

**NORTH CAROLINA DIVISION OF
AIR QUALITY
Application Review**

Region: Raleigh Regional Office
County: Northampton
NC Facility ID: 6600074
Inspector's Name: Sindy Huang
Date of Last Inspection: 03/13/2024
Compliance Code: 3 / Compliance - inspection

Issue Date: Date needed

<p>Facility Data</p> <p>Applicant (Facility's Name): Pleasant Hill Compressor Station</p> <p>Facility Address: Pleasant Hill Compressor Station 2784 NC 48 Hwy Pleasant Hill, NC 27866</p> <p>SIC: 4922 / Natural Gas Transmission NAICS: 486210 / Pipeline Transportation of Natural Gas</p> <p>Facility Classification: Before: Title V After: Title V Fee Classification: Before: Title V After: Title V</p>	<p>Permit Applicability (this application only) SIP: 15A NCAC 02D .0516, .0521, .1111 NSPS: NA NESHAP: 40 CFR 63 Subpart ZZZZ PSD: NA PSD Avoidance: 15A NCAC 02Q .0317 NC Toxics: NA 112(r): NA Other: NA</p>
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Contact Data	Application Data		
<p>Facility Contact</p> <p>Jamie Benson Environmental Advisor (540) 233-7765 34646 Old Valley Pike Strasburg, VA 22657</p>	<p>Authorized Contact</p> <p>David Greiner Area Manager – VA South (757) 847-1850 2700 Vepco Street Chesapeake, VA 23323</p>	<p>Technical Contact</p> <p>Melinda Holdsworth Environmental Specialist (832) 320-5665 700 Louisiana Street, Suite 1300 Houston, TX 77002</p>	<p>Application Number: 6600074.24A Date Received: 07/08/2024 Application Type: Renewal Application Schedule: TV-Renewal Existing Permit Data Existing Permit Number: 09186/T04 Existing Permit Issue Date: 06/30/2020 Existing Permit Expiration Date: 05/31/2025</p>

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2023	---	2.16	0.1800	2.58	0.1000	0.0956	0.0956 [Formaldehyde]
2022	---	1.70	0.1500	2.86	0.0800	0.0762	0.0762 [Formaldehyde]
2021	---	5.28	0.1800	8.45	0.0900	0.0817	0.0817 [Formaldehyde]
2020	---	6.49	0.1500	10.86	0.0700	0.0595	0.0595 [Formaldehyde]
2019	---	6.85	0.1600	11.46	0.0700	0.0627	0.0627 [Formaldehyde]

<p>Review Engineer: Luke Mayer</p> <p>Review Engineer's Signature: Date:</p>	<p style="text-align: center;">Comments / Recommendations:</p> <p>Issue 09186/T05 Permit Issue Date: Date needed Permit Expiration Date: Date needed</p>
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1. Purpose of Application

Columbia Gas Transmission, LLC currently holds Title V Permit No. 09186T04 with an expiration date of May 31, 2025, for a natural gas compressor station facility in Pleasant Hill, Northampton County, North Carolina. This permit application is for a permit renewal without modification. The renewal application was received on July 8, 2024, or at least six months prior to the expiration date. Therefore, the existing permit shall not expire until the renewal permit has been issued or denied. All terms and conditions of the existing permit shall remain in effect until the renewal permit has been issued or denied.

2. Facility Description

Columbia Gas Transmission Company operates a compressor station at its facility in Pleasant Hill, NC. The facility is identified as Pleasant Hill Compressor Station on its air permit. The facility compresses natural gas for pipeline transmission to Duke Energy. The facility typically compresses between 1 and 1.3 million ft³/hr. natural gas. Natural gas in the pipeline is typically at 500 to 775 psi. As required, if the natural gas is at the lower end of that range, the facility has the ability to raise that pressure to the higher end of the operating psi. The main emission sources are four reciprocating engines (three compressors and one generator). The facility receives the natural gas without any odorants. The workday begins at 10 a.m. and gas is usually pumped for up to 14-16 hours per day. The facility currently operates from November 1 to March 31, though the engines can be run on idle if visiting the facility outside of that time frame.

The facility operates the following units:

- One natural gas-fired, White-Superior, 6G-825 four-stroke rich burn (4SRB) reciprocating engine/compressor (467 horsepower site rated or 3.625 million Btu per hour firing rate) **(ID No. ES-15301)**
- One natural gas-fired, White-Superior, 6G-825 four-stroke rich burn (4SRB) reciprocating engine/compressor (467 horsepower site rated or 3.625 million Btu per hour firing rate) **(ID No. ES-15302)**
- One natural gas-fired, White-Superior, 6G-825 four-stroke rich burn (4SRB) reciprocating engine/compressor (467 horsepower site rated or 3.625 million Btu per hour firing rate) **(ID No. ES-15303)**
- One natural gas-fired, Waukesha VSG11GSI, four-stroke rich burn (4SRB) emergency generator (250 horsepower site rated, 150 kilowatt capacity) **(ID No. ES-153G1)**

The following insignificant sources are also located at the facility:

- One horizontal above-ground engine lube oil storage tank (1,126 gallon capacity) **(ID No. IA-A01)**
- One horizontal above-ground pipeline liquids storage tank (2,474 gallon capacity) **(ID No. IA-A02)**
- One horizontal above-ground ethylene glycol storage tank (1,126 gallon capacity) **(ID No. IA-A03)**
- One horizontal above-ground used engine lube oil storage tank (1,126 gallon capacity) **(ID No. IA-A04)**
- One horizontal above-ground wastewater storage tank (250 gallon capacity) **(ID No. IA-A06)**
- One natural gas-fired Cleaver-Brooks Model WTW-703-1500 heating system/hot water boiler (1.5 million Btu per hour maximum heat input capacity) **(ID No. IA-BLR1)**
- Parts washer-degreaser (30 gallon capacity) **(ID No. IA-PWD)**
- One renewable natural gas metering station **(ID No. IA-MS)**

The gas metering station (**ID No. IA-MS**) is new as a part of this permit renewal. This small station is made up of electrically driven compressors, an electrically driven utility air system for pneumatic controllers, and an electric line heater. The source is subject to DAQ's notice due to fugitive emissions associated with the system.

The facility is a Title V facility because emissions of carbon monoxide (CO) and nitrogen oxides (NO_x) exceed the major source threshold of 100 tons per year.

3. History/Background/Application Chronology

History/Background

June 30, 2020 TV permit renewal issued. Air Permit No. 09186T04 was issued on June 30, 2020, with an expiration date of May 30, 2025. (See *Eric Crump's TV review for permit No. 09186T04, dated June 30, 2020*)

date Air Permit No. ##### was issued for a [application type](#). [Short description of change](#). (See *review engineer TV review for permit No. #####, dated #####*)

Application Chronology

July 8, 2024	Received permit application 6600074.24A for renewal.
July 10, 2024	Sent acknowledgment letter indicating that the application for permit renewal was complete.
August 12, 2024	Draft permit and review forwarded to supervisor Rahul Thaker for comments.
August 16, 2024	Comments received from supervisor. Applicability of 40 CFR 60 Subpart OOOO, OOOOa, and OOOOb, as well as 40 CFR 63 Subpart HH is unclear. Furthermore, presence of 1-bromopropane, a newly added hazardous air pollutant, must be investigated as it has only recently become regulated.
August 22, 2024	Technical request sent to applicant regarding applicability of 40 CFR 60 Subpart OOOO, OOOOa, and OOOOb, as well as 40 CFR 63 Subpart HH.
August 28, 2024	Technical request sent to applicant regarding presence of 1-bromopropane at the facility.
September 3, 2024	Response received from technical contact Melinda Holdsworth confirming conditions for exemption from 40 CFR 60 Subpart OOOO, OOOOa, and OOOOb and 40 CFR 63 Subpart HH, and that no 1-bromopropane is used, stored, or emitted at the facility.
September 9, 2024	Revised draft permit and review forwarded to supervisor Rahul Thaker for comment.
September 12, 2024	Comments received from supervisor. Clarifications to PSD avoidance conditions and NC Air Toxics program included in permit review. PSD avoidance conditions updated to include equations for emissions monitoring in permit language.

September 23, 2024	Draft permit and review forwarded to applicant, SSCB, and regional office for comments.
September 26, 2024	Samir Parekh of the SSCB indicated that he had no comments.
October 10, 2024	Technical contact Melinda Holdsworth indicated via phone call that the facility would prefer to change the average emission factors and monitoring equations for all engines to average emission factors and monitoring equations for each individual engine for monitoring for PSD avoidance.
October 17, 2024	Sent new proposed monitoring equations (without emission factors) to technical contact Melinda Holdsworth. Sent request for stack test data to develop new emission factors for each engine.
October 23, 2024	Received stack test data from technical contact Melinda Holdsworth.
October 28, 2024	Sent new proposed monitoring equations (with emission factors) to technical contact Melinda Holdsworth. Mrs. Holdsworth requested via phone call that more accurate conversion factors be used in the conversion of grams/hp-hr to pounds/hp-hr, resulting in slightly different emission factors. Mrs. Holdsworth also requested the addition of one gas metering station (ID No. IA-MS) as an insignificant activity.
October 30, 2024	Received supporting information regarding the new insignificant gas metering station (ID No. IA-MS) from technical contact Melinda Holdsworth.
November 7, 2024	Technical contact Melinda Holdsworth indicated via email that they had no comments on the draft permit or permit review.
November 7, 2024	Regional permitting supervisor Dena Pittman from the Raleigh Regional Office indicated via email that they had no comments on the draft permit or permit review.
date	Draft permit and permit review forwarded to public notice via DAQ website.
date	Public comment period ends. <i>Comments were/were not received. Complete as necessary; direct reader to Section 10 of this Document for summary of comments and responses.</i>
date	EPA comment period ends. <i>Comments were/were not received. Complete as necessary; direct reader to Section 10 of this Document for summary of comments and responses.</i>
date	Permit issued.

4. Permit Modifications/Changes and TVEE Discussion

The following table describes the modifications to the current permit as part of the renewal process. This summary is not meant to be an exact accounting of each change but a summary of those changes.

Page(s)	Section	Description of Changes
Cover letter and throughout permit	--	<ul style="list-style-type: none"> Updated all dates and permit revision numbers Reformatted permit in accordance with current TV permitting shell
5 -11	2.1 A.3, A.4, and A.5	<ul style="list-style-type: none"> Updated permit language in accordance with current TV permitting shell and revised incorrect references
6-10	2.1 A.3, A.4	<ul style="list-style-type: none"> Minor revisions to language for clarity Revised permit conditions to reflect 08/30/2024 regulatory updates to 40 CFR 63 Subpart ZZZZ
9	2.1 A.4	<ul style="list-style-type: none"> Revised incorrect internal references
9,10	2.1 A.5	<ul style="list-style-type: none"> Minor revisions for clarity about which permit issuance triggered PSD conditions Addition of equations for emissions monitoring Replaced language for initial performance testing with language for periodic performance testing as initial testing requirements have been met
12	2.2	<ul style="list-style-type: none"> Added permit shield for nonapplicable regulations
13	3	<ul style="list-style-type: none"> Added insignificant source IA-MS, a renewable natural gas metering station, to the insignificant sources list.
14-21	4	<ul style="list-style-type: none"> Updated General Conditions with most recent version (Version 8 dated 07/10/2024)

This permit renewal is being processed with one modification. The Title V Equipment Editor will be edited to reflect the addition of a new gas metering station, **ID No. IA-MS**. The gas metering station has very minimal emissions and meets the criteria of an insignificant source by size or production rate in 15A NCAC 02Q .0503(8) so it can be classified as insignificant. See the description of this source in Section 2 for more information.

5. Regulatory Review

The Pleasant Hill compressor station is subject to the following regulations. The facility's equipment and operations have not changed since the last renewal in 2020. The permit was updated to reflect the most current stipulations for all applicable regulations, where necessary.

The facility sources are currently subject to the requirements in 15A NCAC 02D .0516, .0521, and .1111, and 15A NCAC 02Q .0317.

15A NCAC 02D .0516: Sulfur Dioxide Emissions from Combustion Sources – The Pleasant Hill compressor station facility operates 3 natural gas-fired four-stroke rich burn (4SRB) reciprocating engines/compressors (**ID Nos. ES-15301, 15302, and 15303**). All 3 are 467 horsepower site-rated (3.625 million Btu per hour heat input rate). The facility also operates 1 natural gas-fired 4SRB emergency generator (**ID No. ES-153G1**), which is 250 horsepower site-rated. All 4 combustion sources are subject to an emission limit of 2.3 pounds of SO₂ emissions per million Btu of heat input.

The affected sources fire natural gas, so sulfur dioxide emissions are expected to be minimal because natural gas has a very low sulfur content. No monitoring, reporting, or recordkeeping is necessary for these sources due to the type of fuel (natural gas) burned. Continued compliance is expected.

15A NCAC 02D .0521: Control of Visible Emissions – The equipment operated at the Pleasant Hill compressor station may generate visible emissions. This includes all three compressors (**ID Nos. ES-15301, 15302, and 15303**) and the emergency engine (**ID No. ES-153G1**). All units of equipment subject to the rule appear to have been constructed after July 1, 1971, so they are required to comply with the following limit(s): no visible emissions from the affected sources shall exceed 20% opacity when averaged over a 6-minute period. 6-minute averaging periods may exceed 20% opacity only if: no 6-minute averaging period exceeds 87% opacity; no more than one 6-minute averaging period exceeds 20% opacity in one hour; and no more than four 6-minute averaging periods exceed 20% opacity in 24 hours.

According to the most recent inspection report, the facility appears to be complying with 15A NCAC 02D .0521. At the time of inspection, no sources were operating; thus, no emissions could be observed. No monitoring, reporting, or recordkeeping is necessary for these sources as they fire natural gas and are thus very unlikely to generate emissions at unacceptable levels. Continued compliance is expected.

15A NCAC 02D .0958: Work Practices for Sources of Volatile Organic Compounds - On November 1, 2016, amendments to 15A NCAC 02D .0902 were finalized to narrow applicability of work practice standards in 15A NCAC 02D .0958 from statewide to the maintenance area for the 1997 8-hour ozone standard. This change is being made primarily because the abundance of biogenic VOC emissions in North Carolina results in ozone formation being limited by the amount of available nitrogen oxides (NOx) emissions. Provisions of the Clean Air Act require VOC requirements previously implemented in an ozone nonattainment area prior to redesignation remain in place. However, facilities outside the maintenance area counties for the 1997 8-hour ozone standard would no longer be required to comply with the work practice standards in 15A NCAC 02D .0958. Northampton County was never in nonattainment for ozone and 15A NCAC 02D .0958 is no longer applicable to facilities, including the Pleasant Hill compressor station, within the county. Therefore, the permit condition for 15A NCAC 02D .0958 will not be included under this permit renewal.

15A NCAC 02D .1111: Maximum Available Control Technology – The Pleasant Hill compressor station facility operates 3 natural gas-fired four-stroke rich burn (4SRB) reciprocating engines/compressors (**ID Nos. ES-15301, ES-15302, and ES-15303**). All 3 are 467 horsepower site-rated (3.625 million Btu per hour). The facility also operates 1 natural gas-fired 4SRB emergency generator (**ID No. ES-153G1**), which is 250 horsepower site-rated. All 4 significant sources at the facility are subject to 40 CFR 63 Subpart ZZZZ, National Emissions Standards for Stationary Reciprocating Internal Combustion Engines. See NESHAP regulatory review below for more information.

According to the most recent inspection report, the facility has generally been observed in compliance with MACT standards (specifically 40 CFR 63 Subpart ZZZZ), although one minor deviation was noted, which is detailed below in the Subpart ZZZZ regulatory review. Continued compliance is expected.

6. NSPS, NESHAPS/MACT, PSD, 112(r), CAM

NSPS

The facility is not currently subject to any New Source Performance Standards. This permit renewal does not change the facility's NSPS status. The following information for various NSPSs is provided to document non-applicability for those federal standards to the facility sources.

40 CFR 60 Subpart Dc: Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units – The Pleasant Hill compressor station facility does operate a single hot water boiler (**ID No. IES-BLR1**). However, the boiler is small enough (1.5 million Btu per hour maximum heat input capacity) that it is out of the range of applicability for this subpart, which is a maximum heat input rate of between 10 and 100 million Btu per hour. As a result, Subpart Dc is not applicable.

40 CFR 60 Subpart K: Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and after May 19, 1978 – The Pleasant Hill compressor station does possess several petroleum liquid storage tanks on the premises (**ID Nos. IA-A01, IA-A02, IA-A03, and IA-A04**). However, none of them are large enough to qualify for Subpart K applicability; the minimum threshold for this subpart is 40,000 gallons. The largest tank at the facility has a capacity of only 2,474 gallons. As a result, Subpart K is not applicable.

40 CFR 60 Subpart Ka: Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984 – The Pleasant Hill compressor station facility does possess several petroleum liquid storage tanks on the premises (**ID Nos. IA-A01, IA-A02, IA-A03, and IA-A04**). However, none of them are large enough to qualify for Subpart Ka applicability; the minimum threshold for this subpart is 40,000 gallons (as with Subpart K). The largest tank at the facility has a capacity of only 2,474 gallons. As a result, Subpart Ka is not applicable.

40 CFR 60 Subpart Kb: Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984 – The facility does possess several petroleum liquid storage tanks on the premises (**ID Nos. IA-A01, IA-A02, IA-A03, and IA-A04**). However, none of them are large enough to qualify for Subpart Kb applicability. Although the minimum threshold is smaller than that of Subparts K and Ka, (75 m³, or about 20,000 gallons for Subpart Kb, versus 40,000 gallons for Subparts K and Ka), the largest tank is still too small with a capacity of only 2,474 gallons. As a result, Subpart Kb is not applicable.

40 CFR 60 Subpart GG: Standards of Performance for Stationary Gas Turbines – The Pleasant Hill compressor station does not operate any stationary gas turbines. Subpart GG is not applicable.

40 CFR 60 Subpart LLL: Standards of Performance for SO₂ Emissions From Onshore Natural Gas Processing for Which Construction, Reconstruction, or Modification Commenced After December 30, 1983, and on or Before April 23, 2003 – The Pleasant Hill compression station facility does not operate any sweetening units or sulfur recovery units, which are the subject of this regulation. As a result, Subpart LLL is not applicable.

40 CFR 60 Subpart JJJJ: Standards of Performance for Stationary Spark Ignition Internal Combustion Engines – As mentioned above, the Pleasant Hill compressor station facility operates 4 spark ignition internal combustion engines (**ID Nos. ES-15301, 15302, 15303, and 153G1**) on the premises. However, the engines were constructed prior to the time of applicability for Subpart JJJJ. The engines were constructed in March of 1990, but Subpart JJJJ only applies to engines built during or

after 2006-2009 (Note: the exact start date of applicability varies by type/size of engine, with the earliest being June 12, 2006). As a result, Subpart JJJJ is not applicable.

40 CFR 60 Subpart KKKK: Standards of Performance for Stationary Combustion Turbines – The Pleasant Hill compressor station facility does not operate any stationary combustion turbines. As a result, Subpart KKKK is not applicable.

40 CFR 60 Subpart OOOO: Standards of Performance for Crude Oil and Natural Gas Facilities for Which Construction, Reconstruction, or Modification Commenced After August 28, 2011, and on or Before September 18, 2015 – The storage vessel requirements defined for transmission sources in this subpart do not apply to this facility. Facility environmental specialist Melinda Holdsworth confirmed on September 3, 2024 that the only storage tank built during the period of applicability for this subpart (wastewater storage tank, **ID No. IA-A06**) is too small for this subpart to take effect. Subpart OOOO is not applicable.

40 CFR 60 Subpart OOOOa: Standards of Performance for Crude Oil and Natural Gas Facilities for Which Construction, Reconstruction, or Modification Commenced After September 18, 2015, and On or Before December 6, 2022 – The Pleasant Hill compressor station facility’s affected sources were constructed prior to the September 18, 2015 applicability threshold. Subpart OOOOa is not applicable.

40 CFR 60 Subpart OOOOb: Standards of Performance for Crude Oil and Natural Gas Facilities for Which Construction, Reconstruction, or Modification Commenced After December 6, 2022 – The Pleasant Hill compressor station facility’s affected sources were constructed prior to the December 6, 2022 applicability threshold. Subpart OOOOb is not applicable.

The addition of the gas metering station, **ID No. IA-MS**, is not subject to OOOOb even though it is new. As per §60.5365b, this subpart applies to sources or facilities located within the Crude Oil and Natural Gas source category as defined in §60.5430b. Crude oil and natural gas source category is defined as: (1) Crude oil production, which includes the well and extends to the point of custody transfer to the crude oil transmission pipeline or any other forms of transportation; and (2) Natural gas production, processing, transmission, and storage, which include the well and extend to, but do not include, the local distribution company custody transfer station. This facility is considered the custody transfer station by its nature because it transfers natural gas from the transmission pipeline to the point of use, so it is not subject.

40 CFR 60 Subpart OOOOc: Emissions Guidelines for Greenhouse Gas Emissions From Existing Crude Oil and Natural Gas Facilities – This subpart establishes guidelines for state regulatory agencies to develop their own implementation plans for GHG emission limits on crude oil and natural gas facilities. Each state has 2 years from the publication of this subpart (March 8, 2024) to submit implementation plans to the EPA and facilities have 3 years from the date of EPA approval of said plans to comply. Columbia Gas Transmission, LLC (the facility owner/operator) is aware of the workings of this subpart and will comply with any future state regulations when they become active. Subpart OOOOc-related requirements will likely become active within the lifetime of Permit 09186T05, so the facility owner/operator should keep themselves aware of any changes to the state implementation plan (SIP).

NESHAP/MACT

The facility is an area source under CAA §112 based on the facility-wide hazardous air pollutants (HAPs) emissions estimate on a potential-to-emit (PTE) basis. Specifically, aggregate HAP emissions were only 0.73 tons per year (TPY).

As of January 5, 2022, the EPA has added 1-bromopropane to its list of regulated HAPs. Since this update occurred between the previous permit renewal and this one, information about the status of this newly-regulated substance was requested from the facility. Technical contact Melinda Holdsworth confirmed on September 3, 2024, that no 1-bromopropane is not used, stored, or in any way emitted by the facility.

The facility is currently subject to one National Emission Standard for Hazardous Air Pollutants (NESHAP). This permit renewal does not change the facility's NESHAP applicability. The following information for various NESHAPs is provided to document non-applicability for those federal standards to the facility sources.

40 CFR 63 Subpart HH: National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities – The Pleasant Hill compressor station facility should be considered a “transmission facility” rather than a “production facility” for the purposes of this subpart. Facility environmental specialist Melinda Holdsworth confirmed on September 9, 2024 that the facility does not transport natural gas to any processing plants, nor does it process or upgrade natural gas in any way. Subpart HH is not applicable.

40 CFR 63 Subpart HHH: National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities – The Pleasant Hill compressor station facility is an area source of HAPs. Subpart HHH regulates only major sources and facilities with certain affected sources (glycol dehydration units), which do not apply to this facility. Subpart HHH is not applicable.

40 CFR 63 Subpart YYYY: National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines – The Pleasant Hill compressor station facility is an area source of HAPs and does not operate any stationary combustion turbines. Subpart YYYY only applies to major sources, and since this facility does not operate affected sources anyways, so Subpart YYYY is not applicable.

40 CFR 63 Subpart ZZZZ: National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines – The Pleasant Hill compressor station facility operates 4 reciprocating internal combustion engines (RICE): 3 non-emergency compressor engines (**ID Nos. ES-15301, 15302, and 15303**), and 1 natural gas-fired emergency engine (**ID No. ES-153G1**). All four RICEs are four-stroke rich burn (4SRB) existing sources, installed in March 1990. Subpart ZZZZ is applicable to these engines. No numerical emission limits are established under NESHAP for these three compressors (non-emergency engines) as they are less than 500 horsepower, and as a result no notifications are required. No numerical emission limits are placed on the emergency generator because it is an emergency engine, and as a result no notifications are required. Note that the two types of engines do have different operating/maintenance requirements (1,440 hours/annually for the compressors, versus 500 hours/annually for the emergency generator oil/filter/hoses/belts and 1000 hours/annually for the emergency generator spark plugs).

According to the most recent inspection report, the facility has generally been observed in compliance with Subpart ZZZZ, but one deviation was noted. One condition of the permit is that the belts, hoses, and spark plugs of the compressor engines are inspected and the oil/oil filter replaced at least every 1,440 hours or annually, whichever comes first. During a 2022 compliance review, it was discovered that an inspection of belts and hoses of the third compressor unit (**ES-15303**) was completed at a

runtime of 1,457.8 hours. A notice of deviation (NOD) was issued, and the facility has taken steps to avoid a deviation of this nature in the future. With respect to the emergency engine, the facility has been observed in compliance. The facility operator is required to replace the oil/oil filter every 500 hours of operation or annually, whichever comes first; inspect all belts and hoses every 500 hours of operation or annually, whichever comes first; and inspect spark plugs every 1,000 hours of operation or annually, whichever comes first. Continued compliance is expected.

The last permit renewal was issued on June 30, 2020. Since then, the language for 40 CFR 63 Subpart ZZZZ has been updated eight times: on November 19, 2020; on December 4, 2020; on January 1, 2021; on January 20, 2021; on August 10, 2022; on March 29, 2023; on May 30, 2023; and on August 30, 2024. During these updates, the following changes were made:

- November 19, 2020: Adds a cross reference to an amendment reclassifying certain major sources as area sources under section 112 of CAA.
- December 4, 2020: Adds a cross reference to an amendment streamlining fuel quality programs to improve compliance assurance, maintain environmental performance, and reduce compliance costs for both industry and EPA.
- January 1, 2021: Removes link to previous amendment. Changes 40 CFR 80.410(b) requirements to 40 CFR 1090.305.
- January 20, 2021: Changes the timeline of required notifications, adding the language “or no later than 120 days after the source becomes subject to this subpart, or whichever is later”.
- August 12, 2022: Removes some language from the definition of emergency stationary RICE, making it simpler. Removes Section 63.6604(c), a fuel requirement condition for stationary CI RICE. Removes Section 63.6640(f)(ii), defining one of the purposes for operating an emergency stationary RICE. Removes reporting requirements for hours operated for the aforementioned purposes and the number of hours the engine is obligated to be available for said purposes by contract.
- March 29, 2023: Adds a cross reference to an amendment changing regulations for source testing of emissions.
- May 30, 2023: Adds a handful of additional requirements for performance testing. Replaces ASTM D6522 with ASTM D6348-03.
- August 30: Clarifies definition of “annually” to “1 year + 30 days of previous action” for oil change, inspection, and maintenance timelines. Adds electronic reporting requirements for certain compliance reports (ex. Initial notification of compliance, performance test reports, etc.) to be submitted to the EPA’s CEDRI and/or CDX tools within 60 days. Corrects internal references within Table 2c of this subpart.

None of these updates affect any of the existing permit language, so no changes are necessary in this permit renewal.

40 CFR 63 Subpart DDDDD: National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters – The Pleasant Hill compressor station facility is an area source of HAPs, and its only boiler (**ID No. IA-BLR1**) has a maximum heat input rate of 1.5 million Btu per hour, which is less than the maximum threshold for hot water boiler exemptions (<1.6 million Btu per hour maximum heat input rate). As a result, Subpart DDDDD is not applicable.

40 CFR 63 Subpart JJJJJ: National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources – The Pleasant Hill compressor station facility is an area source of HAPs. However, the facility is exempt for two reasons: firstly, the facility’s only

boiler (**ID No. IA-BLR1**) only fires natural gas, making it a gas-fired boiler as defined in this subpart; secondly, the facility's only boiler has a maximum heat input rate of 1.5 million Btu per hour, which is small enough that is below the threshold (<1.6 million Btu per hour) to be considered a hot water boiler as defined in this subpart. As a result, subpart JJJJJ is not applicable.

PSD

The Pleasant Hill compressor station facility is located in Northampton County, which is currently designated in attainment for all pollutants for which National Ambient Air Quality Standards (NAAQS) have been promulgated. Accordingly, the PSD program applies to major stationary sources and major modifications in this airshed/county. Under PSD, except for the 28 listed industrial category sources (e.g., steam electric power plants, Portland cement plants, etc.), the major source threshold is established at 250 tons per year. Otherwise, (i.e., listed source categories), the threshold is established at 100 tons per year. It is noted that construction of any new major source or modification to any existing major facility may trigger PSD requirements.

The facility is a 250-ton category source because it is not in a listed source category. Its potential to emit (PTE) is below this major source threshold for PSD permitting, at roughly 244 tpy. In 2020, in response to public concern about the facility's potential to emit being so close to the threshold, the DAQ placed avoidance conditions for PSD regulations into Permit 09186T04 for facility emissions of carbon monoxide (CO) and nitrogen oxides (NO_x). See Eric Crump's permit review for Permit 09186T04 and its attached appendices, dated June 30, 2020, for additional information. In order to avoid triggering PSD applicability, the facility shall restrict emissions into the atmosphere to less than 250 tons of CO emissions and less than 250 tons of NO_x emissions per 12-month period. Furthermore, the facility is required to conduct periodic performance testing, establish facility-specific emission factors, and monitor/record/report CO and NO_x emissions to ensure continued compliance.

The initial testing for natural gas-fired engine/compressors **ID Nos. ES-15301 & ES-15303** and natural gas-fired emergency engine/generator **ID No. ES-153G1** was conducted for March 30, 2021. Moreover, initial testing for natural gas-fired engine/compressor **ID No. ES-15302** was conducted on November 16, 2021. These observed emissions rates from stack testing for both NO_x and CO were used to develop emissions factors as required by the permit. Further discussions are as below. Initial testing requirements for both NO_x and CO for these engines will be removed from the permit as they have been satisfied as above.

The renewed permit will include the following equations for estimating NO_x and CO for the purposes of emissions monitoring to comply with the applicability limit to avoid PSD, pursuant to 15A NCAC 02Q .0317. At the request of the facility, each engine shall have its own emission factor, so each engine shall have its own equations for estimating NO_x and CO. The below emission factors were agreed upon during a phone call with technical contact Melinda Holdsworth on October 31, 2024, and are based on the average emission factors for each engine generated during stack testing.

Engine 1 (compressor; ID No. ES-15301)

$$\text{NO}_x \left(\frac{\text{tons}}{\text{month}} \right) = 0.00514 \frac{\text{lbNO}_x}{\text{bhp-hr}} \times R_1 \frac{\text{bhp-hr}}{\text{month}}$$

$$\text{CO} \left(\frac{\text{tons}}{\text{month}} \right) = 0.00985 \frac{\text{lbCO}}{\text{bhp-hr}} \times R_1 \frac{\text{bhp-hr}}{\text{month}}$$

Where:

R_1 = Power output for compressor 1, ID No. ES-15301, in bhp-hr per month, if it burned fuel in a given month.

Engine 2 (compressor; ID No. ES-15302)

$$\text{NO}_x \left(\frac{\text{tons}}{\text{month}} \right) = 0.00485 \frac{\text{lbNO}_x}{\text{bhp-hr}} \times R_2 \frac{\text{bhp-hr}}{\text{month}}$$
$$\text{CO} \left(\frac{\text{tons}}{\text{month}} \right) = 0.00038 \frac{\text{lbCO}}{\text{bhp-hr}} \times R_2 \frac{\text{bhp-hr}}{\text{month}}$$

Where:

R_2 = Power output for compressor 1, ID No. ES-15302, in bhp-hr per month, if it burned fuel in a given month.

Engine 3 (compressor; ID No. ES-15303)

$$\text{NO}_x \left(\frac{\text{tons}}{\text{month}} \right) = 0.00529 \frac{\text{lbNO}_x}{\text{bhp-hr}} \times R_3 \frac{\text{bhp-hr}}{\text{month}}$$
$$\text{CO} \left(\frac{\text{tons}}{\text{month}} \right) = 0.0097 \frac{\text{lbCO}}{\text{bhp-hr}} \times R_3 \frac{\text{bhp-hr}}{\text{month}}$$

Where:

R_3 = Power output for compressor 3, ID No. ES-15303, in bhp-hr per month, if it burned fuel in a given month.

Generator (emergency generator; ID No. ES-153G1)

$$\text{NO}_x \left(\frac{\text{tons}}{\text{month}} \right) = 0.01014 \frac{\text{lbNO}_x}{\text{bhp-hr}} \times R_G \frac{\text{bhp-hr}}{\text{month}}$$
$$\text{CO} \left(\frac{\text{tons}}{\text{month}} \right) = 0.0032 \frac{\text{lbCO}}{\text{bhp-hr}} \times R_G \frac{\text{bhp-hr}}{\text{month}}$$

Where:

R_G = Power output for emergency generator, ID No. ES-153G1, in bhp-hr per month, if it burned fuel in a given month.

The DAQ is aware that the carbon monoxide emissions factor for engine ES-15302 is significantly lower than that of the other two engines, despite the three compressors being identical models. This is likely due to a difference in the testing parameters used for the engines. During the initial test (March 30, 2021), engines ES-15301 and ES-15303 were tested at 66% of maximum engine load. During the test for engine ES-15302 (November 16, 2021), the engine was tested at 86% load. Furthermore, the temperature of the ambient air was different due to the test occurring at a different part of the year, although this likely affected the test data much less than the engine load. According to the initial test report (provided by technical contact Melinda Holdsworth) which covers engines ES-15301, ES-15303, and ES-153G1, engine ES-15302 was experiencing technical difficulties at the time of the initial stack testing and could not be tested. This was apparently due to a carburetor malfunction. According to correspondence included with the report, the test was to take place right at the end of the timeframe during which the engines operate before being shut down for the season. ES-15302 would be tested later once it was repaired and the need for natural gas became great enough to operate the facility once again.

The DAQ has decided that the incongruent emission factor is unlikely to result in significant misreporting of emissions, because the facility's actual emissions have been shown to be significantly below the threshold for major source applicability under PSD. Furthermore, the facility only operates seasonally

(usually for about three months out of any given year), so its emissions are already somewhat limited by the nature of the facility's operational needs. Even when it is operating, the usual engine load is lower than what the engines were operated at during stack testing. Ultimately, the PSD avoidance condition in the permit condition calls for periodic testing every five years, so if all three engines are tested together during the next periodic test as expected, the anomaly should be corrected by the time of the next renewal.

In 2021, the facility was issued a notice of violation for late submission of initial stack testing reports imposed under the T04 PSD avoidance conditions. The facility was required to submit initial NO_x and CO performance test results used to determine facility-specific emission factors by December 27, 2020, but did not submit the report until March 30, 2021. A notice of violation was issued by the Raleigh Regional Office on July 9, 2021. Other than this violation, the facility has demonstrated compliance with its PSD avoidance conditions. Continued compliance is expected.

Finally, Northampton County has triggered increment tracking under PSD for PM₁₀, SO₂, and NO_x. However, this permit renewal does not consume or expand increments for any pollutants.

112(r)

The facility is not subject to Section 112(r) of the Clean Air Act requirements because it does not store any of the regulated substances in quantities above the 112(r) thresholds. No change with respect to 112(r) is anticipated under this permit renewal.

CAM

The CAM rule (40 CFR 64; 15A NCAC 02D .0614) applies to any pollutant specific emissions unit (PSEU) located at a TV facility that is required to obtain a Title V permit, if the emissions unit meets all three following criteria:

- the unit is subject to any (non-exempt: e.g., pre November 15, 1990, Section 111 or Section 112 standard) emission limitation or standard for the applicable regulated pollutant.
- the unit uses any control device to achieve compliance with any such emission limitation or standard.
- The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source (i.e., 100 tons per year for criteria pollutants or 10/25 tons per year for HAPs).

The Pleasant Hill compressor station does not operate any control devices or any emissions unit that requires control devices to maintain compliance, so Compliance Assurance Monitoring requirements do not apply.

7. Facility Wide Air Toxics

The Pleasant Hill compressor station facility is not subject to any NC Air Toxics requirements as it has not previously triggered an air toxics review. All permitted sources at this facility (three compressors and one emergency generator) are NESHAP-subject sources; thus, they are exempt from the state air toxics program as described in 15A NCAC 02Q .0702(a)(27). The NC Air Toxics program is not applicable.

8. Facility Emissions Review

The facility-wide potential emissions have not changed because of this TV permit renewal. Actual emissions for criteria pollutants and HAPs for the previous five years reporting periods are provided in the header of this permit review.

9. Compliance Status

DAQ has reviewed the compliance status of the Pleasant Hill compressor station. During the most recent inspection, conducted on July 28, 2022, the facility appeared to be in compliance with all applicable requirements, save for the minor deviation in maintenance detailed above in Section 6 (NESHAP – 40 CFR 63 Subpart JJJJ), and a violation for late submission of initial stack testing reports also detailed in Section 6 (PSD Avoidance Conditions). Other than that, the facility has had no air quality violations within the last five years. The facility’s most recent Periodic Compliance Certification was received on July 30, 2024, and indicated compliance with all applicable requirements between January 1 and June 30 of 2024. The facility certified compliance with all applicable requirements through the submittal of an E5 form, included with their application for renewal of their permit on July 8, 2024.

10. Public Notice/EPA and Affected State(s) Review

A notice of the DRAFT Title V Permit shall be made pursuant to 15A NCAC 02Q .0521. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Consistent with 15A NCAC 02Q .0525, the EPA will have a concurrent 45-day review period. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 02Q .0522, a copy of each permit application, each proposed permit and each final permit shall be provided to EPA. Also pursuant to 02Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice provided to the public under 02Q .0521 above. All possible affected states and local air programs will be notified regardless of proximity to the facility in accordance with standard DAQ practice.

11. Other Regulatory Considerations

- A P.E. seal is NOT required for this renewal application.
- A zoning consistency determination is NOT required for this renewal application.
- A permit application fee is NOT required for this renewal application.

12. Recommendations

The permit renewal application for the Pleasant Hill compressor station facility has been reviewed by DAQ to determine compliance with all procedures and requirements. DAQ has determined this facility is complying or will achieve compliance, as specified in the permit, with all requirements that are applicable to the affected sources. DAQ recommends the issuance of Air Permit No. 09186T05.