West Virginia Department of Environmental Protection
Division of Air Quality

Fact Sheet

For Final Significant Modification Permitting Action Under 45CSR30 and Title V of the Clean Air Act

This Fact Sheet serves to address the changes specific to this Significant Modification, and shall be considered a supplement to the original Fact Sheet corresponding with the issuance of the Title V operating permit issued on October 31, 2012.

Permit Number: **R30-00700100-2012**
Application Received: **October 22, 2012**
Plant Identification Number: **007-00100**
Permittee: **Columbia Gas Transmission, LLC**
Facility Name: **Frametown Compressor Station**
Mailing Address: **1700 MacCorkle Avenue, SE**
Charleston, WV 25314

Permit Action Number: SM01 *Revised: June 10, 2013*

Physical Location:	Frametown, Braxton County, West Virginia
UTM Coordinates:	511.99 km Easting • 4,279.09 km Northing • Zone 17
Directions:	Travel approximately 0.5 miles north from Frametown on State Route 4 and turn left onto County Route 9. Proceed on CR 9 approximately 1.5 miles to the station which is on the right side of the road.

Facility Description

The Frametown Station is a natural gas transmission facility covered by Standard Industrial Classification (SIC) Code 4922, and North American Industrial Classification System (NAICS) Code 48621. The station has the potential to operate seven (7) days per week, twenty-four (24) hours per day. The station consists of one (1) 12,500-hp, two (2) 3,350-hp, and one (1) 16,300-hp turbine engines, one (1) 925-hp emergency generator, one (1) 6.84 mmBtu/hr heating system boiler, one (1) 0.8 mmBtu/hr fuel gas heater, forty (40) 0.072 mmBtu/hr space heaters and multiple storage tanks of various sizes.

This significant modification is based on the recently revised permit R13-2234A and covers installation of a new Solar Mars turbine/compressor (E04), emergency generator (G05), new fuel gas heater (H1), and forty space heaters (SH1).

Emissions Summary

As the result of this modification facility PTE will change as follows:

Regulated Pollutants	PTE change, TPY
Carbon Monoxide (CO)	- 186.86
Nitrogen Oxides (NO_X)	– 141.75
Particulate Matter (PM_{10})	+ 8.31
Total Particulate Matter (TSP)	+ 8.31
Sulfur Dioxide (SO_2)	- 1.00
Volatile Organic Compounds (VOC)	+ 16.49
Hazardous Air Pollutants	**PTE change, TPY**
Acetaldehyde	- 0.02
Benzene	- 0.01
Formaldehyde	- 0.66
Xylene	- 0.01
Total HAPs	- 0.68

Title V Program Applicability Basis

With the proposed changes associated with this modification, this facility maintains the potential to emit 254.55 tons/yr of NOx and 202.51 tons/yr of CO. Due to this facility's potential to emit over 100 tons per year of criteria pollutant, Columbia Gas Transmission, LLC is required to have an operating permit pursuant to Title V of the Federal Clean Air Act as amended and 45CSR30.

Legal and Factual Basis for Permit Conditions

The State and Federally-enforceable conditions of the Title V Operating Permits are based upon the requirements of the State of West Virginia Operating Permit Rule 45CSR30 for the purposes of Title V of the Federal Clean Air Act and the underlying applicable requirements in other state and federal rules.

This facility has been found to be subject to the following applicable rules:

Federal and State:	45CSR2	Opacity Requirements for boilers
	45CSR16	Standards of Performance for New Stationary Sources Pursuant to 40CFR60
	45CSR13	Construction Permit
	45CSR30	Operating permit requirement.
	40 C.F.R. Part 60, Subpart KKKK	Standards of Performance for Stationary Combustion Turbines
	40 C.F.R. Part 60, Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines
	40 C.F.R. Part 63, Subpart ZZZZ	RICE MACT

Each State and Federally-enforceable condition of the Title V Operating Permit references the specific relevant requirements of 45CSR30 or the applicable requirement upon which it is based. Any condition of the Title V permit that is enforceable by the State but is not Federally-enforceable is identified in the Title V permit as such.

The Secretary's authority to require standards under 40 C.F.R. Part 60 (NSPS), 40 C.F.R. Part 61 (NESHAPs), and 40 C.F.R. Part 63 (NESHAPs MACT) is provided in West Virginia Code §§ 22-5-1 *et seq.*, 45CSR16, 45CSR34 and 45CSR30.

Active Permits/Consent Orders

Permit or Consent Order Number	Date of Issuance	Permit Determinations or Amendments That Affect the Permit *(if any)*
R13-2234A	April 19, 2013	N/A

Conditions from this facility's Rule 13 permit(s) governing construction-related specifications and timing requirements will not be included in the Title V Operating Permit but will remain independently enforceable under the applicable Rule 13 permit(s). All other conditions from this facility's Rule 13 permit(s) governing the source's operation and compliance have been incorporated into this Title V permit in accordance with the "General Requirement Comparison Table B" which may be downloaded from DAQ's website.

Determinations and Justifications

Changes to the existing permit:

1. Emission Units Table 1.0 - Solar Mars turbine/compressor (E04), new Emergency Generator (G05), new fuel gas heater (H1), and forty space heaters (SH1) were added. Old reciprocating Engine / Generator (G04) was removed from the Table (replaced with G05).

2. 40 C.F.R. 63 Subpart ZZZZ *"National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines"* (Section 10.0) and *40 C.F.R. 60 Subpart JJJJ "Standards of Performance for Spark Ignition Internal Combustion Engines"* (Section 11.0) are applicable to the reciprocating internal combustion engine (RICE) G05:

Engine	Design Capacity	Ignition	Use/Type	Year installed	Source of HAP emissions
G05	925 HP	Spark (SI)	Emergency	2013 (new)	Area source

Per §63.6590(a)(2)(iii), this SI engine is considered a new unit (area source unit constructed on or after June 12, 2006). Therefore, per §63.6590(c)(1), it must meet requirements of 40 C.F.R. 63 Subpart ZZZZ by meeting requirements of 40 C.F.R. 60 Subpart JJJJ (Section 11.0). Applicable provisions of 40 C.F.R. 60 Subpart JJJJ are listed in the Table 1.0. Per §60.4233(e) emission standards for NOx, CO and VOC are applicable to the engine (Table 1 of the Subpart). To demonstrate compliance with the standards, per §60.4243(b)(1), the company purchased an engine certified by the manufacturer to meet emission standards and related requirements in 40 C.F.R. §60.4231. Therefore, engine testing requirements (§03.4244) and initial notification requirements (§60.4245(c)) are not applicable. Per §60.4243(d) the engine can be used for emergency operations for unlimited time, but it has a limit of 100 hrs/yr for maintenance checks and readiness testing.

3. 40 C.F.R. 60 Subpart KKKK "*Standards of Performance for Stationary Combustion Turbines"* (Section 8.0) is applicable to the 122 MMBtu/hr natural gas fired Solar Mars turbine/compressor (E04), because it was installed after February 18, 2005 (§60.4300) and is above the applicable size

threshold of 10 MMBTU/hr (§60.4305(a)). Applicable provisions of 40 C.F.R. 60 Subpart KKKK are listed in the Table 1.0. The engine E04 is subject to NOx emission standards per §60.4320 (Table 1 of the Subpart) and total sulfur content of fuel limit per §60.4330(a)(2). The engine is subject to annual performance testing for NOx per 40 C.F.R. §60.4340(a). Total sulfur content of fuel shall be monitored per §60.4360 unless "the fuel is demonstrated not to exceed potential sulfur emissions of 26 ng SO_2 /J (0.060 lb SO_2 /MMBtu) heat input for units located in continental areas" (40 C.F.R. §60.4365(a)). In this case, the sulfur content of fuel (gaseous) "must be determined and recorded once per unit operating day" (§60.4370(b)). Fuel content monitoring/determination and annual performance tests reports shall be submitted per §60.4375 and §60.4395.

4. Requirement 22.1.1 was deleted because it was applicable to the engine G04 which was removed from the facility.

5. Revised section 23.2.b – added non-applicability determination of the 40C.F.R. 60 Subpart GG to the turbine/compressor (E04); removed non-applicability determination of the 40 C.F.R. 60 Subpart JJJJ for engines E01, E02 and E03 because they are turbines, not Spark Ignition engines.

Non-Applicability Determinations

The following requirements have been determined not to be applicable to the subject facility due to the following:

1. 40 C.F.R. 60 Subpart GG "*Standards of Performance for Stationary Gas Turbines"*- The new Solar Mars turbine/compressor (E04) is subject to requirements of 40C.F.R. 60 Subpart KKKK, therefore 40 C.F.R. 60 Subpart GG is not applicable (per 40 C.F.R. §60.4305(b)).

2. 40 C.F.R. 63 Subpart JJJJJJ "*National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources* " is not applicable to the heater H1 because of the following reasons stated in the table below:

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Part 63 Subpart JJJJJJ Applicability
045H1	H1*	Fuel Gas Heater	2013	0.8 MMBTU/hr	Not applicable – because it does not meet definition of a "boiler" in § 63.11237

* This equipment burns natural gas only.

3. 40 C.F.R. 63 Subpart DDDDD "*National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters*" – per 40 C.F.R §63.7485 this subpart is not applicable to the heater H1 (*process heater*) because the Frametown station is not a major source of HAP emissions.

4. 40 C.F.R. 64 – newly added emission sources (E04, G05 and H1) don't have add-on controls; therefore, in accordance with 40 C.F.R § 64.2(a), CAM is not applicable to this facility.

There are no Greenhouse Gas Clean Air Act requirements for this facility because the facility has not made any changes that triggered a PSD permit modification.

Request for Variances or Alternatives

N/A

Insignificant Activities

Insignificant emission unit(s) and activities are identified in the Title V application.

Comment Period

Beginning Date: April 23, 2013
Ending Date: May 23. 2013

Point of Contact

All written comments should be addressed to the following individual and office:

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Procedure for Requesting Public Hearing

During the public comment period, any interested person may submit written comments on the draft permit and may request a public hearing, if no public hearing has already been scheduled. A request for public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. The Secretary shall grant such a request for a hearing if he/she concludes that a public hearing is appropriate. Any public hearing shall be held in the general area in which the facility is located.

Response to Comments (Statement of Basis)

(a) On May 10, 2013 EPA made the following comments:

"1. The emissions factors from the application are either unclear as to whether they include condensables, or only account for the filterable fraction of PM_{10} and $PM_{2.5}$ emissions. For example, the heaters (HTR3) use an emissions factor of .00183 lb/MMBtu, and emergency generator (G05) uses an emissions factor of 7.71 e-5 lb/MMBtu. These come from the AP-42 emissions factor of 1.9 lb/10^6 scf and 7.71 e-5 lb/MMBtu in AP-42 Tables 1.4-2 and 3.2.2, and only include the filterable PM fraction. The fact sheet does not say what specific emissions factors were used in the PSD analysis, but any emissions factors used for PM_{10} and $PM_{2.5}$ need to include both the condensable and filterable fraction. If the emissions factors used do no account for condensables the PSD applicability determination needs to be redone to account for both filterable and condensable emissions of PM_{10} and $PM_{2.5}$.

2. The emissions unit table lists conditions from an underlying R13 permit as applicable requirements, including condition 4.1.1 from R13-2234A. This requirement list CO_2, N_2O, methane, and CO_2e ton per year limits. Because the emissions from the source and modification fall under the "subject to regulation" thresholds in 45CSR14, it would be improper to include these limits in the title V permit. Also, limits in 4.1.1 that reflect the unrestricted PTE of the unit and are included for emissions inventory purposes should be listed as state-enforceable only, otherwise appropriate monitoring and recordkeeping needs to be included in the title V permit to demonstrate compliance.

3. The list of applicable requirements for the emergency generator (G05) in the emissions unit table lists condition 4.5.1 from R13-2234A as an applicable requirement. This appears to be a typo, and should be changed to 4.4.1."

Answer to EPA's comments (submitted to EPA on May 13, 2013):

"1. Indeed, the emission factors for emergency generator G5 and heater H1 do not account for condensables. However, if total PM factors are used (filterable + condensable) annual emissions from H1 go from 0.01 tpy to 0.026 tpy and emissions from G05 go from 0.01 tpy to 0.016 tpy. So, rounding up, the total modification increase goes from 9.74 to 9.77 tpy (< 10 TPY). The calculations for the space heaters did include condensables.

It is somewhat unclear from the application alone whether the PM factors for E01 and E04 included condensables. However, the referenced supporting document (Solar PIL 171) does reference front and back half catch in its testing section. Additionally, the number they used (0.018 lb/mmbtu) is much higher than the AP-42 number (0.0066 lb/mmbtu) for total (filterable + condensable) PM.

2. Greenhouse gases limits usually included in R13 permit if PTEs are close to PSD threshold levels (and this is the case for CO_2 and CO_2 e). Also, they are synthetic minor limits, because if limits on E01 were removed, the facility would be a major stationary source of GHGs. Since these limits are in R13 permit, we included them in TV permit as well, and this is still unclear why we should not… The only unit with limits that reflect unrestricted PTE is the heater H1, so we can list these limits as "state-enforceable only". We feel that all other limits have supportive monitoring and recordkeeping, and should remain federally and state enforceable.

3. We agree - this is a typo, and we'll fix it."

(b) On May 14, 2013 we received the following comments from EPA:

"Can I see the emissions factors (for filterable and condensable) and calcs you used to get 0.026 TPY and 0.016 TPY for H1 and G05?

For E01 and E04, is this the Solar PIL 171 document you're referring to?
http://www.e-seia.cl/archivos/Anexo_E_ficha_MP.pdf
If so, while it references condensables in suggested test methods, the document pre-dates condensables needing to be included for PM10 and PM2.5. I'd ask for confirmation that the emissions factors include condensables."

Answer to EPA's comments (submitted to EPA on May 14, 2013):

"1. Emission factors and calculations for H1 and G05:

For H1:

(7.6 lb/mmscf) * (1scf/1020 btu) *(0.8mmbtu/hr) * (8760 hrs/yr) / (2000 lbs/ton) = 0.0261078 tpy
7.6 lb/mmscf comes from AP-42 Table 1.4-2 (PM filterable + condensable)

For G05:

(0.0099871 lb/mmbtu) * (6158 cf/hr) * (1020 btu/cf) / (1,000,000 btu/mmbtu) = 0.0627305 lb/hr.
0.0099871 lb/mmbtu comes from AP-42 Table 3.2-2 (0.00991(condensable) + .0000771(filterable)).
(0.0627305 lb/hr) * (500 hours/year) / 2000 lbs/ton) = 0.0156826 tons per year.

2. For E04 ("E01" was included by my mistake, and shouldn't be there) – yes, that is the document referred (Solar PIL 171, 2002). It references AP-42 factors from 2000 (current). These AP-42 PM factors include both filterable and condensable PM, and the total (0.0066 lb/MMBtu) is 2.7 times less than the factor the company used (0.018 lb/MMBtu). The Solar PIL 171 document recommends customers how to test for PM, and includes both methods for PM filterables ("front half") and condensables ("back half"). Then they give results from customers' tests, with the average emission rate of 0.017 lb/MMBtu. So, it confirms that the emission factor used in the calculations includes condensables."

As the result of EPA's comments: in the list of applicable requirements for the emergency generator (G05) in the Emissions Units Table 1.0 condition 4.5.1 from R13-2234A was changed to 4.4.1 (typo). All other comments/questions from EPA were resolved via e-mail and didn't result in any changes to the permit or fact sheet.