

Electronic Submittal



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October 4, 2022

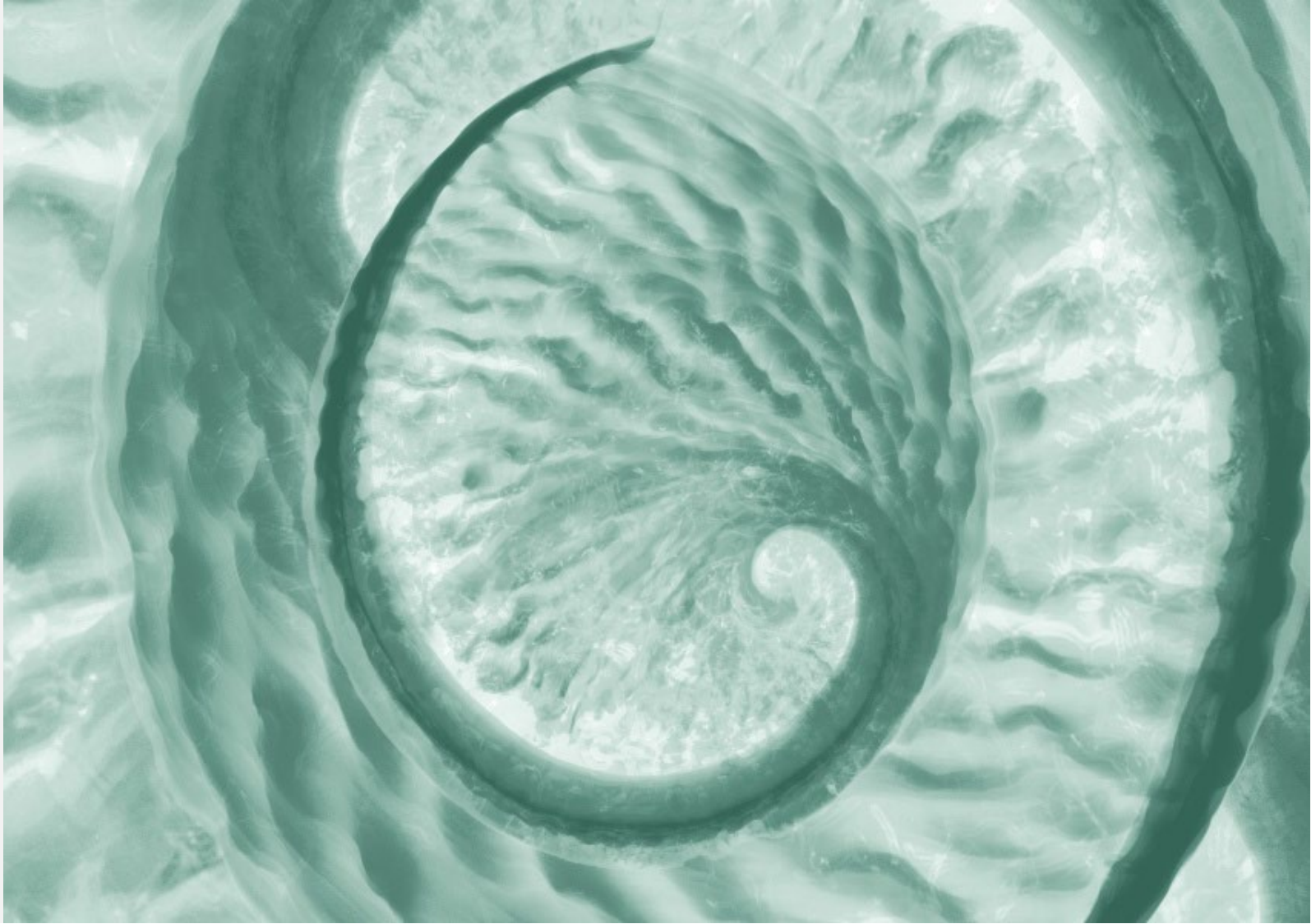
New Jersey Department of Environmental Protection
Bureau of Air Permits
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Re: LNG Plant Station 240
718 Paterson Plank Road, Carlstadt, NJ 07072-2397
Title V Significant Modification Application
Program Interest No. 02626
Permit Activity No. BOP190003

Williams Gas Pipeline Transco (“Transco”) hereby submits this Title V significant modification application for LNG Plant Station 240, located in Carlstadt, New Jersey through the NJDEP Online Portal. The enclosures in this application include the RADIUS application file and supporting attachments.

This permit application is for the installation of four (4) natural gas fired Waterbath heaters. The new equipment will replace the existing Waterbath Heaters (U7) that operate under an USEPA approved NOx Alternative Emission Limit (AEL) that will expire on July 9, 2024. The existing Waterbath Heaters are approaching the end of their useful life, which limits the ability/practicality to cost effectively implement retrofits to reduce NOx emissions to satisfy N.J.A.C. 7:27-19 emission standards. As such, Transco is requesting to replace these units with new heaters equipped with state-of-the-art burner technology that reduces the potential emission rates of criteria pollutants. Certain permit operating limitations will be retained so that the project will not result in an increase to allowable criteria or GHG emissions.

Station 240 serves is a key component of Transco’s critical natural gas transmission pipeline infrastructure regulated by the FERC. Therefore, the project must not cause any interruption in service. As such, the proposed compliance plan retains existing equipment in the Title V permit until they are permanently retired following construction, commissioning, and transfer to in-service of the new Waterbath heater sources.



Significant Modification Application



Transcontinental Gas Pipe Line Company,
LLC

Compressor Station 240

Carlstadt, Bergen County, NJ

October 4, 2022

Project No.: 0657765

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Acronyms and Abbreviations

Name	Description
°F	degrees Fahrenheit
AEL	Alternative Emission Limit
BOG	boil off gas
CH ₄	methane
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
CFR	Code of Federal Regulations
GHG	greenhouse gases
GWP	Global Warming Potential
HAP	hazardous air pollutant
hrs/yr	hours per year
lb/hr	pounds per hour
lb/MMBtu	pounds per million British thermal unit
lb/MWh	pounds per megawatt-hour
LNG	Liquefied Natural Gas
M&R	Metering and Regulating
MMBtu/hr	million British thermal units per hour
MMscf/yr	Million standard cubic feet per year
NESHAP	National Emission Standards for Hazardous Air Pollutants
N ₂ O	nitrous oxide
NJ	New Jersey
NJDEP	New Jersey Department of Environmental Protection
NJEMS	New Jersey Environmental Management System
NNSR	Nonattainment New Source Review
NO _x	nitrogen oxides
NSPS	New Source Performance Standards
NSR	New Source Review
O ₂	oxygen
PM _{2.5}	particulate matter with an aerodynamic particle diameter of 2.5 microns or less
PM ₁₀	particulate matter with an aerodynamic particle diameter of 10 microns or less
ppmv	parts per million by volume (dry basis)
PTE	potential-to-emit
PSD	Prevention of Significant Deterioration
RADIUS	Remote AIMS Data Input User System
SO ₂	sulfur dioxide

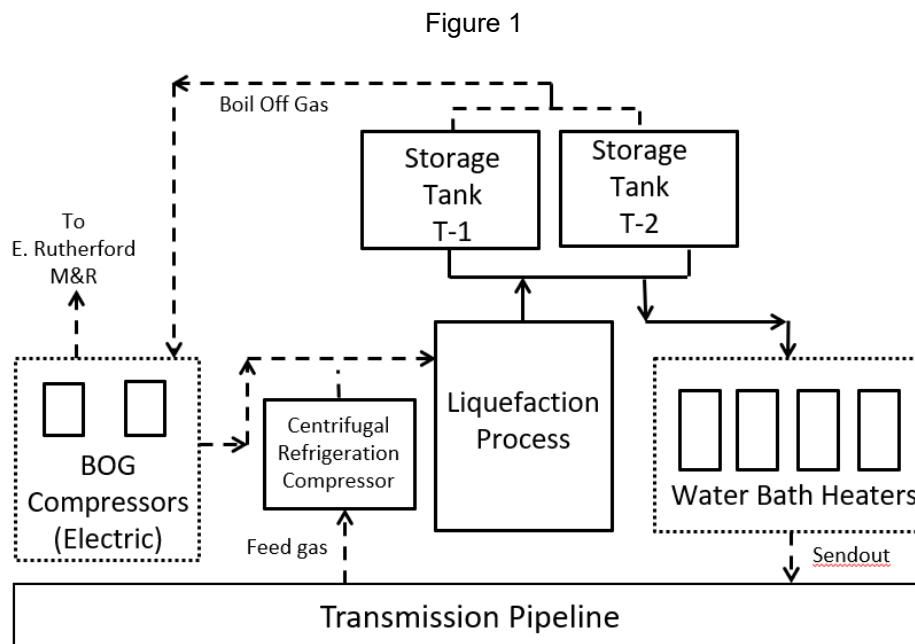
SOTA	State of the Art
TSP	total suspended particles
tpy	tons per year
Transco	Transcontinental Gas Pipe Line Company, LLC
USEPA	US Environmental Protection Agency
VOC	volatile organic compounds

1. INTRODUCTION

1.1 Background and Project Description

Transco's Station 240 is a Liquefied Natural Gas (LNG) Plant located at 718 Paterson Plank Road in Carlstadt, Bergen County, New Jersey. The station serves as a near market gas storage system to meet supply during peak demand periods. The facility operates under a Title V Operating Permit (Facility ID: 02626, BOP190003) approved by the New Jersey Department of Environmental Protection (NJDEP), in accordance with the provisions of the New Jersey Administrative Code, Title 7, Chapter 27, Subchapter 22 (N.J.A.C. 7:27-22).

At the station, feed gas is withdrawn from the main pipelines and liquefied for storage in the LNG storage tanks. Feed gas and boil off gas (BOG) from the storage tanks is compressed and sent back to the process for liquefaction or to the East Rutherford Metering and Regulating (M&R) station. According to market demand, LNG is vaporized using four (4) natural gas fired Waterbath Heaters and injected back into the pipeline for transmission. A simplified process flow diagram of the station post project is provided in Figure 1.



As described above, the station currently uses four (4) 83.8 MMBtu/hr Waterbath Heaters to vaporize the natural gas prior to sendout to the transmission pipeline. These Waterbath Heaters each operate under a USEPA approved¹ NOx Alternative Emission Limit (AEL) of 0.1 lb/MMBtu in accordance with N.J.A.C. 7:27-19.13. The AEL will expire on July 9, 2024 as noted in the Title V permit under U7, OS1-OS4, Ref. #2. The existing Waterbath Heaters are approaching the end of their useful life, which limits the ability/practicality to cost effectively implement retrofits to reduce NOx emissions to satisfy N.J.A.C. 7:27-19 emission standards. As such, Transco is requesting to replace Station 240's existing Waterbath Heaters (E7-E10, U7, OS1-OS4) with four (4) new 84 MMBtu/hr natural gas-fired Waterbath Heaters. The new Heaters will be added to the Title V permit equipment inventory under Equipment IDs E102-E105.

¹ The AEL was approved by USEPA on September 11, 2017.

The Heaters will be added to Emission Unit U7 under four new operating scenarios (OS9-OS12). **Attachment A** includes markups of the current permit to remove the existing Heaters.

The new Heaters will be equipped with state-of-the-art burner technology that reduces the potential emission rates of criteria pollutants such as NO_x, VOC, and CO. As a condition of the AEL approval for the existing Heaters, they are prohibited from operating during the ozone season. However, Transco proposes that this prohibition not be retained for the new Heaters, which do not require an AEL. In addition, Transco proposes to change the combined operating limit of 1,600 hours per year (hrs/yr) to the equivalent natural gas throughput of 131.45 MMscf/yr to provide operational flexibility while ensuring that the project will not result in any increases in allowable emissions. These revisions are included in the **Attachment A** permit markups.

The NJEMS information provided in the RADIUS application for the new Heaters is summarized in **Table 1-1** and includes the emission unit, equipment, and emission point IDs for each piece of equipment noted above.

Table 1-1: Replacement Waterbath Heater NJEMS Information

NJEMS Unit	Facility Equipment Description	NJEMS OS	NJEMS E ID	NJEMS PT ID
U7	Waterbath Heater #1	OS5	E102	PT102
	Waterbath Heater #2	OS6	E103	PT103
	Waterbath Heater #3	OS7	E104	PT104
	Waterbath Heater #4	OS8	E105	PT105

2. PROJECT EMISSIONS INFORMATION

Waterbath Heaters

Emissions for the four (4) Waterbath Heaters assume that a single unit is capable of operating 1,600 hrs/yr at up to 100% rated output, with a maximum combined fuel usage of 131.45 MMscf/yr for all four Heaters. The 131.45 MMscf/yr fuel cap is the same as the annual operating limit established for the existing 83.8 MMBtu/hr Heaters in the permit. Emission estimates for NO_x, CO, and VOCs are based on vendor guaranteed emission rates provided in **Attachment B**. TSP, PM₁₀, PM_{2.5}, CO₂, CH₄, and N₂O emissions utilize the emission factors published in USEPA AP-42, Table 1.4-2 Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion. The emissions calculations are summarized in **Attachment C**.

3. REGULATORY APPLICABILITY

The following is a brief analysis of the applicability (or non-applicability) of State and Federal air pollution control regulations of particular relevance to the new Heaters.

3.1 State of New Jersey

3.1.1 Subchapter 4 (N.J.A.C. 7:27-4) Control and Prohibition of Particles from Combustion of Fuel

N.J.A.C. 7:27-4 restricts emissions of particulate matter from fuel combustion sources with heat inputs greater than or equal to one (1) MMBtu/hr and sets maximum allowable emission rates based on the heat input rate of the source. For the new Heaters, each with a maximum heat input of 84 MMBtu/hr, the maximum allowable emission rate of particulate matter in N.J.A.C. 7:27-4.2(a) is 14.2 pounds per hour (lb/hr). Based on the supporting emission calculations in **Attachment C**, estimated particulate emissions from the Heaters are well below the 14.2 lb/hr standard.

3.1.2 Subchapter 16 (N.J.A.C. 7:27-16) and Subchapter 19 (N.J.A.C. 7:27-19) Control and Prohibition of Air Pollution by Volatile Organic Compounds and Oxides of Nitrogen

Industrial Boilers or Indirect Heat Exchangers with maximum heat inputs of at least 50 MMBtu/hr are subject to CO, VOC, and NOx emission standards pursuant N.J.A.C. 7:27-16.8(b) and N.J.A.C. 7:27-19.7(h). The new 84 MMBtu/hr Heaters are required to meet the emission standards shown in **Table 3-1** below.

Table 3-1: Applicable Regulatory Limits for CO, VOC, NOx

Pollutant	Emission Standard	Reference
CO	100 ppmvd @ 7% O ₂	N.J.A.C. 7:27-16.8(b)
VOC	50 ppmvd @ 7% O ₂	N.J.A.C. 7:27-16.8(b)
NOx	0.05 lb/MMBtu	N.J.A.C. 7:27-19.7(i)

The vendor emission factors provided in **Attachment B** demonstrate that the new Heaters will meet the applicable emission standards.

3.1.3 Subchapter 17 (N.J.A.C. 7:27-17) Control and Prohibition of Air Pollution by Toxic Substances and Hazardous Air Pollutants

N.J.A.C. 7:27-17 (“Subchapter 17”) applies to certain permit applications submitted to the Department pursuant to N.J.A.C. 7:27-8 or N.J.A.C. 7:27-22. This Title V significant modification application is being submitted pursuant to N.J.A.C. 7:27-22, and therefore must comply with the applicable provisions of Subchapter 17. Based on the emission calculations for the new Heaters provided in **Attachment C**, there are five (5) hazardous air pollutants (HAPs) with potential emissions that exceed the reporting thresholds listed in Subchapter 17, specifically N.J.A.C. 7:27-17.9: Arsenic, Cadmium, Cobalt, 7,12-Dimethylbenz(a)anthracene, and Formaldehyde. These HAPs are currently listed with emission

limits for the existing Heaters in the facility's Title V permit. The proposed annual tons per year (tpy) emission limits for the new Heaters are the same as the permit limits established for the existing Heaters.

The five HAPs were evaluated for the existing Heaters as part of the Facility Wide Health Risk Assessment conducted in support of the Title V renewal, which was approved by the Department on November 9, 2021 and is the facility's current Title V permit (BOP190003). The health risk for these HAPs was determined to be negligible consistent with NJDEP Technical Manual 1003 (Guidance on Preparing a Risk Assessment for Air Contaminant Emissions). The new Heaters will be located in close proximity to the existing Heaters, and have similar stack parameters. Based on this, Transco believes that no further evaluation should be required for the reportable HAP from the new Heaters.

3.1.4 Subchapter 18 (N.J.A.C. 7:27-18) Control and Prohibition of Air Pollution from New or Altered Sources Affecting Ambient Air Quality (Emission Offset Rule)

N.J.A.C. 7:27-18 ("Subchapter 18") applies when a "significant net emissions increase" of a regulated air contaminant occurs as a result of a proposed increase in allowable emissions at a "major facility." The increase in allowable emissions due to the installation and operation of the four (4) new Waterbath Heaters will not trigger a significant net emission increase of any air contaminant per N.J.A.C. 7:27-18.7. Therefore, Subchapter 18 does not apply to this project. Supporting Subchapter 18 analysis netting tables using the Department's electronic Netting Analysis Tool (eNAT) are provided in **Attachment D**.

3.1.5 Subchapter 22 (N.J.A.C. 7:27-22) Operating Permits

Pursuant to N.J.A.C. 7:27-22.1, the new Heaters, which have maximum heat inputs above 1 MMBtu/hr, are considered "significant source operations", and as such must be permitted under N.J.A.C. 7:27-22. The Heaters will be permitted as a Title V "significant modification" under N.J.A.C. 7:27-22.24(b) because they are subject to New Source Performance Standards (NSPS) regulations as described below in Section 3.2.2.

3.1.5.1 State of the Art (SOTA)

Pursuant to N.J.A.C. 7:27-22.35, newly constructed, reconstructed, or modified equipment and control apparatus must incorporate "advances in the art of air pollution control", commonly referred to as "State of the Art" (SOTA). The potential emission rates for the Heaters in **Attachment C** are below the SOTA applicability thresholds specified in N.J.A.C. 7:27-17.9 Tables 3A and 3B for HAPs, and N.J.A.C. 7:27-22.35(b) for other air contaminants. Therefore, the Heaters do not trigger SOTA review, although the proposed NO_x, CO, and VOC lb/MMBtu emission rates meet the SOTA Performance Levels specified in Section 3.12.2, Table 1c for Natural Gas-Fired Boilers and Process Heaters with maximum heat input ratings \geq 75 MMBtu/hr.

3.1.6 Administrative Order No. 2021-25

In September 2021, NJDEP Commissioner Shawn M. LaTourette issued Administrative Order 2021-25 (AO 2021-25), which is designed to provide guidance and certainty regarding the Department's expectations for facilities located or seeking to be located in overburdened communities prior to adoption of implementation rules for the NJ Environmental Justice Law, N.J.S.A. 13:1D-157, et seq. (EJ Law).

There is a three-step process to determine whether a given permitted activity is covered by the EJ Law:

1. Is the facility located in an overburdened community?
2. Is the facility type covered by the EJ Law?

3. Is the authorization sought covered by the EJ Law?
 - a. The authorization must be an individual permit.
 - b. The statutes governing the covered permits are enumerated by the EJ Law.

If the answer to all three questions above is “yes,” then AO 2021-25 applies.

Question #1

As defined by the Legislature in the EJ Law at N.J.S.A. 13:1D-158, an overburdened community (OBC) is any census block group, as determined in accordance with the most recent United States Census, in which:

1. At least 35 percent of the households qualify as low-income households (at or below twice the poverty threshold as determined by the United States Census Bureau);
2. At least 40 percent of the residents identify as minority or as members of a State recognized tribal community; or
3. At least 40 percent of the households have limited English proficiency (without an adult that speaks English “very well” according to the United States Census Bureau).

The Department has published a list of OBCs on its website and provides an EJ OBC Mapping Tool to identify whether a given facility or activity is in a block group identified as an OBC. According to the Mapping Tool, the Station 240 facility, which is located on Patterson Plank Rd. in Carlstadt, Bergen County, is located in an OBC. Therefore, the answer to question #1 is Yes.

Question #2

Consistent with the EJ Law, AO 2021-25 impacts authorizations for eight (8) types of facilities:

1. Major sources of air pollution;
2. Resource recovery facilities or incinerators;
3. Sludge processing facilities, combustors, or incinerators;
4. Sewage treatment plants with a capacity of more than 50 million gallons per day;
5. Transfer stations or other solid waste facilities, or recycling facilities intending to receive at least 100 tons of recyclable material per day;
6. Scrap metal facilities;
7. Landfills, including, but not limited to, a landfill that accepts ash, construction or demolition debris, or solid waste; or
8. Medical waste incinerators, except those that accept regulated medical waste for disposal, or is attendant to a hospital or university and intended to process self-generated regulated medical waste.

Facility type #1 (Major sources of air pollution) is the only type relevant to Station 240. The facility is considered a major source of air pollution because its PTE for at least one pollutant (NO_x) is above the major facility threshold levels listed in N.J.A.C. 7:27-22.1. Accordingly, the facility has a Title V Operating Permit. Therefore, the answer to question #2 is Yes.

Question #3

Consistent with the EJ Law, AO 2021-25 applies to new permits, modified permits, registrations, or licenses, where the modification results in a facility expansion, or renewals of existing permits for major air facilities issued under the following statutes:

1. R.S. 12:5-1 (Waterfront Development)
2. N.J.S.A. 13:1D-29 (Construction Permits)
3. N.J.S.A. 13:1E-1, 13:1E-26 (Solid Waste Management Act)
4. N.J.S.A. 13:1E-48.1, 13:1E-99.21a (Comprehensive Regulated Medical Waste Management Act)
5. N.J.S.A. 13:1E-99.11 (New Jersey Statewide Mandatory Source Separation and Recycling Act)
6. N.J.S.A. 13:1F-1 (Pesticide Control Act of 1971)
7. N.J.S.A. 13:9A-1 (The Wetlands Act of 1970)
8. N.J.S.A. 13:9B-1 (Freshwater Wetlands Protection Act)
9. N.J.S.A. 13:19-1 (Coastal Area Facility Review Act)
10. N.J.S.A. 13:20-1 (Highlands Water Protection and Planning Act)
11. N.J.S.A. 26:2C-1 (Air Pollution Control Act)
12. N.J.S.A. 58:1A-1, 58:4A-5 (Water Supply Management Act)
13. N.J.S.A. 58:10A-1, 58:10A-21 (Water Pollution Control Act)
14. N.J.S.A. 58:16A-50 (Flood Hazard Control Act)

#11 [N.J.S.A. 26:2C-1 (Air Pollution Control Act)] is the type of permit that is being sought in this instance; however, the project that is the subject of this Title V significant modification application does not result in a facility expansion as defined by the Department.

According to the Department's "Administrative Order 2021-25 – FAQs", for purposes of AO 2021-25 the Department will consider any modification to a facility's existing authorization that increases the facility's environmental impact, such as emission increases or an expansion of the facility's footprint, to be an expansion. The proposed permit action does not increase allowable or actual emissions or expand the facility's footprint. It involves replacement of older natural gas-fired Heaters with new, more efficient, lower-emitting natural gas-fired Heaters with essentially identical heat input ratings that satisfy New Jersey NOx RACT provisions without the need for a case-specific AEL. The facility's operations are limited by the capacity of the LNG storage tanks at the site rather than the capacity of the Waterbath Heaters and, therefore, the facility's capacity will not be expanded or "debottlenecked" by this project. The proposed annual operating levels requested for the new Heaters match the levels for the existing Heaters that are being replaced. The emission rates for the new Heaters are less than or equal to the emission rates for the existing Heaters. In particular, the emission factors for NOx, CO, and VOC are significantly lower for the new Heaters.

Based on this, Transco believes that AO25 does not apply to this permit action.

3.2 Federal Requirements

3.2.1 Prevention of Significant Deterioration (PSD)

The Federal PSD regulations (40 CFR 52.21) apply to the construction of new major stationary sources or major modifications of existing major stationary sources. Station 240 facility is not an existing major

stationary source under PSD, because potential emissions of all PSD-regulated pollutants are below the 250 tpy threshold. If a project does not cause a “significant emissions increase” and a “significant net emissions increase”, then it is not a major modification, and PSD does not apply. The emissions thresholds triggering PSD are shown in **Table 3-2** below.

Table 3-2: Significant Emission Rates

Pollutant	Emission Rate (tpy)
Carbon Monoxide (CO)	100
Nitrogen Oxides (NO _x)	40
Sulfur Dioxide (SO ₂)	40
Total Suspended Particulates (TSP)	25
Particulate Matter <10 microns (PM ₁₀)	15
Particulate Matter <2.5 microns (PM _{2.5}) ¹	10
Volatile Organic Compounds (VOC) ²	40
Lead (Pb)	0.6
Greenhouse Gases (CO ₂ e)	75,000

Notes:

^[1] For PM_{2.5}, a modification is considered major if the project emissions exceed 10 tpy PM_{2.5} (or 40 tpy NO_x or SO₂ [PM_{2.5} precursors]).

^[2] VOC emissions are considered precursors to ozone formation. Because the state of New Jersey is categorized as nonattainment for ozone, VOC emissions are reviewed under N.J.A.C. 7:27-18 (Emission Offset Rule) rather than PSD.

PSD Analysis – Significant Emission Increase

The emission increases associated with the project are provided in **Table 3-3** below:

Table 3-3: PSD Emissions Analysis

Pollutant (tpy)	SO ₂	NO _x	CO	TSP	PM ₁₀	PM _{2.5}	VOC	Lead	CO ₂ e ¹
Project	0.05	0.77	3.01	0.58	0.43	0.43	0.39	---	9,110
PSD Significant Level	40	40	100	25	15	10	40	0.6	75,000
PSD Triggered	No	No	No	No	No	No	No	No	No

Notes:

^[1] Based on the Supreme Court’s decision on June 23, 2014 in Utility Air Regulatory Group v. EPA, a project’s GHG (CO₂e) emissions can only trigger PSD if a conventional pollutant triggers PSD first. For CO₂e emissions, the thresholds are 75,000 tpy for modified facilities and 100,000 tpy for new facilities.

The Heaters’ potential emissions of PSD-regulated attainment pollutants are well below the applicable PSD significant emission increase levels; therefore, the Heaters are not subject to PSD.

3.2.2 New Source Performance Standards (NSPS)

The NSPS establish emission limits and other requirements for specific types of new, modified, or reconstructed sources. NSPS Subpart Dc for Small Industrial-Commercial-Institutional Steam Generating Units (40 CFR 60.40c-48c) applies to steam generating units constructed after June 9, 1989 and with maximum heat inputs between 10 MMBtu/hr and 100 MMBtu/hr. The new Heaters were constructed after

the specified date and are within the applicable heat input range; therefore, the units will be subject to NSPS Subpart Dc. The existing Heaters are also subject to NSPS Subpart Dc, and the Title V permit already contains relevant Subpart Dc provisions in the U7 compliance plan, specifically U7, OS Summary Ref. #23-33, that will apply to the new Heaters when they are added as four new operating scenarios under U7 (OS9-OS12).

NSPS Subpart OOOOa applies to affected facilities in the crude oil and natural gas source category that commence construction, modification, or reconstruction after September 18, 2015. Facilities that meet the definition of affected facilities under NSPS Subpart OOOOa include:

- Hydraulically fractured natural gas wells;
- Centrifugal compressors with wet seals and reciprocating compressors;
- Pneumatic controllers at natural gas processing plants and other locations within the crude oil and natural gas source category;
- Storage vessels with potential VOC emissions greater than 6 tpy;
- A group of equipment within a process unit for the extraction of natural gas liquids from field gas, fractionation of liquids into natural gas products, or other operations associated with the processing of natural gas products;
- Pneumatic pumps at onshore natural gas processing plants or well sites;
- Fugitive equipment components at onshore natural gas processing plants, well sites, and compressor stations; and
- Sweetening units at onshore natural gas processing plants.

The project will not include affected facilities with requirements related to well sites, natural gas processing plants, centrifugal compressors with wet seals, reciprocating compressors, or storage vessels with VOC emissions greater than 6 tpy applicable to NSPS Subpart OOOOa.

For fugitive equipment components at compressor stations, the affected source includes all fugitive equipment components located at the compressor station. Per 40 CFR §60.5365a(j): "...For purposes of §60.5397a, a "modification" to a compressor station occurs when: (1) An additional compressor is installed at a compressor station; or (2) One or more compressors at a compressor station is replaced by one or more compressors of greater total horsepower than the compressor(s) being replaced."

The proposed installation of the new Heaters at Station 240 will not result in a "modification" of the compressor station. Therefore, the project does not trigger Subpart OOOOa requirements.

The project will comply with the requirements of NSPS Subpart A – General Provisions and Subpart Dc.

3.2.3 National Emission Standards for Hazardous Air Pollutants (NESHAP)

NESHAP are emission standards established by USEPA to reduce HAP emissions from specific source categories. NESHAP are authorized by Section 112(g) of the Clean Air Act and codified at 40 CFR 63.

NESHAP Subpart DDDDD for Industrial, Commercial, and Institutional Boilers and Process Heaters for Major Sources pertains to applicable boilers/heaters located at major HAP sources. Station 240 is not a major HAP source because it does not have potential HAP emissions of 10 tpy or more of any single HAP or 25 tpy or more of any combination of HAPs. This project does not change the facility's status as a non-major (i.e. area) HAP source; therefore, Subpart DDDDD does not apply.

NESHAP Subpart JJJJJJ for Industrial, Commercial, and Institutional Boilers and Process Heaters for Area Sources applies to boilers/heaters located at area HAP sources. Station 240 is considered an area

HAP source because it does not meet the major HAP source criteria, as explained in the previous paragraph. However, the new Heaters meet the definition of “gas-fired boiler”, and therefore are exempt from Subpart JJJJJJ pursuant to 40 CFR 63.11195(e).

ATTACHMENT A BOP190003 PERMIT MARKUPS

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
9	Cadmium compounds <= 0.0000723 tons/yr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
10	Cobalt compounds <= 0.00000552 tons/yr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
11	Dimethylbenz(a)anthracene (7,12-) <= 0.00000105 tons/yr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
12	HAPs (Total) <= 0.00502 tons/yr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
13	SO2 <= 0.132 tons/yr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
14	TSP <= 0.12 tons/yr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
15	PM-10 (Total) <= 0.5 tons/yr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
16	PM-2.5 (Total) <= 0.5 tons/yr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
17	Hours of Operation <= 1,600 hr/yr for OS1, OS2, OS3, and OS4 combined. The waterbath heaters shall not be operated during the ozone season as defined in N.J.A.C. 7:27-21.1. [N.J.A.C. 7:27-19.13]	None.	Hours of Operation: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. The permittee shall maintain the following records: 1. hours of operation for each heater during each calendar month; 2. total hours of operation during each calendar month; and 3. total hours of operation during each consecutive 12-month period. [N.J.A.C. 7:27-22.16(o)]	None.
18	No visible emissions except for a period of not longer than three (3) minutes in any consecutive 30-minute period. [N.J.A.C. 7:27-3.2 (a)] &. [N.J.A.C. 7:27- 3.2(c)]	None.	None.	None.
19	The flue gas recirculation (FGR) control system shall be operating at all times the heaters are operating. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

Please change to Fuel usage <= 131.45 MMscf/yr for OS5, OS6, OS7, and OS8

Please delete the ozone season operation restriction.

BOP190003

New Jersey Department of Environmental Protection
 Facility Specific Requirements

Emission Unit: U7 Waterbath Heaters

Operating Scenario: OS1 Waterbath Heater #1, OS2 Waterbath Heater #2, OS3 Waterbath Heater #3, OS4 Waterbath Heater #4

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	NOx (Total) <= 8.38 lb/hr. [N.J.A.C. 7:27-22.16(a)]	NOx (Total): Monitored by stack emission testing prior to permit expiration date, based on each of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	NOx (Total): Recordkeeping by stack test results prior to permit expiration date. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
2	NOx (Total) <= 0.1 lb/MMBTU. The Alternative Emission Limit will expire on July 9, 2024. [N.J.A.C. 7:27-19.13]	NOx (Total): Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. [N.J.A.C. 7:27-22.16(o)]	NOx (Total): Recordkeeping by stack test results prior to permit expiration date. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
3	CO <= 6.87 lb/hr. [N.J.A.C. 7:27-22.16(e)]	CO: Monitored by stack emission testing prior to permit expiration date, based on each of three Department validated stack test runs. [N.J.A.C. 7:27-22.16(o)]	CO: Recordkeeping by stack test results prior to permit expiration date. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
4	CO <= 100 ppmvd @ 7% O2. [N.J.A.C. 7:27-16.8(b)2]	CO: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. [N.J.A.C. 7:27-22.16(o)]	CO: Recordkeeping by stack test results prior to permit expiration date. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
5	VOC (Total) <= 0.35 lb/hr. [N.J.A.C. 7:27-22.16(e)]	None.	None.	None.
6	VOC (Total) <= 50 ppmvd @ 7% O2. [N.J.A.C. 7:27-16.8(b)1]	None.	None.	None.
7	Formaldehyde <= 0.00616 lb/hr based on AP-42 factor. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
8	Arsenic compounds <= 0.0000164 lb/hr based on AP-42 factor. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
9	Cadmium compounds <= 0.0000904 lb/hr based on AP-42 factor. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
10	Cobalt compounds <= 0.0000069 lb/hr based on AP-42 factor. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

Please Delete

New Jersey Department of Environmental Protection
 Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
11	Dimethylbenz(a)anthracene (7,12-) <= 0.00000131 lb/hr based on AP-42 factor. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
12	SO2 <= 0.164 lb/hr. [N.J.A.C. 7:27-22.16(e)]	None.	None.	None.
13	TSP <= 14.2 lb/hr. [N.J.A.C. 7:27- 4.2(a)]	None.	None.	None.
14	TSP <= 0.16 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
15	PM-10 (Total) <= 0.62 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
16	PM-2.5 (Total) <= 0.62 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
17	Maximum Gross Heat Input <= 83.8 MMBTU/hr. [N.J.A.C. 7:27-22.16(e)]	None.	Other: Keep records showing maximum heat input rate[N.J.A.C. 7:27-22.16(o)].	None.

Please Delete

Please delete E7, E8, E9, E10

New Jersey Department of Environmental Protection
Equipment Inventory

Equip. NJID	Facility's Designation	Equipment Description	Equipment Type	Certificate Number	Install Date	Grand-Fathered	Last Mod. (Since 1968)	Equip. Set ID
E7	WH1	Waterbath Heater #1	Process Heater	PCP-980002	1/1/1968	No	1/17/2002	
E8	WH2	Waterbath Heater #2	Process Heater	PCP-980002	1/1/1968	No	1/17/2002	
E9	WH3	Waterbath Heater #3	Process Heater	PCP-980002	1/1/1968	No	1/17/2002	
E10	WH4	Waterbath Heater #4	Process Heater	PCP-980002	1/1/1968	No	1/17/2002	
E11	H2	Glycol Heater	Process Heater	BOP160001	8/18/2016	No		
E12	H1	Regeneration Gas Heater	Process Heater	BOP080010	7/22/2008	No		
E14	CT	Condensate Tank	Storage Vessel	GEN000001	9/1/1997	No	9/1/1997	
E15	GT-3001	Natural Gas Fired Turbine	Combustion Turbine	BOP180002	5/15/2020	No		
E33	F-6001	Emergency Flare	Other Equipment	BOP180002	2/28/2019	No		
E101	EFP	Emergency Fire Pump	Stationary Reciprocating Engine	BOP130002	8/14/2013	No		

02626 LNG PLANT STATION 240 BOP190003 E7 (Process Heater)
Print Date: 4/14/2021

Make: N/A
Manufacturer: Johnston
Model: TF-2000
Equipment Type Description: Waterbath Heater #1

Maximum rated Gross Heat Input (MMBtu/hr-HHV): 83.8
Draft Type: [dropdown]
Firing Method: [dropdown]

Is the Process Heater using (check all that apply):
Low NOx Burner
Type of Low NOx Burner: [dropdown]

Flue Gas Recirculation (FGR):
Have you attached a diagram showing the location and/or the configuration of this equipment?
 Yes No
Have you attached any manufact.'s data or specifications to aid the Dept. in its review of this application?
 Yes No

Comments: FGR manufacturer Johnston Boiler Company, max. air flow rate to control device 28373 acfm, install date 1/17/2002 (FGR prev. listed as CD3 in CD Inventory)

Include Emission Rates on the Potential to Emit Screen for each contaminant in ppmvd @ 7%O2 in addition to lbs/hr and tons/yr.

Please Delete details for Waterbath Heater #1

02626 LNG PLANT STATION 240 BOP190003 E8 (Process Heater)
Print Date: 4/14/2021

Make: N/A
Manufacturer: Johnston
Model: TF-2000
Equipment Type Description: Waterbath Heater #2

Maximum rated Gross Heat Input (MMBtu/hr-HHV): 83.8
Draft Type: [dropdown]
Firing Method: [dropdown]

Is the Process Heater using (check all that apply):
Low NOx Burner
Type of Low NOx Burner: [dropdown]

Flue Gas Recirculation (FGR):
Have you attached a diagram showing the location and/or the configuration of this equipment?
 Yes No
Have you attached any manuf.'s data or specifications to aid the Dept. in its review of this application?
 Yes No

Comments: FGR manufacturer Johnston Boiler Company, max. air flow rate to control device 28373 acfm, install date 1/17/2002 (FGR prev. listed as CD4 in CD Inventory)

Include Emission Rates on the Potential to Emit Screen for each contaminant in ppmvd @ 7%O2 in addition to lbs/hr and tons/yr.

Please Delete details for Waterbath Heater #2

02626 LNG PLANT STATION 240 BOP190003 E9 (Process Heater)
Print Date: 4/14/2021

Make:
Manufacturer:
Model:
Equipment Type Description:

Maximum rated Gross Heat Input (MMBtu/hr-HHV):
Draft Type:
Firing Method:

Is the Process Heater using (check all that apply):
Low NOx Burner
Type of Low NOx Burner:
Flue Gas Recirculation (FGR):

Have you attached a diagram showing the location and/or the configuration of this equipment?
 Yes No

Have you attached any manuf.'s data or specifications to aid the Dept. in its review of this application?
 Yes No

Comments:

Include Emission Rates on the Potential to Emit Screen for each contaminant in ppmvd @ 7%O2 in addition to lbs/hr and tons/yr.

Please Delete details for
Waterbath Heater #3

02626 LNG PLANT STATION 240 BOP190003 E10 (Process Heater)
Print Date: 4/14/2021

Make:
Manufacturer:
Model:
Equipment Type Description:

Maximum rated Gross Heat Input (MMBtu/hr-HHV):
Draft Type:
Firing Method:

Is the Process Heater using (check all that apply):
Low NOx Burner
Type of Low NOx Burner:

Flue Gas Recirculation (FGR):
Have you attached a diagram showing the location and/or the configuration of this equipment?
 Yes No
Have you attached any manuf.'s data or specifications to aid the Dept. in its review of this application?
 Yes No

Comments:

Include Emission Rates on the Potential to Emit Screen for each contaminant in ppmvd @ 7%O2 in addition to lbs/hr and tons/yr.

Please Delete details for Waterbath Heater #4

LNG PLANT STATION 240 (02626)
 BOP190003

Date: 11/8/2021

Please
 delete PT7,
 PT8, PT9,
 PT10

New Jersey Department of Environmental Protection
 Emission Points Inventory

PT NJID	Facility Designation	Config.	Equiv. Diam. (in.)	Height (ft.)	Dist. to Prop. Line (ft)	Exhaust Temp. (deg. F)			Exhaust Vol. (acfm)			Discharge Direction	PT Set ID	
						Avg.	Min.	Max.	Avg.	Min.	Max.			
PT7	WH #1	Waterbath Heater #1-#4	Round	42	35	170	230.0	160.0	300.0	22,000.0	21,000.0	23,000.0	Up	
PT8	WH #2	Waterbath Heater #1-#4	Round	42	35	170	230.0	160.0	300.0	22,000.0	21,000.0	23,000.0	Up	
PT9	WH #3	Waterbath Heater #1-#4	Round	42	35	170	230.0	160.0	300.0	22,000.0	21,000.0	23,000.0	Up	
PT10	WH #4	Waterbath Heater #1-#4	Round	42	35	170	230.0	160.0	300.0	22,000.0	21,000.0	23,000.0	Up	
PT11	H2	Glycol Heater	Round	10	18	274	400.0	250.0	1,000.0	783.0	261.0	783.0	Up	
PT12	H1	Regeneration Gas Heater	Round	16	21	271	625.0	500.0	750.0	2,668.0	485.0	4,850.0	Up	
PT15	GT-3001	Combustion Turbine	Square	108	49	100	504.5	60.0	956.0	53,628.0	53,628.0	107,266.0	Up	
PT33	F-6001	Emergency Flare	Round	300	91	100	1,300.0	1,200.0	1,400.0	1,409.0	1,253.0	1,566.0	Up	
PT101	EFP	EMERG FIRE PUMP	Round	5	4	470	986.0	789.0	1,183.0	1,189.0	951.0	1,427.0	Up	

New Jersey Department of Environmental Protection
Emission Unit/Batch Process Inventory

U 3 FLR Emergency Flare

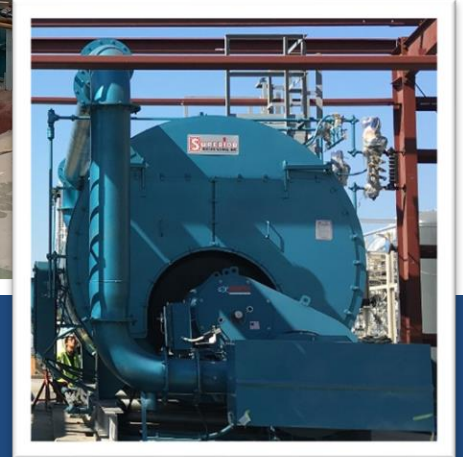
UOS NJID	Facility's Designation	UOS Description	Operation Type	Signif. Equip.	Control Device(s)	Emission Point(s)	SCC(s)	Annual Oper. Hours		VOC Range	Flow (acfm)		Temp. (deg F)	
								Min.	Max.		Min.	Max.	Min.	Max.
OS2	P-6001	Emergency Flare - Continuous Pilots and Sweep Flows	Normal - Steady State	E33		PT33		0.0	8,760.0		0.0	1,566.0	1,200.0	1,400.0

U 7 WH1 Waterbath Heaters

Please delete OS1, OS2, OS3, OS4

UOS NJID	Facility's Designation	UOS Description	Operation Type	Signif. Equip.	Control Device(s)	Emission Point(s)	SCC(s)	Annual Oper. Hours		VOC Range	Flow (acfm)		Temp. (deg F)	
								Min.	Max.		Min.	Max.	Min.	Max.
OS1	Waterbath-1	Waterbath Heater #1	Normal - Steady State	E7		PT7		0.0	400.0		21,000.0	23,000.0	160.0	300.0
OS2	Waterbath-2	Waterbath Heater #2	Normal - Steady State	E8		PT8		0.0	400.0		21,000.0	23,000.0	160.0	300.0
OS3	Waterbath-3	Waterbath Heater #3	Normal - Steady State	E9		PT9		0.0	400.0		21,000.0	23,000.0	160.0	300.0
OS4	Waterbath-4	Waterbath Heater #4	Normal - Steady State	E10		PT10		0.0	400.0		21,000.0	23,000.0	160.0	300.0

ATTACHMENT B VENDOR SPECIFICATIONS



"Exceeding Expectations, One Project at a Time."

Williams Companies, Inc

Four (4) 2,000 HP, 125 psig Superior Package Firetube Boilers

PROPOSAL NO.: NBI-11289 Rev. 1 | July 29, 2022



2,000 HP, 125 PSIG SUPERIOR PACKAGE BOILERS, NEW BUILD TO ORDER

These new, 2,000 hp Superior firetube boiler/burner packages are available in 18 to 20 weeks after release. The package has been designed to satisfy a <9 ppm (.01lb/MMBtu) Ultra low NOx emissions requirement.

The Preferred Special Combustion Engineering burner, which has been specifically designed for use with this boiler, will be installed and electrically tested at the Superior Boilers factory in Hutchison, KS., prior to shipment.

Note that this system is capable of firing natural gas or propane only, no future oil capabilities.

BOILER EQUIPMENT DETAILS

- **Superior Wichita Hot Water Glycol Boiler, Model #10-X-7000-W125-M**
- 2-pass Wetback, Scotch Marine design
- 2,000 hp –84 MMBtu/Hr input, 64 MMBTU/Hr Output
- 125 psi Maximum Design Pressure
- Operating Pressures Range up to 100 psi Max @ < 250 deg. F
- Indoor Application
- Total Square Feet Heating Surface: 7000
- Boilers Built to ASME Section IV, Hot Water

Note: Superior will customize the nozzle placements to match the existing piping for ease of installation as direct replacement.

BOILER DESIGN FEATURES

- One (1) ALWCO Probe in shell w/Test Feature (factory piped & wired)
- One (1) Shunt Button Around the Auxiliary LWCO (factory mounted & wired)
- One (1) Aquastat Operating Control (factory piped & wired)
- One (1) Aquastat Limiting Control 130 – 250 deg. F (factory piped & wired)
- One (1) Low Fire Hold (factory piped & wired)
- One (1) Chain Operated Gauge & Try Cocks (factory Piped)
- One (1) Reflex Gauge Glass Set (factory piped)
- One (1) Test-N-Check Valve Set (factory piped)
- One (1) Stack Thermometer, 5.0" (shipped loose)
- One (1) Water Temperature Gauge 5.0" (shipped loose)
- One (1) Water Pressure Gauge, 8.5", 0-200 psi (shipped loose)
- One (1) Drain Valve, 2.0" (factory piped)
- One (1) Set of Safety relief Valves, set at 125 psig (shipped loose)
- One (1) Set of Blending Pumps (factory piped & wired)
- One (1) Flue Gas Recirculation Pipe (factory mounted)

- One (1) Integral Stack Damper (factory mounted)
- One (1) Set Platform Tabs (factory mounted) – Platforms and Ladders by Others)
- One (1) Set of Hard Mounts for the Burner Panel (factory mounted)
- One (1) Wiring Junction Box, NEMA 1

BURNER EQUIPMENT DETAILS

One (1) Preferred Special Combustion Engineering **NanoNOx Ultra Low NOx (< 9PPM NOx) Burner Assembly**, natural gas fired and guaranteed to meet a sub 9 ppm NOx (.01lb/MMBtu), sub (.039 lb/MMBTU) CO emissions and sub (.005 lb/MMbtu) VOC's. The Simulated Premix burner offers better turn down, lower O₂s and faster load response vs Surface Combustion (Metal Mesh Head Burners).

Basis for Design:

- A. Basic Boiler Capacity: 2000 HP Superior Firetube Boilers
- B. Boiler Quantity: Four (4) Units
- C. Burner Heat Input: 84 MMBtu/hr
- D. Furnace Pressure: 5.5" w.c. with 15% Excess Air and 0% FGR
- E. Burner Register Draft Loss: 7" w.c.
- F. Burner Mechanical Turndown: 10:1 (Emissions Guarantees from 25% to 100% firing)
- G. Natural Gas Pressure Requirement: 18 PSIG Regulated by others to Inlet of Fuel Train
- H. Available Power for Control and Device Power: 120VAC/1ph/60Hz, 460VAC/3Ph/6Hz
- I. Indoor Application: NEMA 4, None-Hazardous
- J. Elevation: 100 FASL
- K. Ambient Air Temperature Design to be 80°F
- L. FGR Rate: 30%
- M. FGR Temperature: Not to exceed 315°F
- N. Mix Temperature: 136°F
- O. FGR Pipe Size: 24"
FGR Piping, Support, and Insulation if required is by Superior Boiler
- P. Natural Gas Emission Compliance Guarantee Applicable to 25-100% Firing Rate.
Based on 1020 BTU/SCF Natural Gas High Heating Value with a Specific Gravity of 0.6 and per Boiler Design Parameters.
NOx: 0.01 lb/MMBtu @ 3% O₂ Dry From 25-100% Firing Rate
CO: 0.039 lb/MMBtu @ 3% O₂ Dry at 100% Firing Rate
VOC: .005 lb/MMBtu @3% O₂ Dry at 100% Firing Rate

Emission guarantees exclude background emissions present in the ambient air used for combustion as well as boiler tube or stack scale.

BURNER DESIGN FEATURES & COMPONENTS

A. NanoNOx Ultra Low NOx (9 PPM NOx) Burner Assembly

- a. One Windbox Assembly, ¼” thick front plate and side plates. With cylindrical air flow baffle for even air distribution. Windbox to have access door and necessary test port connections.
- b. One Register Assembly with air distribution barrel. The register to include the following
 - One Stainless Steel Swirler
 - One Gas Igniter
 - One Gas Pilot Flexible Hose
 - One Gas Center Fire Gas Element
 - One register door assembly to include two view ports, and one flame scanner mount
 - One Flame Scanner
 - One High Retention Pre-Cast Refractory Throat Steel Tub (shipped loose for boiler mounting by Superior Boiler Works or Nationwide Boiler)
- c. The following devices are burner mounted, piped, and wired to the windbox junction box JB1:
 - One low combustion air flow switch, Dwyer or equal
 - One combustion air purge flow switch, Dwyer or equal
 - One ignition transformer
 - One Junction Box

B. Forced Draft Fan

- One Forced Draft Fan, Design 95 PFD, Size 270, 125 HP, designed for 10% overage and 21% static pressure overage and to include the following:
 - Access Door, Drain, Inlet and Outlet Flange
 - Fresh Air Damper, Opposed Blade with Electric Actuator.
 - Oversize Mixing Box with 24” FGR Port
 - One 150 HP, 3570 RPM TEFC Premium Efficiency Motor 460/3Ph/60Hz, 1.0 SF
 - FD Fan Motor is VFD Ready/Rated
 - One 24” FGR Valve with actuator assembly ship loose for mounting by at the

Superior Boiler factory.

- One FD Fan Inlet Silencer for 85dBA @ 5 Ft with, from position 3 (90 Degrees from Inlet) lifting and mounting lugs, inlet screen, gaskets. Top Horizontal Discharge with Ship Loose Evase
- One Fan Outlet Damper with Electric Actuator
- One Evase from fan outlet to windbox inlet

C. Natural Gas Pilot Train

The Pilot train will be fully assembled, windbox mounted, and wired to the windbox Junction Box. The gas train is designed per NFPA 85 with UL listed components and per NFPA 85 and PSCE Standard Design and Manufacture. The pilot train will consist of the following devices:

- One inlet supply plug valve
- One inlet strainer
- One PRV, Aluminum body
- Two Gas SSO Solenoid Valves
- One vent solenoid valve, normally open
- One outlet to burner plug valve
- Two Supply pressure gauges, 3.5" Dial with isolation valves

D. Natural Gas Main Fuel Train

The gas train will be fully assembled, wired to a Junction Box, and shipped loose for mounting by others. The gas train is designed per NFPA 85 with UL listed and FM Approved components PSCE Standard Design and Manufacture. The gas train will consist of the following devices:

- Two Gas SSO Valves, with proof of closure switch
- One vent valve, normally open, with proof of open switch
- One manual vent valve, locked open
- One gas filter assembly
- One low gas pressure witch, Ashcroft
- One high gas pressure switch, Ashcroft
- One inlet supply plug valve,
- One outlet to burner plug valve
- Two Supply pressure gauges, 3.5" Dial with isolation valves
- Two Gas Flow Control Valves with Electric Actuators, 4-20mA control signal and 4- 20mA position feedback.
- Vball flow control valves, with low fire position switch, and Electric Actuators

ATTACHMENT C SUPPORTING CALCULATIONS

**Revised Calculations
Submitted to NJDEP on April
4, 2023**

Waterbath Heater PTE Summary
Willams Transco - Station 240
4/4/2023

Source Information	
Emission Unit	U7
Manufacturer	Superior Boiler
Model	10-X-7000-W125-PSCF-G
Fuel Used	Natural Gas
Source Description	Waterbath Heaters
Number of Heaters	4

Operating Details	
Maximum Rated Heat Input (MMBtu/hr)	84
Maximum Fuel Usage (MMScf/hr)	0.08
Natural Gas Heating Value (MMBtu/MMScf)	1,020
Maximum Annual Fuel Usage (MMscf/yr)	131.45
Hours of Operation per Heater (hr/yr)	1,600
Annual Operating Hours for All Heaters (hr/yr)	1,600

Criteria Potential Emissions			Total Emissions	
Pollutant	Emission Factors	Unit	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
CO ¹	0.039	lb/MMBtu	3.28	2.62
NOx ¹	0.01	lb/MMBtu	0.84	0.67
TSP ²	1.9	lb/MMscf	0.16	0.125
PM-10/PM-2.5 ²	7.6	lb/MMscf	0.626	0.50
SO ₂ ²	0.6	lb/MMscf	0.05	0.04
VOC ¹	0.005	lb/MMBtu	0.42	0.34
CO ₂ ²	120,000	lb/MMscf	9,882	7,906
CH ₄ ²	2.3	lb/MMscf	0.19	0.15
N ₂ O ²	0.64	lb/MMscf	0.05	0.04

Hazardous Pollutant Emissions			Sub 17 Reporting Thresholds		Emissions per Heater			Sub 17 Reportable?	Total Emissions		SOTA Threshold (lb/yr)	SOTA Applicable?
Pollutant	Emission Factors ³	Unit	(lb/yr)	TXS (lb/hr)	Hourly Emissions (lb/hr)	Annual Emissions (lb/yr)	Annual Emissions (tpy)		Annual Emissions (lb/yr)	Annual Emissions (tpy)		
Formaldehyde	7.50E-02	lb/MMscf	3.5	---	6.16E-03	9.86E+00	4.93E-03	Yes	9.86E+00	4.93E-03	4000	---
Benzene	2.10E-03	lb/MMscf	6	0.01	1.73E-04	2.76E-01	1.38E-04	---	2.76E-01	1.38E-04	4000	---
Acrolein	---	lb/MMscf	1	---	---	---	---	---	---	---	80	---
Arsenic	2.00E-04	lb/MMscf	0.01	---	1.64E-05	2.63E-02	1.31E-05	Yes	2.63E-02	1.31E-05	---	---
Barium	4.40E-04	lb/MMscf	---	---	3.61E-05	5.78E-02	2.89E-05	---	5.78E-02	2.89E-05	---	---
Beryllium	1.20E-05	lb/MMscf	0.02	---	9.86E-07	1.58E-03	7.89E-07	---	1.58E-03	7.89E-07	---	---
Cadmium	1.10E-03	lb/MMscf	0.01	---	9.04E-05	1.45E-01	7.23E-05	Yes	1.45E-01	7.23E-05	---	---
Chromium	1.40E-03	lb/MMscf	1000	---	1.15E-04	1.84E-01	9.20E-05	---	1.84E-01	9.20E-05	---	---
Copper	8.40E-05	lb/MMscf	---	---	6.90E-06	1.10E-02	5.52E-06	---	1.10E-02	5.52E-06	---	---
Mercury	2.60E-04	lb/MMscf	2	---	2.14E-05	3.42E-02	1.71E-05	---	3.42E-02	1.71E-05	---	---
Nickel	2.10E-03	lb/MMscf	0.6	---	1.73E-04	2.76E-01	1.38E-04	---	2.76E-01	1.38E-04	---	---
7,12-Dimethylbenz(a)anthracene	1.60E-05	lb/MMscf	0.0007	---	1.31E-06	2.10E-03	1.05E-06	Yes	2.10E-03	1.05E-06	20	---
Acenaphthene	1.80E-06	lb/MMscf	---	---	1.48E-07	2.37E-04	1.18E-07	---	2.37E-04	1.18E-07	---	---
Acenaphthylene	1.80E-06	lb/MMscf	---	---	1.48E-07	2.37E-04	1.18E-07	---	2.37E-04	1.18E-07	---	---
Anthracene	2.40E-06	lb/MMscf	---	---	1.97E-07	3.15E-04	1.58E-07	---	3.15E-04	1.58E-07	---	---
Benzo(a)anthracene	1.80E-06	lb/MMscf	---	---	1.48E-07	2.37E-04	1.18E-07	---	2.37E-04	1.18E-07	---	---
Benzo(a)pyrene	1.20E-06	lb/MMscf	0.04	---	9.86E-08	1.58E-04	7.89E-08	---	1.58E-04	7.89E-08	20	---
Benzo(b)fluoranthene	1.80E-06	lb/MMscf	0.4	---	1.48E-07	2.37E-04	1.18E-07	---	2.37E-04	1.18E-07	20	---
Benzo(g,h,i)perylene	1.20E-06	lb/MMscf	---	---	9.86E-08	1.58E-04	7.89E-08	---	1.58E-04	7.89E-08	---	---
Benzo(k)fluoranthene	1.80E-06	lb/MMscf	---	---	1.48E-07	2.37E-04	1.18E-07	---	2.37E-04	1.18E-07	---	---

Waterbath Heater PTE Summary
Willams Transco - Station 240
4/4/2023

Hazardous Pollutant Emissions			Sub 17 Reporting Thresholds		Emissions per Heater			Sub 17 Reportable?	Total Emissions		SOTA Threshold (lb/yr)	SOTA Applicable?
Pollutant	Emission Factors ³	Unit	(lb/yr)	TXS (lb/hr)	Hourly Emissions (lb/hr)	Annual Emissions (lb/yr)	Annual Emissions (tpy)		Annual Emissions (lb/yr)	Annual Emissions (tpy)		
Butane	2.10E+00	lb/MMscf	---	---	1.73E-01	2.76E+02	1.38E-01	---	2.76E+02	1.38E-01	---	---
Chrysene	1.80E-06	lb/MMscf	2	---	1.48E-07	2.37E-04	1.18E-07	---	2.37E-04	1.18E-07	20	---
Dibenzo(a,h)anthracene	1.20E-06	lb/MMscf	0.04	---	9.86E-08	1.58E-04	7.89E-08	---	1.58E-04	7.89E-08	20	---
1,4-Dichlorobenzene	1.20E-03	lb/MMscf	4	---	9.86E-05	1.58E-01	7.89E-05	---	1.58E-01	7.89E-05	6000	---
Ethane	3.10E+00	lb/MMscf	---	---	2.55E-01	4.07E+02	2.04E-01	---	4.07E+02	2.04E-01	---	---
Fluoranthene	3.00E-06	lb/MMscf	---	---	2.46E-07	3.94E-04	1.97E-07	---	3.94E-04	1.97E-07	---	---
Fluorene	2.80E-06	lb/MMscf	---	---	2.30E-07	3.68E-04	1.84E-07	---	3.68E-04	1.84E-07	---	---
Hexane	1.80E+00	lb/MMscf	2000	---	1.48E-01	2.37E+02	1.18E-01	---	2.37E+02	1.18E-01	10000	---
Indeno(1,2,3-c,d)pyrene	1.80E-06	lb/MMscf	0.4	---	1.48E-07	2.37E-04	1.18E-07	---	2.37E-04	1.18E-07	20	---
Naphthalene	6.10E-04	lb/MMscf	1.4	---	5.01E-05	8.02E-02	4.01E-05	---	8.02E-02	4.01E-05	10000	---
Phenanthrene	1.70E-05	lb/MMscf	---	---	1.40E-06	2.23E-03	1.12E-06	---	2.23E-03	1.12E-06	---	---
Pyrene	5.00E-06	lb/MMscf	---	---	4.11E-07	6.57E-04	3.29E-07	---	6.57E-04	3.29E-07	---	---
Propane	1.60E+00	lb/MMscf	---	---	1.31E-01	2.10E+02	1.05E-01	---	2.10E+02	1.05E-01	---	---
Toluene	3.40E-03	lb/MMscf	2000	---	2.79E-04	4.47E-01	2.23E-04	---	4.47E-01	2.23E-04	10000	---
2-Methylnaphthalene	2.40E-05	lb/MMscf	---	---	1.97E-06	3.15E-03	1.58E-06	---	3.15E-03	1.58E-06	---	---
3-Methylcholanthrene	1.80E-06	lb/MMscf	---	---	1.48E-07	2.37E-04	1.18E-07	---	2.37E-04	1.18E-07	---	---
Cobalt	8.40E-05	lb/MMscf	0.005	---	6.90E-06	1.10E-02	5.52E-06	Yes	1.10E-02	5.52E-06	---	---
Manganese	3.80E-04	lb/MMscf	0.6	---	3.12E-05	5.00E-02	2.50E-05	---	5.00E-02	2.50E-05	1600	---
Vandium	2.30E-03	lb/MMscf	---	---	1.89E-04	3.02E-01	1.51E-04	---	3.02E-01	1.51E-04	---	---
Zinc	2.90E-02	lb/MMscf	---	---	2.38E-03	3.81E+00	1.91E-03	---	3.81E+00	1.91E-03	---	---
Selenium	2.40E-05	lb/MMscf	925	---	1.97E-06	3.15E-03	1.58E-06	---	3.15E-03	1.58E-06	200	---

Total Reportable HAPs: 6.28E-03 5.02E-03

1. Emission Factor from Manufacturer's Specifications
2. AP-42 Table 1.4-2 Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion
3. AP-42 Table 1.4-3 Emission Factors for Speciated Organic Compounds from Natural Gas Combustion

ATTACHMENT D SUBCHAPTER 18 NETTING ANALYSIS TABLES

NJ01 - NETTING ANALYSIS RESULTS - Consistent with N.J.A.C. 7:27-18.7

Facility Information → Facility PI: Facility Name: BOP Activity:

Calculation of NI for this Permit Action - NO DATA ENTRY REQUIRED

This table is automatically populated after Table 1 and Table 2 below are completed.

Air Contaminant	IP Emission Increase from Permitted Sources	INP Emission Increase from Non-Permitted Sources	IF Emission Increase from Fugitive Emissions	IA Emission Increase from the Current Modification	DO Emission Decrease from Emission Offsets	DC Emission Decrease from Creditable Emission Reductions	NI Net Emission Increase at the Facility	Significant Net Emission Increase Thresholds (N.J.A.C. 7:27-18.7 Table 3)	Significant Net Emission Increase? Yes/No
VOC	3.45	0.00	0.00	0.34	0.00	0.00	3.79	25	No
NOx	20.51	0.00	0.00	0.67	0.00	0.00	21.18	25	No
CO	28.16	0.00	0.00	2.62	0.00	0.00	30.78	100	No
SO2	1.02	0.00	0.00	0.04	0.00	0.00	1.06	40	No
TSP	3.97	0.00	0.00	0.50	0.00	0.00	4.47	25	No
PM10	3.97	0.00	0.00	0.38	0.00	0.00	4.35	15	No
PM2.5	3.97	0.00	0.00	0.38	0.00	0.00	4.35	10	No

Table 1 - Calculation of Total IA for this Permit Action (Modification or GOP) - ENTER ALL DATA FOR THIS PERMIT ACTION

Equipment ID	Emission Unit / Batch Process	Equipment Description	Start of Constr. Date	Start of Operation Date	VOC TPY	NOx TPY	CO TPY	SO2 TPY	TSP TPY	PM10 TPY	PM2.5 TPY
E102	U7	Waterbath Heater #1	11/1/2022	3/1/2024	0.08	0.17	0.66	0.01	0.13	0.09	0.09
E103	U7	Waterbath Heater #2	11/1/2022	3/1/2024	0.08	0.17	0.66	0.01	0.13	0.09	0.09
E104	U7	Waterbath Heater #3	11/1/2022	3/1/2024	0.08	0.17	0.66	0.01	0.13	0.09	0.09
E105	U7	Waterbath Heater #4	11/1/2022	3/1/2024	0.08	0.17	0.66	0.01	0.13	0.09	0.09
Totals for this Permit Action (IA):					0.34	0.67	2.62	0.04	0.50	0.38	0.38

Table 2 - Total IP, INP, IF, DO, & DC for the Contemporaneous Period – ENTER ALL DATA FOR THE CONTEMPORANEOUS PERIOD SHOWN BELOW

Contemporaneous Period Start:	1/1/2017	Contemporaneous Period End:	3/1/2024
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Use the Equipment ID drop-down filter to uncheck blank rows before printing.

Equipment ID	Emission Unit / Batch Process	Equipment Description	BOP Activity	Permit Approval Date	Netting Term	VOC TPY	NOx TPY	CO TPY	SO2 TPY	TSP TPY	PM10 TPY	PM2.5 TPY
E15	U15	Solar Taurus 60 Gas Turbine Compressor	180002	10/16/2018	IP	2.63	17.93	22.56	1.02	3.41	3.41	3.41
E33	U3	Emergency Flare	180002	10/16/2018	IP		0.48	2.17				
E122	U12	Regenerative Heater	180002	10/16/2018	IP	0.82	2.10	3.43		0.56	0.56	0.56