I. FACILITY INFORMATION

Tennessee Gas Pipeline, Compressor Station 325 is located at 164 Libertyville Rd. (Cty Rt. 650), Wantage Township, NJ 07461 in Sussex County and consists of a natural gas pipeline compressor station. The facility is owned and operated by Tennessee Gas Pipeline Company, LLC.

The facility is classified as a major facility based on its potential to emit 62.9 tons per year of nitrogen Oxides (NOx), 38.5 tons per year of volatile organic compounds (VOC) and 418 tons per year of methane (CH4) to the atmosphere.

This permit allows individual hazardous air pollutants to be emitted at a rate not to exceed:
320 pounds per year of Acetaldehyde
59.0 pounds per year of Acrolein
96.3 pounds per year of Benzene
0.0609 pounds per year of Cadmium
256 pounds per year of Ethylbenzene
10,260 pounds per year of Formaldehyde
2.10 pounds per year of Napthalene
3.58 pounds per year of Polycyclic Aromatic Hydrocarbon (PAH)
232 pounds per year of Propylene Oxide
And 10 pounds per year of total HAPs from insignificant sources.

II. AREA ATTAINMENT CLASSIFICATION

The Federal Clean Air Act (CAA) sets National Ambient Air Quality Standards (NAAQS) for six common air pollutants. These commonly found air pollutants (also known as "criteria pollutants") are particulate matter, ground-level ozone, carbon monoxide (CO), sulfur dioxide (SO2), nitrogen dioxide (NO2), and lead. The US Environmental Protection Agency (USEPA) also classifies areas as “attainment” or “nonattainment” for each criteria pollutant, based on the magnitude of an area's problem. Nonattainment classifications are used to specify what air pollution reduction measures an area must adopt, and when the area must reach attainment. Currently, the entire State of New Jersey is designated as nonattainment for the 8-hour ozone NAAQS. New Jersey is designated attainment for all other pollutants. For nonattainment classification refer to https://www.epa.gov/green-book/green-book-national-area-and-county-level-multi-pollutant-information.

III. BACKGROUND AND HISTORY

The equipment that emits air contaminants from this facility include:

- Two existing 94.6 MMBtu/hr natural gas fired simple cycle combustion turbines equipped with dry low NOx combustors (SoLoNOx) which reduce the emission of NOx to 25 ppmdv (U7 & U8),
- One new 172.22 MMBtu/hr natural gas fired simple cycle combustion turbine equipped with dry low NOx combustors (SoLoNOx) which reduce the emission of NOx to 9 ppmdv and an oxidation catalyst which reduces CO emissions by 90% and VOC and HAP emissions by 20% (U10).
- One existing 1.89 MMBtu/hr natural gas fired boiler (U3). This boiler will be decommissioned once U12 commences operation.
- One new 4.6 MMBtu/hr natural gas fired boiler (U12).
- One existing 3.82 MMBtu/hr natural gas fired emergency generator (U9). This emergency generator will be decommissioned once U11 commences operation.
- One new 11.4 MMBtu/hr natural gas fired emergency generator (U11).

A Facility-Wide Risk Assessment was conducted as part of the review of this permit application and health risk was determined to be negligible consistent with NJDEP Technical Manual 1003.

This is a Permit Modification with Renewal and includes the following changes:

The following new sources will be added to the permit:

1) (1) 172.22 MMBtu/hr natural gas-fired turbine (U10). This turbine powers a centrifugal compressor with tandem dry gas seals.
2) (1) 11.4 MMBtu/hr natural gas-fired emergency generator (U11); Existing emergency generator (U9) to be removed from the facility once U11 is installed and operational.
3) (1) 4.6 MMBtu/hr natural gas-fired hot water boiler (U12); Existing boiler (U3) to be removed from the facility once U12 is installed and operational.
4) The following insignificant sources will be added to the permit:
   - Compressor purge for new turbine (IS19).
   - Compressor shutdown venting for new turbine (IS20).
   - Pipeline Liquid Storage Tank & Truck loading (IS21).

Additional Changes to Permit:

1) Remove IS2 (parts washer) from the permit; it has been removed from the facility.
2) Remove IS6 (starting equipment) from the permit; these units are now electric.
3) Remove IS17 (pipeline blowdown event) from the permit; this was a duplication of IS18 that was inadvertently included in the permit.
4) Remove N.J.A.C.7:27-16.21 (Control and Prohibition of Air Pollution by VOCs: Natural Gas Pipelines) requirements from IS9 (Taurus 70 Compressor Shutdown Venting) as this rule does not apply to compressors only pipelines.
5) Reduce the CO annual emission limit for the boiler (U3) from 0.8 tpy to 0.677 tpy; this value was previously miscalculated.
6) Add hourly and annual methane emission limits for the turbines (U7/U8), pursuant to the Departments current policy, because potential emissions exceed the reporting threshold.
7) Add hourly and annual HAP emission limits (U3: Cadmium; U7/U8 Acetaldehyde, Acrolein, Benzene, Ethylbenzene and Propylene Oxide; U9: Acrolein and Formaldehyde) because potential emissions exceed the post 2018 reporting thresholds (N.J.A.C. 7:27-17.9). Formaldehyde limits were already included for U7/U8.
8) Add a new operating scenario for Startup (OS3) and Shutdown (OS4) for the turbines (U7/U8); Include hourly emission limits that are appropriate. These values differ from emissions during OS1 and OS2 for NOx, CO, VOC and HAPs.
9) Increase annual emissions of CO and VOC to account for higher emissions during startup and shutdown.
10) Add a permit condition to require emergency generator (U9) to cease operation once (U11) is available for operation and boiler (U3) to cease operation once (U12) is available for operation.
11) Revise natural gas limits and emission limits, where applicable, to update value of natural gas heat content from 1050 MMBtu/MMScf to 1027 MMBtu/MMScf and maximum sulfur content of natural gas from 0.008% to 5 grains / 100 scf (U3, U7, U8, U9).
12) Round all permit limits to 3 significant digits, pursuant to current DEP policy.
13) Add summary of all applicable Federal regulations to OSS for each emission unit.
14) Clarify that VOC mass emission limits include formaldehyde emissions (U7/U8).
15) The expiration date of the renewed operating permit will be 5 years after the approval date of the renewed operating permit, rather than 5 years after the expiration date of the current permit.
16) Renewal stack testing language, in the permit, has been changed to require stack testing "every 5 years, based on the completion date of the last stack test", rather than "every permit term".

Table 1 - Operating Permit Revision History (located at the end of this document) provides a summary of all the changes that have been incorporated into the operating permit through seven-day notice changes, administrative amendments, minor modifications, or significant modifications since the approval of the initial operating permit or the most recent renewal thereof. Please refer to the attached explanation sheet for the structure and configuration of conditions of approval, included in the Facility Specific Requirements section of this permit.

This renewal / modification will also change the allowable emission limits as listed in the following table:

Allowable Emission Limits	Facility's Potential Emissions (tons per year)*									
	VOC (total)	NO_x	CO	SO_2	TSP (total)	PM_{10} (total)	$PM_{2.5}$ (total)	Pb	HAPs (total)	CO_2e (total)
Current Permit	37.1	40.9	41.4	5.25	4.72	4.72	4.72	N / A	2.02	90,800
Proposed Permit	38.5	62.8	74.5	19.2	5.86	8.99	8.99	N / A	5.61	162,796
Change (+ / -)	1.4	21.9	33.1	13.95	1.14	4.27	4.27	N / A	3.59	71,996

VOC Volatile Organic Compounds
NO_x Nitrogen Oxides
CO Carbon Monoxide
SO_2 Sulfur Dioxide
TSP Total Suspended Particulates
PM_{10} Particulates under 10 microns
$PM_{2.5}$ Particulates under 2.5 microns
Pb Lead
HAPs Hazardous Air Pollutants
CO_2 e Carbon Dioxide equivalent
* Other Any other air contaminant regulated under the Federal Clean Air Act. This modification includes permitted methane emissions of 3.00 tons per year (tpy). 1.46 tpy will come from the new turbine (U10); 1.54 tpy comes from the existing turbines (U7 and U8) and are not new emissions but were previously not included in the permit.

IV. CASE-BY-CASE DETERMINATIONS

No case-by-case determinations were required for this permit action.

V. EMISSION OFFSET REQUIREMENTS

This permit action is not subject to Emission Offset requirements.

VI. BASIS FOR MONITORING AND RECORDKEEPING REQUIREMENTS

The facility's operating permit includes monitoring, recordkeeping and reporting requirements that are sufficient to demonstrate the facility's continued compliance with the applicable requirements consistent with the following:

1. Provisions to implement the testing and monitoring requirements of N.J.A.C. 7:27-22.18, the recordkeeping and reporting requirements of N.J.A.C. 7:27-22.19, and all emissions monitoring and analysis procedures or compliance assurance methods required under the applicable requirements, including any procedures and methods promulgated pursuant to 40 CFR 64; and

2. Where the applicable requirement does not require direct periodic monitoring of emissions, the Department requires periodic monitoring of surrogate parameters sufficient to yield reliable data from the relevant time period that are representative of the facility's compliance with the permit.
   - U7 & U8 (Turbines):
     - The facility monitors the fuel consumed by the turbines and total hours of turbine operation for each operating scenario and number and duration of startups and shutdowns. This information is a surrogate for the long-term (tons/year) emissions limits for NOx, CO, VOC, SO2, TSP, PM-10, PM-2.5, CH4, and individual HAPs.
   - U9 (Emergency Generator):
     - The facility monitors hours of operation for testing and maintenance. This information is the surrogate for the long term (TPY) emission limits for NOx, CO, VOC, SO2, Acrolein and Formaldehyde.

- CD10 (Oxidation Catalyst):
  - The minimum operating temperature at the inlet of the catalytic oxidizer is monitored in order to verify that the oxidation catalyst is operating properly and is used as a surrogate for the emission limits for CO, VOC and individual HAPs, during all steady state operation of the turbine.
- U10 (Turbine):
  - The facility monitors the fuel consumed by the turbine, total hours of turbine operation of each operating scenario and number and duration of startups and shutdowns. This information is a surrogate for the long-term (tons/year) emissions limits for NOx, CO, VOC, SO2, TSP, PM-10, PM-2.5, CH4, and individual HAPs.
- U11 (Emergency Generator):
  - The facility monitors hours of operation for testing and maintenance. This information is the surrogate for the long term (TPY) emission limits for NOx, CO, VOC, SO2, Acrolein and Formaldehyde.

3. In some cases, direct periodic monitoring of emissions and/or surrogate parameters is not required due to one or more of the following:

   - Equipment size and capacity limitations,
   - Subject equipment being permitted at the maximum rated capacity,
   - There is no specific state or Federal standard that applies to this piece of equipment,
   - Not a pollutant of concern for this piece of equipment,
   - Agreements with EPA on the frequency of testing and monitoring for combustion sources.

   Based on the above criteria, there is no direct or surrogate monitoring for the following:
   - U3 (Boiler):
     - Fuel consumption is not monitored because the boiler has a heat input of less than 5 MMBtu/hr and the permit does not restrict the heat input below the design value or restrict the annual hours of operation.
     - Opacity is not monitored because the boiler combusts only natural gas.
     - Maximum heat input is documented using manufacturer's heat input rating because the boiler has a heat input of less than 5 MMBtu/hr and the permit does not restrict the heat input below the design value.
     - Emissions are not monitored because the boiler has a heat input of less than 10 MMBtu/hr and the boiler combusts only natural gas.
   - U7 & U8 (Turbines):
     - Opacity is not monitored because the turbines combust only natural gas.
     - Maximum heat input is documented using manufacturer's heat input rating because the permit does not restrict the heat input below the design value.
     - Hourly emissions are not monitored (except for NOx and CO during OS1) because the permit does not restrict the heat input below the design value.
   - U9 (Emergency Generator):
     - Opacity is not monitored because the emergency generator combusts only natural gas and is permitted to operate no more than 100 hr/yr for testing and maintenance and during emergencies which require it to operate.
     - Maximum heat input is documented using manufacturer's heat input rating because the permit does not restrict the heat input below the design value and operation is limited to no more than 100 hr/yr for testing and maintenance and during emergencies which require it to operate.

  - Emissions are not monitored because the emergency generator is permitted to operate no more than 100 hr/yr for testing and maintenance and during emergencies which require it to operate.
- U10 (Turbine):
  - Opacity is not monitored because the turbines combust only natural gas.
  - Maximum heat input is documented using manufacturer's heat input rating because the permit does not restrict the heat input below the design value.
  - Hourly emissions are not monitored (except for NOx and CO during OS1) because the permit does not restrict the heat input below the design value.
- U11 (Emergency Generator):
  - Opacity is not monitored because the emergency generator combusts only natural gas and is permitted to operate no more than 100 hr/yr for testing and maintenance and during emergencies which require it to operate.
  - Maximum heat input is documented using manufacturer's heat input rating because the permit does not restrict the heat input below the design value and operation is limited to no more than 100 hr/yr for testing and maintenance and during emergencies which require it to operate.
  - Emissions are not monitored because the emergency generator is permitted to operate no more than 100 hr/yr for testing and maintenance and during emergencies which require it to operate.
- U12 (Boiler):
  - Fuel consumption is not monitored because the boiler has a heat input of less than 5 MMBtu/hr and the permit does not restrict the heat input below the design value or restrict the annual hours of operation.
  - Opacity is not monitored because the boiler combusts only natural gas.
  - Maximum heat input is documented using manufacturer's heat input rating because the boiler has a heat input of less than 5 MMBtu/hr and the permit does not restrict the heat input below the design value.
  - Emissions are not monitored because the boiler has a heat input of less than 10 MMBtu/hr and the boiler combusts only natural gas.

VII. APPLICABLE STATE AND FEDERAL RULES

The facility is subject to New Jersey Air Pollution Control Regulations, codified in N.J.A.C. 7:27-1 through 34, as applicable. A complete text of these regulations is available at:
http://www.nj.gov/dep/aqm/rules27.html

The facility is subject to Federal regulations listed below.

40 CFR 60 Subpart A:	New Source Performance Standards (NSPS): General Provisions
40 CFR 60 Subpart JJJJ:	New Source Performance Standards (NSPS): Stationary Spark Ignition Internal Combustion Engines
40 CFR 60 Subpart KKKK:	New Source Performance Standards (NSPS): Stationary Combustion Turbines
40 CFR 60 Subpart OOOOa:	New Source Performance Standards (NSPS): Crude Oil and Natural Gas Facilities for which construction, modification or reconstruction commenced after September 18, 2015.
40 CFR 63 Subpart ZZZZ:	Maximum Achievable Control Technology (MACT): Hazardous Air Pollutants (HAPs) for Stationary Reciprocating Internal Combustion Engines.

The Greenhouse Gas (GHG) emissions from this facility are 162,796 TPY CO2e and the GHG emissions increase are 71,996 TPY CO2e. This renewal and modification is not subject to PSD rules at 40 CFR 52.21.

VIII. FACILITY'S COMPLIANCE STATUS

The Responsible Official at the facility has certified that the facility currently meets all applicable requirements of the Federal Clean Air Act and the New Jersey Air Pollution Control Act. Based on this certification, the Department's evaluation of the information included in the facility's application, and a review of the facility's compliance status, the Department has concluded that this air pollution control operating permit should be approved.

The facility has submitted a timely and complete application to renew their operating permit and an application shield is in effect.

This operating permit includes a permit shield, pursuant to the provisions of N.J.A.C. 7:27-22.17. A permit shield provides that compliance with the relevant conditions of the operating permit shall be deemed compliance with the specific applicable requirements that are in effect on the date of issuance of the draft operating permit, and which form the basis for the conditions in the operating permit.

Also, prior to the expiration of the five-year period, the facility will be required to apply for a renewal of this operating permit, at which time the Department will evaluate the facility and issue a public notice with its findings.

IX. EXEMPT ACTIVITIES

The facility's operating permit does not include exempt activities such as office and interior maintenance activities, maintenance shop activities, food preparation facilities, cafeterias and dining rooms, etc. A complete list of exempt activities, as allowed by the Operating Permit rule, can be found at N.J.A.C. 7:27-22.1.

Table 1 - Operating Permit Revision History

Permit Activity Number	Type of Revision	Description of Revision	Final Action Date
BOP210001	Administrative Amendment	Administrative Amendment to update the facility contact information for Compressor Station 325. Specific Changes: 1) Change Operator, Owner and Responsible Official to Ronald F. Miller. 2) Update permit requirements in FC. 3) Update permit text.	3/18/2021
BOP200002	Administrative Amendment	Administrative Amendment to update the facility contact information for Compressor Station 325. Specific Changes: 1) Change Air Permit Contact and Fees Billing Contact to Austin Harris. 2) Change Operator, Owner and Responsible Official to Thomas W. Burgett. Update permit requirements in FC. 3) Update permit text.	8/14/2020
BOP180001	Administrative Amendment	Administrative amendment to change the RO/Operator/Owner from Thomas Dender to Ronald S. Bessette and Change the Delegated Authority from Ronald S. Bessette to Tom Burgett and update FC Section of the compliance plan	8/29/2018

FACILITY NAME (FACILITY ID NUMBER)
BOP050001

Activity Number assigned by the Department

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit Number assigned by the Facility

Brief description of emission unit

Emission Unit: **U40 Sewage Sludge Incinerators**
Operating Scenario: **OS Summary** **OR** **OS2 Fluidized Bed Incinerator**

OS Summary lists all rules and requirements that apply to an emission unit. An emission unit may contain one or more pieces of equipment and corresponding operating scenarios.

OSX denotes the operating scenario number and lists the rules and requirements that apply to a scenario. An operating scenario represents various ways (or scenarios) a piece of equipment is permitted to operate.

Item Number

Description of applicable requirement

Monitoring method to ensure compliance

Recordkeeping to show facility's compliance

Actions and submittals required for the facility

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
3	The permittee shall conduct an annual performance test for each pollutant in Table 2 of 40CFR62 Subpart LLL between 11 and 13 calendar months after the previous performance test or within 60 days of a process change. [40 CFR 62.16000(a)]	Other: Conduct the performance test using the test methods, averaging methods and minimum sampling volumes or durations as specified in 40CFR62 Subpart LLL and according to the testing, monitoring and calibration requirements specified in 40 CFR 62.16015(a). [40 CFR 62.16000(a)].	Other: (1) Maintain records of the results of initial, annual and any subsequent performance tests conducted to determine compliance with the emission limits and standards and/or to establish operating limits, as applicable. [40 CFR 62.16025(e)].	Submit a report: Annually to the Administrator and to the Department. The permittee shall submit an annual compliance report as specified in 40 CFR 62. [40 CFR 62.16000(d)]

Rule citation for applicable requirement

Rule citation for monitoring requirement

Rule citation for recordkeeping requirement

Rule citation for submittal/ action requirement

Explanation Sheet for Facility Specific Requirements