Florida Department of

Environmental Protection

Memorandum

TO: J. Charles Harp
THROUGH: Armando I. Sarasua, P.E.
FROM: R. J. Prusa
DATE: January 25, 2013
SUBJECT: Evaluation Summary for Pensacola Christian College, Pensacola Campus 0330114-007-AV, Escambia County

We recommend issuing a Title V Air Operation Permit Renewal to Pensacola Christian College in Escambia County. This permit, 0330114-007-AV, renews permit 0330114-006-AV, effective June 16, 2008.

Process Description: Pensacola Christian College (PCC) is a private educational institution consisting of classrooms, dorms, recreational areas, book distribution, food preparation, maintenance, and warehouse space.

Three 1,500 Hp stationary spark ignition internal combustion engines (Engines No. 9, No. 10 and No. 11), Waukesha Model L7042GSI, located in the co-generation plant. Each engine drives a generator that produces 1.1 mega watts (MW) of electricity. The chiller-heater associated with each engine produces 468 tons of chilled water and 350 gallons per minute of hot water. Heat generated by the engines is disposed in two 800-ton cooling towers.

Eight generator units (Nos. 1-8, standby generation plant) are located at PCC's main campus. These generators produce backup electrical power to the campus during power outages. These new units are 1,300-KiloWatt Caterpillar DM5495 generators each powered by a Caterpillar stationary compression ignition internal combuation engine Model G3516B LE using natural gas. Each engine is a four-stroke rich burn cycle, rated at 1,818-brake horsepower (bhp) when running at full load, with a maximum heat input rating of 12.5 million Btu per hour, with a displacement of less than 30 liters per cylinder.

Pollution Control Equipment: There are no pollution control devices for the three co-gen IC engines or the eight new generator units other than the exclusive use of natural gas, proper operation and regular tuning of the engines to minimize NO_x and CO emissions.

Environmental Impact:

Airborne Contaminant Emitted	**FAC Rule**	**Estimated Emissions**		**Allowable Emissions**	
		lbs/hr	**T/yr**	**lb/hr**	**T/yr**
PM	AC permit	N/A	1.14	N/A	N/A
SO2	N/A	N/A	0.13	N/A	N/A
VOC	N/A	N/A	4.07	N/A	N/A
NOx	N/A	N/A	479.90	N/A	N/A
CO	N/A	N/A	538.80	N/A	N/A
Objectionable Odors	62-296.320(2)	N/A	N/A	None allowed off plant property	
VE[2]	40 CFR 60.43b (f)	N/A	N/A	Not more than 20% opacity except 1-6 minute average at less than 27%	

Applicable Rules & Regulations: IC engines Nos. 9 & 10 are not subject to PSD, in accordance with permit AC17-129616. IC engine No. 11 is regulated under the provisions of Rule 62-212.400(5), F.A.C., Prevention of Significant Deterioration (PSD), incorporated with permit AC17-139470, PSD-FL-128. Based on comparisons of past actual and future potential emissions, conducted during the initial permitting of the 8 IC engines for the Eight generator units, (Nos. 1-8, standby generation plant, permit 0330114-004-AC, the construction did not approach the significant modification emissions rate threshold. Therefore, that project was not subject to New Source or PSD review as set forth in Rule 62-212.400(2) F.A.C.
Based on the Title V Air Operation Permit Renewal application received on November 1, 2012, this facility is not a major source of Hazardous Air Pollutants (HAP). 40 CFR 63 Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, does not apply. 40 CFR 60 Subpart JJJJ does not apply as the stationary spark ignition internal combustion engines were operating before June 12, 2006 requirement in 40 CFR 60.4230(a)(4). 40 CFR 60 Subpart IIII does not apply as the stationary compression ignition internal combustion engines with a displacement of less than 30 liters per cylinder were operating before July 11, 2005 requirement in 40 CFR 60.4200(a)(2).

Compliance Monitoring: The eight generator units (EU 009) initial test results indicate emissions ranging from 2.9-3.4 lb/hr for NO_X, versus 4.0 lb/hr allowed, and 7.3-7.7 lb/hr of CO versus 10.4 lb/hr allowed.
An Environmental Compliance Plan includes the tuning of all engines on an annual basis. VE tests for IC engines Nos. 9 and 10 (EU 005) and IC engine No. 11 (EU 003) have indicated sufficient compliance to not require further testing.

Compliance History: Inspection reports from the past five years are in-compliance. There were no enforcement cases initiated in the past five years.

Fee Summary: No fee, Title V permits application.

RP/c