COMMONWEALTH OF PENNSYLVANIA **MEMO**
Department of Environmental Protection
Southwest Regional Office

TO Air Quality Permit File PA-26-00413B

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DATE December 19, 2013

RE Review of Plan Approval Application
Texas Eastern Transmission, LP
Uniontown Compressor Station
North Union Township, Fayette County
APS 789660 Auth 940427 PF 258165

Background

On August 29, 2012, the Department received a plan approval application from Michael Baker Jr., Inc. (MBJ) on behalf of Texas Eastern Transmission, LP (TE) to uprate the two existing turbines at the Uniontown Compressor Station (Uniontown) located in North Union Township, Fayette County. The uprate includes replacement of the power turbine/gas generator module and modifications to auxiliary equipment. Uprating of the existing turbines will allow the turbines to achieve lower emissions rates on a short term basis. The facility is located near a light residential area approximately two miles northeast of Uniontown off Connellsville road. This plan approval is for authorization of the following:

- Uprate the two (2) Solar Mars 100-14002S1 natural gas-fired turbines from 12,600 bhp to 13,330 bhp each.
- Equip each turbine with EmeraChem (or equivalent) oxidation catalysts.

TE has accounted for emissions from the following equipment expected to be installed which are exempt from plan approval requirements per 25 Pa. Code § 127.14(a)(2). TE has submitted an RFD to authorize the installation concurrently with this plan approval:

- Two (2) 1.15 MMBtu/hr natural gas-fired fuel gas heaters.

TE operates an interstate pipeline system for the transport, storage, and distribution of natural gas from the Gulf Coast region to the Mid-Atlantic and Northeastern U.S. markets. Natural gas may also be delivered to other regional markets through various other interconnects to natural gas transmission systems. Uniontown operates as one of a series of compressor stations along this transmission system to boost pressure and maintain flow. Uniontown transmits gas downstream through one of four pipelines to the Delmont Compressor Station located in Westmoreland County. Delmont in turn transmits gas further downstream to the Armagh Compressor Station.

Four Ingersoll-Rand (IR) engines originally existed at this facility as grandfathered sources. Plan approval 26-399-001 was issued on May 16, 1990, for installation of a single Solar Mars turbine. Operation of the included turbine and four engines was limited to 20,400 hours annually. On April 23, 1992, a plan approval (PA-26-399-005) was issued for the installation of a second Solar Mars turbine. Identical emission limits were included for the second turbine and operation of the IR engines was reduced to 14,400 hours per year. On August 15, 1994, a plan approval (PA-26-329-001) was issued for the installation of non-selective catalytic reduction (NSCR) on the four IR engines, and the operational hour limitation was raised back to 20,400 hours per year. Note that the four IR engines have since been taken out of service.

On September 25, 1995, RACT PA-26-000-413 was issued for the implementation of RACT on the four engines, two turbines, and eight ancillary sources. RACT included NSCR on the four IR engines with the emission limits and operation hour limitation required in PA-26-399-005, dry low-NOx combustors on the two turbines with emission limits established by stack testing required by PA-26-399-001 and PA-26-399-005, emergency generator operational limitation of 500 hours per year, and additional testing requirements to demonstrate compliance. A condition was also included to allow the Department to revise the emission limits based upon actual emission rates. RACT Operating Permit 26-000-413 was issued on December 20, 1996, and included previous plan approval conditions. Emission limits on the two Solar turbines continued to reference stack testing required by previous plan approvals. No numerical turbine emission limits were included.

Title V Operating Permit (TVOP) TV-26-00413 was issued on December 29, 2000. This permit incorporated the RACT OP-26-000-413 conditions as well as a reduction of facility emission limits to 223 tpy of NOx, 112 tpy of CO, and 26 tpy of VOC. Numerical turbine emission limits were also included but incorrectly referenced PA-26-399-005 Condition #5 as the source of the emission limit. The NOx emission limit is from Condition #6 which required NOx emission reduction to 42 ppmv at 15% O_2.

Blowdown of four pipelines was approved through request for determination (RFD) application 26-00413A on August 5, 2005. Installation of an 11,000 bhp electric compressor and miscellaneous emission sources was approved through RFD-26-00413B on April 6, 2007. On March 26, 2009, the Department determined the installation of an additional electric compressor along with a space heater was not exempt (RFD-26-00413C) and requested a plan approval application. On March 1, 2010, the Department issued PA-26-00413A for the installation of a 20,000 bhp electric compressor, 0.12 MMBtu/hr fuel gas heater, and uprate of the existing electric compressor from 11,000 bhp to 14,300 bhp. PA-26-00413A also increased the facility-wide VOC limitation from 26 tpy to 49 tpy and established startup, shutdown, and low temperature definitions and emission limitations for the existing Solar turbines.

This plan approval application (PA-26-00413B) was received on August 29, 2012, and determined to be administratively complete on October 12, 2012. Project consultant Matthew Myers of MBJ met with the Department on December 18, 2012, to discuss the pending plan approval applications for TE Uniontown,

Delmont, and Armagh. As a result, additional technical and regulatory information was received on December 21, 2012, January 11, 2013, and January 21, 2013. On June 4, 2013, I met with Matt Myers to further discuss the Uniontown application. Subsequent additional technical and catalyst manufacturer information was received on June 12, 2013, and July 1, 2013. Additional information regarding aggregation was received on October 11, 2013. Clarification on calculation methodologies was received on November 4, 8, and 20, 2013.

Regulatory Analysis

State

25 Pa. Code § 127.1 – New air contamination sources shall control emissions to the maximum extent, consistent with best available technology (BAT) as determined by the Department as of the date of issuance of the plan approval for the new source.

Per 25 Pa. Code 121.1, a new source is a stationary air contamination source which:

(i) Was constructed and commenced operation on or after July 1, 1972.

(ii) Was modified, irrespective of a change in the amount or kind of air contaminants emitted, so that the fixed capital cost of new components exceeds 50% of the fixed capital cost that would be required to construct a comparable entirely new source; fixed capital costs means the capital needed to provide the depreciable components.

BAT for the two turbines was established when they were originally authorized under Plan approval 26-399-001 and 26-399-005 on May 16, 1990, and April 23, 1992. The proposed uprate of the existing turbines does not meet the definition of new source; therefore BAT will not be re-evaluated for this plan approval. Upon request from the Department, the applicant provided additional cost information associated with the proposed uprate. According to the applicant, the cost of the proposed uprate is less than 25% of the cost of an entirely new source. Note that Section 1.0 of TE's application includes a BAT analysis, although not required. TE has determined BAT for the existing turbines to be no additional control for NOx, CO, or SO_2 since the turbines are already equipped with dry low NOx burners, and good combustion practice for PM and VOC. Although not determined by TE to be BAT based on the analysis, TE has proposed to equip each turbine with oxidation catalysts to ensure this project will not result in a significant increase of CO. Recent BAT determinations by the Department have included the installation of an oxidation catalyst for CO, VOC, and formaldehyde control since oxidation catalysts are available for this source category.

Furthermore, per page 2 of the applicant's narrative to this application: In accordance with 40 CFR 64 Compliance Assurance Monitoring (CAM), only carbon monoxide (CO) is applicable to this regulation as the pre-control, potential CO emissions from each uprated turbine is 112.7 tpy, which is greater than the major source threshold for CO (100 tpy). An oxidation catalyst will be installed on each uprated turbine to bring controlled, potential CO emissions from each uprated turbine to 29.6 tpy. Texas Eastern proposes to meet the requirements of 40 CFR 64 via a Continuous Parametric Monitoring Systems (CPMS).

25 Pa. Code § 127.11 – Approval by the Department is required to allow the construction or *modification* of an air contamination source or the installation of an air cleaning device on an air contamination source.

25 Pa. Code §§ 123.1, 123.2, and 123.31 – Prohibition of certain fugitive emissions, fugitive particulate matter, and odor emission limitations apply to this facility and have been included as plan approval conditions.

25 Pa. Code §123.13(c)(1)(i) – No person may permit the emission into the outdoor atmosphere of particulate matter from a process… in a manner that the concentration of particulate matter in the effluent gas exceeds 0.04 grain per dry standard cubic foot, when the effluent gas volume is less than 150,000 dry standard cubic feet per minute. The turbine "process" will be in compliance with this emission limitation through the combustion of only natural gas.

25 Pa. Code § 123.21 – No person may permit the emission into the outdoor atmosphere of sulfur oxides from a source in a manner that the concentration of the sulfur oxides, expressed as SO_2, in the effluent gas exceeds 500 parts per million, by volume, dry basis.

25 Pa. Code § 123.41 – A person may not permit the emission into the outdoor atmosphere of visible air contaminants in such a manner that the opacity of the emission is equal to or greater than 20% for a period or periods aggregating more than 3 minutes in any hour; or equal to or greater than 60% at any time. The proposed turbine uprate does not result in the installation of a "new source", therefore the turbines are not subject to more stringent BAT requirements. However, per 25 Pa. Code § 127.25, "A person may not cause or permit the operation of an air contamination source subject to this chapter in a manner inconsistent with good operating practices." Therefore, based on recent good operating practices determinations for turbines combusting natural gas, visible emissions will be limited to less than 10% opacity at any time under 25 Pa. Code § 127.12b.

GP-5 for Natural gas compression and/or processing facilities cannot be used at this facility. Per Section A Condition 4(a) of the GP-5, "GP-5 may not be used for the construction, modification or operation of any of the following air contamination sources: (a) A proposed source located at a Title V facility..." Furthermore, per Section A Condition 4(d), GP-5 may not be used for any engine or turbine that is used on a natural gas transmission line. Although GP-5 cannot be used for this project since the facility is TV and a transmission station, it has been referenced in this review since GP-5 can be used for similar equipment and function.

Federal

New Source Performance Standards (NSPS) from 40 CFR Part 60 Subpart GG – Standards of Performance for Stationary Gas Turbines no longer applies to the turbines at this facility. Per 40 CFR §60.330(a), the provisions of this subpart are applicable to all stationary gas turbines with a heat input at peak load equal to or greater than 10 MMBtu/hr based on the lower heating value of the fuel fired. The natural gas-fired turbines at this facility have a LHV heat input of 111.04 MMBtu/hr at 60° F. However, the proposed modification to the turbines will cause them to be subject to NSPS Subpart KKKK and will therefore be exempt from NSPS Subpart GG per 40 CFR §60.4305(b).

NSPS from 40 CFR Part 60 Subpart KKKK – Standards of Performance Stationary Combustion Turbines applies to the turbines at this facility. Per 40 CFR §60.4305, this subpart applies to stationary combustion turbines with a heat input at peak load equal to or greater than 10 MMBtu/hr based upon the higher heating value (HHV) of the fuel, which commenced construction, *modification*, or reconstruction after February 18, 2005.

The uprated turbines are considered "modified facilities" under both state and Federal regulations. As provided in Subpart A - General Provisions, "modification" is defined in 40 CFR 60.14(a) as "…any physical or operational change to an existing facility which results in an increase in the emission rate to the

atmosphere of any pollutant to which a standard applies shall be considered a modification within the meaning of section 111 of the Act." Uprating the existing turbines will result in an increase of the SO_2 emission rate on a lb/hr basis (NOx emission rate will decrease on a lb/hr basis). Per 40 CFR § 60.15, the uprated turbines will not be considered reconstructed since the fixed capital cost of the new components is well below 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility.

Per 40 CFR §60.4325, turbines subject to NSPS Subpart KKKK are required to meet the emission limits for NO_x specified in Table 1 to this subpart. Table 1 to Subpart KKKK establishes a NOx emission limit of 42 ppm at 15% O_2 or 250 ng/J of useful output (2.0 lb/MWh) for modified or reconstructed turbines rated greater than 50 MMBtu/hr and less than or equal to 850 MMBtu/hr firing natural gas. Solar has guaranteed NOx emissions of 25 ppm at 15% O_2 during normal operation and the applicant has proposed this rate as a plan approval limitation. In accordance with §60.4340(a), TE will demonstrate compliance with the NOx standard via periodic performance testing in accordance §60.4400. Per §60.4375(b), a written report of the results of each periodic performance test will be submitted before the close of business on the 60th day following the completion of the performance test.

Per 40 CFR §60.4330(a)(2), you must not burn in the subject stationary combustion turbine any fuel which contains total potential sulfur emissions in excess of 26 ng SO2 /J (0.060 lb SO2 /MMBtu) heat input. Initial and subsequent performance testing to demonstrate compliance with the fuel sulfur content must be completed in compliance with §60.4415. However, in accordance with §60.4365(a), TE elects to be exempted from fuel sulfur monitoring. Per §60.4365(a), if the current, valid purchase contract, tariff sheet or transportation contract for the fuel, specifying that the maximum total sulfur content is less than 20 grains of sulfur or less per 100 standard cubic feet you are exempted from monitoring total sulfur content. TE has a current tariff sheet (included in Appendix F to the application) that specifies that the maximum total sulfur content of the fuel is 10 grains per 100 scf or less.

NSPS from 40 CFR Part 60 Subpart OOOO—Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution does not apply to this facility. Per 40 CFR §60.5365, "You are subject to the applicable provisions of this subpart if you are the owner or operator of one or more of the onshore affected facilities listed in paragraphs (a) through (g) of this section for which you commence construction, modification or reconstruction after August 23, 2011."

Paragraph (a) applies to gas wells, which are not a part of this facility. Paragraphs (b) through (d) apply to equipment (reciprocating/centrifugal compressors and pneumatic controllers) located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. Uniontown is part of the natural gas transmission and storage segment and therefore the equipment does not qualify as affected facilities. Paragraph (e) applies to storage vessels in the natural gas production, processing, and transmission and storage segments. However, no new storage vessels are proposed as part of this application. Paragraphs (f) and (g) apply to equipment within a process unit and sweetening units located at onshore processing plants, but equipment as Uniontown does not meet the definition of process unit and is not a processing plant.

National Emission Standards for Hazardous Air Pollutants (NESHAPS) from 40 CFR Part 63 Subpart HH - Oil and Natural Gas Production Facilities does not apply to this facility. Per 40 CFR §63.760(a), "This subpart applies to the owners and operators of the emission points, specified in paragraph (b) of this section that are located at oil and natural gas production facilities that meet the specified criteria in paragraphs (a)(1) and

either (a)(2) or (a)(3) of this section." Uniontown operates in the natural gas transmission and storage source category and is therefore not subject to 40 CFR Part 63 Subpart HH.

NESHAPS for Natural Gas Transmission and Storage Facilities from 40 CFR Part 63 Subpart HHH does not apply to this facility. Per 40 CFR §63.1270(b), "The affected source is each new and existing glycol dehydration unit specified in paragraphs (b)(1) through (3) of this section." No glycol dehydration units are currently authorized or proposed at Uniontown.

NESHAPS for Stationary Combustion Turbines from 40 CFR Part 63 Subpart YYYY does not apply to this facility. Per 40 CFR §63.6085 a person is subject to this subpart if they own or operate a stationary combustion turbine located at a major source of HAP emissions. Uniontown is not a major source of HAP emissions.

40 CFR Part 98 Subparts A, C, W have been promulgated on October 30, 2009, and November 30, 2010. The Department has been advised by EPA that greenhouse gas (GHG) emission information cannot be requested under authority of 40 Part §98 at this time. GHG emissions reporting under the Mandatory Reporting Rule is not currently considered an "applicable requirement" under EPA regulations implementing Title V and therefore does not have to be included in a plan approval for minor or major sources. 40 CFR Part §98 and associated subparts may be applicable but this is to be determined by EPA. Applicable greenhouse gas reporting conditions may be included in an operating permit at a later date. An applicant is subject to any and all applicable requirements regardless of if they are included as conditions within a plan approval. The Department has chosen to require the reporting of GHG (expressed as CO_2e) emissions for all sources under 25 Pa. Code §127.12b as GHGs are now a regulated pollutant under the Clean Air Act. This is consistent with the reporting requirements of GP-5.

Prevention of Significant Deterioration (PSD) Review

Per 40 CFR §52.21(a)(2)(i) and §52.21(a)(2)(ii), any project at a new major stationary source (as defined in paragraph (b)(1) of this section) or the major modification of any existing major stationary source in an area designated as attainment or unclassifiable under the federal Clean Air Act must comply with the applicable requirements of 40 CFR Part §52.21, *Prevention of Significant Deterioration of Air Quality (PSD).* A major stationary source is defined as either:

(a) A source in one of the 28 source categories identified in 40 CFR 52.21 that has a potential to emit 100 tons or more per year of any regulated NSR pollutant;
(b) Any other stationary source that has the potential to emit 250 tons or more per year of a regulated NSR pollutant; or
(c) Any physical change which would constitute a major stationary source by itself.

Natural gas transmission facilities are not one of the 28 listed categories, therefore the threshold for PSD applicability is 250 tons per year of a regulated pollutant (note different thresholds for GHGs as described below).

U.S. EPA determined on December 7, 2009, that GHGs are a threat to public health and welfare. This determination was made final effective on January 14, 2010. GHG emissions are those emissions of carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, hydrofluorocarbons, perflurocarbons, and other fluorinated

greenhouse gases defined in 40 CFR Part 98 Subpart A. Each different GHG emission is considered to impact global warming at varying levels. Carbon dioxide equivalent (CO_2e) emissions are the combined impact of each GHG emission after it is normalized to the impact of CO_2 as a reference.

On May 13, 2010, U.S. EPA issued a final Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule (GHG Tailoring Rule) which became effective on August 2, 2010. This rule establishes an applicability timeline and GHG emission thresholds for requiring facilities to be permitted for GHG emissions. Implementation of the GHG Tailoring Rule occurred in phases with the first phase commencing on January 2, 2011. In this phase, PSD and Title V requirements only apply to facilities that would already be subject to PSD or Title V for non-GHG pollutants and also have a carbon dioxide equivalent (CO_2e) PTE of at least 75,000 tpy. Since Uniontown was not already subject to PSD for non-GHG pollutants, phase 1 did not apply. For permits issued on or after July 1, 2011 (step 2 of the GHG Tailoring Rule), PSD applies to GHGs if:

The existing source has a PTE equal to or greater than:

- 100,000 tpy CO_2e; and
- 100/250 tpy mass basis

Modification has a GHG emissions increase and net emissions increase:

- Equal to or greater than 75,000 tpy CO_2e; and
- Greater than -0- tpy mass basis

Table 1: Pre-Project Facility-Wide PTE

Pollutant	Annual Potential To Emit (tpy)	PSD Major Source Threshold (tpy)	NNSR Major Source Threshold (tpy)
NOx	153.79	250	100
CO	81.38	250	-
VOC	49.0	250	50
PM_{10}	7.07	250	-
$PM_{2.5}$	7.07	250	100
SO_2	3.59	250	100
CO_2e	153,101	100,00	-

Since pre-project GHG PTE is greater than 100,000 tpy, PSD applicability must be examined for all attainment pollutants. Per 40 CFR 52.21(a)(2)(iv)(*a*), "...a project is a major modification for a regulated NSR pollutant if it causes two types of emissions increases – a significant emissions increase as defined in 40 CFR 52.21(b)(40), and a significant net emissions increase as defined in 40 CFR 52.21(b)(2) and (23). The project is not a major modification if it does not cause a significant emissions increase. If the project causes a significant emissions increase, then the project is a major modification only if it also results in a significant net emissions increase."

Table 2: Project PSD Analysis

Pollutant	Project Increase (tpy)	PSD Significant Increase Threshold (tpy)	PSD Applicability (Y/N)
NOx	2.32	250	N
CO	15.58	250	N
VOC	0.97	250	N
PM_{10}	0.07	250	N
$PM_{2.5}$	0.07	250	N
SO_2	0.0	250	N
CO_2e	1,398	75,000	N

Since this project does not result in a significant increase of GHGs or any attainment pollutant, whether or not the project results in a significant net emissions increase does not need to be analyzed. PSD does not apply.

Non-Attainment New Source Review

On May 19th, 2007, the Department adopted revised New Source Review regulations in 25 Pa. Code Chapter 127 Subchapter E. Per 25 Pa. Code §127.201(a), "A person may not cause or permit the construction or modification of an air contamination facility in a nonattainment area or having an impact on a nonattainment area unless the Department... has determined that the requirements of this subchapter have been met."

25 Pa. Code §127.201(c) specifies that "The NSR requirements of this subchapter also apply to a facility located in an attainment area for ozone and within an ozone transport region that emits or has the potential to emit at least 50 tpy of VOC or 100 tpy of NOx. A facility within either an unclassifiable/attainment area for ozone or within a marginal or incomplete data nonattainment area for ozone or within a basic nonattainment area and located within an ozone transport region will be considered a major facility and shall be subject to the requirements applicable to a major facility located in a moderate nonattainment area."

25 Pa. Code §127.201(d) states that "The NSR requirements of this subchapter apply to an owner or operator of a facility at which a net emissions increase that is significant would occur as determined in accordance with §127.203a (relating to applicability determination). If an emissions increase meets or exceeds the applicable emissions rate that is significant... the facility is subject to the special permitting requirements under §127.205 (relating to special permitting requirements)."

Per 40 CFR § 81.339, North Union Township, Fayette County is classified as an area of attainment for all National Ambient Air Quality Standards (NAAQS) except 8-hour ozone. The entire Commonwealth of Pennsylvania is considered a "moderate" ozone nonattainment area for NOx and VOCs because Pennsylvania is a jurisdiction in the Ozone Transport Region established by operation of law under Section 184 of the Clean Air Act. For purposes of NNSR, Uniontown is considered major if the PTE exceeds 100 tons of NOx or 50 tons of VOCs per year.

Pre-project PTE at Uniontown exceeds the major source threshold for NOx only. Therefore, NNSR review is necessary only for NOx since NNSR evaluations are performed on a pollutant specific basis. Per 25 Pa. Code § 127.203a(a), an applicability determination is required since this project is a modification at an existing major facility. Since Uniontown is not major for VOC, an applicability determination is not required for VOC.

Per 25 Pa. Code Section 127.203a(a)(1), "As part of the plan approval application, the owner or operator of the facility shall calculate whether a significant emissions increase and a significant net emissions increase will occur as a result of a physical change or change in the method of operation... A project is a major modification for a regulated NSR pollutant if it causes two types of emissions increases—a significant emissions increase and a significant net emissions increase. If the project causes a significant emissions increase, the project is a major modification if it also results in a significant net emissions increase."

Per 25 Pa. Code Section 127.203a(a)(1)(i)(A), "For existing emission units, the emissions increase of a regulated NSR pollutant is the difference between projected actual emissions and baseline actual emissions of each existing emission unit... Exclude, in calculating an increase in emissions that results from the particular project, that portion of the unit's emissions following completion of the project that existing units could have accommodated during the consecutive 24-month period used to establish the baseline actual emissions and that is also unrelated to the particular project, including all increased utilization due to product demand growth as specified in paragraph (5)(i)(C)." Per Title 25 Pa. Code Section 127.203a(a)(1)(i)(B), "For new emission units, the emissions increase of a regulated NSR pollutant will be the potential to emit from each new emissions unit." New emissions units for NNSR purposes are units which are newly constructed and have existed for less than 2 years. Existing emissions units are all other units.

The existing emission units included in this analysis are the two Solar turbines. New emission units are the two 1.15 MMBtu/hr heaters. The remaining emissions units at Uniontown are unaffected by this project and have been excluded from this applicability determination. Note there is a small project emission increase in VOC emissions from piping components, gas release events, and parts washer; however VOC is not included in this applicability analysis (NOx only). There are no NOx emissions associated with piping components, gas release events, and parts washer.

Per 25 Pa. Code §127.203a(a)(4)(i), "For an existing emissions unit, baseline actual emissions are the average rate, in TPY, at which the unit emitted the regulated NSR pollutant during a consecutive 24-month period selected by the owner or the operator within the 5-year period immediately prior to the date a complete plan approval application is received by the Department..." Additionally, per 25 Pa. Code §127.203a(a)(4)(i)(F), "The average rate is not greater than the emissions previously submitted to the Department in the required emissions statement and for which applicable emission fees have been paid." BAE have been based upon reported emissions for which TE paid fees for the 2010 and 2011 calendar years. Note that the original submittal used 2009-2010 as the baseline period, however the revision received on June 12, 2013, updated the baseline period to 2010-2011, and incorporated could have accommodated (CHA) emissions. The BAE for all existing sources were calculated by the applicant using historical fuel usage data, natural gas throughputs, and emission rates derived from Department-approved stack test results.

NOx Projected Actual Emissions (PAE) for the Mars 100 turbines has been calculated using the unit's PTE and a 75% utilization factor. NOx PTE was calculated using an emission rate guaranteed by the manufacturer. PAE from the proposed heaters was calculated based upon emission factors from AP-42 Chapter 1.3.

Could Have Accommodated (CHA) emissions from turbine 1 (Source ID 102) have been calculated by the applicant using the highest demonstrated monthly operating level of 83.42% in February 2010 during the baseline period (see tables 5h & 5i from revision received June 12, 2013). CHA emissions were calculated using an average of the emission rates used to report actual emissions during the baseline period for NOx. Based on this methodology, the applicant determined the PAE-BAE-CHA NOx emissions for turbine 2 (Source

ID 103) results in a project decrease for this source. To be conservative the applicant re-calculated CHA using the lower future NOx emission rate (compared to the rate used to report actual emissions during the baseline period). This results in NOx emissions increase of 0 tpy from this source (rather than showing a decrease), effectively raising the increase due to this project as a whole. This does not affect the regulatory requirements as a result of this analysis. Table 3 shows the total project emissions increase for NOx.

Table 3: NNSR Applicability Analysis – Project Increase

New Emissions Units		
	NOx (tpy)	Basis
1.15 MMBtu/hr Heater (302-HTR-13)	0.49	Potential to Emit
1.15 MMBtu/hr Heater (302-HTR-14)	0.49	Potential to Emit
Total New Emissions Units	0.98	-
Existing Emissions Units		
Source ID 102 – Solar Mars 100 BAE	20.025	2010-2011 Reported Emissions
Source ID 102 – Solar Mars 100 PAE	38.36	Table B-3j (75% utilization)
Source ID 102 – Solar Mars 100 CHA	16.99	Tables A-5g and A-5f
Source ID 102 – Solar Mars 100 PAE-BAE-CHA	**1.34**	-
Source ID 103 – Solar Mars 100 BAE	14.59	2010-2011 Reported Emissions
Source ID 103 – Solar Mars 100 PAE	38.36	Table B-3j (75% utilization)
Source ID 103 – Solar Mars 100 CHA	23.77	Tables A-5g and A-5f
Source ID 103 – Solar Mars 100 PAE-BAE-CHA	0	-
Total Existing Emissions Units	1.34	
Total Project Increase	**2.32**	
Significant Increase Threshold	40	
Significant Increase (Yes/No)	No	

This project does not result in a significant increase of NOx. Per 25 Pa. Code Section 127.203a(a)(2), "As part of the plan approval application for a proposed de minimis emission increase, the owner or operator of the facility shall use subparagraphs (i) and (ii) to calculate the net emissions increase…

i. The net emissions increase is the sum of the proposed de minimis increase due to the project and the previously determined increases in potential emissions or actual emissions and decreases in actual emissions that are contemporaneous with the project.
ii. An increase or decrease is contemporaneous if it occurred within 10 years prior to the date of the Department's receipt of a complete plan approval application.

Therefore the contemporaneous period extends back to August 2002. Projects that occurred during this time include the installation of heaters 302-HTR-10 through 12 and emergency generator 30236 under RFD-26-00413B and PA-26-00413A. PA-26-00413A also reduced the hours of operation allowance on the group of four Ingersoll-Rand engines from 3600hr/yr each to 100 hr/yr each. In order to demonstrate that this project does not result in a significant net emissions increase, the applicant used potential emission rates from the above sources found in Table A-4 page 2 of 2 in the appendix to this application. Table 4 below shows the net emissions increase.

ID 103) results in a project decrease for this source. To be conservative the applicant re-calculated CHA using the lower future NOx emission rate (compared to the rate used to report actual emissions during the baseline period). This results in NOx emissions increase of 0 tpy from this source (rather than showing a decrease), effectively raising the increase due to this project as a whole. This does not affect the regulatory requirements as a result of this analysis. Table 3 shows the total project emissions increase for NOx.

Table 3: NNSR Applicability Analysis – Project Increase

New Emissions Units		
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1.15 MMBtu/hr Heater (302-HTR-13)	0.49	Potential to Emit
1.15 MMBtu/hr Heater (302-HTR-14)	0.49	Potential to Emit
Total New Emissions Units	0.98	-
Existing Emissions Units		
Source ID 102 – Solar Mars 100 BAE	20.025	2010-2011 Reported Emissions
Source ID 102 – Solar Mars 100 PAE	38.36	Table B-3j (75% utilization)
Source ID 102 – Solar Mars 100 CHA	16.99	Tables A-5g and A-5f
Source ID 102 – Solar Mars 100 PAE-BAE-CHA	**1.34**	-
Source ID 103 – Solar Mars 100 BAE	14.59	2010-2011 Reported Emissions
Source ID 103 – Solar Mars 100 PAE	38.36	Table B-3j (75% utilization)
Source ID 103 – Solar Mars 100 CHA	23.77	Tables A-5g and A-5f
Source ID 103 – Solar Mars 100 PAE-BAE-CHA	0	-
Total Existing Emissions Units	1.34	
Total Project Increase	**2.32**	
Significant Increase Threshold	40	
Significant Increase (Yes/No)	No	

This project does not result in a significant increase of NOx. Per 25 Pa. Code Section 127.203a(a)(2), "As part of the plan approval application for a proposed de minimis emission increase, the owner or operator of the facility shall use subparagraphs (i) and (ii) to calculate the net emissions increase…

i. The net emissions increase is the sum of the proposed de minimis increase due to the project and the previously determined increases in potential emissions or actual emissions and decreases in actual emissions that are contemporaneous with the project.
ii. An increase or decrease is contemporaneous if it occurred within 10 years prior to the date of the Department's receipt of a complete plan approval application.

Therefore the contemporaneous period extends back to August 2002. Projects that occurred during this time include the installation of heaters 302-HTR-10 through 12 and emergency generator 30236 under RFD-26-00413B and PA-26-00413A. PA-26-00413A also reduced the hours of operation allowance on the group of four Ingersoll-Rand engines from 3600hr/yr each to 100 hr/yr each. In order to demonstrate that this project does not result in a significant net emissions increase, the applicant used potential emission rates from the above sources found in Table A-4 page 2 of 2 in the appendix to this application. Table 4 below shows the net emissions increase.

ID 103) results in a project decrease for this source. To be conservative the applicant re-calculated CHA using the lower future NOx emission rate (compared to the rate used to report actual emissions during the baseline period). This results in NOx emissions increase of 0 tpy from this source (rather than showing a decrease), effectively raising the increase due to this project as a whole. This does not affect the regulatory requirements as a result of this analysis. Table 3 shows the total project emissions increase for NOx.

Table 3: NNSR Applicability Analysis – Project Increase

New Emissions Units		
	NOx (tpy)	Basis
1.15 MMBtu/hr Heater (302-HTR-13)	0.49	Potential to Emit
1.15 MMBtu/hr Heater (302-HTR-14)	0.49	Potential to Emit
Total New Emissions Units	0.98	-
Existing Emissions Units		
Source ID 102 – Solar Mars 100 BAE	20.025	2010-2011 Reported Emissions
Source ID 102 – Solar Mars 100 PAE	38.36	Table B-3j (75% utilization)
Source ID 102 – Solar Mars 100 CHA	16.99	Tables A-5g and A-5f
Source ID 102 – Solar Mars 100 PAE-BAE-CHA	**1.34**	-
Source ID 103 – Solar Mars 100 BAE	14.59	2010-2011 Reported Emissions
Source ID 103 – Solar Mars 100 PAE	38.36	Table B-3j (75% utilization)
Source ID 103 – Solar Mars 100 CHA	23.77	Tables A-5g and A-5f
Source ID 103 – Solar Mars 100 PAE-BAE-CHA	0	-
Total Existing Emissions Units	1.34	
Total Project Increase	**2.32**	
Significant Increase Threshold	40	
Significant Increase (Yes/No)	No	

This project does not result in a significant increase of NOx. Per 25 Pa. Code Section 127.203a(a)(2), "As part of the plan approval application for a proposed de minimis emission increase, the owner or operator of the facility shall use subparagraphs (i) and (ii) to calculate the net emissions increase…

i. The net emissions increase is the sum of the proposed de minimis increase due to the project and the previously determined increases in potential emissions or actual emissions and decreases in actual emissions that are contemporaneous with the project.
ii. An increase or decrease is contemporaneous if it occurred within 10 years prior to the date of the Department's receipt of a complete plan approval application.

Therefore the contemporaneous period extends back to August 2002. Projects that occurred during this time include the installation of heaters 302-HTR-10 through 12 and emergency generator 30236 under RFD-26-00413B and PA-26-00413A. PA-26-00413A also reduced the hours of operation allowance on the group of four Ingersoll-Rand engines from 3600hr/yr each to 100 hr/yr each. In order to demonstrate that this project does not result in a significant net emissions increase, the applicant used potential emission rates from the above sources found in Table A-4 page 2 of 2 in the appendix to this application. Table 4 below shows the net emissions increase.

Table 4: NNSR Applicability - Net Emissions Increase

	NOx (tpy)	Basis
Heater, 0.132 MMBtu/hr (302-HTR-10)	0.05	Potential to Emit
Heater, 0.162 MMBtu/hr (302-HTR-11)	0.06	Potential to Emit
Heater, 0.137 MMBtu/hr (302-HTR-12)	0.05	Potential to Emit
Emergency Engine (30236)	0.49	Potential
Engine (30201)[a]	0.0	Inactivated
Engine (30202)[a]	0.0	Inactivated
Engine (30203)[a]	0.0	Inactivated
Engine (30204)[a]	0.0	Inactivated
Total Contemporaneous Change	0.65	
Total Project Change	2.32	
Net Emissions Increase	2.97	

[a] Engines 30201 through 30204 have been inactivated and as such are represented as 0 tpy.

The applicant has proposed, and condition has been included in this plan approval, to incorporate a combined fuel usage limitation on both turbines effectively limiting the facility-wide NOx PTE to below the major source threshold. Therefore, further analysis under 25 Pa. Code Subchapter E is not necessary.

Single Stationary Source Determination

Whether or not emissions from the Uniontown and emissions from any other natural gas exploration, extraction, or production activities need to be aggregated has been examined to determine whether the sources from these emissions qualify as a major stationary source or major facility for purposes of the PSD, NNSR, and Title V permitting programs. The determination has been made in accordance with the Department's technical guidance document 270-0810-006, *Guidance for Performing Single Stationary Source Determinations for Oil and Gas Industries*, effective October 6, 2012.

For PSD, the three-part regulatory criteria to determine whether emissions from two or more facilities should be aggregated and treated as a single source are whether the activities:

1. Belong to the same industrial grouping;
2. Are located on one or more contiguous or adjacent properties; and
3. Are under control of the same person (or persons under common control).

For nonattainment NSR applicability, the case-by-case determination is a two-part test which considers whether the air contamination sources or combination of sources are:

1. Located on one or more contiguous or adjacent properties; and
2. Owned and operated by the same person under common control.

Uniontown is a major hub of the Texas Eastern pipeline system in Pennsylvania. The historical upstream compressor stations are Wind Ridge, Waynesburg, and Holbrook. The historical downstream compressor stations are Delmont and Bedford. Uniontown also has a pipeline to/from Texas Eastern's Accident Natural

Gas Storage Facility in Maryland. According to the applicant, the nearest source to consider is Dominion's Summit Compressor Station which is approximately five miles away. Multiple natural gas production wells are also located in the area, but no wells send gas directly to Uniontown; therefore they are not considered in this analysis. All other TE facilities are located at a greater distance than Summit and do not meet the common sense notion of a plant and are not included in this analysis.

Common Control

Spectra Energy Corporation, TE's parent company, is neither an owner nor operator of the Dominion's Summit Compressor Station. The facilities do not share workforces, management, payroll, or benefits and this is no support or dependency relationship between them. This does not satisfy the common control criteria and since all criteria must be met in order to aggregate emissions, the remaining criteria do not need to be examined. As such, emissions from Uniontown will not be aggregated with any other sources.

Sources, Control Devices, and Emissions

Emission from the uprated Solar Mars 100 turbines were calculated by the applicant based upon a combination of the turbine manufacturer's emissions data and recommendations, oxidation catalyst control efficiencies, AP-42 Chapter 3.1 emission factors, and 40 CFR Part 98 Subpart C emission factors. TE has accounted for emissions during startup, shutdown, and low temperature events in calculating PTE. Emissions were calculated by the applicant based upon an elective combined fuel cap for the two turbines which will be included as a plan approval condition. The proposed fuel cap is 1,666 MMscf/yr on a 12-month rolling basis (75% of the maximum fuel usage). Limiting the fuel usage effectively reduces the PTE by 75%. Per 25 Pa. Code 121.1, potential to emit is defined as "The maximum capacity of a source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and limitations on hours of operation or on the type or amount of material combusted, stored or processed shall be treated as part of the design if the limitation or the effect it would have on emissions is Federally enforceable or legally and practicably enforceable by an operating permit condition. The term does not include secondary emission from an offsite facility." Since the maximum capacity for the turbines to emit pollutants is Federally and practicably enforceable by a limitation on the amount of material (natural gas) combusted, PTE for all pollutants is based upon the above fuel usage limitation. The applicant's calculations can be found in in Tables B-3a through B-3j of the revision dated June 12, 2013. Note that the tables are labeled PAE (projected actual emissions). Tables B-2a through B-2j, labeled PTE, calculate PTE based upon 100% utilization. Because of the proposed fuel usage limitation, the turbine units cannot potentially emit the levels in the B-2 tables.

Short term emission rates are based on a worst case "normal" operating condition of 0.1° F while annual emissions are calculated at an average annual temperature of 43.76 °F based on temperature data from EPA TANKS software program. Note that this is lower than the 1981-2010 average annual temperature of 52.6° F maintained by the National Weather Service for Connellsville, Fayette County, PA. The average ambient temperature was calculated based upon 75% utilization, leaving out June through August, lowering the average annual temperature (this is not an operational limitation). Because fuel consumption and mass emissions increase as ambient temperatures decrease, the estimations have been found acceptable since they are conservative and represent a worst case scenario. "Normal" operating scenario is defined in this plan approval to exclude startup, shutdown, and low temperature operating scenarios. Startup is defined as beginning when

air contaminants begin to be emitted to the atmosphere, and shall have duration no greater than 18 minutes in any 60-minute period. Shutdown is defined as ending when contaminants are no longer being emitted to the atmosphere, and shall have duration no greater than 10 minutes. Low temperature is defined as less than 0°F. Since annual PTE is based upon manufacturer's emission data at the average annual temperature, the max lb/hr rate (at 0.1°F) does not directly correlate to the annual PTE. The worst case max lb/hr rates for NOx, CO, and VOC in Table 5 below will be included as plan approval limits during "normal" operation by definition. PTE on an annual basis for NOx, CO, and VOC will be limited to the values in Table 5 based upon the annual average temperature lb/hr emission rate and 6,570 hours/year (effective result of 75% fuel usage limitation). This is representative of the annual PTE since it is not accurate to calculate the annual emissions based upon the emission rate at 0.1 °F. TE will need to consider various operating scenarios (startup, shutdown, temperature) when submitting the annual emissions inventory.

PTE calculations for NOx and CO were based on manufacturer provided emissions factors. Based on the catalyst manufacturer's data, TE has accounted for a 95% reduction in CO (except during startup). It is assumed that the oxidation catalyst will be ineffective during startup events. Control during shutdown is expected since temperatures are still elevated.

Methane, ethane, and VOC emissions were calculated based on scaling of AP-42 Chapter 3.1 emission factors using Solar's unburned hydrocarbon emission rate. During normal and shutdown operations, TE has accounted for a 50% reduction in VOC and 83% reduction in total HAP emissions to account for control efficiency of the oxidation catalyst.

SO_2, PM_{10}, and $PM_{2.5}$ emission factors have been based on AP-42 Chapter 3.1. Solar has not historically warranted particulate matter emissions. Although Solar recommends using PM emission factors from their Product Information Letter (PIL) 171 rather than AP-42 emission factors, TE has still chosen to represent PTE based on the AP-42 factors. This methodology is conservative since the AP-42 emission factor is higher than Solar's recommended factor.

CO_2 and N_2O emission factors have been based upon emission factors from 40 CFR Part 98 Subpart C, Tables C-1 and C-2, to represent CO_2e emissions. Solar does not provide source specific emission factors for greenhouse gas (GHG) pollutants. All calculation methods have been found acceptable. Normal operation at 100% load at 6,570 hours/year (effective 75% fuel usage limitation) along with combined annual PTE (considering startup, shutdown, and cold weather events) are shown in Table 5 below. As shown in Table 5, combined PTE represents worst case scenario for all pollutants except for PM_{10} and $PM_{2.5}$.

Table 5: Solar Mars 100 Compressor Turbine PTE[a]

Pollutant	Normal 100% Load			Combined Annual Emission Rate[b]	Maximum Annual Emission Rate (PTE)
	ppmvd	Max lb/hr[c]	Annual tpy[d]	tpy	tpy
NOx	25	12.60	38.15	38.36	38.36
CO	2.50[e]	0.77	2.32	22.48	22.48
VOC	-	0.48	1.45	1.82	1.82
Formaldehyde	-	0.016	0.05	0.13	0.13
HAP (Total)[h]	-	0.0797	0.24	0.38	0.38
PM_{10}	-	0.92	2.80	2.78	2.80
$PM_{2.5}$	-	0.92	2.80	2.78	2.80
SOx	-	0.48	1.44	1.44	1.44
CO_2e	-	16,576	50,385	50,427	50,427

[a] PTE from each turbine.
[b] Combined emission rates include worst case annual startup (41 hr/yr), shutdown (39 hr/yr), and low temperature estimates (21 hr/yr at $-20°F < T \leq 0°F$). These are not operational limits.
[c] Short term emission rate (lb/hr) at worst case 0.1 ° F for "normal" operation by definition in this plan approval.
[d] Annual emissions rate (tpy) based upon manufacturer's short term (lb/hr) emission rate at annual average temperature of 43.76° F.
[e] Approximate rate based on vendor guaranteed CO rate of 25 ppmvd reduced 95% by the oxidation catalyst. This is not a plan approval limit.

Turbines are known to have higher emission rates for NO_x, CO, and unburned hydrocarbons during startup and shutdown. This reflects the unit not operating in $SoLoNO_x$ mode during the majority of these transitional periods, and the effect is most substantial on the CO emission rate. Control of CO and unburned hydrocarbon emissions by the proposed oxidation catalyst is still expected during shutdown when temperatures are still elevated. PTE was calculated by the applicant using manufacturer provided emission factors at lower loads for startup and shutdown, and extrapolations of manufacturer provided emission factors at normal loads for low temperature operation. The applicant's worst case startup/shutdown frequency is 274 events per year with duration of approximately 9 minutes per event for startup and 8.5 minutes for shutdown. Low temperature operation has been defined to occur between -20° F and 0° F, and a total of 21 hours per year was estimated using long-term meteorological data for Pease Airforce Base located north of Boston, MA (consistent with other recent TE plan approval submittals for the SW region). After review of hourly climate data maintained by the National Weather Service for Pittsburgh, this estimate has been found acceptable. According to the hourly climate archive for Pittsburgh, zero hours of temperature less than 0° F have been recorded since 2010. These tpy emission rates have been added to the "Combined" column of Table 5 above to determine annual PTE for the Mars 100 turbine. Table 6 lists the startup, shutdown, and low temperature emissions.

Table 6: Solar Mars 100 Startup, Shutdown, and Low Temperature PTE

Pollutant	Startup[a]		Shutdown[b]		Low Temperature[c]	
	41 hrs/yr		39 hrs/yr		21 hrs/yr	
	(lb/hr)[b]	(tpy)	(lb/hr)[b]	(tpy)	(lb/hr)	(tpy)
NO_x	2.88	0.20	3.32	0.23	21.79	0.23
CO	279.53	19.13	15.14	1.04	31.59	0.33
VOC	3.50	0.24	1.90	0.13	1.98	0.02
HAP (Total)	1.71	0.12	0.31	0.02	0.97	0.01
Formaldehyde	1.18	0.081	0.06	0.00	0.67	<0.01
PM_{10}	0.09	0.006	0.10	0.01	0.95	0.01
$PM_{2.5}$	0.09	0.006	0.10	0.01	0.95	0.01
SO_x	0.05	0.003	0.05	0.00	0.49	<0.01
CO_2e	1,906	130	2,557	175	17,133	180

[a] 274 events per year at 9 minutes per event. Calculations based upon: lbs of emissions per event multiplied by # of events per year.
[b] 274 events per year at 8.5 minutes per event. Calculations based upon: lbs of emissions per event multiplied by # of events per year.
[c] Low Temperature is $-20°F < T \leq 0°F$.

Potential emissions from the two (2) proposed 1.15 MMBtu/hr natural gas-fired process heaters were calculated by the applicant based upon manufacturer-provided emission rates, and AP-42 Chapter 1.4 and 40 CFR Part 98 Subpart C emission factors, and 8,760 hours of operation per year.

Table 7: Natural Gas-Fired Process Heater PTE[a]

Pollutant	Emission Rate	
	lb/hr	tpy
NO_x	0.11	0.49
CO	0.17	0.74
VOC	0.03	0.15
HAP (Total)	0.01	0.05
Formaldehyde	-	-
PM_{10}	0.01	0.04
$PM_{2.5}$	0.01	0.04
SO_x	-	-
CO_2e	136	597

[a] PTE from each heater. A total of two (2) 1.15 MMBtu/hr heaters proposed

Other sources potentially impacted by this project include separators, storage tanks, truck loading, piping components, gas release events, and a parts washer. PTE was calculated utilizing EPA TANKS 4.09d for standing and working losses, a flash gas analysis for flash losses, AP-42 Chapter 5.2 for loading losses, EPA

453/R-95-017 factors for component leaks, and mass balance techniques for gas release events and the parts washer. The flash gas analysis was performed on a sample taken from another facility on the transmission line and was used to derive a source-specific flash gas emission factor. It was also used to measure the vapor pressure and select a conservative surrogate material (gasoline RVP 10) for the TANKS program. Truck loading is to be conducted with tanker trucks in dedicated normal service through submerged loading. The applicant also used estimates of facility component count, gas release events, and expected worst case throughput based upon drawings and data from similar facilities. Finally, an extended gas analysis from a TE site in Texas was scaled with site-specific gas chromatograph data to estimate representative VOC and HAP contents of approximately 2.37 and 0.20 wt% respectively (Tables G-1 and 2 of the plan approval application appendix). Transmitted natural gas expected at the inlet to Uniontown is identified as "dry" meaning the amount of heavier (propane and above) hydrocarbons along with HAPs such as benzene, toluene, ethylbenzene, and xylene are minimal.

Table 8: Separators, Storage Tank, Truck Loading, Parts Washer PTE (tpy)

Sources	VOC	HAP	Benzene	Hexane	CO_2e
Separators (8)	0.50	0.03	0.01	0.01	23
Storage Tanks (5)	0.74	0.05	0.01	0.02	33
Flash Gas	0.84	0.05	0.01	0.04	18
Truck Loading (3)	0.02	0.00	0.00	0.00	0.7
Component Leaks	10.35	1.23	0.13	0.17	2,225
Gas Release Events	31.47	2.68	0.38	0.62	24,654
Parts Washer (1)	0.41	-	-	-	-
Total	44.32	4.04	0.55	0.87	26,952

The four (4) 11,000 bhp Ingersoll-Rand engines have been taken out of service and are labeled inactive in the Department's Air Information Management System (AIMS). The remaining sources at this facility include one (1) 600 bhp Caterpillar G3412 natural gas-fired auxiliary generator, one (1) 440 bhp Waukesha VGF18GL natural gas-fired emergency generator (limited to 500 hrs/yr), and heaters 302-HTR-01 through 12. PTE calculations were performed using regulatory limitations, manufacturer's data, and AP-42 and 40 CFR Part 98 emission factors. Emissions from heaters 302-HTR-01 through 12 have been recalculated in this plan approval based on more accurate manufacturer's information in regards to the rated capacity. Difference in PTE is minimal.

Table 9: Previously Authorized Combustion Sources PTE (tpy)[a]

Pollutant	CAT G3412 (30235)	Waukesha VGF18GL (30236)	Heaters (12) (302-HTR-01 thru 12)	Total
NO_x	2.89	0.49	0.54	3.92
CO	4.74	0.42	0.18	5.35
PM_{10}	0.02	0.01	0.03	0.07
$PM_{2.5}$	0.02	0.01	0.03	0.07
SO_x	0.00	0.00	-	0.00
VOC	0.04	0.18	0.02	0.24
HCHO	0.03	0.08	-	0.11
HAP[b]	0.04	0.11	-	0.15
CO_2e	156	151	544	851

[a] Excludes the four compressor engines removed from service. Also excludes existing separators, storage tanks, flash gas, truck loading, component leaks, and gas release events which are already accounted for in Table 8 above.

PA-26-00413A increased the facility-wide VOC limit from 26 tpy to 49 tpy. This facility-wide emission limit will be maintained in this plan approval. Compliance with the VOC emission limit is accomplished by limiting VOC emissions from the Solar Mars 100 turbines (sources 30205 and 30206), standing and working losses (sources 302-V1 through 302-V7), truck loading losses (source 302-TL-PL), and gas release events (source 302-GR) to 37.28 tons/12-month period.

Table 10: Post Project Facility-Wide PTE

Pollutant	Emission Rate (tpy)
NOx	81.51
CO	51.79
PM_{10}	5.75
$PM_{2.5}$	5.75
SOx	2.90
VOC	48.50
Formaldehyde	0.38
Benzene	0.57
Hexane	0.97
Toluene	0.72
Xylenes	0.73
HAP	5.06
CO_2e	129,851

Although the facility-wide NOx potential to emit will be below 100 tpy as a result of this project, the facility will still be treated as a major source under 25 Pa. Code § 127.203a in the future.

Conclusions and Recommendations

Texas Eastern Transmission, L.P. has shown that potential emissions will be minimized in this application to uprate the two existing natural gas-fired compressor turbines at the Uniontown Compressor Station. I recommend issuance of a Plan Approval for a period of 18 months.

Special Conditions

SECTION C. Site Level Plan Approval Requirements

I. RESTRICTIONS

001. The permittee may not permit the emission into the outdoor atmosphere of a fugitive air contaminant contrary to 25 Pa. Code §123.1.

002. The permittee may not permit fugitive particulate matter to be emitted into the outdoor atmosphere from a source specified in §123.1(a)(1)–(9) if the emissions are visible at the point the emissions pass outside the permittee's property [25 Pa. Code §123.2].

003. The permittee may not allow the emission into the outdoor atmosphere of any malodorous air contaminants from any source, in such a manner that the malodors are detectable outside the permittee's property [25 Pa. Code §123.31].

004. The permittee shall not allow the emission into the outdoor atmosphere of visible air contaminants in such a manner that the opacity of the emission is either of the following [25 Pa. Code §127.12b]:

a. Equal to or greater than 10% for a period or periods aggregating more than 3 minutes in any one hour.
b. Equal to or greater than 30% at any time.

005. The limitations of §123.41 (relating to limitations) shall not apply to a visible emission in any of the following instances [25 Pa. Code §123.42]:

a. When the presence of uncombined water is the only reason for failure of the emission to meet the limitations.
b. When the emission results from the operation of equipment used solely to train and test persons in observing the opacity of visible emissions.
c. When the emission results from sources specified in §123.1(1)–(9).
d. N/A

006. The emissions from the Uniontown Compressor Station shall not exceed 49.0 tons of Volatile Organic Compounds in any consecutive 12-month period [25 Pa. Code §127.12b].

007. The VOC emission rate shall not exceed 37.28 tpy from the turbines, standing and working losses, truck loading losses, and gas release events (sources 30205, 30206, 302-V1 through 302-V7, 302-TL-PL, and 302-GR as identified in plan approval application PA-26-00413B) in any consecutive 12-month period [25 Pa. Code §127.12b].

008. The conditions of this authorization shall not supersede existing requirements, unless specifically stated. The conditions, limitations, and restrictions of existing authorizations shall remain in effect until the sources are operating under this authorization and appropriate notification requirements have been fulfilled [25 Pa. Code §127.12b].

II. TESTING REQUIREMENTS

009. Performance testing shall be conducted as follows [25 Pa. Code §127.12b and §139.11]:

a. The permittee shall submit three copies of a pre-test protocol to the Department for review at least 45 days prior to the performance of any EPA reference method stack test. The Owner/Operator shall submit three copies of a one-time protocol to the Department for review for the use of a portable analyzer and may repeat portable analyzer testing without additional protocol approvals provided that the same method and equipment are used. All proposed performance test methods shall be identified in the pre-test protocol and approved by the Department prior to testing.

b. The permittee shall notify the Regional Air Quality Manager at least 15 days prior to any performance test so that an observer may be present at the time of the test. Notification shall also be sent to the Division of Source Testing and Monitoring. Notification shall not be made without prior receipt of a protocol acceptance letter from the Department.

c. Pursuant to 40 CFR Part 60.8(a), a complete test report shall be submitted to the Department no later than 60 calendar days after completion of the on-site testing portion of an emission test program.

d. Pursuant to 25 Pa. Code Section 139.53(b) a complete test report shall include a summary of the emission results on the first page of the report indicating if each pollutant measured is within permitted limits and a statement of compliance or non-compliance with all applicable permit conditions. The summary results will include, at a minimum, the following information:

i. A statement that the owner or operator has reviewed the report from the emissions testing body and agrees with the findings.
ii. Permit number(s) and condition(s) which are the basis for the evaluation.
iii. Summary of results with respect to each applicable permit condition.
iv. Statement of compliance or non-compliance with each applicable permit condition.

e. Pursuant to 25 Pa. Code § 139.3 all submittals shall meet all applicable requirements specified in the most current version of the Department's Source Testing Manual.

f. All testing shall be performed in accordance with the provisions of Chapter 139 of the Rules and Regulations of the Department of Environmental Protection.

g. Pursuant to 25 Pa. Code Section 139.53(a)(1) and 139.53(a)(3) all submittals, besides notifications, shall be accomplished through PSIMS*Online available through https://www.depgreenport.state.pa.us/ecomm/Login.jsp when it becomes available. If internet submittal can not be accomplished, three copies of the submittal shall be sent to the Pennsylvania Department of Environmental Protection, Bureau of Air Quality, Division of Source Testing and Monitoring, 400 Market Street, 12th Floor Rachael Carson State Office Building, Harrisburg, PA 17105-8468 with deadlines verified through document postmarks.

h. The permittee shall ensure all federal reporting requirements contained in the applicable subpart of 40 CFR are followed, including timelines more stringent than those contained herein. In the event of an inconsistency or any conflicting requirements between state and the federal, the most stringent provision, term, condition, method or rule shall be used by default.

III. MONITORING REQUIREMENTS

No additional requirements.

IV. RECORDKEEPING REQUIREMENTS

010. The Owner/Operator shall maintain records of the hours of operation and throughput of pipeline liquids and natural gas where appropriate for each of the sources collectively limited to 37.28 tons of VOCs. These records shall be used for compliance demonstration purposes [25 Pa. Code §127.12b].

011. All logs and required records shall be maintained on site, or at an alternative location acceptable to the Department, for a minimum of five years and shall be made available to the Department upon request [25 Pa. Code §127.12b].

V. REPORTING REQUIREMENTS

012. Annual emission reporting shall be conducted as follows [25 Pa. Code §135.3]:

a. The permittee shall submit by March 1 of each year, a source report for the preceding calendar year. The report shall include information for all previously reported sources, new sources which were first operated during the preceding calendar year, and sources modified during the same period which were not previously reported.
b. A person who received initial notification by the Department that a source report is necessary shall submit an initial source report within 60 days after receiving the notification or by March 1 of the year following the year for which the report is required, whichever is later.
c. A source owner or operator may request an extension of time from the Department for the filing of a source report, and the Department may grant the extension for reasonable cause.

013. The annual emission report shall include all emissions information for all previously reported sources and new sources which were first operated during the preceding calendar year. Emissions data including, but not limited to the following, shall be reported: carbon monoxide, oxides of nitrogen (NOx), particulate matter less than 10 micrometers in diameter (PM10), particulate matter less than 2.5 micrometers in diameter (PM2.5), sulfur dioxide, volatile organic compounds (VOC), total hazardous air pollutants (HAP), speciated individual HAP emissions (including formaldehyde), and greenhouse gases, expressed as CO_2e. The statement shall also contain a certification by a company officer or the plant manager that the information contained in the statement is accurate [25 Pa. Code §127.12b].

014. Malfunction reporting shall be conducted as follows [25 Pa. Code §127.12b]:

a. The owner or operator shall report each malfunction that occurs at this facility that poses an imminent and substantial danger to the public health and safety or the environment or which it should

reasonably believe may result in citizen complaints to the Department. For purpose of this condition a malfunction is defined as any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment or source to operate in a normal or usual manner that may result in an increase in the emission of air contaminants. Examples of malfunctions that may result in citizen complaints include but are not limited to: large dust plumes, heavy smoke, a spill or release that results in a malodor that is detectable outside the property of the person on whose land the source is being operated.

b. When the malfunction poses an imminent and substantial danger to the public health and safety or the environment, the notification shall be submitted to the Department no later than one hour after the incident. All other malfunctions that must be reported under subsection (a) shall be reported to the Department no later than the next business day.

c. The report shall describe the:
   i. Name and location of the facility;
   ii. Nature and cause of the malfunction or breakdown;
   iii. Time when the malfunction or breakdown was first observed;
   iv. Expected duration of excess emissions; and
   v. Estimated rate of emissions.

d. The owner or operator shall notify the Department immediately when corrective measures have been accomplished.

e. Subsequent to the malfunction, the owner/operator shall submit a full written report to the Department including the items identified in (c) and corrective measures taken on the malfunction within 15 days, if requested.

f. The owner/operator shall submit reports on the operation and maintenance of the source to the Regional Air Program Manager at such intervals and in such form and detail as may be required by the Department. Information required in the reports may include, but is not limited to, process weight rates, firing rates, hours of operation, and maintenance schedules.

g. Malfunctions shall be reported to the Department at the following address:

PADEP
Office of Air Quality
400 Waterfront Drive
Pittsburgh, PA 15222-4745
412-442-4000

VI. WORK PRACTICE REQUIREMENTS

015. The permittee shall construct, operate, and maintain all air contamination sources and air cleaning devices authorized under this Plan Approval in accordance with the manufacturers' specifications and recommended maintenance schedules [25 Pa. Code § 127.12b].

VII. ADDITIONAL REQUIREMENTS

016. This Plan Approval is to allow the following by Texas Eastern Transmission, L.P. at the Uniontown Compressor Station located in North Union Township, Fayette County [25 Pa. Code § 127.12b]:

- Uprate the two (2) Solar Mars 100-14002S1 natural gas-fired turbines from 12,600 bhp to 13,330 bhp each.
- Equip each turbine with EmeraChem (or equivalent) oxidation catalysts.

017. Each air contamination source and air cleaning device authorized for operation under TV-26-00413 at this Facility remains subject to all conditions and requirements of TV-26-00413 unless superseded by a more stringent requirement of this Plan Approval [25 Pa. Code §127.12b].

018. Upon determination by the permittee that the source(s) covered by this Plan Approval are in compliance with all conditions of the Plan Approval, the Permittee shall contact the Department's reviewing engineer and schedule the Initial Operating Permit Inspection [25 Pa. Code §127.12b].

019. Upon completion of the Initial Operating Permit Inspection and determination by the Department that the source(s) covered by this Plan Approval are in compliance with all conditions of the Plan Approval, the permittee shall submit either a Title V Operating Permit (TVOP) administrative amendment application or a revision to a pending TVOP application for this Facility [25 Pa. Code §127.12b].

020. The permittee shall submit requests to extend the temporary operation period at least 15 days prior to the expiration date of any authorized period of temporary operation until the sources, modifications to existing sources, and air cleaning devices covered by this authorization are incorporated into the TVOP for this facility [25 Pa. Code §127.12b].

021. If, at any time, the Department has cause to believe that air contaminant emissions from the sources listed in this Plan Approval may be in excess of the limitations specified in, or established pursuant to this plan approval or the permittee's operating permit, the permittee may be required to conduct test methods and procedures deemed necessary by the Department to determine the actual emissions rate. Such testing shall be conducted in accordance with 25 Pa. Code Chapter 139, where applicable, and in accordance with any restrictions or limitations established by the Department at such time as it notifies the company that testing is required [25 Pa. Code §127.12b].

SECTION D. Source Level Plan Approval Requirements

Source ID 102 – 103 Source Name: TURBINE T1 AND T2

Conditions for these sources occur in the following groups: **SG02**

SECTION E. Source Group Plan Approval Restrictions

Group Name: SG02
Group Description: Turbines
Sources included in this group: 102 TURBINE T1
103 TURBINE T2

I. RESRICTIONS

001. Visible emissions from the Solar Mars turbines shall not exceed 10% opacity at any time [25 Pa. Code §127.12b].

002. Emissions rates for each of the existing Solar Mars turbines shall be limited as follows [25 Pa. Code §127.12b]:

Air Contaminant	Operating Condition	Emission Rate
NOx	Normal	25 ppmvd @ 15% O_2
	Normal	12.60 lb/hr
	All	38.36 tpy
CO	Normal	0.77 lb/hr
	All	22.48 tpy
VOC	Normal	0.48 lb/hr
	All	1.82 tpy

For purposes of this condition, the "normal" operating scenario excludes startup, shutdown, and low temperature operating scenarios. Startup is defined as beginning when air contaminants begin to be emitted to the atmosphere, and shall have duration no greater than 18 minutes in any 60-minute period. Shutdown is defined as ending when contaminants are no longer being emitted to the atmosphere, and shall have duration no greater than 10 minutes. Low temperature is defined as less than 0°F.

003. Combined natural gas usage by the two Solar Mars turbines shall not exceed 1,666 MMscf/yr on a 12-month rolling basis [25 Pa. Code §127.12b].

004. In accordance with 40 CFR § 60.4320(a), the Solar Mars turbines are subject to the following NOx standards:

a. 42 ppm at 15 percent O2 or 160 ng/J of useful output (1.3 lb/MWh).

II. TESTING REQUIREMENTS

005. The permittee shall perform EPA Method stack testing for NOx, CO, and VOC within 180 days after startup of each uprated Solar Mars turbine in accordance with the requirements of 25 Pa. Code §139. Subsequent NOx, CO and VOC performance testing shall be conducted no less often than once every five years thereafter [25 Pa. Code §127.12b].

006. The permittee shall demonstrate compliance with the NOx standards of 40 CFR Part 60.4320(a) via periodic performance testing in accordance with 40 CFR § 60.4400.

III. MONITORING REQUIREMENTS

No additional requirements.

IV. RECORDKEEPING REQUIREMENTS

007. The Permittee shall maintain the following comprehensive and accurate records [25 Pa. Code §127.12b]:

a. The number of hours per month that each Solar Mars turbine is operated
b. The date, start time, and duration of each startup, shutdown, and low temperature period for each Solar Mars turbine as startup, shutdown, and low temperature periods are defined in the emission limitation condition.
c. The amount of fuel used by each Solar Mars turbine on a monthly and 12-month rolling basis. Combined turbine fuel usage must be maintained for 10 years from the date of issuance of this plan approval.
d. Copies of the manufacturer's recommended maintenance schedule for each Solar Mars turbine.
e. Any maintenance conducted on the Solar Mars turbines and oxidation catalysts.
f. The fuel quality characteristics in a current, valid tariff sheet that the total sulfur content for natural gas use in the turbines is 20 grains of sulfur or less per 100 standard cubic feet
g. Results of facility-wide inspections for visible, fugitive, and malodorous emissions including the date, time, name, and title of the observer, along with any corrective action taken as a result.

V. REPORTING REQUIREMENTS

008. The Facility is subject New Source Performance Standards from 40 CFR Part 60 Subparts KKKK. In accordance with 40 CFR §60.4, copies of all requests, reports, applications, submittals and other communications regarding the engines shall be forwarded to both EPA and the Department at the addresses listed below unless otherwise noted.

Director
Air Protection Section
Mail Code 3AP00
US EPA, Region III
1650 Arch Street
Philadelphia, PA 19101-2029

PADEP
Air Quality Program
400 Waterfront Drive
Pittsburgh, PA 15222-4745

009. The Owner/Operator shall submit the following turbine reports in accordance with 40 CFR §60.4375:

a. N/A.

b. For each affected unit that performs annual performance tests in accordance with §60.4340(a), you must submit a written report of the results of each performance test before the close of business on the 60th day following the completion of the performance test.

010. The permittee shall provide EPA with the notifications required by 40 CFR § 60.7. Required notifications may include but are not necessarily limited to: date of commencement of construction (within 30 days after starting construction), actual start-up date (within 15 days after equipment start-up), physical or operational changes (60 days or as soon as practicable before equipment start-up), and opacity observations (within 30 days) [25 Pa. Code §127.12b].

VI. WORK PRACTICE REQUIREMENTS

011. The permittee shall operate and maintain stationary combustion turbines, air pollution equipment, and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times including during startup, shutdown, and malfunction [40 CFR §60.4333].

VII. ADDITIONAL REQUIREMENTS

012. Each Solar Mars 100 turbine is subject to the requirements under 40 CFR Part 60, Subpart KKKK – Standards of Performance for Stationary Combustion Turbines. Each Solar Mars 100 turbine is considered a modified turbine [25 Pa. Code §127.12b].

013. All terms used in 40 CFR Part 60 Subpart KKKK shall have the meaning given in 40 CFR §60.4420 or else in the Clean Air Act and 40 CFR Part 60 Subpart A [25 Pa. Code §127.12b].