

**DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection**

N381825618

FACILITY: Great Lakes Gas Transmission Station #13		SRN / ID: N3818
LOCATION: 7500 E Dodge Rd, OTISVILLE		DISTRICT: Lansing
CITY: OTISVILLE		COUNTY: GENESEE
CONTACT: Bruce Bendes, Environmental Specialist, CS&E		ACTIVITY DATE: 06/24/2014
STAFF: Daniel McGeen	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Partial Compliance Evaluation (PCE) activities, conducted as part of a Full Compliance Evaluation (FCE): 1.) scheduled inspection; and 2.) review of records and operational logs.		
RESOLVED COMPLAINTS:		

On 6/24/2014, the Department of Environmental Quality (DEQ), Air Quality Division (AQD), conducted the following two Partial Compliance Evaluation (PCE) activities as part of a Full Compliance Evaluation (FCE) of Great Lakes Gas Transmission Station #13:

1. scheduled inspection; and
- 2.) review of records and operational logs:

Facility environmental contact:

Bruce Bendes R.S., CHMM, Environmental Specialist, CS&E: 248-205-7674;
bruce_bendes@transcanada.com

Emission units:

Emission unit	Emission unit description	ROP and/or PTI exemption	Compliance status
EU-UNIT1301	Rolls Royce Model Avon 76G stationary natural gas-fired turbine used to power a natural gas pipeline compressor. Turbine rated at 16,000 horsepower at ISO conditions (59 degrees F at sea level). Installed possibly December 1970, or possibly as early as late 1960s.	Grandfathered from New Source Review.	Compliance/not operating
EU-UNIT1302	Rolls Royce Model Avon 76G stationary natural gas-fired turbine used to power a natural gas pipeline compressor. Turbine rated at 16,000 horsepower at ISO conditions (59 degrees F at sea level). Installed October 1970.	Grandfathered from New Source Review.	Compliance/not operating
EU-UNIT1303	GE Model LM1600 stationary natural gas-fired turbine used to power a natural gas pipeline compressor. Turbine is rated at 23,000 horsepower at ISO conditions (59 degrees F at sea level). Subject to 40 CFR Part 60, Subpart GG, and Prevention of Significant Deterioration (PSD) requirements. Installed July 1994.	PTI No. 748-92 was incorporated into a previous ROP.	Compliance/not operating
EU-COLDCLEANER	Parts cleaner which uses a water-based cleaning solution.	Rule 281(e)	Compliance
EUOVAPU	Caterpillar 7.89 MMBtu/hr, natural gas-fired emergency electrical generator/Auxiliary Power Unit.	Rules 212(4)(d), 285(g)	Compliance
EUOVBOILER	York Shipley boiler, 5.03 MMBtu/hr, natural gas-fired.	Rules 212(4)(b), 282(b)(i)	Compliance/not operating
EUOVSPACEHEATER	N(20) Trane space heaters, 172,000 Btu/hr, natural gas-fired	Rules 212(4)(b) 282(b)(i)	Compliance
EUOVCONDANK	10,000 gallon condensate tank	Rules 212(4)(c), 284(e)	Compliance
EUOVDIESELANK	200 gallon diesel fuel tank	Rules 212(4)(c), 284(i)	Compliance

Facility description:

This site is solely a natural gas mainline transmission station, as there is no gas storage here. The engines are used to manage compression of the natural gas through the transmission lines.

Regulatory overview:

The facility is covered by ROP No. MI-ROP-N3818-2010, which expires on 10/27/2015. It is a major source for nitrogen oxides (NOx) and carbon monoxide (CO), and a minor source for sulfur dioxides (SO2), lead, particulate matter with a diameter smaller than 10 microns (PM-10), and volatile organic compounds (VOCs). The facility's emission unit EU-UNIT1303 is subject to the NSPS for Stationary Gas Turbines, 40 CFR Part 60, Subpart GG. This emission unit was permitted under Permit to Install (PTI) No. 748-92, which was later incorporated into an earlier ROP. There are a number of emission units or processes which are exempt from the requirement to obtain a PTI) and which are also exempt from being included in the ROP.

The facility is not subject to 40 CFR Part 60, NSPS Subpart KKKK, Standards of Performance for Stationary Gas Turbines, nor is the facility subject to 40 CFR Part 63, NESHAP HHH Natural Gas Transmission and Storage. No emission units are subject to the federal Compliance Assurance Monitoring rule under 40 CFR, Part 64, because all emission units at the stationary source either do not have a control device or those with a control device do not have potential pre-control emissions over the major source thresholds.

Fee status:

This facility is classified as a Category I fee-subject source, because it is a major source for criteria air pollutants.

Location:

This facility is located in Otisville, in rural Genesee County. It is surrounded by farmland and scattered residences. The nearest residences are a few hundred feet to the east.

Recent history:

No new equipment has been installed at the site, since the previous AQD inspection, on 7/30/2012. AQD has never received a complaint on this facility, except for a noise complaint received in 1994. AQD does not regulate noise, but there was a special condition in PTI No. 748-92 which required noise reduction technology. AQD investigated, and the complaint was subsequently resolved.

Arrival:

I arrived at the site at 10:02 AM. I could not detect any odors, nor see any visible emissions from the facility. Weather conditions were 70 degrees F, and lightly raining, with no breeze.

PCE activity number 1; Inspection:

This was an announced inspection, as the facility environmental contact, Mr. Bruce Bendes R.S., CHMM, Environmental Specialist CS&E, is stationed in Troy, and would need to come out to the Otisville site. I met with him, and with Mr. John Deitering, Technician.

It was explained to me that Great Lakes Gas and ANR are two pipelines which were purchased by TransCanada. They are now two wholly-owned subsidiaries. Company offices in Houston, Texas, monitor and control the facility by computer. Currently, natural gas from western Canada is being routed to the eastern coasts of the United States and Canada. When gas is being compressed, the pressure depends on how much gas is being moved through the pipeline. All gas coming into the facility is pipeline quality. Two gas scrubbers route out any impurities, such as water, and route them to

the condensate tank, EUOVCONDANK.

Station #13 has three natural gas-fired turbines, which operate three natural gas compressors, operated in parallel. At the time of the inspection, no turbines were running, and I was informed that they have not run all month. The units are not expected to run before the end of this month. The individual ICES have probably not logged a thousand hours of operation each, since I was last here, in 2012. Years ago, each unit ran almost constantly, so that it was very challenging to schedule maintenance work. The main factor for the decreased frequency of operation at the site is that there are a number of options for moving natural gas to its destination now, including other pipelines, which were not available in years past.

For future visits, if the units are running, it was suggested that I might wish to bring fire protective clothing. They might have spare fire protective clothing onsite, but it could not be guaranteed.

At the time of the inspection, the facility was "free flowing", meaning that the pressure of the incoming gas was the same as the pressure of the outgoing gas. Instantaneous values are documented below. Normal pressure is about 875 psi.

36" loopline entering the site: 895 psi; 36" loopline exiting the site: 889 psi

36" mainline entering the site: 888 psi; 36" mainline exiting the site: 888 psi

FG_AVONS:

FG_AVONS is the flexible group for the emission units EU-UNIT1301 and EU-UNIT1302, the Rolls Royce Model Avon 76G stationary natural gas-fired turbines. The turbines are each powered by a jet engine, the same kind as used in vintage British Tornado jet fighters. Each jet engine creates thrust, which drives a turbine fan. The turbine then drives a natural gas compressor, by means of a shaft. The units were not operating, at this time. The operating schedules are controlled from Houston.

Intake air for the engines is cleaned by large banks of air filters. Unit 1302 utilizes a system of tube filters for the intake, which are changed every 60 months. The changes used to be every 36 months, but with the reduced frequency of operations, they do not get dirty as quickly. After 5 years, the tube filters begin to deteriorate, so it is very important to replace them, at that point.

A downpour began, and some drips of rainwater entered the engine buildings, around the opening in the roofs for the units to exhaust. This did not indicate poor design or poor upkeep of the facility, however. A small gap was intended to exist between the exhaust stack and the roof for each engine, because the engines heat up so much when they operate, that the exhaust ducts literally expand. The gaps in the roofs provide the room necessary for this expansion.

Only pipeline quality natural gas is combusted in the turbines per condition III 1. of the ROP. 40 CFR 72.2 defines "pipeline quality" natural gas. Attachment 1 to this activity report is a copy of an e-mail from Mr. Bendes to AQD's Michael McClellan, dated 7/27/2011. This e-mail provides a demonstration of how they comply with the requirement to use only pipeline quality natural gas.

Once every 5 years, timed to correspond with the ROP renewal cycle, the company conducts stack testing of each of these turbines for NOx and CO. These records are maintained for 5 years, per the ROP requirements. The last stack test for EU-UNIT1301 and EU-UNIT1302 were in 2007. The NOx and CO data are used to calculate yearly emissions in the annual MAERS report. Attachment 2 is a MAERS audit report showing emissions for the operating year 2013, from each individual emission unit.

EU-UNIT1303: General Electric Model LM 1600 natural gas-fired turbine

This unit was not running, at the moment. It is the northernmost of the turbines onsite, and is an aero derivative of the jet engine used in F-16 jet fighters. It is located inside a building with exterior walls that are one foot thick, in order to reduce noise. Within that building, it is located inside an acoustic and fire

enclosure. The enclosure looks like a metal box, with panels that can be opened. Because of the sound reducing measures, this unit is quieter to operate than the other two onsite. Only pipeline quality natural gas is combusted in this turbine, per condition III 1. of the ROP. The intake air for the unit is cleaned by a large bank of tube filters, as with EU-UNIT1302.

The company conducts stack testing on this turbine, for NOx and CO, once every 5 years, timing it to correspond with the ROP renewal cycle. The most recent stack test for this unit was 3/10/2011. NOx concentration at high load was 117.75 ppm, which is less than the 175.2 ppm in the ROP. At high load, the NOx lbs/hr were 67.23, less than the ROP limit of 89.0 lbs/hr. The CO concentration was 25.40 ppm, which is less than the 31.9 ppm allowed by the ROP. The CO lbs/hr were 8.83, less than the ROP limit of 22.0 lbs/hr. The NOx and CO data are also used to calculate yearly emissions in the annual MAERS report. Limits for these pollutants in the ROP are set by PSD, which is stricter than the NSPS Subpart GG. Attachment 2, a printed MAERS audit report, shows emissions from each unit, for calendar year 2013.

After the inspection, Mr. Bendes e-mailed me the most recent stack test results for EU-UNIT1303, from 2011. These are already in AQD's plant files on this facility, however. Future stack testing may take place, as the company prepares for renewing the ROP in 2015.

On 7/8/2004, the US EPA published an amendment to the NSPS Subpart GG 40 CFR 60.331(u) and 60.334 (h)(3), whereby an owner or operator may elect not to monitor the total sulfur content of the gaseous fuel when burning natural gas. The condition for this monitoring and recording of the sulfur content was removed from the ROP, accordingly, in 2005. The NSPS was changed to reflect the Federal Energy Regulatory Commission (FERC) Tariffs.

EU-COLDCLEANER:

The cold cleaner uses Aqua Works, a citrus-based material which has no VOCs, and no hazardous (halogenated) ingredients. The company does not use any of 6 listed solvents. The pH of the material is 12.7. The lid on the unit was down (closed), at the time of the inspection. Safety Kleen had recently replaced all of the cleaning fluid on this unit.

The cold cleaner is in their shop, onsite. A drill press was also located in the shop. This drill appears to be exempt from the requirement of Rule 201 to obtain a permit to install, under the Rule 285(I)(vi)(B) exemption for equipment used for metal working equipment which exhausts into the general, in-plant environment.

EUOVAPU:

The auxiliary power unit was running. There were no visible emissions from the exhaust stack, which has a horizontal exit. The ROP does not contain any requirements to have a vertically oriented exhaust outlet, so this does constitute a violation of a permit condition.

ROP renewal:

Ms. Tiffany Grady, out of TransCanada's Houston air group, handles their ROP issuance and renewals. She will be coming out to the site around September 2014, and it may be beneficial for AQD to attend.

PCE activity number 2; review of records and operational logs:

I was provided with a printout (Attachment 3) showing the year to date (YTD) monthly operating hours and estimated monthly fuel usage for EU-UNIT1301, EU-UNIT1302, and EU-UNIT1303, where they are identified as Units 13-A-01, 13-B-02, and 13-C-03, respectively. The three units each ran during the months of February, March, April, and May, 2014. Recording monthly hours of operation and fuel usage for each unit is a requirement of the ROP, and the facility appears to be in compliance. The highest number of operational hours recorded in one month for a turbine was 233.58 hours in the month of February, for EU-UNIT1301. The lowest number of hours recorded in one month for a unit was 0.08 hours in February, for unit EU-UNIT1302.

Conclusion:

The facility appeared to be in compliance with the ROP, and with the Air Pollution Control Rules. Facility staff were very knowledgeable and professional. I left the site at 12:20 PM.

NAME 
BS

DATE 7/14/2014

SUPERVISOR 

