

## Air Permit Review

Permit Issue Date:

**Region:** Raleigh Regional Office  
**County:** Northampton  
**NC Facility ID:** 6600169  
**Inspector's Name:**  
**Date of Last Inspection:**  
**Compliance Code:**

<b>Facility Data</b>			<b>Permit Applicability (this application only)</b>		
<p><b>Applicant (Facility's Name):</b> Northampton Compressor Station</p> <p><b>Facility Address:</b> Northampton Compressor Station uncertain Pleasant Hill, NC 27707</p> <p><b>SIC:</b> 4922 / Natural Gas Transmission <b>NAICS:</b> 48621 / Pipeline Transportation of Natural Gas</p> <p><b>Facility Classification: Before:</b> N/A <b>After:</b> small <b>Fee Classification: Before:</b> N/A <b>After:</b> small</p>			<p><b>SIP:</b> <b>NSPS:</b> <b>NESHAP:</b> <b>PSD:</b> <b>PSD Avoidance:</b> <b>NC Toxics:</b> <b>112(r):</b> <b>Other:</b></p>		
<b>Contact Data</b>			<b>Application Data</b>		
<b>Facility Contact</b>	<b>Authorized Contact</b>	<b>Technical Contact</b>	<p><b>Application Number:</b> 6600169.15A <b>Date Received:</b> 09/17/2015 <b>Application Type:</b> Greenfield Facility <b>Application Schedule:</b> State <b>Existing Permit Data</b> <b>Existing Permit Number:</b> N/A <b>Existing Permit Issue Date:</b> N/A <b>Existing Permit Expiration Date:</b> N/A</p>		
	<p>Leslie Hartz VP Pipeline Construction (804) 771-4468 707 E. Main Street Richmond, VA 23219</p>	<p>Bill Scarpinato Environmental Consultant (804) 273-3019 5000 Dominion Road Glen Allen, VA 23060</p>			
<b>Review Engineer:</b> Charles McEachern		<b>Comments / Recommendations:</b>			
<b>Review Engineer's Signature:</b> _____		<p><b>Issue:</b> 10466R00 <b>Permit Issue Date:</b> <b>Permit Expiration Date:</b></p>			
<b>Date:</b> _____					

**1. Purpose of Application:**

Atlantic Coast Pipeline, LLC (ACP) is constructing a natural gas pipeline running from West Virginia through North Carolina. They have submitted an air permit application for the Northampton Compressor Station (NCS), which will consist of natural gas-fired compressor turbines, emergency generator, storage tanks, and associated equipment.

**2. Application Chronology:**

09/17/2015 Application, including \$50, and authorized signature is received by the RRO.

09/22/2015 Acknowledgement letter is sent requesting a zoning consistency determination, PE Seal, and a site address. The permit processing clock has not begun.

10/08/2015 Preliminary Assessment of Air Permit Application letter is sent to the Federal Energy Regulatory Commission (FERC) noting the deficiencies with the application.

- 10/21/2015 P.E. Seal on appropriate portions of the application is received.
- 10/26/2015 Zoning consistency determination is received.
- 11/20/2015 Therese Vick, Blue Ridge Environmental Defense League (BREDL), reviews the application.
- 12/31/2015 E-mail sent to William Scarpinato, Permit/Technical Contact, with the following questions:
- Need the fuel certification specs (for the fuel contracted to be transported in this pipeline) to demonstrate less than 0.060 lb SO<sub>2</sub>/MMBtu heat input emission potential.
  - Do any of the turbines use water or steam injection?
  - Is there a manufacturer's certification for the engine's compliance with JJJJ?
- 01/06/2016 Left message for William Scarpinato
- 01/07/2016 E-mail from 12/31/2015 is resent to William Scarpinato and Leslie Hartz, VP Pipeline Construction (Authorized Contact), as a request for additional information. The permit processing clock stops on this day.
- 01/11/2016 Telephone call to Robert Sawyer, ERM (consultant) with the above questions (left message).
- 01/13/2016 E-mail received from Lawrence Labrie (position unidentified) in response to my additional information request. He states:
- The current draft tariff limits sulfur in the natural gas to the NSPS KKKK limits.
  - None of the turbines use steam or water injection.
  - The emergency generator will be a non-certified engine.
- I responded by e-mail acknowledging receipt of the information and noting that the final tariff showing the gas specifications will be required as the initial performance test.
- 01/19/2016 Telephone conversation with Bill Scarpinato during which I requested a site address and facility contact name. Bill requested that I send a draft to him and Lawrence Labrie for review. On this day I sent an e-mail with the draft permit and requested comments as an additional information request. The permit processing clock stops on this day.
- 02/16/2016 Telephone conversation with Larry Labrie about the permitting process. He states there may be some minor changes to boiler and generator sizes as the project becomes more finalized. The facility plans to test for all criteria pollutants, irrespective of any testing required by the permit, and therefore requiring a CO test is acceptable. The company is still reviewing the draft permit and will submit comments soon.

- 10/17/2016 Telephone conversation with Larry Labrie who states construction is scheduled to start at the end of 2017, that the facility is still seeking a 911 address, and that he would like to meet in my office on Nov. 1 at 10 am.
- 11/01/2016 Meeting at RRO with Larry Labrie to discuss the application. It appears most of the equipment on the original application will change, so a revised application will be submitted.
- 11/27/2016 Telephone conversation with Dara Aloosky, Sierra Club, about application status.
- 01/05/2017 E-mail received from Therese Vick, BREDL, about application status. I reply that there has not been a change.
- 02/22/2017 E-mail received from Therese Vick, BREDL, about application status. I reply that there has not been a change.
- 04/21/2017 E-mail received from Therese Vick, BREDL, about application status. I reply that there has not been a change.
- 05/08/2017 E-mail received from Therese Vick, BREDL, about application status. I reply that there has not been a change.
- 05/11/2017 Telephone conversation with Goodwin Thompson, SELC, about application status.
- 06/02/2017 Telephone conversation with Dara Aloosky, Sierra Club, about application status.
- 06/12/2017 Telephone conversation with Jennifer Berra, attorney, about application status.
- 06/30/2017 E-mail received from Therese Vick, BREDL, about application status. I reply that there has not been a change.
- 07/20/2017 Larry Labrie leaves a message that the revised application will be delivered soon.
- 07/21/2017 A revised application is received. The revised application includes the following:
- Revision to how turbine power is expressed.
  - Revise EG-01 from 1,416 hp to 1,818 hp
  - Add a natural gas-fired emergency generator (148.9 hp, 100 kw)
  - Revise the insignificant tanks (I-TK-1, 2, and 3) to 1000, 2500, and 13,400 gallons, respectively.
  - Recalculate fugitive emission estimates.

- 07/22/2017 Telephone conversation with Larry Labrie to discuss the revised application. Mr. Labrie stated the company still plans to submit comments on the draft permit, but will withhold them until a revised draft is sent to them. The permit processing clock remains off.
- 07/24/2017 E-mail sent to Therese Vick, BREDL, about receipt of updated application.
- 07/26/2017 Telephone conversation with Hope Taylor, Green Water NC, about the application status.
- 07/28/2017 Telephone conversation with Larry Labrie to discuss the recalculated fugitive emissions. The calculations used the EPA emission factors as lb/hr/source when they are actually kg/hr/source. Additionally, compressor emissions need an explanation as to why the "Other equipment" category is appropriate.
- 07/31/2017 Telephone conversation with Dara Aloosky, Sierra Club, about the application and permitting process.
- 08/01/2017 Therese Vick, BREDL, visits the office to discuss the application and get a copy of the most updated version.
- 08/02/2017 E-mail received from Larry Labrie with updated calculations for the fugitive emission sources.  
  
I responded by e-mail on this day with a request for an updated NSPS OOOOa analysis.
- 08/03/2017 E-mail to Larry Labrie requesting specifics on how the turbine particulate emissions are calculated.
- 08/03/2017 Telephone conversation with Keili Wood who requests a public hearing. I advised she follow up with a letter.
- 08/03/2017 Telephone conversation with Marti Girolami who requests a public hearing. I advised she follow up with a letter.
- 08/04/2017 Telephone conversations with Rob Sawyer, ERM (consultant who prepared application) about the calculation methodology used to estimate emissions. I requested a copy of the spreadsheet, and that the emergency equipment be recalculated at 500 hours per year rather than 100 hours per year.
- 08/07/2017 E-mails received from Larry Labrie explaining the PM calculations for the turbines and discussing NSPS CCCCa applicability.
- 08/10/2017 Telephone conversation with Larry Labrie about the application status.

- 08/15/2017 Larry Labrie sends an e-mail with maps of the facility and surrounding area. I replied with a question about the turbine stack orientations,
- 08/16/2017 Larry Labrie sends an e-mail with equipment drawing showing the turbine stacks are 60' feet high and vertically oriented.
- 08/18/2017 Telephone conversation with Larry Labrie about the application status. Later on this day I e-mailed him the current draft permit for review.
- 08/22/2017 Telephone conversation with Larry Labrie about the application status.
- 08/28/2017 E-mail sent to Larry Labrie stating DEQ upper management has decided to submit the draft permit to public notice for comment on or about 9/19/2017, and will also hold a public hearing around mid-October.
- 08/31/2017 Telephone conversation with Larry Labrie about the public hearing.

**3. New Equipment/Change in Emission and Regulatory Review:**

The Northampton Compressor Station will provide compression to support a pipeline capacity of 1.5 billion cubic feet of natural gas per day. Equipment described by the application is as follows:

- A. Three natural gas-fired compressor turbines (11,107 hp ISO, 6,276 hp ISO, and 4,427 hp ISO capacity, ID Nos. CT-01, 02, and 03), each controlled by selective catalytic reduction (ID Nos. CT-01, 02, and 03-SCR) in series with an oxidation catalyst (ID Nos. CT-01, 02, and 03-OC)**

<b>Turbine Model #</b>	<b>Heat Input (mmBtu/hr)</b>	<b>Power Output (horsepower ISO*)</b>
Solar Taurus 70 (ID No. CT-01)	96.0	11,107
Solar Centaur 50L (ID No. CT-02)	60.0	6,276
Solar Centaur 40 (ID No. CT-03)	51.0	4,427

\*Turbine power is expressed as “horsepower ISO,” meaning a standard developed by the International Organization for Standardization (ISO) which specifies turbine power referenced to standard atmospheric conditions of 15°C, 60% relative humidity, and ambient pressure at sea level.

Emissions from the turbines are based on EPA’s AP-42 document for SO2 and air toxics, and on manufacturer’s data for all other criteria pollutants along with ammonia and formaldehyde. The manufacturer’s data differentiates between normal full load operation, low load operation, and low temperature operation. The turbines normally operate in so called “SoLoNOx mode” with additional control coming from SCR and a catalytic oxidizer. At low loads (i.e. startup and shutdown) and temperatures below 0 °F and down to -20 °F, the turbines emit much higher NOx (~13x higher), CO (~6x higher), and VOC (~2x higher) since the control devices do not work until specific temperatures are achieved.

Title V and Permit Potential Emission estimates assume 8,677 hours of normal operation for each turbine, 100 start-up and shut-down events per year per turbine, with each event lasting 10 minutes (33.3 hours/year total, per turbine), and 50 hours of operation per turbine in subzero temperatures. During these abnormal operations the turbines are not expected to operate in SoLoNOx mode, and the control devices are assumed to have 0% efficiency, even though some control will likely be achieved. The Title V emissions assume no control efficiency from any pollution control devices. Emissions are calculated by the applicant's spreadsheet with emission factors, calculation assumptions, and results shown in tables C-2, C-3, and C-4 of the application. These emission calculations have been reviewed by me (Charles McEachern) and found to be accurate. Emissions are estimated as follows:

<b>Pollutant</b>	<b>Title V Emissions (no add-on control, 8760 hr/yr) from all 3 turbines, combined (tpy)</b>	<b>Permit Potential/Expected Actual Emissions from all 3 turbines, combined (tpy)</b>
<b>TSP</b>	18.1	18.1
<b>PM-10</b>	18.1	18.1
<b>PM-2.5</b>	18.1	18.1
<b>SO<sub>2</sub></b>	3.08	3.08
<b>NO<sub>x</sub></b>	47.3	18.0
<b>VOC</b>	2.90	1.65
<b>CO</b>	64.2	28.6

The Permit Potential emissions above include emissions reduction due to pollution control devices installed on each turbine as follows:

<b>Control Device Type</b>	<b>NO<sub>x</sub> % reduction</b>	<b>CO % reduction</b>	<b>VOC % reduction</b>
Selective Catalytic Reduction (Centaur 40, CT-03)	80%	--	--
Selective Catalytic Reduction (all others)	44%	--	--
Oxidation catalyst (Centaur 40, CT-03)	--	90%	50%
Oxidation catalyst (all others)	--	80%	50%

Selective catalytic reduction (SCR) is used to control NOx emissions by the injection of ammonia into the exhaust stream in the presence of a catalyst, resulting in the conversion of NOx into molecular nitrogen (N<sub>2</sub>) and water vapor. The emissions reductions listed above are guaranteed by the manufacturer for ambient temperatures greater than or equal to 0 °F.

Following the SCR system is an oxidation catalyst for control of CO and VOC.

Applicable regulations include:

**2D .0516**, which limits sulfur dioxide emissions to 2.3 lb/mmBtu heat input. Compliance is demonstrated through the use of natural gas which has an inherently low enough sulfur content to always comply with this rule.

**2D .0521**, which limits visible emission to 20% opacity. Compliance is expected based on observations of similar units and will be verified during inspections.

**2D .0524, NSPS Subpart KKKK**, applies to each of these turbines since they are installed after February 18, 2005 and each has a heat input greater than 10 mmBtu/hr. This rule regulates SO<sub>2</sub> and NO<sub>x</sub> emissions as follows:

<b>Turbine Model #</b>	<b>Heat Input (mmBtu/hr)</b>	<b>NO<sub>x</sub> [ref. 60.4320 and Table 1]</b>	<b>SO<sub>2</sub> [ref. 60.4330(a)(1)]</b>
Solar Taurus 70 (ID No. CT-01)	96.0	25 ppm at 15% O <sub>2</sub>	natural gas shall not contain in excess of 20 grains of sulfur per 100 cubic feet and shall have potential sulfur emission of no more than 0.060 lb SO <sub>2</sub> /MMBtu heat input
Solar Centaur 50L (ID No. CT-02)	60.0		
Solar Centaur 40 (ID No. CT-03)	51.0		

These turbines do not use water or steam injection, so 60.4340 requires demonstration of compliance with the NO<sub>x</sub> standard through either stack testing or by use of a continuous emission monitor (CEM). The applicant requests to use annual stack testing as their compliance method.

60.4340(a) states that if the NO<sub>x</sub> emission result from the performance test is less than 75% of the emission standard that the testing frequency may be reduced to once every 2 years (no more than 26 calendar months following the previous performance test). If any subsequent performance test show in excess of 75% of the standard then the testing frequency returns to annual.

60.4360 requires monitoring of the fuel sulfur content unless exempted under 60.4365, which exempts the fuel monitoring requirement if the fuel used is either tested as or certified as having less than 20 grains of sulfur per 100 cubic feet and not exceeding the potential SO<sub>2</sub> emission rate of 0.060 lb/MMBtu heat input. A copy of the fuel specification from the draft tariff document was supplied showing compliance with the NSPS standard, and a finalized version will be required for the initial performance test.

Additionally, 60.4333(a) states, "You must operate and maintain your stationary combustion turbine, air pollution control 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."

60.4375(b) requires submittal of the NO<sub>x</sub> performance test results (written) within 60 days of test completion.

60.4400(a) describes the testing requirements and requires an initial performance test, as described in 60.8 (within 60 days of achieving maximum production and no more than 180 days after startup), followed up with annual testing to occur no more than 14 months after the previous test. 60.4400(b) requires three 20 minute runs within 25% of 100% peak load.

The NSPS Subpart A provisions apply to these new turbines and include the following:

- 60.7(a)(3) notice of initial startup of an affected facility within 15 days after such date (written or electronic)
- 60.7(b) requires maintenance of records of the occurrence and duration of startups, shutdowns, and malfunctions
- 60.7(f) requires retention of all records, including test reports, for at least 2 years

Compliance with NSPS Subpart KKKK is expected based on statements by the applicant, and will be verified through receipt of required notifications, stack testing, and on-site inspections.

**B. natural gas-fired emergency generator (ID No. EG-01, 14.9 mmBtu/hr heat input, 1,818 brake horsepower output, and 1,300 kilowatts, electric)**

Emissions of NO<sub>x</sub>, VOC, and CO are estimated by using manufacturer's data, and PM/PM-10/PM-2.5 and SO<sub>2</sub> by using AP-42, for 500 hours per year as shown below:

<b>Pollutant</b>	<b>Title V Emissions (tpy)</b>
<b>TSP</b>	0.160
<b>PM-10</b>	0.160
<b>PM-2.5</b>	0.160
<b>SO<sub>2</sub></b>	9.70E-5
<b>NO<sub>x</sub></b>	0.50
<b>VOC</b>	0.54
<b>CO</b>	2.50

Applicable regulations include:

**2D .0516**, which limits sulfur dioxide emissions to 2.3 lb/mmBtu heat input. Compliance is demonstrated through the use of natural gas which has an inherently low enough sulfur content to always comply with this rule.

**2D .0521**, which limits visible emission to 20% opacity. Compliance is expected based on observations of similar units and will be verified during inspections.



**2D .0524, NSPS Subpart JJJJ**, which has the following requirements:

60.4233(e) requires owners and operators of engines larger than 100 hp meet the emission standards in Table 1 to the Subpart, which limits NO<sub>x</sub> to 2.0 g/HP-hr, CO to 4.0 g/HP-hr, and VOC to 1.0 g/HP-hr, for the life of the engine (60.4236).

60.4237(a) requires installation of a non-resettable hour meter if greater than 500 hp, emergency engine built after 7/1/2010 does not meet the standards applicable to non-emergency engines. For this 1,818 hp engine the emergency emission standards from Table 1 are the same as the non-emergency standards.

60.4243(b) requires either (1) purchase of a certified engine and operation according to manufacturer's specifications, or (2) purchase of a non-certified engine and demonstrate compliance with the emission standards through an initial performance test followed up by additional performance tests every 8,760 hours of operation or 3 years, whichever comes first.

60.4243(d) specifies the amount of non-emergency operation allowed to still be considered an "emergency" engine.

60.4243(e) allows up to 100 hours per year when firing propane in emergency situations.

60.4244 specifies test methods.

60.4245(a) requires records be maintained of all notifications, maintenance on the engine, and either certification documentation or stack tests, as applicable.

60.4245(c) requires owners of non-certified engines to submit of a notice of the date of construction (note that 60.7(a)(1) waives this requirement if the item is mass produced and delivered in its completed form) and include the information listed in paragraphs (c)(1) through (c)(5).

60.4245(d) requires submittal of performance tests within 60 days of testing.

60.4245(e) requires submittal of an annual report if the engine is contractually obligated to be available for more than 15 hours of emergency demand response.

60.4246 refers to Table 3 for Subpart A provisions (most are applicable)

Compliance is expected based on the applicant's statements, and will be verified through testing and inspections.

**2D .1111, NESHAP Subpart ZZZZ**, applies to this engine, but has no requirements so long as compliance with the NSPS JJJJ standard is maintained.

**C. Fugitive Emissions from blowdowns (ID No. I-Fug-01) and piping leaks (ID No. I-Fug-02)**

EPA document no. 600/R-96-080g, “Methane Emissions from the Natural Gas Industry, Volume 7: Blow and Purge Activities” was consulted for the following information: “Blowdowns” are an operating condition where pressure is relieved in the gas line or other equipment by venting the natural gas to the atmosphere. This is usually done in order to conduct maintenance on the line or turbines (when the flammable gas must be removed first), and is later followed by a “purge” using natural gas in order to remove any oxygen in the line from the maintenance activity (air is removed to prevent a flammable mixture of gas and oxygen). Other emergency or upset conditions (such as pipe rupture, gas detected in compressor buildings, etc.) may occur that require a similar blowdown and purge. Emissions are calculated on a mass balance basis by the applicant assuming one full site-wide blowdown per year. It is noted that blowdowns of this type generally occur about every 5 years.

Pipeline leaks (I-Fug-02) are self explanatory, occurring at the various flanges, valves, compressors and monitoring equipment in all parts of the facility. The applicant used EPA Protocol for Equipment Leaks (EPA-453/R-95-017), Table 2-4, to calculate fugitive emissions from piping leaks.

Emissions from both of these sources are as follows:

<b>Pollutant</b>	<b>Blowdowns (ID No. I-Fug-01) Title V Emissions (tpy)</b>	<b>Piping leaks (ID No. I-Fug-02) Title V Emissions (tpy)</b>
<b>VOC</b>	18.8	0.776
<b>Total HAP (hexane)</b>	1.06	0.044

The blowdowns (I-FUG-01) are exempt from permitting requirements under 2Q .0102(g)(14)(B) based on having no applicable requirements.

The piping leaks (I-FUG-02) are exempt from permitting requirements under 2Q .0102(h)(5) since their potential is less than 5 tons for each criteria pollutant. 40 CFR 60, Subpart OOOOa applies to the piping leaks, I-FUG-02, and is discussed in Section 4 of this review.

Since the turbines are subject to NSPS, the fugitive emissions are counted toward the facility-wide emissions for TV and PSD purposes.

**D. Insignificant Activities**

- **Pipeline liquids storage tank (1000 gallon capacity, ID No. I-TK-1)**  
This horizontal storage tank is used to store pipeline liquids captured by the compressor station separators and filter-separators.

Emissions are estimated by the applicant using “E&P TANKS” as being up to 0.145 tpy of VOC.

This tank is exempt from air permitting requirements under 2Q .0102(g)(4) by virtue of its being a storage tank.

- **hydrocarbon waste storage tank (2,500 gallon capacity, ID No. I-TK-2)**  
This horizontal oil storage tank will store waste oils from the compressor building and auxiliary building floor drains.

Emissions are estimated by the applicant using EPA's TANKS program as being up to 2.19E-05 tpy VOC.

This tank is exempt from air permitting requirements under 2Q .0102(g)(4) by virtue of its being a storage tank.

- **ammonia tank (13,400 gallon capacity, ID No. I-TK-3)**  
This tank stores an aqueous ammonia solution for use in the SCRs.

This tank is exempt from air permitting requirements under 2Q .0102(g)(4) by virtue of its being a storage tank.

- **odorant storage tank (6,000 gallons, ID No. I-TK-4)**  
This tanks stores methyl mercaptan for odorizing the natural gas. There are no regulations applicable to this tank, thus it is exempt from air permitting under 2Q .0102(g)(14)(B).

- **natural gas-fired boiler (5.25 mmBtu/hr heat input, ID No. I-WH-01) used for building heat**  
This boiler will be used for human comfort heat. Emissions are estimated using the DAQ spreadsheet for natural gas combustion as follows:

Pollutant	Title V Emissions (tpy)
TSP	0.171
PM-10	0.171
PM-2.5	0.171
SO <sub>2</sub>	0.014
NO <sub>x</sub>	1.13
VOC	0.124
CO	1.89

Since this boiler is only fueled by natural gas it is exempt from air permitting requirements under 2Q .0102(h)(1)(B).

- **natural gas-fired emergency generator (148.9 horsepower, 100 kw, I-EG-02)**  
This generator will provide backup power to the operations center. Emissions are calculated using AP-42 for TSP/PM-10/PM-2.5 and SO<sub>2</sub>, and manufacturer's data for NO<sub>x</sub>, VOC, and CO at 500 hours of operation per year as follows:

<b>Pollutant</b>	<b>Title V Emissions (tpy)</b>
<b>TSP</b>	0.015
<b>PM-10</b>	0.015
<b>PM-2.5</b>	0.015
<b>SO<sub>2</sub></b>	0.00025
<b>NO<sub>x</sub></b>	0.00025
<b>VOC</b>	0.015
<b>CO</b>	0.005

This engine is subject to NSPS Subpart JJJJ and NESHAPS Subpart ZZZZ. It is exempt from air permitting requirements under 2Q .0102(h)(5) since each pollutant's emission potential is less than 5 tons per year.

#### 4. NSPS, NESHAPS, PSD, and Attainment Status:

NSPS Subpart KKKK applies to the turbines and Subpart JJJJ applies to the emergency generator as discussed above.

NSPS Subpart OOOO applies to natural gas compressor operations from the wellhead to the point of custody transfer (defined as post processing and treatment of the gas) of the marketable gas, and storage vessels with greater than 6 tpy VOC emissions. This compressor station is located after custody transfer, and no tanks will emit over 6 tpy VOC, therefore, this facility is not subject to this rule. On August 18, 2015 the EPA proposed revisions to this rule called NSPS Subpart OOOOa, which regulate methane and VOC emissions not currently covered by Subpart OOOO. On August 2, 2016, this rule became effective and applies to equipment constructed after September 18, 2015.

NSPS Subpart OOOOa applicability to the proposed facility is described in 60.5365a as follows:

- each well affected facility [60.5365a(a)] – there are no wells associated with this compressor station.
- each centrifugal compressor using wet seals [60.5365a(b)] – all 3 centrifugal compressors will use dry seals so they are not subject to this rule.
- each reciprocating compressor [60.5365a(c)] – none of the compressors are reciprocating.
- each pneumatic controller affected facility which is a single continuous bleed natural gas-driven pneumatic controller. [60.5365a(d)] – the facility states there will not be any pneumatic controllers.
- each storage vessel with potential VOC emissions in excess of 6 tpy [60.5365(e)] – each storage vessel has potential VOC emissions less than this threshold, thus they are not subject to this rule.

- all equipment within a “process unit” [60.5365a(f)] – this applies to equipment used to remove natural gas liquids from field gas, which the facility states will not be done at this site.
- each sweetening unit [60.5365a(g)] – no sweetening (i.e. removal of H<sub>2</sub>S or CO<sub>2</sub>) occurs at this facility.
- each pneumatic pump [60.5365a(h)] – this facility does not use pneumatic pumps.
- The collection of fugitive emission sources at a well [60.5365a(i)] – there is no well associated with this facility.
- the collection of fugitive emissions components at compressor stations is an affected facility [60.5365a(j)] – this is a “compressor station,” as defined in 60.5430a, and the fugitive emissions are subject to this rule. These are the only sources at the facility with requirements under this rule. The sources are estimated to be 646 valves, 340 flanges, 1 connector, and the 3 turbines.

60.5370a requires compliance be achieved upon startup[60.5370a(a)], and at all times (including startup, shutdown, and malfunction – note that the provisions of 40 CFR 60.8(c) do not apply[60.5370a(b)]) the owners and operators shall maintain and operate the facility in a manner consistent with good air pollution control practice for minimizing emissions [60.5370a(b)].

60.5397a describes fugitive emission standards at a compressor station for the reduction of GHG (as methane) and VOC as follows:

- 60.5397a(a) defines fugitive emissions as: Any visible emission from a fugitive emissions component observed using optical gas imaging or an instrument reading of 500 ppm or greater using Method 21.
- 60.5397a(b) requires development of an air emissions monitoring plan
- 60.5397a(c) specifies the 8 elements of a fugitive emissions monitoring plan
- 60.5397a(d) specifies the 4 more elements of a fugitive emissions monitoring plan
- 60.5397a(e) requires each monitoring survey observe each fugitive emissions component for fugitive emissions.
- 60.5397a(f)(2) requires an initial monitoring survey be conducted within 60 days of startup of a compressor station.
- 60.5397a(g)(2) requires a monitoring survey of the collection of fugitive emissions at a compressor station be conducted at least quarterly after the initial survey. Consecutive quarterly surveys must be conducted at least 60 days apart. 60.5397a(g)(3) and (4) describe how to handle “difficult-to-monitor” and “unsafe-to-monitor” emissions, respectively.
- 60.5397a(h)(1) requires each identified source of fugitive emissions be repaired or replaced no later than 30 days after discovery unless the repair qualifies under 60.5397a(h)(2) as either technically infeasible, would require a vent blowdown or compressor station shutdown, or would be unsafe to repair during operation of the unit. In these cases the repair must be made during the next compressor station shutdown or within 2 years, whichever is earlier. 60.5397a(h)(3) requires each repaired component be resurveyed for fugitive emissions within 30 days after being repaired. Subparagraphs (i) through (iii) require a resurvey within 30 days of discovery of the fugitive emission using either Method 21 or optical gas

imaging, and digital documentation of any fugitive emission that can't be repaired during the monitoring survey when discovered.

- 60.5397a(i) requires records of each monitoring survey be maintained as specified in 60.5420a(c)(15).
- 60.5397a(j) requires an annual report to include information specified in 60.5420a(b)(7).

60.5398a describes procedures to allow for alternative means of emission limitation as approved by the Administrator.

60.5410a(j) describes the procedures for demonstrating initial compliance with this rule.

60.5415a(h) describes the requirements to demonstrate continuous compliance.

60.5420a describes the notification, reporting and recordkeeping requirements. It also states that 60.7(a)(1), (2), and (3) do not apply.

**NESHAPS subpart ZZZZ** is applicable to the emergency generator as discussed above.

This facility is a **PSD minor source** since no criteria pollutant potential emissions exceed 250 tons per year. PM10 and SO2 were triggered for increment tracking in Person County by Cogentrix of NC on 12/30/1985. For increment tracking purposes the facility-wide PM10 increase is 4.18 pounds per hour, and the SO2 increase is 0.7 pounds per hour.

Person County is in attainment with all ambient air quality standards.

#### **5. Facility Wide Air Toxics:**

All of the air toxic emissions from the permitted sources emanate from natural gas combustion sources of varying type. Rule 15A NCAC 2Q .0702(a)(25) exempts natural gas combustion sources with an aggregate heat input less than 450 mmBtu/hr from toxics requirements if they are the only source of benzene. This exemption rule was developed by DAQ and takes into account all air toxic emissions from natural gas combustion, and mentions benzene specifically since that pollutant is the one most likely to affect compliance with the 2D .1100 AAL. The facility-wide heat input is 225.8 mmBtu/hr, thus this facility is exempt from triggering an air toxics evaluation.

Although the facility does not trigger an evaluation, under SL 2012-91 (also referred to as HB 952) DAQ is required to demonstrate there are "no adverse health affects" expected from this facility's air toxic emissions. DAQ interprets this to be a demonstration that the facility complies with the 2D .1100 acceptable ambient level (AAL) for all air toxic pollutants. The exemption from air toxics based on the natural gas heat input rate of 450 mmBtu/hr was developed by DAQ following a study of combustion related air toxics from natural gas combustion (internal and external combustion source types). Operating combustion sources below this threshold is not expected to result in any acceptable ambient level (AAL) exceedances.

Additionally, ammonia is a toxic air pollutant associated with turbines using ammonia injection for NO<sub>x</sub> control. The combined emissions from the three turbines could be as high as 2.83 lb/hr. The turbines exhaust through 60 foot high stacks which are vertically oriented, thus the 2Q .0711(b) table is used for the evaluation. The 2Q .0711(b) toxic air pollutant permitting emission rate for ammonia is 2.84 lb/hr, thus demonstrating compliance with this pollutant's 2D .1100 AAL.

**6. Compliance Status:**

This is a greenfield facility with no compliance history.

**7. Facility Emissions Review:**

The emissions summary in the table below is based on all of the emission estimates discussed above.

**Facility Emissions Summary**

<b>Pollutant</b>	<b>Title V Emissions (tpy)</b>	<b>Permit Potential/Expected Actual Emissions (tpy)</b>
<b>TSP</b>	18.3	18.3
<b>PM-10</b>	18.3	18.3
<b>PM-2.5</b>	18.3	18.3
<b>SO<sub>2</sub></b>	3.10	3.10
<b>NO<sub>x</sub></b>	47.8	19.6
<b>VOC</b>	22.1	22.1
<b>CO</b>	68.6	33.0

This facility is a "small" for fee purposes.

**8. Summary of Permit Changes:**

N/A

**9. Conclusions, Comments, and Recommendations:**

Recommend issuance of revised air permit No. 10466R00.

**Permit Coordinator:** \_\_\_\_\_ **Date:**  
**Charles McEachern, PE**

**Regional Supervisor:** \_\_\_\_\_ **Date:**  
**Patrick Butler, P.E.**

