Florida Department of

Environmental Protection

Memorandum

TO: Charles Harp
THROUGH: Armando I. Sarasua, P.E.
FROM: Angelia Jackson
DATE: January 29, 2013
SUBJECT: Evaluation Summary for Florida Gas Transmission for Compressor Station No.14 in Quincy, Gadsden County, 0390029-015-AV

We recommend issuing a Title V air operating permit renewal to Florida Gas Transmission Company to operate their existing Compressor Station No.14 in Quincy, Gadsden County. This is a renewal of Title V air operation permit 0390029-010-AV, effective date June 24, 2008. Subsequent construction permits 0390029-011-AC and 0390029-012-AC were incorporated into the existing Title V revision permit 0390029-013-AV, effective November 28, 2011. Permit 0390029-011-AC authorized installation of a new combustion turbine engine No. 1209, two 454 Hp emergency generators and miscellaneous support equipment. Permit 0390029-012-AC authorized an increase in heat input and emissions limits for compressor turbine engine No. 1209.

Process Description. The facility is part of a natural gas transmission pipeline system and contains six natural gas fired internal combustion reciprocating engines and three natural gas-fired combustion turbine engines. The engines provide power for compressors to move the gas along the pipeline.

Pollution Control Equipment. FGT Engines Nos.1401, 1402, 1403 and 1405 are naturally aspirated reciprocating internal combustion (IC) engines-operating at near stoichiometric air-to-fuel ratio. NOx and carbon monoxide (CO) are emitted uncontrolled through raised stacks.
FGT Engine No. 1404 is a reciprocating IC engine fitted with a turbocharger providing more air at higher pressures to reduce NOx emissions and a catalytic converter to reduce CO emissions.
FGT Engine No. 1406 is a reciprocating IC engine that incorporates “lean burn” technology to minimize NOx emissions. This engine is subject to a Best Available Control Technology (BACT) determination of 2 g/BHP-hr NOx.
FGT Engine Nos. 1407 and 1408 are gas combustion turbines that incorporate an efficiently operated dry low-NOx combustion system to minimize NOx emissions.
FGT Engine No.1409 is a gas combustion turbine that utilizes the efficient combustion of natural gas at high temperatures to lower emissions of carbon monoxide and volatile organic compounds. Lean premix combustion technology minimizes the formation of nitrogen oxides.

Environmental Impact

Airborne Contaminant Emitted	FAC Rule	Estimated Emissions		Allowable Emissions	
		lbs/hr	T/yr	lb/hr	T/yr
PM	AC permit	N/A	20.3	N/A	N/A
SO2	N/A	N/A	61.1	N/A	N/A
VOC	N/A	N/A	55.5	N/A	N/A
NOx	N/A	N/A	1445.5	N/A	N/A
CO	N/A	N/A	306.3	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 10% opacity except 1-6 minute average at less than 27%	

Maximum Equivalent Annual Emissions (tons/year) for each Emissions Unit.

EU ID	Engine ID	Description	NO_x	CO	VOC	SO_2	PM
001	1401	2,000 bhp Reciprocating Engine	268.10	27.03	7.80	1.80	0.70
002	1402	2,000 bhp Reciprocating Engine	268.10	27.03	7.80	1.80	0.70
003	1403	2,000 bhp Reciprocating Engine	268.10	27.03	7.80	1.80	0.70
004	1404	2,000 bhp Reciprocating Engine	177.83	15.33	1.75	2.19	0.88
005	1405	2,000 bhp Reciprocating Engine	268.10	27.03	7.80	1.80	0.70
006	1406	2,700 bhp Reciprocating Engine	46.40	48.70	11.50	2.00	4.60
008	1407	13,000 bhp Turbine Engine	44.68	54.31	1.75	13.58	3.30
010	1408	15,700 bhp Turbine Engine	61.76	37.97	6.57	16.21	3.94
011	1409	20,500 bhp Turbine Engine	38.90	39.40	2.29	19.90	4.76
012	GEN04 & GEN05	Two 454 bhp Emergency Generators	1.8	1.9	0.2	0.0	0.0
009	GEN03	637 bhp Emergency Generator	0.7	0.6	0.2	0.0	0.0
		Annual Potential Emission Total (TPY)	1444.5	306.3	55.5	61.1	20.3

Applicable Rules & Regulations. Engines FGT Nos. 1401, 1402, 1403, 1404, 1405 and 1406 are 4-stroke, lean burn, spark-ignition reciprocating internal combustion reciprocating engines and subject to (MACT) 40 CFR 63 Subpart ZZZZ - NESHAP for Stationary Reciprocating Internal Combustion Engines. Combustion gas turbines FGT Nos. 1407 and 1408 are subject to Subpart YYYY - NESHAP for Stationary Combustion Turbines. However, based on rules 40 CFR 63.6090(b)(4) and 63.6590(b)(3) the engine nos. 1401-1408 do not have to meet the requirements of the Subparts or Subpart A. In addition, no initial notification is required. However, any future reconstruction (defined in 40 CFR 63.2) may result in engine nos. 1401-1408 becoming subject to these rules. Combustion Gas Turbine (FGT Engine No.1409) is subject to 40 CFR 60 Subpart KKKK - NSPS for Stationary Combustion Turbines and 40 CFR 63 Subpart YYYY - NESHAP for Stationary Combustion Turbines. The two 454 Hp 4-stroke, lean burn, spark-ignition reciprocating internal combustion engines for the new emergency generators are subject to the limits from table 1, and the certification, maintenance and recordkeeping requirements of 40 CFR 60 Subpart JJJJ - Stationary Spark Ignition Internal Combustion Engines. By meeting the applicable requirements of 40 CFR 60 Subpart JJJJ, the two 454 Hp engines for the new emergency generators also meet applicable requirements in 40 CFR 63, NESHAP Subparts A and ZZZZ - Reciprocating Internal Combustion Engines.

Compliance Monitoring. Engine No. 1404 - monitor the fuel consumption rate and hours of operation and conduct a complete engine analysis every 1440 hours of operation.
Engine No. 1406 - maintain records of monthly natural gas consumption.
Engine Nos. 1407, 1408 and 1409 - monitor and record heat input (MMBtu), power output (BHP), and hours of operation.
Engine No. 1409 – maintenance and recordkeeping.
The NO_X emission increase is close enough to the significant emissions rate that Permittee is subject to monitoring, reporting and recordkeeping provisions of Rule 62-212.300(1)(e), F.A.C.

Compliance History. Facility inspections were in compliance for the past five years. June 8, 2009 stack test on EU 006 (FGT Engine No. 1406) had NO_X results of 13.67 lb/hr versus 10.6 lb/hr limit. SFCO 09-3571-20-AV, executed November 23, 2009, collected $2,300.00 in penalties and costs, and closed December 30, 2009.

Fee Summary. No Fee - Title V permit.

AJ/c