to meet 116.610(a)(1).

General Requirements:

(4)(D)(ii)(a) The units will be installed in East Texas, operate more than 300 hours per year, and have more than 1oMW capacity.

The project is in an attainment area and the project emission levels do not trigger federal PSD permitting.

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MAXIMUM EMISSION RATES TABLE (MERT)

EPN	EPN Name	VOC		NO_x[1]		CO[1]		$PM/PM_{10}/PM_{2.5}$		SO_2		NH_3		H_2SO_4	
		lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy
1	Combustion Turbine 1 Normal Operations	3.39	15.23	32.48	248	12.49	248	12.66	21.02	1.6	2.66	29.82	49.5	0.12	0.20
	Combustion Turbine 1 MSS	63.36		82.94		633.60									
2	Combustion Turbine 2 Normal Operations	3.39	15.23	32.48		12.49		12.66	21.02	1.6	2.66	29.82	49.5	0.12	0.20
	Combustion Turbine 2 MSS	63.36		82.94		633.60									
3	Combustion Turbine 3 Normal Operations	3.39	15.23	32.48		12.49		12.66	21.02	1.6	2.66	29.82	49.5	0.12	0.20
	Combustion Turbine 3 MSS	63.36		82.94		633.60									
4	Combustion Turbine 4 Normal Operations	3.39	15.23	32.48		12.49		12.66	21.02	1.6	2.66	29.82	49.5	0.12	0.20
	Combustion Turbine 4 MSS	63.36		82.94		633.60									
5	Dew Point Heater 1	0.01	0.02	0.09	0.15	0.17	0.28	0.01	0.02	<0.01	<0.01	--	--	--	--
6	Dew Point Heater 2	0.01	0.02	0.09	0.15	0.17	0.28	0.01	0.02	<0.01	<0.01	--	--	--	--
NH3-FUG	Fugitive emissions – Ammonia	--	--	--	--	--	--	--	--	--	--	0.15	0.66	--	--
MSS FUG	MSS Fugitives	<0.01	<0.01	--	--	--	--	--	--	--	--	--	--	--	--
LOV_1	Lube Oil Vent 1	0.09	0.39	--	--	--	--	0.09	0.39	--	--	--	--	--	--
LOV_2	Lube Oil Vent 2	0.09	0.39	--	--	--	--	0.09	0.39	--	--	--	--	--	--
LOV_3	Lube Oil Vent 3	0.09	0.39	--	--	--	--	0.09	0.39	--	--	--	--	--	--
LOV_4	Lube Oil Vent 4	0.09	0.39	--	--	--	--	0.09	0.39	--	--	--	--	--	--
TOTAL EMISSIONS (TPY):			61.33		248.30		248.56		85.68		10.66		198.66		0.80

MAXIMUM OPERATING SCHEDULE:	**Hours/Day**		**Days/Week**		**Weeks/Year**		**Hours/Year**	

1: Annual CO and NO_x emissions for the four turbines are capped at 248 tpy.

Project Reviewer Date Team Leader/Section Manager/Backup Date