

Escalante, Andrea L

From: Caleb Fetner <cfetner@all4inc.com>
Sent: Tuesday, June 9, 2026 3:46 PM
To: Escalante, Andrea L
Cc: Dale, Nicholas
Subject: Re: NextEra Energy Pipeline Holdings (Lowman), Inc. Application
Attachments: NextEra Lowman Compressor Station Air Permit Application_R1 (6-9-2026).pdf

Hi Andrea,

Good afternoon. Thank you for your patience as we worked through updating the ENG-2 information. The revised air permit application is attached. The cover summarizes the edits that have been made in this revised application. Also, I have responded to your questions in red font below.

Please let me know if you have any further questions!

Best,
Caleb



Caleb Fetner / Managing Consultant
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From: Escalante, Andrea L <ALS@adem.alabama.gov>
Sent: Friday, May 15, 2026 11:17 AM
To: Caleb Fetner <cfetner@all4inc.com>
Subject: RE: NextEra Energy Pipeline Holdings (Lowman), Inc. Application

Thank you Caleb.

Andrea Escalante

Environmental Scientist Senior

Agriculture/Gas Unit, Chemical Branch, Air Division

Alabama Department of Environmental Management

P.O. Box 301463, Montgomery, AL 36130-1463

(334) 270-5648

adem.alabama.gov

als@adem.alabama.gov



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From: Caleb Fetner <cfetner@all4inc.com>

Sent: Friday, May 15, 2026 10:11 AM

To: Escalante, Andrea L <ALS@adem.alabama.gov>

Cc: Ailor, Chris E <ceailor@adem.alabama.gov>; Dale, Nicholas <nicholas.dale@nexteraenergy.com>; Auburn Bastin <abastin@all4inc.com>

Subject: Re: NextEra Energy Pipeline Holdings (Lowman), Inc. Application

Hi Andrea,

I wanted to give you an update on Lowman. In response to your comment #6 below, there will be a correction to the engine make/model for ENG-2. We are updating the application for that update.

All of your other comments made sense and will be addressed in the updated application. We are aiming to submit the updated application to you next week.

Thank you again for your review.



Caleb Fetner / Managing Consultant

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From: Escalante, Andrea L <ALS@adem.alabama.gov>
Sent: Friday, April 24, 2026 8:47 AM
To: Caleb Fetner <cfetner@all4inc.com>
Cc: Ailor, Chris E <ceailor@adem.alabama.gov>
Subject: NextEra Energy Pipeline Holdings (Lowman), Inc. Application

Caleb,

Below are my questions/comments/requests regarding the expansion project application submitted for NextEra Energy Pipeline Holdings (Lowman), Inc. (Facility No. 101-0024) in Butler, Choctaw County, AL:

1. Form 103, Item 1-Facility Physical Location-The application has a physical address of just Water Mill Rd., which does border the backside of the property, but I have a physical address as 860 Sandridge Rd., Butler, AL 36904, which is the entrance I use to enter the facility. Please double check with NextEra personnel on the actual official address and update if needed.

You are correct - address has been updated.

2. Form 103, Item 10-Per the instruction page for the Form 103, this table refers to Title V status, not PSD status; therefore, NOx, CO, and VOC should be changed to "Yes" under the "Major Source?" Column. Please correct.

Updated to denote as Title V major for NOx, CO, and VOC.

3. Page 3-2, Section 3.2.1 of the narrative states the PTE rates for the proposed C-3 and C-4 were calculated using the 40 CFR Part 60, Subpart 4J limits, but the Form 107, Item 10 for C-4 cites vendor spec. sheet for NOx and AP-42 Table 3.2-2 for VOC in the "Basis of Calculation" column. The Form 107 for C-3 cites Subpart 4J for NOx, CO, and VOC. Please update if incorrect.

Form 107 for C-4 has been updated to reflect the correct Subpart JJJJ reference for the NOx and VOC basis of calculation.

4. Form 107, Item 12 B. for ENG-1 indicates this existing unit is not certified to meet the emission standards, but per the original application for this unit, it is certified to meet the 4J emission standards (EPA Certificate of Conformity also submitted with original application). Please update.

Agreed, updated.

5. Form 107, Item 12 C. for ENG-1 indicates the engine is not equipped with a non-resettable hour meter. Per 40 CFR §60.4237(b), if the emergency stationary SI internal combustion engine that is greater than or equal to 130 HP and less than 500 HP that was built on or after January 1, 2011, does not meet the standards applicable to non-emergency engines, the owner or operator must install a non-resettable hour meter. If this unit does not meet the non-emergency standards, it is required to have a non-resettable hour meter installed. Please update accordingly.

Corrected to indicate that ENG-1 is equipped with a non-resettable hour meter.

6. Form 107, Item 11 for the proposed ENG-2 indicates there is no EPA Certificate of Conformity (and no certificate was included with the application), and Item 12 B. indicates the unit is not certified to meet the emission standards. Page 4.5, Section 4.1.2.9 second paragraph of the narrative states ENG-2 IS certified, and it was stated in our in-person pre-application meeting that it would be certified. If the unit is not certified, then per 40 CFR §60.4243(b)(2)(ii), testing would be required every 8,760 hours or 3 years, whichever comes first, after the initial compliance test. Which is correct? Please update as needed.

ENG-2 has been updated throughout application. ENG-2 is certified to meet the emergency generator standards and the CoC is included.

7. Form 107, Item 12 C. for ENG-2 indicates the engine is not equipped with a non-resettable hour meter. Per 40 CFR §60.4237(a), if the emergency stationary SI internal combustion engine that is greater than or equal to 500 HP that was built on or after July 1, 2010, does not meet the standards applicable to non-emergency engines, the owner or operator must install a non-resettable hour meter. The spec sheet for ENG-2 only indicates a "Not to Exceed" (NTE) standard for NOx and CO, but not VOC, so it cannot be determined if it will meet all standards applicable to non-emergency engines. If this unit does not meet the non-emergency standards, it is required to have a non-resettable hour meter installed. Please update accordingly.

Same as #6.

8. Appendix B-Potential to Emit calculations for the proposed 925 gallon T-5001B condensate tank were calculated using the outdated EPA TANKS 4.0.9d and lists the tanks volume as 734.40 gallons. The newest version of that program is TANKS 5.2 and can be found on EPA's website. Please run the calculations on the newest version of TANKS using the correct tank capacity and resubmit. If the PTE of the tank changes, also update all charts referencing the tank.

Tanks 5.2 runs are provided in the updated application.

Whatever pages need to be changed and resubmitted can be sent to me via email and I will have them scanned as an addendum and then incorporate the new pages into the existing application.

If you have any questions, please let me know. Thanks.

Andrea Escalante

Environmental Scientist Senior

Agriculture/Gas Unit, Chemical Branch, Air Division

Alabama Department of Environmental Management

P.O. Box 301463, Montgomery, AL 36130-1463

(334) 270-5648

adem.alabama.gov
als@adem.alabama.gov



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June 9, 2026

Andrea Escalante
Alabama Department of Environmental Management
Air Division
1400 Coliseum Boulevard
PO Box 301463
Montgomery, Alabama 36130-1463

**Re: Minor NSR Permit Application – Expansion Project
Response to Questions
NextEra Energy Pipeline Holdings (Lowman), Inc.
Facility No. 101-0024**

Dear Ms. Escalante:

On behalf of NextEra Energy Pipeline Holdings (Lowman), Inc. (NextEra), thank you for your questions and comments regarding the air permit application for the proposed Expansion Project at NextEra's Lowman Compressor Station in Butler, Alabama (Facility). With this letter, NextEra is providing an updated application that incorporates the following revisions:

- Narrative: NextEra has provided an updated specification sheet for ENG-2 (see Appendix B in the attached application). Page 2-4 has been revised to reflect the updated ENG-2 specifications. ENG-2 will be a 605 hp Baldor IGLC420-2N, 4-stroke rich-burn (4SRB) natural gas-fired reciprocating internal combustion engine (RICE).
- Form 103: Item 1 has been updated with the confirmed address of 860 Sandridge Road. Additionally, Item 10 has been updated to "Yes" for NO_x, CO, and VOC under the "Major Source?" column to reflect the Title V status of the Facility.
- Form 107 C-4: Item 10 has been updated to "40 CFR Part 60, Subpart JJJJ" for NO_x, CO, and VOC under the "Basis of Calculation" column to reflect the correct calculation methodology.
- Form 107 ENG-1: Item 12 B. has been updated to state that the existing emergency engine meets the applicable 40 CFR Part 60, Subpart JJJJ emissions standards. Additionally, Item 12 C. has been updated to state that the existing emergency engine has a non-resettable hour meter installed.
- Form 107 ENG-2: This form has been revised to reflect the updated engine specifications. Item 12 B. has been updated to state that the proposed emergency engine meets the applicable 40 CFR Part 60, Subpart JJJJ emissions standards. Additionally, Item 12 C. has been updated to state that the proposed emergency engine will be equipped with a non-resettable hour meter.
- Potential to Emit (PTE) Calculations: The emissions calculations for ENG-2 have been revised in Table B-4 (Standby Generator 2 Potential to Emit Calculations) to reflect the updated ENG-2

specifications. The emissions calculations for condensate tanks T-5001A and T-5001B were updated using the TANKS 5.2 program. Table B-6 (Tanks Potential to Emit Calculations) has been updated accordingly. Additionally, PTE Tables B-2 (Project Potential to Emit Summary) and B-14 (Post-Project Facility-Wide Potential to Emit Summary) have been updated to reflect the updated ENG-2 specifications and corrected T-5001A and T-5001B fugitive emissions.

Attachment 1 provides the updated application. If you have any questions, please contact me by phone or email (listed below), or reach out to Nicholas Dale at Nicholas.Dale@nexteraenergy.com.

Sincerely,

ALL4 LLC

Caleb Fetner

Caleb Fetner
Managing Consultant
678.293.9431
cfetner@all4inc.com

cc: Nicholas Dale (NextEra)

Attachments: Attachment 1 – Updated Application

ATTACHMENT 1 – UPDATED APPLICATION



MINOR NEW SOURCE REVIEW

AIR PERMIT APPLICATION

LOWMAN COMPRESSOR STATION

CHOCTAW COUNTY, ALABAMA

SUBMITTED BY:



**NextEra Energy Pipeline Holdings
(Lowman), Inc.**
860 Sandridge Road
Butler, Alabama 36904

SUBMITTED TO:



**Alabama Department of
Environmental Management**
1400 Coliseum Boulevard
P.O. Box 301463
Montgomery, Alabama 36110-2400



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1. INTRODUCTION

NextEra Energy Pipeline Holdings (Lowman), Inc. (NextEra) owns and operates an intrastate natural gas pipeline, which originates at interconnects with the Midcontinent Express Pipeline (MEP) and Gulf South Pipeline in Choctaw County, Alabama, and services downstream customers. In addition to the pipeline, NextEra owns and operates the Lowman Compressor Station (Facility) at the starting point of the pipeline. The Facility enables the transportation of natural gas by maintaining the pipeline pressure and currently consists of two Caterpillar Model G3606 natural gas-fired compressor engines [Emissions Unit (EU) C-1 and C-2] and associated equipment. The Facility is an existing minor source under both Title V and New Source Review (NSR) permitting programs and operates under Alabama Department of Environmental Management (ADEM) Minor Source Permits 101-0024-X001 through X003.

NextEra is proposing to install two new Caterpillar Model G3616 natural gas-fired compressor engines (EU C-3 and C-4) and associated equipment to expand the Lowman pipeline system design capacity from the current 120 million standard cubic feet per day (MMscf/d) capacity up to 240 MMscf/d (Project). C-3 and C-4 will have an oxidation catalyst (OC) to control emissions of carbon monoxide (CO), volatile organic compounds (VOC), and formaldehyde. The associated equipment includes a pig launcher and receiver, inlet slug catcher, condensate and lube oil tanks, standby generator, fuel gas heater, inlet filter separator, cyclone outlet separator, and start air receivers. C-1 and C-2 will remain in service but are not expected to operate 8,760 hours per year as currently permitted by Air Permits 101-0024-X001 and X002. Therefore, the Facility is proposing to limit C-1 and C-2 to 8,000 combined operating hours per year (hr/yr) and the standby generators (ENG-1 and ENG-2) to 1,000 hr/yr each to maintain the Facility-wide emissions below NSR major source thresholds following completion of the Project. This minor NSR air permit application (Application) is being submitted to permit C-3, C-4, and the new associated equipment, as well as add the synthetic minor operating hours limitation to Air Permits 101-0024-X001, X002, and X003. The Facility will become a Title V major source post-project and will obtain a Major Source Operating Permit (MSOP) after commencing post-Project operations.

The data and information in this Application are based on the preliminary design of the Facility. As detailed design is completed, there may be some changes in location, layout, and specification of equipment. On



Lowman Compressor Station – Choctaw County, AL
Minor NSR Air Permit Application

completion of final design, if there are any significant changes affecting the air emission sources, NextEra will notify ADEM and update information accordingly.

2. FACILITY OVERVIEW AND PROJECT DESCRIPTION

This section of the application provides a brief overview of the Facility's location, regulatory jurisdiction, current configuration and operations, and a description of the proposed Project.

2.1 FACILITY LOCATION

The Facility is located in Butler, Choctaw County, Alabama. A Facility location map is provided in Figure 2-1 on a section of the United States Geological Survey (USGS) quadrangle. The geographical coordinates for the compressor station are:

- Universal Transverse Mercator (UTM) Easting: 371,556 meters (m)
- UTM Northing: 3,545,916 m
- UTM Zone: 16N
- North American Datum (NAD): 1983
- Latitude (degrees, minutes, seconds): 32° 02' 31.71" N
- Longitude (degrees, minutes, seconds): 88° 21' 37.45" W

Choctaw County is part of the Alabama and Tombigbee Rivers Intrastate Air Quality Control Region (AQCR) as identified in 40 Code of Federal Regulations (CFR) §81.266, and classified as in "attainment" or "unclassifiable/attainment" or "better than national standards" with respect to the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants as designated in 40 CFR §81.301 as of the date of this submittal.

2.2 REGULATORY JURISDICTION

The Facility is under the jurisdiction of the following State and Federal agencies:

ADEM
Air Division
1400 Coliseum Boulevard
P.O. Box 301463
Montgomery, Alabama 36110-2400

United States Environmental Protection Agency
(U.S. EPA) – Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, Georgia 30303-8960



Legend

- Existing Facility Boundary
- Expansion to Facility

0 175 350 525 700 m

Figure 2-1
Facility Location Map

NextEra Energy Pipeline Holdings, Inc.
Lowman Compressor Station
Butler, Alabama

PREPARED BY: P.R.

CHECKED BY: A.B.

DATE: April 2026

PROJECT NO.: 004289-0001.00



2.3 EXISTING FACILITY AND PROCESS DESCRIPTION

The Facility is an existing natural gas compressor station that enables the transportation of natural gas from the MEP and Gulf South Pipeline to downstream customers. The Facility currently consists of the following emissions units:

- Two 1,875 brake horsepower (bhp) Caterpillar Model 3606, 4-stroke lean-burn (4SLB) natural gas-fired reciprocating internal combustion engine (RICE) compressor sets (EU C-1 and C-2),
- One 335 bhp Caterpillar Model DG250 GC, 4-stroke rich-burn (4SRB) natural gas-fired RICE standby generator (ENG-1), and
- Various insignificant activities including:
 - Fugitive emissions from piping and pipe fittings
 - One 925-gallon Condensate Tank
 - Two 500-gallon Lube Oil Tanks
 - Two 55-gallon Lube Oil Day Tanks
 - One 500-gallon Ethylene Glycol Coolant Tank
 - One Fuel Gas Heater rated 0.036 million British Thermal units per hour (MMBtu/hr)
 - Truck loading and unloading operations of condensates, lube oil, and ethylene glycol
 - Miscellaneous gas venting during maintenance, startup, and shutdown (MSS)

Pipeline quality natural gas enters the Facility from the MEP and Gulf South Pipeline receiving stations via a 16-inch pipeline. The gas passes through a filter separator to remove condensates, which are stored in the condensate tank. The gas then enters either one or both of C-1 and C-2 to be compressed to the desired pressure. The compressed gas passes through a discharge coalescer prior to being discharged to the pipeline exiting the Facility. The liquids removed from the discharge coalescer are also transferred to the condensate tank. ENG-1 serves as a standby generator for emergency power.

2.4 DESCRIPTION OF PROPOSED PROJECT

The Project will increase the Lowman pipeline system capacity from the current 120 MMscf/d design capacity to 240 MMscf/d by increasing the compression capacity of the Facility. The Project primarily consists of installing two Caterpillar Model G3616, 4SLB RICE each rated at a maximum of 5,500 bhp (C-3 and C-4). Both C-3 and C-4 will fire pipeline quality natural gas and will be equipped with an OC to control CO, VOC, and formaldehyde emissions. As further discussed in Section 3.3, NextEra is proposing to limit

the combined operating hours of C-1 and C-2 to 8,000 hours per year to maintain Facility-wide emissions below NSR major source thresholds.

NextEra proposes to install one 605 hp Baldor IGLC420-2N, 4SRB natural gas-fired RICE (ENG-2) that will provide additional emergency standby power to the Facility as a part of the Project. As further discussed in Section 3.3, NextEra is proposing to limit the operating hours of ENG-1 and ENG-2 to 1,000 hours per year, each. In order to double the design capacity of the Facility, the Project is also expected to include an additional set of each insignificant activity already existing at the Facility, including:

- Fugitive emissions from piping and pipe fittings
- One 925-gallon Condensate Tank
- Two 500-gallon Lube Oil Tanks
- Two 55-gallon Lube Oil Day Tanks
- One 500-gallon Ethylene Glycol Coolant Tank
- One Fuel Gas Heater rated 0.036 MMBtu/hr
- Truck loading and unloading operations of condensates, lube oil, and ethylene glycol
- Miscellaneous gas venting during MSS

The inlet slug catcher, inlet filter separator, and cyclone outlet separator are process vessels and will not have emissions during normal operations. The start air receivers do not use or store natural gas or any other pollutants. Therefore, these sources will not be mentioned throughout the rest of this application. The piping configuration for the existing compressors will not change and no other existing equipment is being modified for the purpose of this Application. The Process Flow Diagram (PFD) depicting the Facility process after the installation of Project equipment is provided in Appendix C. NextEra anticipates starting Project construction in 2027.

3. PROJECT EMISSIONS CALCULATIONS

This section describes how Project emissions were calculated and used to determine NSR applicability. Detailed emissions calculations are presented in Appendix B. Table 3-1 below summarizes the new and existing emissions units at the Facility.

Table 3-1
Summary of Facility Emissions Units Classification

Emissions Unit	EU ID	Emissions Unit Classification
1,875-hp Compressor	C-1	Affected
1,875-hp Compressor	C-2	Affected
Condensate Tank 1	T-5001A	Not Affected
Lube Oil Tank 1	T-5002A	Not Affected
Lube Oil Tank 2	T-5002B	Not Affected
Ethylene Glycol Tank 1	T-5003A	Not Affected
Standby Generator 1	ENG-1	Not Affected
Lube Day Tank 1	T-5004D	Not Affected
Lube Day Tank 2	T-5005D	Not Affected
Fuel Gas Heater 1	HTR-1	Not Affected
Truck Loading	LL-1	Not Affected
Fugitives	FUG-1	Not Affected
MSS-Compressor Blowdown	MSS-CB	Not Affected
MSS-Station Blowdown	MSS-SB	Not Affected
5,500-hp Compressor	C-3	New
5,500-hp Compressor	C-4	New
Condensate Tank 2	T-5001B	New
Lube Oil Tank 3	T-5002C	New
Lube Oil Tank 4	T-5002D	New
Ethylene Glycol Tank 2	T-5003B	New
Standby Generator 2	ENG-2	New
Lube Day Tank 3	T-5006D	New
Lube Day Tank 4	T-5007D	New
Fuel Gas Heater 2	HTR-2	New
New Truck Loading	LL-2	New
New Fugitives	FUG-2	New
New MSS-Compressor Blowdown	MSS-CB2	New
New MSS-Station Blowdown	MSS-SB2	New
Pigging Equipment	PIG-1	New

3.1 PSD AND NSR APPLICABILITY

As mentioned previously, the Facility is an existing minor source under both Title V and NSR permitting programs and operates under ADEM Minor Source Permit 101-0024-X001 through X003. The Facility is located in Choctaw County, which is listed as either in attainment or unclassifiable or better than national standards with all NAAQS. Therefore, the provisions of the NNSR program do not apply to the Facility. The Facility is not one of the 28 source categories identified in the Prevention of Significant Deterioration (PSD) program under 40 CFR §52.21; therefore, the major source threshold for all regulated NSR pollutants is 250 tons per year (tpy). The existing Facility-wide potential to emit (PTE) rates are below the major source thresholds as summarized in Table B-1 to Appendix B. Because the Facility is a minor source, the Project would only be subject to the PSD permitting requirements in ADEM Administrative Code (AAC) 335-3-14-.04 if the Project emissions exceed the major source thresholds (i.e., the Project would be a major stationary source by itself). Table B-2 provides the PTE rates for the new emissions units proposed for the Project and demonstrates that the Project is not itself a major stationary source per AAC 335-3-14-.04(2)(a)(II). Therefore, the Project is not subject to the PSD permitting requirements in AAC 335-3-14-.04.

3.2 PROJECT EMISSIONS CALCULATIONS METHODOLOGY

The following section describes how PTE rates were calculated for the new emissions units identified in Table 3-1.

3.2.1 New 5,500-hp Compressor Engines (C-3 and C-4)

C-3 and C-4 PTE rates for nitrogen oxides (NO_x), CO, and VOC were calculated using the 40 CFR Part 60, Subpart JJJJ limits that will apply. An oxidation catalyst will be required for each of the new compressor engines to meet the Subpart JJJJ CO limit and will also provide control of VOC and formaldehyde emissions. PTE rates of formaldehyde are based on engine and catalyst vendor specifications with an added safety factor of 70 percent. Emissions of sulfur dioxide (SO₂) are based on an assumed 0.5 grains per one-hundred standard cubic feet (gr/100 scf) in pipeline quality natural gas. Emissions of PM and other hazardous air pollutants (HAP) are based on AP-42, Chapter 3, Table 3.2.2 for 4SLB engines. The emissions were calculated using the maximum heat input capacity of 40.96 MMBtu/hr and maximum power of 5,500 bhp at 8,760 hr/yr. C-3 and C-4 PTE calculations are provided in Table B-3.

3.2.2 New Standby Generator 2 (ENG-2)

Emissions factors for NO_x, CO, and VOC are based on the 40 CFR Part 60, Subpart JJJJ limits for emergency engines. Emissions of particulate matter and other constituents are based on AP-42, Chapter 3, Table 3.2.3 for 4SRB engines. ENG-2 PTE rates were calculated based on the proposed synthetic minor limit of 1,000 operating hours per year. ENG-2 PTE calculations are provided in Table B-4.

3.2.3 Insignificant Activities

As discussed previously, the Project's increase in the Facility's design capacity is expected to require an additional set of Insignificant Activities already present at the existing Facility. Emissions for all Insignificant Activities for the Project were calculated using methodologies consistent with the original Facility permit application, including miscellaneous storage tanks, compressor blowdowns, station blowdowns, fugitive emissions from piping and connectors, and the fuel gas heater. Detailed PTE calculations for the Project's Insignificant Activities are provided in Tables B-5 through B-11.

3.3 POST-PROJECT PTE SUMMARY

Following the Project's completion, the Facility is proposing to limit operation of the two existing 1,875-hp compressor engines (C-1 and C-2) to a total of 8,000 hours per year to keep Facility-wide emissions below the PSD major stationary source thresholds. Table B-12 provides the new, limited PTE rates for C-1 and C-2 following completion of the Project. The new PTE rates were calculated using emissions factors and methodology consistent to those used in the original permit application for C-1 and C-2. The Facility is proposing to add Federally enforceable permit limits to Air Permit Nos. 101-0024-X001 and 101-0024-X002 to limit the combined operating time of C-1 and C-2 to 8,000 hours per year. In conjunction with the C-1 and C-2 synthetic minor limits, the Facility is also proposing 1,000 hours per year of operation for ENG-1 and ENG-2 as synthetic minor limits for PSD purposes. Table B-13 provides PTE rates for ENG-1 at 1,000 hours per year of operation.

The post-Project Facility-Wide PTE is summarized in Table B-14. Following the Project, Facility-wide potential emissions will remain below the 250 tpy major source thresholds for all regulated NSR pollutants by limiting the operation hours of C-1, C-2, ENG-1, and ENG-2. Additionally, the post-Project PTE rates for

HAP are less than 10 tpy for individual HAP and less than 25 tpy for total HAP; therefore, the Facility will remain an area source of HAP. However, Facility-wide potential emissions will exceed the 100 tpy Title V Major Source thresholds; therefore, the Facility will apply for a Title V Operating Permit within 12 months of commencing post-Project operations.

4. REGULATORY APPLICABILITY

NextEra has reviewed the Federal and Alabama air quality regulations to determine their potential applicability to the Facility. The following sections address regulations that are potentially applicable to the Facility.

4.1 FEDERAL REGULATIONS

For the purpose of this Application, potentially applicable Federal regulations include the following:

- New Source Review;
- Standards of Performance for New Stationary Sources;
- National Emission Standards for Hazardous Air Pollutants; and
- State Operating Permit Program.

A discussion of each potentially applicable Federal requirement is provided in the following subsections.

4.1.1 40 CFR Parts 51 and 52 – New Source Review

The NSR (40 CFR Part 51, Subpart I and 40 CFR Part 52, Section 52.21) program includes both the NNSR regulations and the PSD regulations. The Facility is located in Choctaw County, which is listed as either in attainment or unclassifiable or better than national standards with all NAAQS. Therefore, the provisions of the NNSR program do not apply to the Facility. In addition, the Facility is not one of the 28 source categories identified in the PSD regulations. As such, the major source threshold for all regulated NSR pollutants is 250 tpy. The Facility is an existing minor source with respect to PSD. As discussed in Section 3.1, the Project is not subject to PSD permitting as the Project is not a major stationary source by itself. Following completion of the Project, the Facility is proposing to accept Federally enforceable operating hours limitations on C-1, C-2, ENG-1, and ENG-2 to remain an existing minor source with respect to PSD.

4.1.2 40 CFR Part 60 – Standards of Performance for New Stationary Sources

U.S. EPA has promulgated standards of performance for new, modified, or reconstructed sources of air pollution at 40 CFR Part 60 (NSPS). NSPS applies to affected facilities constructed, reconstructed or modified after the effective date of the applicable NSPS. An existing facility can become subject to the NSPS requirements upon reconstruction or modification.

The following 40 CFR Part 60 subparts were evaluated for applicability to the proposed Project:

- 40 CFR Part 60, Subpart A – General Provisions
- 40 CFR Part 60, Subpart K – Standards of Performance for Storage Vessels with Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978
- 40 CFR Part 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
- 40 CFR Part 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, and On or Before October 4, 2023
- 40 CFR Part 60, Subpart Kc – Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After October 4, 2023
- 40 CFR Part 60, Subpart KKK – Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants for which Construction, Reconstruction, or Modification Commenced After January 20, 1984, and on or Before August 23, 2011
- 40 CFR Part 60, Subpart LLL – Standards of Performance for SO₂ Emissions From Onshore Natural Gas Processing for Which Construction, Reconstruction, or Modification Commenced After January 20, 1984, and on or Before August 23, 2011
- 40 CFR Part 60, Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
- 40 CFR Part 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

- 40 CFR Part 60, Subpart OOOO – Standards of Performance for Crude Oil and Natural Gas Facilities for Which Construction, Modification or Reconstruction Commenced after August 23, 2011 and on or before September 18, 2015
- 40 CFR Part 60, Subpart OOOOa – Standards of Performance for Crude Oil and Natural Gas Facilities for Which Construction, Modification, or Reconstruction Commenced after September 18, 2015 and On or Before December 6, 2022
- 40 CFR Part 60, Subpart OOOOb – Standards of Performance for Crude Oil and Natural Gas Facilities for Which Construction, Modification or Reconstruction Commenced after December 6, 2022

4.1.2.1 40 CFR Part 60, Subpart A – General Provisions

The provisions of 40 CFR Part 60, Subpart A apply to the owner or operator of any stationary source subject to NSPS. The Facility is already subject to and will continue to comply with the currently applicable sections of the General Provisions in 40 CFR Part 60, Subpart A. As an affected facility, the Facility will use this Application as the initial notification for the new compressor engines under Subpart A.

4.1.2.2 40 CFR Part 60, Subpart K – Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 1, 1973 and Prior to May 19, 1978

The provisions of 40 CFR Part 60, Subpart K apply to each storage vessel for petroleum liquid which has a storage capacity greater than 151,412 liters for which construction, reconstruction, or modification commenced after June 1, 1973, and prior to May 19, 1978. The proposed storage tanks will be constructed after May 19, 1978; therefore, the Project storage tanks will not be subject to Subpart K.

4.1.2.3 40 CFR Part 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 provisions of 40 CFR Part 60, Subpart Ka apply to each storage vessel for petroleum liquid which has a storage capacity greater than 151,412 liters for which construction, reconstruction, or modification commenced after May 18, 1978, and prior to July 23, 1984. The proposed storage tanks will be constructed after July 23, 1984; therefore, the Project storage tanks will not be subject to Subpart Ka.

4.1.2.4 40 CFR Part 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 and On or Before October 4, 2023

The provisions of 40 CFR Part 60, Subpart Kb apply to each storage vessel with a capacity greater than or equal to 75 cubic meters (m³) that is used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification commenced after July 23, 1984 and on or before October 4, 2023. The proposed storage tanks will have storage capacities of less than 75 m³ and will be constructed after October 4, 2023; therefore, the Project storage tanks will not be subject to Subpart Kb.

4.1.2.5 40 CFR Part 60, Subpart Kc – Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After October 4, 2023

The provisions of 40 CFR Part 60, Subpart Kc apply to each storage vessel with a capacity greater than or equal to 20,000 gallons that is used to store VOL for which construction, reconstruction, or modification commenced after October 4, 2023. The proposed storage tanks will have storage capacities of less than 20,000 gallons; therefore, the Project storage tanks will not be subject to Subpart Kc.

4.1.2.6 40 CFR Part 60, Subpart KKK – Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants for Which Construction, Reconstruction, or Modification Commenced After January 20, 1984, and on or before August 23, 2011

The provisions of 40 CFR Part 60, Subpart KKK apply to affected facilities in onshore natural gas processing plants that commence construction, reconstruction, or modification after January 20, 1984, and on or before August 23, 2011. The Facility is not a natural gas processing plant and was constructed after August 23, 2011; therefore, Subpart KKK does not apply.

4.1.2.7 40 CFR Part 60, Subpart LLL – Standards of Performance for SO₂ Emissions from Onshore Natural Gas Processing for Which Construction, Reconstruction, or Modification Commenced After January 20, 1984, and on or Before August 23, 2011

The provisions of 40 CFR Part 60, Subpart LLL apply to facilities that process natural gas, including sweetening units and sweetening units that are followed by sulfur recovery units. There are no gas sweetening units at the Facility; therefore, Subpart LLL does not apply.

4.1.2.8 40 CFR Part 60, Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

The provisions of 40 CFR Part 60, Subpart IIII apply to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE). The existing compressor engines and standby generator are not CI ICE and are not subject to this subpart. The new compressor engines and new standby generator will not be CI ICE; therefore, the new engines will not be subject to this subpart.

4.1.2.9 40 CFR Part 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

The provisions of 40 CFR Part 60, Subpart JJJJ apply to manufacturers, owners and operators of stationary spark ignition (SI) ICE. The stationary SI ICE are subject to this Subpart if the non-emergency SI ICE (i.e., C-3, and C-4) have a maximum engine power greater than or equal to 500 hp and manufactured after July 1, 2007, and the emergency SI ICE (i.e., ENG-2) has a maximum engine power greater than 25 hp and is manufactured after January 1, 2009. The Project's new compressor engines (C-3 and C-4) and standby generator (ENG-2) will be subject to Subpart JJJJ.

Per 40 CFR §60.4233(e), the new compressor engines and new standby generator must comply with the emissions standards specified in Table 1 of NSPS Subpart JJJJ. The new compressor engines will use an oxidation catalyst to comply with the CO emission limits in Table 1 of NSPS Subpart JJJJ. For the new standby generator, the Facility will operate and maintain the certified SI ICE and control device according to the manufacturer's emission-related written instructions as specified in 40 CFR §60.4243(a)(1). 40 CFR §60.4243(d) limits the operation of the unit for the purpose of maintenance checks and readiness testing to no longer than 100 hr/yr. NextEra may operate the proposed standby generator up to 50 hr/yr in non-emergency situations. Operation during an emergency is unlimited. Any operation other than emergency

operation, maintenance and testing, and operation in non-emergency situations for 50 hr/yr is prohibited. NextEra will also comply with the applicable notification, testing, recordkeeping, and reporting requirements of this subpart for both new compressor engines and the new standby generator.

The proposed operating hours limit for the existing compressor engines (C-1 and C-2) and standby generator (ENG-1) does not change the applicability of 40 CFR Part 60, Subpart JJJJ; therefore, the existing compressor engines and existing standby generator will continue to comply with this Subpart.

4.1.2.10 40 CFR Part 60, Subpart OOOO – Standards of Performance for Crude Oil and Natural Gas Facilities for Which Construction, Modification, or Reconstruction Commenced after August 23, 2011 and on or Before September 18, 2015

The provisions of 40 CFR Part 60, Subpart OOOO apply to affected facilities constructed, modified, or reconstructed after August 23, 2011, and on or before September 18, 2015. The Facility was constructed after September 18, 2015; therefore, Subpart OOOO does not apply.

4.1.2.11 40 CFR Part 60, Subpart OOOOa – Standards of Performance for Crude Oil and Natural Gas Facilities for Which Construction, Modification, or Reconstruction Commenced after September 8, 2015 and on or before December 6, 2022

The provisions of 40 CFR Part 60, Subpart OOOOa apply to affected facilities constructed, modified, or reconstructed after September 18, 2015, and on or before December 6, 2022. The proposed Project will be constructed after December 6, 2022; therefore, the new compressor engines will not be subject to this Subpart. The Facility is currently subject to the requirements for reciprocating compressors and the requirements for fugitive equipment components of Subpart OOOOa.

The existing reciprocating compressors associated with C-1 and C-2 are not being modified or reconstructed as part of the Project and will remain subject to Subpart OOOOa. The proposed operating hour limitation on C-1 and C-2 is not considered a modification under 40 CFR §60.14, and reciprocating compressors do not have a source-specific definition of “modification” under Subparts OOOOa or OOOOb.

However, as discussed in the next section, the existing fugitive equipment components will be considered modified by the Project and will become subject to 40 CFR Part 60, Subpart OOOOb.

4.1.2.12 40 CFR Part 60, Subpart OOOOb – Standards of Performance for Crude Oil and Natural Gas Facilities for Which Construction, Modification, or Reconstruction Commenced after December 6, 2022

The provisions of 40 CFR Part 60, Subpart OOOOb apply to affected facilities constructed, modified, or reconstructed commenced after December 6, 2022. All new tanks associated with the Project have potential VOC emissions of less than 6 tpy and methane emissions of less than 20 tpy; therefore, the tanks are not subject to this subpart, per 40 CFR §60.5365b(e).

The two new reciprocating compressors associated with C-3 and C-4 will be constructed after December 6, 2022, and will be subject to Subpart OOOOb per 40 CFR §60.5365b(c). The new reciprocating compressors will be subject to the greenhouse gases (GHG) and VOC standards of 40 CFR §60.5385b that establish surrogate volumetric flow rate limits, which trigger rod packing replacement requirements.

40 CFR §60.5365a(j) and 40 CFR §60.5365b(i) both define the collection of fugitive emissions components at a compressor station as the “fugitive emissions components affected facility.” Pursuant to 40 CFR §60.5365b(i)(3)(i), a “modification” to a compressor station for purposes of the fugitive emissions components requirements occurs when an additional compressor is installed at a compressor station. Therefore, the Project will be considered to be a modification to the collective fugitive emissions components at the Facility. 40 CFR §60.5397b establishes GHG and VOC standards that will apply to the Facility-wide fugitive emissions components. The Facility will also comply with the general notification, reporting, and recordkeeping requirements outlined in 40 CFR §60.5420b.

4.1.3 40 CFR Parts 61 and 63 - National Emission Standards for Hazardous Air Pollutants

U.S. EPA has promulgated National Emission Standards for Hazardous Air Pollutants (HAP) NESHAP at 40 CFR Parts 61 and 63. The original NESHAP rules promulgated under 40 CFR Part 61 apply to specific HAP and specific operations. No standards under 40 CFR Part 61 will apply to the Facility. NESHAP rules promulgated under 40 CFR Part 63, commonly referred to as Maximum Achievable Control Technology (MACT) standards, apply to source categories that are major or area sources of HAP. A major source of HAP is defined as a source with a facility-wide PTE of 10 tpy or more of any single HAP, or with a facility-wide PTE of 25 tpy total HAP. The Facility’s PTE is less than 10 tpy for any single HAP and less than 25 tpy

of total HAP; therefore, the Facility is an existing area source of HAP and will remain an area source of HAP.

The following 40 CFR Part 63 subparts were evaluated for applicability to the proposed Project:

- 40 CFR Part 63, Subpart A – General Provisions
- 40 CFR Part 63, Subpart HH – National Emission Standards of Hazardous Air Pollutants from Oil and Natural Gas Production Facilities
- 40 CFR Part 63, Subpart HHH – National Emission Standards for Hazardous Air Pollutants from Natural Gas Transmission and Storage Facilities
- 40 CFR Part 63, Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE)

4.1.3.1 40 CFR Part 63, Subpart A

The provisions of 40 CFR Part 63, Subpart A apply to the owner or operator of any stationary source subject to a 40 CFR Part 63 NESHAP. The Facility is already subject to, and will continue to comply with the currently applicable sections of the General Provisions in 40 CFR Part 63, Subpart A. As an affected source, the Facility will use this minor source air permit application as the initial notification for the new compressor engines under Subpart A.

4.1.3.2 40 CFR Part 63, Subpart HH – National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities

The provisions of 40 CFR Part 63, Subpart HH apply to dehydration units located at natural gas production facilities that are major or area sources of HAP as defined in 40 CFR §63.761. The Facility is not a natural gas production facility, nor does it operate dehydration units; therefore, this Subpart does not apply.

4.1.3.3 40 CFR Part 63, Subpart HHH – National Emission Standards for Hazardous Air Pollutants from Natural Gas Transmission and Storage Facilities

The provisions of 40 CFR Part 63, Subpart HHH apply to owners and operators of natural gas transmission and storage facilities that transport or store natural gas prior to entering the pipeline to a local distribution

company or to a final end user and that are major sources of HAP emissions. The Facility is not a major source of HAP; therefore, the requirements of this subpart do not apply.

4.1.3.4 40 CFR Part 63, Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

40 CFR Part 63, Subpart ZZZZ apply to existing, new, or reconstructed stationary reciprocating internal combustion engines (RICE) at major or area sources of HAP. The existing compressor engines and standby generator engine are considered affected sources under 40 CFR §63.6590(a)(2)(iii). The change in operational hours does not change the applicability of 40 CFR Part 63, Subpart ZZZZ to the existing compressor engines; therefore, the existing compressor engines and standby generator will continue to comply with this Subpart. The new compressor engines and new standby generator engine are considered affected sources under 40 CFR §63.6590(a)(2)(iii). Pursuant to 40 CFR §63.6590(c), compliance with this Standard will be demonstrated by complying with NSPS 40 CFR Part 60, Subpart JJJJ.

4.1.4 40 CFR Part 70 – State Operating Permit Program

The Title V requirements are codified at 40 CFR Part 70 and apply to facilities that meet the definition of major source at 40 CFR §70.2. Alabama has incorporated the Part 70 permitting program as AAC 335-3-16. According to 40 CFR §70.2, a major source located in an attainment area is defined as a stationary source that has the potential to emit 100 tpy or more of any criteria pollutant, 10 tpy or more of a single HAP, and/or 25 tpy or more of total combined HAP. As demonstrated in Table B-1 to Appendix B, the existing Facility-wide PTE are below all applicable major source thresholds; therefore, the Facility is not currently subject to requirements under the Title V permitting program. However, as summarized in Table B-14 to Appendix B, following completion of this Project, the Facility-wide PTE of NO_x, VOC, and CO will exceed the Title V major source thresholds. The Facility will apply for a Title V Operating Permit within 12 months of commencing post-Project operations.

4.1.5 40 CFR Part 98, Subpart W – Petroleum and Natural Gas Systems

The provisions of 40 CFR Part 98, Subpart W apply to onshore oil and natural gas facilities, natural gas compressor stations, and natural gas processing plants that may emit greater than 25,000 metric tons of carbon dioxide equivalents (CO₂e) per year. The Facility will continue to be subject to Subpart W;

therefore, the Facility will continue to comply with the reporting and recordkeeping requirements outlined under this subpart.

4.2 STATE OF ALABAMA REQUIREMENTS

For the purpose of this Application, Alabama air regulations which are potentially applicable to the Facility have been identified. These regulations are codified at AAC 335-3 Chapters 1 through 21, and potentially applicable regulations are provided below:

- AAC 335-3-4 – Control of Particulate Emissions
- AAC 335-3-5 – Control of Sulfur Compound Emissions
- AAC 335-3-6 – Control of Organic Emissions
- AAC 335-3-7 – Carbon Monoxide Emissions
- AAC 335-3-8 – Control of Nitrogen Oxide Emissions
- AAC 335-3-10 – Standards of Performance for New Stationary Sources
- AAC 335-3-11 – National Emission Standards for Hazardous Air Pollutants
- AAC 335-3-15 – Synthetic Minor Operating Permits
- AAC 335-3-16 – Major Source Operating Permits

Regulations that apply Facility-wide, such as AAC 335-3-1 (General Provisions), AAC 335-3-1-.08 (Prohibition of Air Pollution), and AAC 335-3-4-.02 (Fugitive Dust and Fugitive Emissions) are neither identified nor discussed herein since they are not specific applicable State requirements for the proposed Project and the Facility will continue to comply with these requirements as part of this Project.

4.2.1 AAC 335-3-4 – Control of Particulate Emissions

AAC 335-3-4 contains standards for the control of particulate emissions from various types of industrial processes and fuel burning equipment. In accordance with 335-3-4-.01(1)(a), the Project's new sources will be prohibited from releases exhibiting greater than 20% opacity, as determined by a six-minute average. The use of natural gas and following good operating practices will ensure compliance with this regulation.

The Project includes fuel combustion sources, but they are not subject to a PM emissions limit under AAC 335-3-4 because they do not meet the definition of fuel burning equipment, nor would they be considered one of the process industries, general or specific.

4.2.2 AAC 335-3-5 – Control of Sulfur Compound Emissions

AAC 335-3-5 establishes standards for the control of sulfur compounds. The Project includes fuel combustion sources, but they are not subject to an SO₂ emissions limit under AAC 335-3-5 because they do not meet the definition of fuel burning equipment, nor would they be considered one of the process industries, general, or specific.

4.2.3 AAC 335-3-6 – Control of Organic Emissions

The various rules established in AAC 335-3-6 do not apply because Choctaw County is not one of the affected counties and the Facility does not operate fixed-roof petroleum liquid storage vessels greater than 40,000 gallons.

4.2.4 AAC 335-3-7 – Carbon Monoxide Emissions

The provisions in AAC 335-3-7 only apply to metals production and petroleum processes; therefore, the Facility is not subject to the standards established therein.

4.2.5 AAC 335-3-8 – Nitrogen Oxides Emissions

The standards established in AAC 335-3-8 for stationary RICE under AAC 335-3-8-.04 only apply to RICE in operation during the baseline period (May 1, 1995 to September 30, 1995) and are not applicable to the Facility.

4.2.6 AAC 335-3-10 – Standards of Performance for New Stationary Sources

AAC 335-3-10 adopts by reference and implements the Federal NSPS rules at 40 CFR Part 60, which are discussed in detail in Section 4.1.

4.2.7 AAC 335-3-11 – National Emission Standards for Hazardous Air Pollutants

AAC 335-3-11 adopts by reference and implements the Federal NESHAP at 40 CFR Parts 61 and 63, which are discussed in detail in Section 4.1.

4.2.8 AAC 335-3-15 – Synthetic Minor Operating Permits

AAC 335-3-15 describes the permitting requirements for ADEM's synthetic minor operating permit program. The Facility is requesting an operating hours limitation on C-1, C-2, ENG-1, and ENG-2 to become a synthetic minor source with respect to PSD but will become a major source with respect to Title V permitting. The Facility will be required to obtain a Major Source Operating permit pursuant to AAC 335-3-16; therefore, this chapter is not applicable.

4.2.9 AAC 335-3-16 – Major Source Operating Permits

AAC 335-3-16 implements the Federal TVOP Program. As previously stated, the existing Facility is not currently a major source under the Title V program; however, following completion of the Project, the Facility-wide PTE rates will exceed the 100 tpy Title V Major Source threshold for NO_x, CO, and VOC. The Facility will apply for a Major Source Operating Permit within 12 months of commencing post-Project operations and comply with the requirements under AAC 335-3-16 upon completion of the Project.

**APPENDIX A -
ADEM APPLICATION FORMS**



ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
AIR DIVISION ADEM FORM 103

Do not Write in This Space

Facility Number

101 - 0024

CONSTRUCTION/OPERATING PERMIT APPLICATION FACILITY IDENTIFICATION FORM

1. Name of Facility or Organization: NextEra Energy Pipeline Holdings (Lowman), Inc.

Plant Name Lowman Compressor Station

Facility Physical Location Address

Street & Number: 860 Sandridge Road

City: Butler

County: Choctaw

Zip: 36904

Facility Mailing Address (If different from above)

Mailing Contact:

Address or PO Box:

City:

State:

Zip:

Facility Billing Address

2. Billing Contact: Danny Schedule

Street & Number: 601 Travis St

City: Houston

State: TX

Zip: 77002

Telephone Number: (713) 374-1583

E-mail Address: danny.schedule@nexteraenergy.com

Responsible Official's Business Mailing Address

3. Responsible Official: Danny Schedule

Title: Sr. Director Midstream Ops & Construction

Street & Number: 601 Travis St

City: Houston

State: TX

Zip: 77002

Telephone Number: (713) 374-1583

E-mail Address: danny.schedule@nexteraenergy.com

RO under delegated authority? ☒ Yes ☐ No (if "yes", provide appropriate documentation)

Plant Contact Information

4. Plant Contact: Danny Schedule

Title: Sr. Director Midstream Ops & Construction

Telephone Number: (713) 374-1583

E-mail Address: danny.schedule@nexteraenergy.com

5. Location Coordinates:				
UTM:	371,556.108178	E-W	3,545,915.835178	N-S
Latitude/Longitude:	32.042141	LAT	-88.360404	LONG

6. Permit application is being made to obtain the following type permit:

- ☒ Air permit
☐ Major source operating permit
☐ Synthetic minor source operating permit

7. Permit application is made for:

- ☐ Existing source (initial application)
☐ Existing source (permit renewal)
☐ Modification
☒ New source (to be constructed)
☐ Change of ownership
☒ Other (specify) Modification of Air Permit Nos. X001, X002. X003

Date construction/modification to begin: 2027 to be completed: To Be Determined (TBD)

8. Indicate the number of each of the following forms attached and made a part of this application (if a form does not apply to your operation, indicate "N/A" in the space provided). Multiple forms may be used as required.

1 ADEM 104 INDIRECT HEATING EQUIPMENT
N/A ADEM 105 MANUFACTURING OR PROCESSING OPERATION
N/A ADEM 106 REFUSE HANDLING, DISPOSAL, AND INCINERATION
6 ADEM 107 STATIONARY INTERNAL COMBUSTION ENGINES
1 ADEM 108 LOADING, STORAGE & DISPENSING LIQUID & GASEOUS ORGANIC COMPOUNDS
N/A ADEM 109 VOLATILE ORGANIC COMPOUND SURFACE COATING EMISSION SOURCES
1 ADEM 110 AIR POLLUTION CONTROL DEVICE
N/A ADEM 112 SOLVENT METAL CLEANING
N/A ADEM 437 COMPLIANCE SCHEDULE
N/A ADEM 438 CONTINUOUS EMISSION MONITORS

9. General nature of business: (describe and list appropriate standard industrial classification (SIC) and North American Industry Classification System (NAICS) (www.naics.com) code(s)):

Compressor Station

SIC: 4922

NAICS: 486210

10. Summarize each pollutant emitted and the potential facility-wide annual emission rate for the pollutant. Indicate those pollutants for which the facility is major.

Regulated pollutant	Potential Emissions* (tons/year)	Major source? yes/no
NOx	124.86	☒ Yes ☐ No
CO	249.68	☒ Yes ☐ No
SO2	0.58	☐ Yes ☒ No
PM	4.17	☐ Yes ☒ No
PM10	4.17	☐ Yes ☒ No
PM2.5	4.17	☐ Yes ☒ No
VOC	111.63	☒ Yes ☐ No
Formaldehyde	9.42	☐ Yes ☒ No
Total HAP	17.43	☐ Yes ☒ No
		☐ Yes ☐ No
		☐ Yes ☐ No
		☐ Yes ☐ No
		☐ Yes ☐ No
		☐ Yes ☐ No
		☐ Yes ☐ No
		☐ Yes ☐ No
		☐ Yes ☐ No
		☐ Yes ☐ No
		☐ Yes ☐ No
		☐ Yes ☐ No
		☐ Yes ☐ No

*Potential emissions are either the maximum allowed by the regulations or by permit, or, if there is no regulatory limit, it is the emissions that occur from continuous operation at maximum capacity.

11. Provide a scaled map which contains clearly marked emission points, building locations, property boundaries, and directions (North, etc.). Labeling of emission points should be consistent across all forms.

12. Indicate the compliance status by program for each emission unit or source and the method used to determine compliance. Also cite the specific applicable requirement.

Emission unit or source: 1,875-hp Compressors (C-1 and C-2) and Standby Generator (ENG-1)

(description)

Emission Point No.	Pollutant ⁴	Standard	Program ¹	Method used to determine compliance	Compliance Status	
					IN ²	OUT ³
C-1	NOx	1.0 g/hp-hr or 82 ppmvd @ 15% O ₂	NSPS	Compliance is determined using Method 7E	☒	☐
C-1	CO	2.0 g/hp-hr or 270 ppmvd @15% O ₂	NSPS	Compliance is determined using Method 10	☒	☐
C-1	VOC	0.7 g/hp-hr or 60 ppmvd @15% O ₂	NSPS	Compliance is determined using Method 25A	☒	☐
C-2	NOx	1.0 g/hp-hr or 82 ppmvd @ 15% O ₂	NSPS	Compliance is determined using Method 7E	☒	☐
C-2	CO	2.0 g/hp-hr or 270 ppmvd @15% O ₂	NSPS	Compliance is determined using Method 10	☒	☐
C-2	VOC	0.7 g/hp-hr or 60 ppmvd @15% O ₂	NSPS	Compliance is determined using Method 25A	☒	☐
ENG-1	NOx	2.0 g/hp-hr or 160 ppmvd @ 15% O ₂	NSPS	Certified by Manufacturer	☒	☐
ENG-1	CO	4.0 g/hp-hr or 540 ppmvd @15% O ₂	NSPS	Certified by Manufacturer	☒	☐
ENG-1	VOC	1.0 g/hp-hr or 86 ppmvd @15% O ₂	NSPS	Certified by Manufacturer	☒	☐
					☐	☐
					☐	☐

¹PSD, non-attainment NSR, NSPS, NESHAP (40 CFR Part 61), NESHAP (40 CFR Part 63), accidental release (112(r)), SIP regulation, Title IV, Enhanced Monitoring, Title VI, Other (specify)

²Attach compliance plan

³Attach compliance schedule (ADEM Form-437)

⁴Fugitive emissions must be included as separate entries

13. For those applying for a major source operating permit, list all insignificant activities and the basis for listing them as such (i.e., less than the insignificant activity thresholds or on the list of insignificant activities). Attach any documentation needed, such as calculations. No unit subject to an NSPS, NESHAP or MACT standard can be listed as insignificant.

[illegible]

14. List and explain any facility-wide exemptions from applicable requirements the facility is claiming:

- a. N/A
- b. _____
- c. _____
- d. _____
- e. _____
- f. _____
- g. _____
- h. _____
- i. _____

15. List below other attachments that are a part of this application(all supporting engineering calculations must be appended):

- a. Appendix A - ADEM Application Forms
- b. Appendix B - PTE Calculations
- c. Appendix C - Figures
- d. _____
- e. _____
- f. _____
- g. _____
- h. _____
- i. _____

Name of person preparing application: Caleb Fetner

Company of preparer: ALL4 LLC

Phone (678) 293-9431

Email: cfetner@all4inc.com

Signature: *Caleb Fetner*

Date: April 17, 2026

I CERTIFY UNDER PENALTY OF LAW THAT, BASED ON INFORMATION AND BELIEF FORMED AFTER REASONABLE INQUIRY, THE STATEMENTS AND INFORMATION CONTAINED IN THIS APPLICATION ARE TRUE, ACCURATE AND COMPLETE.

I ALSO CERTIFY THAT THE SOURCE WILL CONTINUE TO COMPLY WITH APPLICABLE REQUIREMENTS FOR WHICH IT IS IN COMPLIANCE, AND THAT THE SOURCE WILL, IN A TIMELY MANNER, MEET ALL APPLICABLE REQUIREMENTS THAT WILL BECOME EFFECTIVE DURING THE PERMIT TERM AND SUBMIT A DETAILED SCHEDULE, IF NEEDED FOR MEETING THE REQUIREMENTS.

Danny Schedule

Sr. Director Midstream Ops & Con 04.17.2026

SIGNATURE OF RESPONSIBLE OFFICIAL

TITLE

DATE



**PERMIT APPLICATION FOR INDIRECT HEATING EQUIPMENT
ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
AIR DIVISION**

101	-	0024	-				
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1. Name of facility or organization: NextEra Energy Pipeline Holdings (Lowman), Inc. - Lowman Compressor Station
2. Unit Description (i.e. No. 1 Power Boiler): Fuel Gas Heater 2 (HTR-2)

Source Classification Code(s): _____

Equipment manufacturer's information

Name of manufacturer: Bruest Catalytic Heaters

Model number: TBD

Rated capacity-input: 0.036 (MMBtu/hr.)

Boiler type: ☐ Fire Tube ☐ Water Tube ☒ Other (specify): Heater

Manufactured date: TBD

Proposed installation date: 2027

Original installation date (if existing): N/A

Reconstruction/Modification date (if applicable): N/A

3. Type of fuel used:

Primary:

Fuel	Heat Content	Units	Max. % Sulfur	Max. % Ash	Grade No. [fuel oil only]	Supplier [used oil only]
Coal		Btu/lb				
Fuel Oil		Btu/gal				
Natural Gas*	1,020	Btu/ft ³				
L. P. Gas		Btu/ft ³				
Wood		Btu/lb				
Other (specify)						

Standby:

Fuel	Heat Content	Units	Max. % Sulfur	Max. % Ash	Grade No. [fuel oil only]	Supplier [used oil only]
Coal		Btu/lb				
Fuel Oil		Btu/gal				
Natural Gas		Btu/ft ³				
L. P. Gas		Btu/ft ³				
Wood		Btu/lb				
Other (specify)						

*Pipeline quality Natural Gas

4. Purpose (if multipurpose, note percent in each use category):

☐ Space heat		%
☐ Power generation		%
☒ Process heat	100	%
☐ Other (specify)		%

5. Normal schedule of operation:

Hours per day: 24 Days per week: 7 Weeks per year: 52

6. For each regulated pollutant, describe any limitations on source operation or any work practice standards which affect emissions:

None

7. Are you requesting a limitation for permitting? ☐ Yes ☒ No if "yes", specify the limit and affected unit(s):

8. Is there any emission control equipment on this emission source?

☐ Yes ☒ No (If "yes", ADEM Form 110 must be completed and attached)

9. Stack data (if a control device is installed, the information should be for the control device's stack exit; if multiple stacks associated, provide additional sheet):

Stack No. & Description:	<u>HTR-2 Stack</u>	Stack Type:	<u>V</u>
Stack UTM Coordinate (E-W)	<u>371.623</u> (km)	Stack UTM Coordinate (N-S)	<u>3,545.966</u> (km)
Latitude	<u>32.0426</u> (LAT)	Longitude	<u>-88.3597</u> (LONG)
Height above grade	<u>10</u> (ft)	Gas temperature at exit	<u>400</u> (°F)
Inside diameter at exit (round)	<u>0.50</u> (ft)	Gas Velocity	<u>20</u> (ft/Sec)
Inside area at exit (not round)	<u>N/A</u> (ft²)	Volume of gas discharged	<u>240</u> (ACFM)
Base Elevation	<u>470</u> (ft)	GEP Stack Height	<u>N/A</u> (ft)

Are sampling ports available? (If "yes", describe. Draw on separate sheet if necessary) ☐ Yes ☒ No :

Is this a merged stack (do multiple units use this release point)? ☐ Yes ☒ No

If yes, provide units:

10. Is this item subject to the Transport Rule 335-3-8-.07 or NOX Budget Program under 335-3-8-.71?

☐ Yes ☒ No If "Yes", provide ORIS Plant and Unit ID: _____

11. Is this item in compliance with all applicable air pollution rules and regulations?

☒ Yes ☐ No if "No", a compliance schedule, ADEM Form 437, must be attached.)

12. Fugitive Emissions: **N/A**

POLLUTANT	UNCONTROLLED POTENTIAL EMISSIONS		CONTROLLED POTENTIAL EMISSIONS		BASIS OF CALCULATION	REGULATORY EMISSION LIMIT Provide in lb/hr or specify alternative Unit of Measure
	lb/hr	ton/yr	lb/hr	ton/yr		
Total Particulate						
PM-10 Filterable						
PM-2.5 Filterable						
PM-Condensable						
Sulfur dioxide						
Nitrogen oxides						
Carbon monoxide						
VOC's						

Attach calculation worksheets. Particulate emissions should be speciated to include PM10-filterable, PM2.5-filterable, and PM-condensable. Speciated HAP emissions should also be provided. Attach additional page(s) as necessary.

13. Point Emissions:

POLLUTANT	UNCONTROLLED POTENTIAL EMISSIONS		CONTROLLED POTENTIAL EMISSIONS		BASIS OF CALCULATION	REGULATORY EMISSION LIMIT Provide in lb/hr or specify alternative Unit of Measure
	lb/hr	ton/yr	lb/hr	ton/yr		
Total Particulate	2.68E-04	1.17E-03	2.68E-04	1.17E-03	AP-42 Table 1.4-2	N/A
PM-10 Filterable	6.71E-05	2.94E-04	6.71E-05	2.94E-04	AP-42 Table 1.4-2	N/A
PM-2.5 Filterable	6.71E-05	2.94E-04	6.71E-05	2.94E-04	AP-42 Table 1.4-2	N/A
PM-Condensable	2.01E-04	8.81E-04	2.01E-04	8.81E-04	AP-42 Table 1.4-2	N/A
Sulfur dioxide	5.04E-05	2.21E-04	5.04E-05	2.21E-04	Mass Balance	N/A
Nitrogen oxides	3.53E-03	1.55E-02	3.53E-03	1.55E-02	AP-42 Table 1.4-1	N/A
Carbon monoxide	2.96E-03	1.30E-02	2.96E-03	1.30E-02	AP-42 Table 1.4-1	N/A
VOC's	1.94E-04	8.50E-04	1.94E-04	8.50E-04	AP-42 Table 1.4-2	N/A

Attach calculation worksheets. Particulate emissions should be speciated to include PM10-filterable, PM2.5-filterable, and PM-condensable. Speciated HAP emissions should also be provided. Attach additional page(s) as necessary.

Name of person preparing application: Caleb Fetner

Company of preparer: ALL4 LLC

Signature: *Caleb Fetner* Date: April 17, 2026



ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
AIR DIVISION

101 - 0024 - 8004

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1. Name of facility or organization:		NextEra Energy Pipeline Holdings (Lowman), Inc. - Lowman Compressor Station	
2. Purpose of Application:			
☐	Initial installation of a new engine (i.e. engine that has never been in service at any location)	If this application is for the installation, modification, or reconstruction of an engine, please provide the date construction is scheduled to begin: 2027	
☐	Initial installation of a used engine (i.e. engine that has been in service at another location)		
☒	Modification/Reconstruction of an engine currently installed at the facility	If this application is for an engine currently installed at this facility, please provide the date that the engine was initially installed at this facility: September 22, 2023	
☒	Update information for an engine currently installed at the facility		
☐	Title V Application		
☐	Other, specify:		
3. Engine Identification:			
A. Manufacturer Name:	Caterpillar	B. Model No.:	G3606A4
C. Model Year:	2021		
D. Facility's Identification or Description:	1,875-hp Compressor (C-1)	E. Serial No.:	JFE01706
4. Engine Applicability Dates:			
A. Date Ordered (New):	05/05/2020	B. Date Manufactured:	2021
C. Date Modified/Reconstructed	N/A		
D. For a used engine, approximate date engine was first put in service at any location:	N/A		
5. Engine Function:			
☒	Compression	☐	Electrical Generation (Max Output):
☐	NFPA Certified	☐	Fire/Other Pump Driver
☐	Test Cell/Stand	☐	Other, please describe:
☐	Research & Development		
6. Engine Operation:			
☒	Non-Emergency (provide typical operating schedule in A-D):	A. Hours/day:	10
☐	Emergency Only	B. Days/week:	7
☐	Limited Use (<100 hr/yr)	C. Weeks/year:	52
D. Peak Season (if any): N/A			
7. Engine Specifications:			
A. Max Brake Horsepower (bhp):	1,875	B. Max Engine Power (kWm):	1,398
C. Max Heat Input (MMBtu/hr):	12.96		
D. Type:	E. Piston Movement:	F. Air/Fuel Mix:	G. Ignition Type
☐ Simple Cycle Turbine	☐ 2-Stroke RICE	☐ Rich Burn Rice	☒ Spark
☐ Combined Cycle Turbine	☒ 4-Stroke RICE	☒ Lean Burn RICE	☐ Compression
☐ Regenerative Cycle Turbine	☐ N/A	☐ Diffusion Flame Turbine	☐ N/A
☒ Reciprocating Engine	☐ Other:	☐ Lean Premix Turbine	
		☐ Other:	
H. Cylinder Displacement: (Liters/cylinder)			

8. Compressor Specifications:

A. Compressor Type Reciprocating B. Compressor Mfg. Date _____ C. Location on well? ☐ Yes ☒ No
 D. Compressor Instal. Date: _____ E. Compressor Serial No.: _____ F. Compressor Brake Horsepower (bhp): _____

9. Fuel Information:

	Fuel Type/ Desc.	Heat Content	Sulfur Content (% by weight or ppm)	Fuel-Bound Nitrogen Content (% by weight or ppm)	% of Gross Heat Input	Max Ash %	Used Oil Supplier
Primary	Natural Gas	1,020 Btu/scf	0.5 gr/dscf				
Secondary/ Backup							

10. Point Source Emissions:

POLLUTANT	UNCONTROLLED ¹ POTENTIAL EMISSIONS		CONTROLLED ² POTENTIAL EMISSIONS		BASIS OF CALCULATION	REGULATORY EMISSION LIMIT Provide in lb/hr or specify alternative Unit of Measure
	lb/hr	ton/yr	lb/hr	ton/yr		
Total Particulate	0.13	0.26	0.13	0.26	AP-42 Table 3.2-2	N/A
PM-10 Filterable	9.99E-04	2.00E-03	9.99E-04	2.00E-03	AP-42 Table 3.2-2	N/A
PM-2.5 Filterable	9.99E-04	2.00E-03	9.99E-04	2.00E-03	AP-42 Table 3.2-2	N/A
PM-Condensable	0.13	0.26	0.13	0.26	AP-42 Table 3.2-2	N/A
Sulfur dioxide	0.02	0.04	0.02	0.04	Mass Balance	N/A
Nitrogen oxides	4.13	8.27	4.13	8.27	40 CFR Part 60, Subpart JJJJ	1.0 g/bhp-hr
Carbon monoxide	8.27	16.53	6.61	13.23	40 CFR Part 60, Subpart JJJJ	2.0 g/bhp-hr
VOC's	2.89	5.79	2.89	5.79	40 CFR Part 60, Subpart JJJJ	0.7 g/bhp-hr
Formaldehyde	0.98	1.96	0.98	1.96	Manufacturer Data	N/A
Total HAP	1.23	2.47	1.23	2.47	AP-42 Table 3.2-2	N/A

Attach calculation worksheets. Manufacturer specification sheets should be provided if used as the basis for emission estimates. Particulate emissions should be speciated to include PM10-filterable, PM2.5-filterable, and PM-condensable. Speciated HAP emissions should also be provided. Attach additional page(s) as necessary.

11. Applicable Regulations:

- ☐ 40 CFR 63, Subpart YYYY, NESHAP for Stat. Combustion Turbines ☒ 40 CFR 63, Subpart ZZZZ, NESHAP for Stat. RICE
☐ 40 CFR 60, Subpart GG, NSPS for Stationary Gas Turbines ☐ 40 CFR 60, Subpart IIII, NSPS for Stat. Compression Ignition ICE
☐ 40 CFR 60, Subpart KKKK, NSPS for Stat. Combustion Turbines ☒ 40 CFR 60, Subpart JJJJ, NSPS for Stat. Spark Ignition ICE
☐ 40 CFR 60, Subpart OOOO/OOOOa ☐ Other: _____

Does this unit have an EPA Certificate of Conformity? ☐ Yes ☒ No if yes, please provide: _____

12. Regulatory Standards, Limitations, and Requirements:

Pollutant/Parameter	Rate/Value	Units of Standard	Regulatory Basis ³	Engine Potential Emission Rate (in units of standard)
Example: NOx + NMHC	6.4	g/kW-hr	NSPS, Subpart IIII	4.95 g/kW-hr
Example: Annual Operation	6,000	hr/yr	SMS-PSD	NA
NOx	1.0	g/bhp-hr	NSPS, Subpart JJJJ	1.0 g/bhp-hr
CO	2.0	g/bhp-hr	NSPS, Subpart JJJJ	2.0 g/bhp-hr
VOC	0.7	g/bhp-hr	NSPS, Subpart JJJJ	0.7 g/bhp-hr
Annual Operation	8,000	hr/yr	Synthetic Minor Limit, Hours are combined C-1 and C-2	N/A

3. for federal regulations, specify which NSPS or NESHAP is the basis. If a synthetic minor limit, specify either SMS-PSD or SMS- Title V

B. For engines subject to emission standards under NSPS, Subpart IIII or NSPS, Subpart JJJJ, is this engine certified by the manufacturer pursuant to the applicable regulation to meet the applicable emission standards? ☐ N/A ☐ Yes ☒ No

(if yes, provide a copy of the certification)

C. For emergency or limited use engines, is this engine equipped with a non-resettable hour meter? ☐ Yes ☒ No

13. Pollution Control Information:

A. Device/Technology Type(s)

- ☐ No Controls
- ☒ Air-to-Fuel Ratio Controller
- ☐ Water or Steam Injection
- ☒ Low NOX Burners
- ☒ Oxidation Catalyst
- ☐ Selective Non-catalytic Reduction(SNCR)
- ☐ Non-selective Catalytic Reduction (NSCR/3-way Catalyst)
- ☐ Selective Catalytic Reduction (SCR)
- ☐ Diesel Particulate Filter
- ☐ Other _____
- ☐ Other _____

B. Control Efficiencies

Pollutant	% Reduction
NOx	
CO	20%
VOC	
Formaldehyde	

C. Operational Parameters (if any):

Air-to-Fuel Ratio Controller and Low NOx burners are integral to the engine.

14. Compliance Status:

Is this item in compliance with all applicable air pollution rules and regulations?

☒ Yes ☐ No (if "no", a compliance schedule, ADEM Form 437, must be attached.

15. Stack Parameters (if a control device is installed, the information should be for the control device's stack exit)

Emission Point & Description: C-1 Stack

Stack Type: V

Stack UTM Coordinate (E-W)	<u>371.556</u> (km)	Stack UTM Coordinate (N-S)	<u>3,545.916</u> (km)
Latitude	<u>32.0421</u> (LAT)	Longitude	<u>-88.3604</u> (LONG)
Height above grade	<u>27.5</u> (ft)	Gas temperature at exit	<u>822</u> (°F)
Inside diameter at exit (round)	<u>1.33</u> (ft)	Gas Velocity	_____ (ft/Sec)
Inside area at exit (not round)	_____ (ft²)	Volume of gas discharged	<u>11,998</u> (ACFM)
Base Elevation	<u>418.37</u> (ft)	GEP Stack Height	_____ (ft)

Are sampling ports available? (If "yes", describe. Draw on separate sheet if necessary) ☒ Yes ☐ No :

Is this a merged stack (do multiple units use this release point)? ☐ Yes ☒ No

If yes, provide units: _____

16. Clarifying/Supplemental Information (Optional):

The Low NOx burner, Oxidation Catalyst, and Air-to-Fuel Controller will always be on when the engine is operating.

Name of person preparing application: Caleb Fetner

Company of preparer ALL4 LLC

Signature: Caleb Fetner

Date: April 17, 2026



ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
AIR DIVISION

101 - 0024 - X004

Do not write in this space

1. Name of facility or organization:		NextEra Energy Pipeline Holdings (Lowman), Inc. - Lowman Compressor Station	
2. Purpose of Application:			
☐ Initial installation of a new engine (i.e. engine that has never been in service at any location)		If this application is for the installation, modification, or reconstruction of an engine, please provide the date construction is scheduled to begin: 2027	
☐ Initial installation of a used engine (i.e. engine that has been in service at another location)			
☒ Modification/Reconstruction of an engine currently installed at the facility		If this application is for an engine currently installed at this facility, please provide the date that the engine was initially installed at this facility: September 22, 2023	
☒ Update information for an engine currently installed at the facility			
☐ Title V Application			
☐ Other, specify: _____			
3. Engine Identification:			
A. Manufacturer Name: Caterpillar		B. Model No.: G3606A4	C. Model Year: 2021
D. Facility's Identification or Description: 1,875-hp Compressor (C-2)		E. Serial No.: JFE01725	
4. Engine Applicability Dates:			
A. Date Ordered (New): 05/05/2020		B. Date Manufactured: 2021	C. Date Modified/Reconstructed: N/A
D. For a used engine, approximate date engine was first put in service at any location: N/A			
5. Engine Function:			
☒ Compression		☐ Electrical Generation (Max Output): _____	
☐ NFPA Certified		☐ Fire/Other Pump Driver	
☐ Test Cell/Stand		☐ Other, please describe: _____	
☐ Research & Development			
6. Engine Operation:			
☒ Non-Emergency (provide typical operating schedule in A-D):		A. Hours/day: 10	
☐ Emergency Only		B. Days/week: 7	
☐ Limited Use (<100 hr/yr)		C. Weeks/year: 52	
D. Peak Season (if any): N/A			
7. Engine Specifications:			
A. Max Brake Horsepower (bhp): 1,875		B. Max Engine Power (kWm): 1,398	C. Max Heat Input (MMBtu/hr): 12.96
D. Type:		E. Piston Movement:	F. Air/Fuel Mix:
☐ Simple Cycle Turbine		☐ 2-Stroke RICE	☐ Rich Burn Rice
☐ Combined Cycle Turbine		☒ 4-Stroke RICE	☒ Lean Burn RICE
☐ Regenerative Cycle Turbine		☐ N/A	☐ Diffusion Flame Turbine
☒ Reciprocating Engine		☐ Other: _____	☐ Lean Premix Turbine
			☐ Other: _____
G. Ignition Type			
☒ Spark			
☐ Compression			
☐ N/A			
H. Cylinder Displacement: _____ (Liters/cylinder)			

8. Compressor Specifications:

A. Compressor Type Reciprocating B. Compressor Mfg. Date _____ C. Location on well? ☐ Yes ☒ No
 D. Compressor Instal. Date: _____ E. Compressor Serial No.: _____ F. Compressor Brake Horsepower (bhp): _____

9. Fuel Information:

	Fuel Type/ Desc.	Heat Content	Sulfur Content (% by weight or ppm)	Fuel-Bound Nitrogen Content (% by weight or ppm)	% of Gross Heat Input	Max Ash %	Used Oil Supplier
Primary	Natural Gas	1,020 Btu/scf	0.5 gr/dscf				
Secondary/ Backup							

10. Point Source Emissions:

POLLUTANT	UNCONTROLLED ¹ POTENTIAL EMISSIONS		CONTROLLED ² POTENTIAL EMISSIONS		BASIS OF CALCULATION	REGULATORY EMISSION LIMIT Provide in lb/hr or specify alternative Unit of Measure
	lb/hr	ton/yr	lb/hr	ton/yr		
Total Particulate	0.13	0.26	0.13	0.26	AP-42 Table 3.2-2	N/A
PM-10 Filterable	9.99E-04	2.00E-03	9.99E-04	2.00E-03	AP-42 Table 3.2-2	N/A
PM-2.5 Filterable	9.99E-04	2.00E-03	9.99E-04	2.00E-03	AP-42 Table 3.2-2	N/A
PM-Condensible	0.13	0.26	0.13	0.26	AP-42 Table 3.2-2	N/A
Sulfur dioxide	0.02	0.04	0.02	0.04	Mass Balance	N/A
Nitrogen oxides	4.13	8.27	4.13	8.27	40 CFR Part 60, Subpart JJJJ	1.0 g/bhp-hr
Carbon monoxide	8.27	16.53	6.61	13.23	40 CFR Part 60, Subpart JJJJ	2.0 g/bhp-hr
VOC's	2.89	5.79	2.89	5.79	40 CFR Part 60, Subpart JJJJ	0.7 g/bhp-hr
Formaldehyde	0.98	1.96	0.98	1.96	Manufacturer Data	N/A
Total HAP	1.23	2.47	1.23	2.47	AP-42 Table 3.2-2	N/A

Attach calculation worksheets. Manufacturer specification sheets should be provided if used as the basis for emission estimates. Particulate emissions should be speciated to include PM10-filterable, PM2.5-filterable, and PM-condensable. Speciated HAP emissions should also be provided. Attach additional page(s) as necessary.

11. Applicable Regulations:

- ☐ 40 CFR 63, Subpart YYYY, NESHAP for Stat. Combustion Turbines ☒ 40 CFR 63, Subpart ZZZZ, NESHAP for Stat. RICE
☐ 40 CFR 60, Subpart GG, NSPS for Stationary Gas Turbines ☐ 40 CFR 60, Subpart IIII, NSPS for Stat. Compression Ignition ICE
☐ 40 CFR 60, Subpart KKKK, NSPS for Stat. Combustion. Turbines ☒ 40 CFR 60, Subpart JJJJ, NSPS for Stat. Spark Ignition ICE
☐ 40 CFR 60, Subpart OOOO/OOOOa ☐ Other: _____

Does this unit have an EPA Certificate of Conformity? ☐ Yes ☒ No if yes, please provide: _____

12. Regulatory Standards, Limitations, and Requirements:

Pollutant/Parameter	Rate/Value	Units of Standard	Regulatory Basis ³	Engine Potential Emission Rate (in units of standard)
Example: NOx + NMHC	6.4	g/kW-hr	NSPS, Subpart IIII	4.95 g/kW-hr
Example: Annual Operation	6,000	hr/yr	SMS-PSD	NA
NOx	1.0	g/bhp-hr	NSPS, Subpart JJJJ	1.0 g/bhp-hr
CO	2.0	g/bhp-hr	NSPS, Subpart JJJJ	2.0 g/bhp-hr
VOC	0.7	g/bhp-hr	NSPS, Subpart JJJJ	0.7 g/bhp-hr
Annual Operation	8,000	hr/yr	Synthetic Minor Limit, Hours are combined C-1 and C-2	N/A

3. for federal regulations, specify which NSPS or NESHAP is the basis. If a synthetic minor limit, specify either SMS-PSD or SMS- Title V

B. For engines subject to emission standards under NSPS, Subpart IIII or NSPS, Subpart JJJJ, is this engine certified by the manufacturer pursuant to the applicable regulation to meet the applicable emission standards? ☐ N/A ☐ Yes ☒ No

(if yes, provide a copy of the certification)

C. For emergency or limited use engines, is this engine equipped with a non-resettable hour meter? ☐ Yes ☒ No

13. Pollution Control Information:

A. Device/Technology Type(s)

- ☐ No Controls
- ☒ Air-to-Fuel Ratio Controller
- ☐ Water or Steam Injection
- ☒ Low NOX Burners
- ☒ Oxidation Catalyst
- ☐ Selective Non-catalytic Reduction(SNCR)
- ☐ Non-selective Catalytic Reduction (NSCR/3-way Catalyst)
- ☐ Selective Catalytic Reduction (SCR)
- ☐ Diesel Particulate Filter
- ☐ Other _____
- ☐ Other _____

B. Control Efficiencies

Pollutant	% Reduction
NOx	
CO	20%
VOC	
Formaldehyde	

C. Operational Parameters (if any):

Air-to-Fuel Ratio Controller and Low NOx burners are integral to the engine.

14. Compliance Status:

Is this item in compliance with all applicable air pollution rules and regulations?

☒ Yes ☐ No (if "no", a compliance schedule, ADEM Form 437, must be attached.)

15. Stack Parameters (if a control device is installed, the information should be for the control device's stack exit)

Emission Point & Description: C-2 Stack

Stack Type: V

Stack UTM Coordinate (E-W)	<u>371.556</u> (km)	Stack UTM Coordinate (N-S)	<u>3,545.916</u> (km)
Latitude	<u>32.0421</u> (LAT)	Longitude	<u>-88.3604</u> (LONG)
Height above grade	<u>27.5</u> (ft)	Gas temperature at exit	<u>822</u> (°F)
Inside diameter at exit (round)	<u>1.33</u> (ft)	Gas Velocity	_____ (ft/Sec)
Inside area at exit (not round)	_____ (ft²)	Volume of gas discharged	<u>11,998</u> (ACFM)
Base Elevation	<u>418.37</u> (ft)	GEP Stack Height	_____ (ft)

Are sampling ports available? (If "yes", describe. Draw on separate sheet if necessary) ☒ Yes ☐ No :

Is this a merged stack (do multiple units use this release point)? ☐ Yes ☒ No

If yes, provide units: _____

16. Clarifying/Supplemental Information (Optional):

The Low NOx burner, Oxidation Catalyst, and Air-to-Fuel Controller will always be on when the engine is operating.

Name of person preparing application: Caleb Fetner

Company of preparer ALL4 LLC

Signature: Caleb Fetner

Date: April 17, 2026



ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
AIR DIVISION

101 - 0024 - 8005

Do not write in this space

1. Name of facility or organization:		NextEra Energy Pipeline Holdings (Lowman), Inc. - Lowman Compressor Station	
2. Purpose of Application:			
☒ Initial installation of a new engine (i.e. engine that has never been in service at any location)		If this application is for the installation, modification, or reconstruction of an engine, please provide the date construction is scheduled to begin: <u>2027</u>	
☐ Initial installation of a used engine (i.e. engine that has been in service at another location)			
☐ Modification/Reconstruction of an engine currently installed at the facility		If this application is for an engine currently installed at this facility, please provide the date that the engine was initially installed at this facility: _____	
☐ Update information for an engine currently installed at the facility			
☐ Title V Application			
☐ Other, specify: _____			
3. Engine Identification:			
A. Manufacturer Name: <u>Caterpillar</u>		B. Model No.: <u>G3616</u>	C. Model Year: <u>2027</u>
D. Facility's Identification or Description: <u>5,500-hp Compressor (C-3)</u>		E. Serial No.: <u>TBD</u>	
4. Engine Applicability Dates:			
A. Date Ordered (New): <u>TBD</u>		B. Date Manufactured: <u>TBD</u>	C. Date Modified/Reconstructed: <u>N/A</u>
D. For a used engine, approximate date engine was first put in service at any location: <u>N/A</u>			
5. Engine Function:			
☒ Compression		☐ Electrical Generation (Max Output): _____	
☐ NFPA Certified		☐ Fire/Other Pump Driver	
☐ Test Cell/Stand		☐ Other, please describe: _____	
☐ Research & Development			
6. Engine Operation:			
☒ Non-Emergency (provide typical operating schedule in A-D):		A. Hours/day: <u>24</u>	
☐ Emergency Only		B. Days/week: <u>7</u>	
☐ Limited Use (<100 hr/yr)		C. Weeks/year: <u>52</u>	
D. Peak Season (if any): <u>N/A</u>			
7. Engine Specifications:			
A. Max Brake Horsepower (bhp): <u>5,500</u>		B. Max Engine Power (kWm): <u>4,101</u>	C. Max Heat Input (MMBtu/hr): <u>40.96</u>
D. Type:		E. Piston Movement:	F. Air/Fuel Mix:
☐ Simple Cycle Turbine		☐ 2-Stroke RICE	☐ Rich Burn Rice
☐ Combined Cycle Turbine		☒ 4-Stroke RICE	☒ Lean Burn RICE
☐ Regenerative Cycle Turbine		☐ N/A	☐ Diffusion Flame Turbine
☒ Reciprocating Engine		☐ Other: _____	☐ Lean Premix Turbine
			☐ Other: _____
H. Cylinder Displacement: _____ (Liters/cylinder)			

8. Compressor Specifications:

A. Compressor Type Reciprocating B. Compressor Mfg. Date TBD C. Location on well? ☐ Yes ☒ No
 D. Compressor Instal. Date: TBD E. Compressor Serial No.: TBD F. Compressor Brake Horsepower (bhp): 7,200

9. Fuel Information:

	Fuel Type/ Desc.	Heat Content	Sulfur Content (% by weight or ppm)	Fuel-Bound Nitrogen Content (% by weight or ppm)	% of Gross Heat Input	Max Ash %	Used Oil Supplier
Primary	Natural Gas	1,020 Btu/scf	0.5 gr/dscf				
Secondary/ Backup							

10. Point Source Emissions:

POLLUTANT	UNCONTROLLED ¹ POTENTIAL EMISSIONS		CONTROLLED ² POTENTIAL EMISSIONS		BASIS OF CALCULATION	REGULATORY EMISSION LIMIT Provide in lb/hr or specify alternative Unit of Measure
	lb/hr	ton/yr	lb/hr	ton/yr		
Total Particulate	0.41	1.79	0.41	1.79	AP-42 Table 3.2-2	N/A
PM-10 Filterable	3.16E-03	0.01	3.16E-03	0.01	AP-42 Table 3.2-2	N/A
PM-2.5 Filterable	3.16E-03	0.01	3.16E-03	0.01	AP-42 Table 3.2-2	N/A
PM-Condensable	0.41	1.78	0.41	1.78	AP-42 Table 3.2-2	N/A
Sulfur dioxide	0.06	0.25	0.06	0.25	Mass Balance	N/A
Nitrogen oxides	12.13	53.11	12.13	53.11	40 CFR Part 60, Subpart JJJJ	1.0 g/bhp-hr
Carbon monoxide	24.25	106.22	1.82	7.97	40 CFR Part 60, Subpart JJJJ	2.0 g/bhp-hr
VOC's	8.49	37.18	0.49	2.12	40 CFR Part 60, Subpart JJJJ	0.7 g/bhp-hr
Formaldehyde	0.62	2.71	0.36	1.59	Vendor Guarantee	N/A
Total HAPs	1.41	6.19	1.41	6.19	AP-42 Table 3.2-2	N/A

Attach calculation worksheets. Manufacturer specification sheets should be provided if used as the basis for emission estimates. Particulate emissions should be speciated to include PM10-filterable, PM2.5-filterable, and PM-condensable. Speciated HAP emissions should also be provided. Attach additional page(s) as necessary.

11. Applicable Regulations:

- ☐ 40 CFR 63, Subpart YYYY, NESHAP for Stat. Combustion Turbines ☒ 40 CFR 63, Subpart ZZZZ, NESHAP for Stat. RICE
☐ 40 CFR 60, Subpart GG, NSPS for Stationary Gas Turbines ☐ 40 CFR 60, Subpart IIII, NSPS for Stat. Compression Ignition ICE
☐ 40 CFR 60, Subpart KKKK, NSPS for Stat. Combustion. Turbines ☒ 40 CFR 60, Subpart JJJJ, NSPS for Stat. Spark Ignition ICE
☐ 40 CFR 60, Subpart OOOO/OOOOa ☒ Other: 40 CFR Part 60, Subpart OOOOb

Does this unit have an EPA Certificate of Conformity? ☐ Yes ☒ No if yes, please provide: _____

12. Regulatory Standards, Limitations, and Requirements:

Pollutant/Parameter	Rate/Value	Units of Standard	Regulatory Basis ³	Engine Potential Emission Rate (in units of standard)
<i>Example: NOx + NMHC</i>	<i>6.4</i>	<i>g/kW-hr</i>	<i>NSPS, Subpart IIII</i>	<i>4.95 g/kW-hr</i>
<i>Example: Annual Operation</i>	<i>6,000</i>	<i>hr/yr</i>	<i>SMS-PSD</i>	<i>NA</i>
NOx	1.0	g/bhp-hr	NSPS, Subpart JJJJ	1.0 g/bhp-hr
CO	2.0	g/bhp-hr	NSPS, Subpart JJJJ	2.0 g/bhp-hr
VOC	0.7	g/bhp-hr	NSPS, Subpart JJJJ	0.7 g/bhp-hr

3. for federal regulations, specify which NSPS or NESHAP is the basis. If a synthetic minor limit, specify either SMS-PSD or SMS- Title V

B. For engines subject to emission standards under NSPS, Subpart IIII or NSPS, Subpart JJJJ, is this engine certified by the manufacturer pursuant to the applicable regulation to meet the applicable emission standards? ☐ N/A ☐ Yes ☒ No

(if yes, provide a copy of the certification)

C. For emergency or limited use engines, is this engine equipped with a non-resettable hour meter? ☐ Yes ☒ No

13. Pollution Control Information:

A. Device/Technology Type(s)

- ☐ No Controls
- ☒ Air-to-Fuel Ratio Controller
- ☐ Water or Steam Injection
- ☐ Low NOX Burners
- ☒ Oxidation Catalyst
- ☐ Selective Non-catalytic Reduction(SNCR)
- ☐ Non-selective Catalytic Reduction (NSCR/3-way Catalyst)
- ☐ Selective Catalytic Reduction (SCR)
- ☐ Diesel Particulate Filter
- ☐ Other _____
- ☐ Other _____

B. Control Efficiencies

Pollutant	% Reduction
NO _x	
CO	93%
VOC	75%
Formaldehyde	70%

C. Operational Parameters (if any):

Air-to-Fuel Ratio Controller is integral to the engine.

14. Compliance Status:

Is this item in compliance with all applicable air pollution rules and regulations?

☒ Yes ☐ No (if "no", a compliance schedule, ADEM Form 437, must be attached.

Emission Point & Description: C-3 Stack		Stack Type: V	
Stack UTM Coordinate (E-W)	<u>371.620</u> (km)	Stack UTM Coordinate (N-S)	<u>3,545.962</u> (km)
Latitude	<u>32.0426</u> (LAT)	Longitude	<u>-88.3597</u> (LONG)
Height above grade	<u>38</u> (ft)	Gas temperature at exit	<u>897 @ 50% load</u> (°F)
Inside diameter at exit (round)	<u>2.5</u> (ft)	Gas Velocity	_____ (ft/Sec)
Inside area at exit (not round)	_____ (ft²)	Volume of gas discharged	<u>33,822</u> (ACFM)
Base Elevation	<u>470</u> (ft)	GEP Stack Height	_____ (ft)
Are sampling ports available? (If "yes", describe. Draw on separate sheet if necessary)		☒ Yes	☐ No :
Is this a merged stack (do multiple units use this release point)?		☐ Yes	☒ No.
If yes, provide units: _____			

The Oxidation Catalyst and Air-to-Fuel Controller will always be on when the engine is operating.

There will be two 2-inch sampling ports downstream of the silencer.

Name of person preparing application: Caleb Fetner
Company of preparer ALL4 LLC
Signature: Caleb Fetner Date: April 17, 2026



ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
AIR DIVISION

101 - 0024 - 8005

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1. Name of facility or organization:		NextEra Energy Pipeline Holdings (Lowman), Inc. - Lowman Compressor Station	
2. Purpose of Application:			
☒	Initial installation of a new engine (i.e. engine that has never been in service at any location)	If this application is for the installation, modification, or reconstruction of an engine, please provide the date construction is scheduled to begin: 2027	
☐	Initial installation of a used engine (i.e. engine that has been in service at another location)		
☐	Modification/Reconstruction of an engine currently installed at the facility	If this application is for an engine currently installed at this facility, please provide the date that the engine was initially installed at this facility: _____	
☐	Update information for an engine currently installed at the facility		
☐	Title V Application		
☐	Other, specify: _____		
3. Engine Identification:			
A. Manufacturer Name:	Caterpillar	B. Model No.:	G3616
C. Model Year:	2027		
D. Facility's Identification or Description:	5,500-hp Compressor (C-4)	E. Serial No.:	TBD
4. Engine Applicability Dates:			
A. Date Ordered (New):	TBD	B. Date Manufactured:	TBD
C. Date Modified/Reconstructed	N/A		
D. For a used engine, approximate date engine was first put in service at any location:	N/A		
5. Engine Function:			
☒	Compression	☐	Electrical Generation (Max Output): _____
☐	NFPA Certified	☐	Fire/Other Pump Driver
☐	Test Cell/Stand	☐	Other, please describe: _____
☐	Research & Development		
6. Engine Operation:			
☒	Non-Emergency (provide typical operating schedule in A-D):	A. Hours/day:	24
☐	Emergency Only	B. Days/week:	7
☐	Limited Use (<100 hr/yr)	C. Weeks/year:	52
D. Peak Season (if any): N/A			
7. Engine Specifications:			
A. Max Brake Horsepower (bhp):	5,500	B. Max Engine Power (kWm):	4,101
C. Max Heat Input (MMBtu/hr):	40.96		
D. Type:	E. Piston Movement:	F. Air/Fuel Mix:	G. Ignition Type
☐ Simple Cycle Turbine	☐ 2-Stroke RICE	☐ Rich Burn Rice	☒ Spark
☐ Combined Cycle Turbine	☒ 4-Stroke RICE	☒ Lean Burn RICE	☐ Compression
☐ Regenerative Cycle Turbine	☐ N/A	☐ Diffusion Flame Turbine	☐ N/A
☒ Reciprocating Engine	☐ Other: _____	☐ Lean Premix Turbine	
		☐ Other: _____	
H. Cylinder Displacement: _____ (Liters/cylinder)			

8. Compressor Specifications:

A. Compressor Type Reciprocating B. Compressor Mfg. Date TBD C. Location on well? ☐ Yes ☒ No
 D. Compressor Instal. Date: TBD E. Compressor Serial No.: TBD F. Compressor Brake Horsepower (bhp): 7,200

9. Fuel Information:

	Fuel Type/ Desc.	Heat Content	Sulfur Content (% by weight or ppm)	Fuel-Bound Nitrogen Content (% by weight or ppm)	% of Gross Heat Input	Max Ash %	Used Oil Supplier
Primary	Natural Gas	1,020 Btu/scf	0.5 gr/dscf				
Secondary/ Backup							

10. Point Source Emissions:

POLLUTANT	UNCONTROLLED ¹ POTENTIAL EMISSIONS		CONTROLLED ² POTENTIAL EMISSIONS		BASIS OF CALCULATION	REGULATORY EMISSION LIMIT Provide in lb/hr or specify alternative Unit of Measure
	lb/hr	ton/yr	lb/hr	ton/yr		
Total Particulate	0.41	1.79	0.41	1.79	AP-42 Table 3.2-2	N/A
PM-10 Filterable	3.16E-03	0.01	3.16E-03	0.01	AP-42 Table 3.2-2	N/A
PM-2.5 Filterable	3.16E-03	0.01	3.16E-03	0.01	AP-42 Table 3.2-2	N/A
PM-Condensable	0.41	1.78	0.41	1.78	AP-42 Table 3.2-2	N/A
Sulfur dioxide	0.06	0.25	0.06	0.25	Mass Balance	N/A
Nitrogen oxides	12.13	53.11	12.13	53.11	40 CFR Part 60, Subpart JJJJ	1.0 g/bhp-hr
Carbon monoxide	24.25	106.22	1.82	7.97	40 CFR Part 60, Subpart JJJJ	2.0 g/bhp-hr
VOC's	1.94	8.50	0.49	2.12	40 CFR Part 60, Subpart JJJJ	0.7 g/bhp-hr
Formaldehyde	0.62	2.71	0.36	1.59	Vendor Guarantees	N/A
Total HAPs	1.41	6.19	1.41	6.19	AP-42 Table 3.2-2	N/A

Attach calculation worksheets. Manufacturer specification sheets should be provided if used as the basis for emission estimates. Particulate emissions should be speciated to include PM10-filterable, PM2.5-filterable, and PM-condensable. Speciated HAP emissions should also be provided. Attach additional page(s) as necessary.

11. Applicable Regulations:

- ☐ 40 CFR 63, Subpart YYYY, NESHAP for Stat. Combustion Turbines ☒ 40 CFR 63, Subpart ZZZZ, NESHAP for Stat. RICE
☐ 40 CFR 60, Subpart GG, NSPS for Stationary Gas Turbines ☐ 40 CFR 60, Subpart IIII, NSPS for Stat. Compression Ignition ICE
☐ 40 CFR 60, Subpart KKKK, NSPS for Stat. Combustion. Turbines ☒ 40 CFR 60, Subpart JJJJ, NSPS for Stat. Spark Ignition ICE
☐ 40 CFR 60, Subpart OOOO/OOOOa ☒ Other: 40 CFR Part 60, Subpart OOOOb

Does this unit have an EPA Certificate of Conformity? ☐ Yes ☒ No if yes, please provide: _____

12. Regulatory Standards, Limitations, and Requirements:

Pollutant/Parameter	Rate/Value	Units of Standard	Regulatory Basis ³	Engine Potential Emission Rate (in units of standard)
<i>Example: NOx + NMHC</i>	<i>6.4</i>	<i>g/kW-hr</i>	<i>NSPS, Subpart IIII</i>	<i>4.95 g/kW-hr</i>
<i>Example: Annual Operation</i>	<i>6,000</i>	<i>hr/yr</i>	<i>SMS-PSD</i>	<i>NA</i>
NOx	1.0	g/bhp-hr	NSPS, Subpart JJJJ	1.0 g/bhp-hr
CO	2.0	g/bhp-hr	NSPS, Subpart JJJJ	2.0 g/bhp-hr
VOC	0.7	g/bhp-hr	NSPS, Subpart JJJJ	0.7 g/bhp-hr

3. for federal regulations, specify which NSPS or NESHAP is the basis. If a synthetic minor limit, specify either SMS-PSD or SMS- Title V

B. For engines subject to emission standards under NSPS, Subpart IIII or NSPS, Subpart JJJJ, is this engine certified by the manufacturer pursuant to the applicable regulation to meet the applicable emission standards? ☐ N/A ☐ Yes ☒ No

(if yes, provide a copy of the certification)

C. For emergency or limited use engines, is this engine equipped with a non-resettable hour meter? ☐ Yes ☒ No

13. Pollution Control Information:

A. Device/Technology Type(s)

- ☐ No Controls
- ☒ Air-to-Fuel Ratio Controller
- ☐ Water or Steam Injection
- ☐ Low NOX Burners
- ☒ Oxidation Catalyst
- ☐ Selective Non-catalytic Reduction(SNCR)
- ☐ Non-selective Catalytic Reduction (NSCR/3-way Catalyst)
- ☐ Selective Catalytic Reduction (SCR)
- ☐ Diesel Particulate Filter
- ☐ Other _____
- ☐ Other _____

B. Control Efficiencies

Pollutant	% Reduction
NOx	
CO	93%
VOC	75%
Formaldehyde	70%

C. Operational Parameters (if any):

Air-to-Fuel Ratio Controller is integral to the engine.

14. Compliance Status:

Is this item in compliance with all applicable air pollution rules and regulations?

☒ Yes ☐ No (if "no", a compliance schedule, ADEM Form 437, must be attached.)

15. Stack Parameters (if a control device is installed, the information should be for the control device's stack exit)

Emission Point & Description: C-4 Stack

Stack Type: V

Stack UTM Coordinate (E-W)	<u>371.620</u> (km)	Stack UTM Coordinate (N-S)	<u>3,545.962</u> (km)
Latitude	<u>32.0426</u> (LAT)	Longitude	<u>-88.3597</u> (LONG)
Height above grade	<u>38</u> (ft)	Gas temperature at exit	<u>897 @ 50% load</u> (°F)
Inside diameter at exit (round)	<u>2.5</u> (ft)	Gas Velocity	_____ (ft/Sec)
Inside area at exit (not round)	_____ (ft ²)	Volume of gas discharged	<u>33,822</u> (ACFM)
Base Elevation	<u>470</u> (ft)	GEP Stack Height	_____ (ft)

Are sampling ports available? (If "yes", describe. Draw on separate sheet if necessary) ☒ Yes ☐ No :

Is this a merged stack (do multiple units use this release point)? ☐ Yes ☒ No

If yes, provide units: _____

16. Clarifying/Supplemental Information (Optional):

The Oxidation Catalyst and Air-to-Fuel Controller will always be on when the engine is operating.
There will be two 2-inch sampling ports downstream of the silencer.

Name of person preparing application: Caleb Fetner

Company of preparer ALL4 LLC

Signature: Caleb Fetner

Date: June 9, 2026



ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
AIR DIVISION

101 - 0024 - 8006

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1. Name of facility or organization:		NextEra Energy Pipeline Holdings (Lowman), Inc. - Lowman Compressor Station	
2. Purpose of Application:			
☐	Initial installation of a new engine (i.e. engine that has never been in service at any location)	If this application is for the installation, modification, or reconstruction of an engine, please provide the date construction is scheduled to begin: <u>2027</u>	
☐	Initial installation of a used engine (i.e. engine that has been in service at another location)		
☒	Modification/Reconstruction of an engine currently installed at the facility	If this application is for an engine currently installed at this facility, please provide the date that the engine was initially installed at this facility: <u>September 22, 2023</u>	
☒	Update information for an engine currently installed at the facility		
☐	Title V Application		
☐	Other, specify: _____		
3. Engine Identification:			
A. Manufacturer Name:	Caterpillar/Generac	B. Model No.:	DG250 GC
C. Model Year:	2021		
D. Facility's Identification or Description:	Standby Generator 1 (ENG-1)	E. Serial No.:	MGNXB14.22C1
4. Engine Applicability Dates:			
A. Date Ordered (New):	07/31/2020	B. Date Manufactured:	Unknown
C. Date Modified/Reconstructed	N/A		
D. For a used engine, approximate date engine was first put in service at any location:	N/A		
5. Engine Function:			
☐	Compression	☒	Electrical Generation (Max Output): 250 kW
☐	NFPA Certified	☐	Fire/Other Pump Driver
☐	Test Cell/Stand	☐	Other, please describe: _____
☐	Research & Development		
6. Engine Operation:			
☐	Non-Emergency (provide typical operating schedule in A-D):	A. Hours/day:	1
☒	Emergency Only	B. Days/week:	7
☐	Limited Use (<100 hr/yr)	C. Weeks/year:	52
D. Peak Season (if any): N/A			
7. Engine Specifications:			
A. Max Brake Horsepower (bhp):	335	B. Max Engine Power (kWm):	250
C. Max Heat Input (MMBtu/hr):	3.03		
D. Type:	E. Piston Movement:	F. Air/Fuel Mix:	G. Ignition Type
☐ Simple Cycle Turbine	☐ 2-Stroke RICE	☒ Rich Burn Rice	☒ Spark
☐ Combined Cycle Turbine	☒ 4-Stroke RICE	☐ Lean Burn RICE	☐ Compression
☐ Regenerative Cycle Turbine	☐ N/A	☐ Diffusion Flame Turbine	☐ N/A
☒ Reciprocating Engine	☐ Other: _____	☐ Lean Premix Turbine	
		☐ Other: _____	
H. Cylinder Displacement: _____ (Liters/cylinder)			

8. Compressor Specifications: **N/A**

A. Compressor Type _____ B. Compressor Mfg. Date _____ C. Location on well? ☐ Yes ☐ No
 D. Compressor Instal. Date: _____ E. Compressor Serial No.: _____ F. Compressor Brake Horsepower (bhp): _____

9. Fuel Information:

	Fuel Type/ Desc.	Heat Content	Sulfur Content (% by weight or ppm)	Fuel-Bound Nitrogen Content (% by weight or ppm)	% of Gross Heat Input	Max Ash %	Used Oil Supplier
Primary	Natural Gas	1,020 Btu/scf	0.5 gr/dscf				
Secondary/ Backup							

10. Point Source Emissions:

POLLUTANT	UNCONTROLLED ¹ POTENTIAL EMISSIONS		CONTROLLED ² POTENTIAL EMISSIONS		BASIS OF CALCULATION	REGULATORY EMISSION LIMIT Provide in lb/hr or specify alternative Unit of Measure
	lb/hr	ton/yr	lb/hr	ton/yr		
Total Particulate	0.06	0.03	0.06	0.03	AP-42 Table 3.2-2	N/A
PM-10 Filterable	0.03	0.01	0.03	0.01	AP-42 Table 3.2-2	N/A
PM-2.5 Filterable	0.03	0.01	0.03	0.01	AP-42 Table 3.2-2	N/A
PM-Condensable	0.03	0.01	0.03	0.01	AP-42 Table 3.2-2	N/A
Sulfur dioxide	4.24E-03	2.12E-03	4.24E-03	2.12E-03	Mass Balance	N/A
Nitrogen oxides	1.48	0.74	1.48	0.74	40 CFR Part 60, Subpart JJJJ	2.0 g/bhp-hr
Carbon monoxide	2.95	1.48	2.95	1.48	40 CFR Part 60, Subpart JJJJ	4.0 g/bhp-hr
VOC's	0.74	0.37	0.74	0.37	40 CFR Part 60, Subpart JJJJ	1.0 g/bhp-hr
Total HAPs	0.10	0.05	0.10	0.05	AP-42 Table 3.2-2	N/A

Attach calculation worksheets. Manufacturer specification sheets should be provided if used as the basis for emission estimates. Particulate emissions should be speciated to include PM10-filterable, PM2.5-filterable, and PM-condensable. Speciated HAP emissions should also be provided. Attach additional page(s) as necessary.

11. Applicable Regulations:

- ☐ 40 CFR 63, Subpart YYYY, NESHAP for Stat. Combustion Turbines ☒ 40 CFR 63, Subpart ZZZZ, NESHAP for Stat. RICE
☐ 40 CFR 60, Subpart GG, NSPS for Stationary Gas Turbines ☐ 40 CFR 60, Subpart IIII, NSPS for Stat. Compression Ignition ICE
☐ 40 CFR 60, Subpart KKKK, NSPS for Stat. Combustion. Turbines ☒ 40 CFR 60, Subpart JJJJ, NSPS for Stat. Spark Ignition ICE
☐ 40 CFR 60, Subpart OOOO/OOOOa ☐ Other: _____

Does this unit have an EPA Certificate of Conformity? ☒ Yes ☐ No if yes, please provide: _____

12. Regulatory Standards, Limitations, and Requirements:

Pollutant/Parameter	Rate/Value	Units of Standard	Regulatory Basis ³	Engine Potential Emission Rate (in units of standard)
<i>Example: NOx + NMHC</i>	<i>6.4</i>	<i>g/kW-hr</i>	<i>NSPS, Subpart IIII</i>	<i>4.95 g/kW-hr</i>
<i>Example: Annual Operation</i>	<i>6,000</i>	<i>hr/yr</i>	<i>SMS-PSD</i>	<i>NA</i>
NOx	2.0	g/bhp-hr	NSPS, Subpart JJJJ	2.0 g/bhp-hr
CO	4.0	g/bhp-hr	NSPS, Subpart JJJJ	4.0 g/bhp-hr
VOC	1.0	g/bhp-hr	NSPS, Subpart JJJJ	1.0 g/bhp-hr

3. for federal regulations, specify which NSPS or NESHAP is the basis. If a synthetic minor limit, specify either SMS-PSD or SMS- Title V

B. For engines subject to emission standards under NSPS, Subpart IIII or NSPS, Subpart JJJJ, is this engine certified by the manufacturer pursuant to the applicable regulation to meet the applicable emission standards?

☐ N/A ☒ Yes ☐ No

(if yes, provide a copy of the certification)

C. For emergency or limited use engines, is this engine equipped with a non-resettable hour meter?

☒ Yes ☐ No

13. Pollution Control Information:

A. Device/Technology Type(s)

- ☐ No Controls
- ☐ Air-to-Fuel Ratio Controller
- ☐ Water or Steam Injection
- ☐ Low NOX Burners
- ☒ Oxidation Catalyst
- ☐ Selective Non-catalytic Reduction(SNCR)
- ☐ Non-selective Catalytic Reduction (NSCR/3-way Catalyst)
- ☐ Selective Catalytic Reduction (SCR)
- ☐ Diesel Particulate Filter
- ☐ Other _____
- ☐ Other _____

B. Control Efficiencies

Pollutant	% Reduction
NOx	
CO	20%
VOC	
Formaldehyde	

C. Operational Parameters (if any):

Oxidation Catalyst is
integral to the generator.

14. Compliance Status:

Is this item in compliance with all applicable air pollution rules and regulations?

☒ Yes ☐ No (if "no", a compliance schedule, ADEM Form 437, must be attached.)

15. Stack Parameters (if a control device is installed, the information should be for the control device's stack exit)

Emission Point & Description: ENG-1 Stack

Stack Type: V

Stack UTM Coordinate (E-W)	<u>371.548</u> (km)	Stack UTM Coordinate (N-S)	<u>3,545.902</u> (km)
Latitude	<u>32.0420</u> (LAT)	Longitude	<u>-88.3605</u> (LONG)
Height above grade	<u>12.33</u> (ft)	Gas temperature at exit	<u>1,350</u> (°F)
Inside diameter at exit (round)	<u>0.29</u> (ft)	Gas Velocity	_____ (ft/Sec)
Inside area at exit (not round)	_____ (ft²)	Volume of gas discharged	<u>5,470</u> (ACFM)
Base Elevation	<u>418.37</u> (ft)	GEP Stack Height	_____ (ft)

Are sampling ports available? (If "yes", describe. Draw on separate sheet if necessary) ☐ Yes ☒ No :

Is this a merged stack (do multiple units use this release point)? ☐ Yes ☒ No

If yes, provide units: _____

16. Clarifying/Supplemental Information (Optional):

The Oxidation Catalyst will always be on when the generator is operating.

Name of person preparing application: Caleb Fetner

Company of preparer ALL4 LLC

Signature: Caleb Fetner

Date: June 9, 2026



ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
AIR DIVISION

101 - 0024 - 8006

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1. Name of facility or organization:		NextEra Energy Pipeline Holdings (Lowman), Inc. - Lowman Compressor Station	
2. Purpose of Application:			
☒	Initial installation of a new engine (i.e. engine that has never been in service at any location)	If this application is for the installation, modification, or reconstruction of an engine, please provide the date construction is scheduled to begin: 2027	
☐	Initial installation of a used engine (i.e. engine that has been in service at another location)		
☐	Modification/Reconstruction of an engine currently installed at the facility	If this application is for an engine currently installed at this facility, please provide the date that the engine was initially installed at this facility: _____	
☐	Update information for an engine currently installed at the facility		
☐	Title V Application		
☐	Other, specify: _____		
3. Engine Identification:			
A. Manufacturer Name:	Baldor	B. Model No.:	IGLC40-2N
C. Model Year:	2027		
D. Facility's Identification or Description:	Standby Generator 2 (ENG-2)		E. Serial No.:
TBD			
4. Engine Applicability Dates:			
A. Date Ordered (New):	TBD	B. Date Manufactured:	TBD
C. Date Modified/Reconstructed	N/A		
D. For a used engine, approximate date engine was first put in service at any location: _____			
5. Engine Function:			
☐	Compression	☒	Electrical Generation (Max Output): 396 kW
☐	NFPA Certified	☐	Fire/Other Pump Driver
☐	Test Cell/Stand	☐	Other, please describe: _____
☐	Research & Development		
6. Engine Operation:			
☐	Non-Emergency (provide typical operating schedule in A-D):	A. Hours/day:	1
☒	Emergency Only	B. Days/week:	7
☐	Limited Use (<100 hr/yr)	C. Weeks/year:	52
D. Peak Season (if any): N/A			
7. Engine Specifications:			
A. Max Brake Horsepower (bhp):	605	B. Max Engine Power (kWm):	451
C. Max Heat Input (MMBtu/hr):	4.31		
D. Type:	E. Piston Movement:	F. Air/Fuel Mix:	G. Ignition Type
☐ Simple Cycle Turbine	☐ 2-Stroke RICE	☒ Rich Burn RICE	☒ Spark
☐ Combined Cycle Turbine	☒ 4-Stroke RICE	☐ Lean Burn RICE	☐ Compression
☐ Regenerative Cycle Turbine	☐ N/A	☐ Diffusion Flame Turbine	☐ N/A
☒ Reciprocating Engine	☐ Other: _____	☐ Lean Premix Turbine	
		☐ Other: _____	
H. Cylinder Displacement: _____ (Liters/cylinder)			

8. Compressor Specifications: **N/A**

A. Compressor Type _____ B. Compressor Mfg. Date _____ C. Location on well? ☐ Yes ☐ No
 D. Compressor Instal. Date: _____ E. Compressor Serial No.: _____ F. Compressor Brake Horsepower (bhp): _____

9. Fuel Information:

	Fuel Type/ Desc.	Heat Content	Sulfur Content (% by weight or ppm)	Fuel-Bound Nitrogen Content (% by weight or ppm)	% of Gross Heat Input	Max Ash %	Used Oil Supplier
Primary	Natural Gas	1,020 Btu/scf	0.5 gr/dscf				
Secondary/ Backup							

10. Point Source Emissions:

POLLUTANT	UNCONTROLLED ¹ POTENTIAL EMISSIONS		CONTROLLED ² POTENTIAL EMISSIONS		BASIS OF CALCULATION	REGULATORY EMISSION LIMIT Provide in lb/hr or specify alternative Unit of Measure
	lb/hr	ton/yr	lb/hr	ton/yr		
Total Particulate	0.08	0.04	0.08	0.04	AP-42 Table 3.2-2	N/A
PM-10 Filterable	0.04	0.02	0.04	0.02	AP-42 Table 3.2-2	N/A
PM-2.5 Filterable	0.04	0.02	0.04	0.02	AP-42 Table 3.2-2	N/A
PM-Condensable	0.04	0.02	0.04	0.02	AP-42 Table 3.2-2	N/A
Sulfur dioxide	6.04E-03	3.02E-03	6.04E-03	3.02E-03	Mass Balance	N/A
Nitrogen oxides	2.67	1.33	2.67	1.33	40 CFR Part 60, Subpart JJJJ	2.0 g/bhp-hr
Carbon monoxide	5.34	2.67	5.34	2.67	40 CFR Part 60, Subpart JJJJ	4.0 g/bhp-hr
VOC's	1.33	0.67	1.33	0.67	40 CFR Part 60, Subpart JJJJ	1.0 g/bhp-hr
Total HAPs	0.14	0.07	0.14	0.07	AP-42 Table 3.2-2	N/A

Attach calculation worksheets. Manufacturer specification sheets should be provided if used as the basis for emission estimates. Particulate emissions should be speciated to include PM10-filterable, PM2.5-filterable, and PM-condensable. Speciated HAP emissions should also be provided. Attach additional page(s) as necessary.

11. Applicable Regulations:

- ☐ 40 CFR 63, Subpart YYYY, NESHAP for Stat. Combustion Turbines ☒ 40 CFR 63, Subpart ZZZZ, NESHAP for Stat. RICE
☐ 40 CFR 60, Subpart GG, NSPS for Stationary Gas Turbines ☐ 40 CFR 60, Subpart IIII, NSPS for Stat. Compression Ignition ICE
☐ 40 CFR 60, Subpart KKKK, NSPS for Stat. Combustion. Turbines ☒ 40 CFR 60, Subpart JJJJ, NSPS for Stat. Spark Ignition ICE
☐ 40 CFR 60, Subpart OOOO/OOOOa ☐ Other: _____

Does this unit have an EPA Certificate of Conformity? ☐ Yes ☒ No if yes, please provide: _____

12. Regulatory Standards, Limitations, and Requirements:

Pollutant/Parameter	Rate/Value	Units of Standard	Regulatory Basis ³	Engine Potential Emission Rate (in units of standard)
Example: NO _x + NMHC	6.4	g/kW-hr	NSPS, Subpart IIII	4.95 g/kW-hr
Example: Annual Operation	6,000	hr/yr	SMS-PSD	NA
NO _x	2.0	g/bhp-hr	NSPS, Subpart JJJJ	2.0 g/bhp-hr
CO	4.0	g/bhp-hr	NSPS, Subpart JJJJ	4.0 g/bhp-hr
VOC	1.0	g/bhp-hr	NSPS, Subpart JJJJ	1.0 g/bhp-hr

3. For federal regulations, specify which NSPS or NESHAP is the basis. If a synthetic minor limit, specify either SMS-PSD or SMS- Title V

B. For engines subject to emission standards under NSPS, Subpart IIII or NSPS, Subpart JJJJ, is this engine certified by the manufacturer pursuant to the applicable regulation to meet the applicable emission standards? ☐ N/A ☒ Yes ☐ No

(if yes, provide a copy of the certification)

C. For emergency or limited use engines, is this engine equipped with a non-resettable hour meter? ☒ Yes ☐ No

13. Pollution Control Information:

A. Device/Technology Type(s)

- ☐ No Controls
- ☒ Air-to-Fuel Ratio Controller
- ☐ Water or Steam Injection
- ☐ Low NO_x Burners
- ☐ Oxidation Catalyst
- ☐ Selective Non-catalytic Reduction(SNCR)
- ☒ Non-selective Catalytic Reduction (NSCR/3-way Catalyst)
- ☐ Selective Catalytic Reduction (SCR)
- ☐ Diesel Particulate Filter
- ☐ Other _____
- ☐ Other _____

B. Control Efficiencies

Pollutant	% Reduction
NO _x	75%
CO	50%
VOC	
Formaldehyde	

C. Operational Parameters (if any):

Air-to-Fuel Ratio Controller and NSCR is integral to the engine.

14. Compliance Status:

Is this item in compliance with all applicable air pollution rules and regulations?

☒ Yes ☐ No (if "no", a compliance schedule, ADEM Form 437, must be attached.)

15. Stack Parameters (if a control device is installed, the information should be for the control device's stack exit)

Emission Point & Description: ENG-2 Stack		Stack Type: V	
Stack UTM Coordinate (E-W)	<u>371.620</u> (km)	Stack UTM Coordinate (N-S)	<u>3,545.962</u> (km)
Latitude	<u>32.0426</u> (LAT)	Longitude	<u>-88.3597</u> (LONG)
Height above grade	<u>12.33</u> (ft)	Gas temperature at exit	<u>1,382</u> (°F)
Inside diameter at exit (round)	_____ (ft)	Gas Velocity	_____ (ft/Sec)
Inside area at exit (not round)	_____ (ft²)	Volume of gas discharged	<u>2,995</u> (ACFM)
Base Elevation	<u>470</u> (ft)	GEP Stack Height	_____ (ft)
Are sampling ports available? (If "yes", describe. Draw on separate sheet if necessary)		☐ Yes	☒ No :
Is this a merged stack (do multiple units use this release point)?		☐ Yes	☒ No
If yes, provide units: _____			

16. Clarifying/Supplemental Information (Optional):

The NSCR and Air-to-Fuel Controller will always be on when the generator is operating.

Name of person preparing application: Caleb Fetner
 Company of preparer: ALL4 LLC
 Signature: Caleb Fetner Date: June 9, 2026



ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
AIR DIVISION

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1. Name of Facility or Organization: NextEra Energy Pipeline Holdings (Lowman), Inc. - Lowman Compressor Stati

3. Permit Application is made for:

☐ Existing Equipment

☒ New Equipment

☐ Modification

☐ Change in Location

☐ Other

3. Type of unit: Storage Tanks

Source Classification Code(s): _____

4. Normal Schedule of Operation:

Hours per day: 24 Days per week: 7 Weeks per year: 52

Peak production season (if any): N/A

5. For each regulated pollutant, describe any limitations on source operation or any work practice standards which affect emissions:
N/A

6. Are you requesting a limitation for permitting? ☐ Yes ☒ No If "yes", specify the limit and affected unit(s):

7. On a separate sheet sketch a map indicating the location of each storage tank and/or loading rack for which this application is made.

Name of person preparing application: Caleb Fetner

Company of preparer ALL4 LLC

Signature: Caleb Fetner Date: April 17, 2026

If additional entries are needed, make additional copies of this form and attach to the application. Make sure to identify the additional sheets such as 2a of 8 or 2.1 of 8.

TABLE 108.1-PROPOSED STORAGE TANK(S)/LOADING RACK(S) AT FACILITY

TANK ID	TANK CAPACITY (gallons)	TANK TYPE ^(a) (HFRT, VFRT, EFLRT, DEFLRT, or IFLRT)	FILL METHOD ^(d)	DATE MANUFACTURED	DATE INSTALLED OR CONSTRUCTION COMMENCED	DATE RECONSTRUCTED, AS APPLICABLE	DATE MODIFIED, AS APPLICABLE	EQUIPPED WITH VAPOR RECOVERY SYSTEM ^(b) (Y or N)	APPLICABLE REGULATIONS
T-5001B	925	VFRT	Submerged	TBD	TBD	N/A	N/A	N	None
T-5002C	500	HFRT	Submerged	TBD	TBD	N/A	N/A	N	None
T-5002D	500	HFRT	Submerged	TBD	TBD	N/A	N/A	N	None
T-5003B	500	HFRT	Submerged	TBD	TBD	N/A	N/A	N	None
T-5006D	55	HFRT	Submerged	TBD	TBD	N/A	N/A	N	None
T-5007D	55	HFRT	Submerged	TBD	TBD	N/A	N/A	N	None
RACK ID	RACK TYPE (Marine, Truck, Rail, etc.)	PROPOSED PRODUCTS TO BE LOADED ^(c)	TYPE OF LOADING ^(d)	IF SUBMERGED, WHAT % IS FILL PIPE SUBMERGED?	EQUIPPED WITH VAPOR RECOVERY SYSTEM ^(b) (Y or N)	PROVIDE EFFICIENCY OF VAPOR COLLECTION SYSTEM	APPLICABLE REGULATIONS		
TBD	Truck Loading	A	Submerged	100%	N	N/A	None		

(a) HFRT-horizontal fixed roof tank; VFRT-vertical fixed roof tank; EFLRT-external floating roof tank; DEFLRT-domed external floating roof tank; IFLRT-internal floating roof tank

(b) Please attach ADEM Form 110 for the vapor recovery system.

(c) Use Product ID from Table 108.2 or list "ALL" if rack may transfer all of the products listed in Table 108.2.

(d) Type of Filling/Loading-submerged fill, splash filling, top filling, bottom filling, etc

TABLE 108.2-PROPOSED PRODUCT(S) STORED AND LOADED OUT AT FACILITY

PRODUCT CODE	PRODUCT NAME & CAS NO., IF APPLICABLE	LIQUID MOLECULAR WEIGHT (lb/lb-mole)	VAPOR MOLECULAR WEIGHT (lb/lb-mole)	MAXIMUM TRUE VAPOR PRESSURE (psia)	LIQUID DENSITY ^(a) (lb/gal)	TEMP. STORED AT (°F)	TOTAL PRODUCT THROUGHPUT (gal/year)	Loadout ^(b) Mark all that apply					Worst case VOC emissions from storing this product (TPY)	Worst case VOC emissions from loading this product (TPY)
								Marine Vessel	Truck	Rail Car	Pipeline			
A	Condensate		130	0.002	6.25	65	6000	☐	☒	☐	☐	☐	8.81E-03	1.75E-03
B	Lube Oil		130	0.002	7.30	65	10000	☐	☐	☐	☐	☐	4.71E-05	2.47E-04
C	Ethylene Glycol		130	0.002	9.28	65	200	☐	☐	☐	☐	☐	5.62E-06	8.84E-07
D								☐	☐	☐	☐	☐		
E								☐	☐	☐	☐	☐		
F								☐	☐	☐	☐	☐		
G								☐	☐	☐	☐	☐		
H								☐	☐	☐	☐	☐		
I								☐	☐	☐	☐	☐		
J								☐	☐	☐	☐	☐		
K								☐	☐	☐	☐	☐		
L								☐	☐	☐	☐	☐		
M								☐	☐	☐	☐	☐		
N								☐	☐	☐	☐	☐		
O								☐	☐	☐	☐	☐		
P								☐	☐	☐	☐	☐		
Q								☐	☐	☐	☐	☐		
R								☐	☐	☐	☐	☐		
S								☐	☐	☐	☐	☐		
T								☐	☐	☐	☐	☐		
U								☐	☐	☐	☐	☐		
V								☐	☐	☐	☐	☐		
W								☐	☐	☐	☐	☐		
X								☐	☐	☐	☐	☐		
Y								☐	☐	☐	☐	☐		

(a) Applicable for products stored in tanks with floating roofs.

(b) Loadout is product transferred from tank through rack to marine vessel, truck or rail car, or container.

If applying for the construction/modification/reconstruction of more than six tanks, make additional copies of this form as needed and attach to the application. Make sure to identify the additional sheets such as 4a of 8 or 4.1 of 8.

TABLE 108.3- FIXED ROOF STORAGE TANK (HORIZONTAL)

TANK ID →	T-5002C	T-5002D	T-5003B	T-5006D	T-5007D	
SHELL LENGTH (ft-in)	3.4 ft	3.4 ft	3.4 ft	2.3 ft	2.3 ft	
SHELL DIAMETER (ft-in)	1.7 ft	1.7	1.7 ft	1.2 ft	1.2 ft	
HEATED? (Y or N)	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO
PRESSURIZED? (Y or N)	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO
UNDERGROUND? (Y or N)	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO
SHELL COLOR/SHADE (a)	W/W	W/W	W/W	W/W	W/W	
SHELL CONDITION (b)	Good	Good	Good	Good	Good	
PROPOSED PRODUCTS TO BE STORED (c)	B	B	C	B	B	
PRODUCT TRANSFER FROM TANK TO:						
gallons per day (GPD) (d)	GPD	GPD	GPD	GPD	GPD	GPD

TABLE 108.4-FIXED ROOF STORAGE TANK (VERTICAL)

TANK ID →	T-5001B					
SHELL HEIGHT (ft-in)	6.3 ft					
SHELL DIAMETER (ft-in)	5 ft					
MAX LIQUID HEIGHT (ft-in)	4 ft					
AVG LIQUID HEIGHT (ft-in)	5 ft					
HEATED? (Y or N)	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO
PRESSURIZED? (Y or N)	☒ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO
SHELL CHARACTERISTICS	SHELL COLOR/SHADE (a)	W/W				
	SHELL CONDITION (b)	Good				
ROOF CHARACTERISTICS	ROOF COLOR/SHADE (a)	W/W				
	ROOF CONDITION (b)	Good				
	CONE/DOME HEIGHT (ft-in)	0.16				
PROPOSED PRODUCTS TO BE STORED (c)	A					
PRODUCT TRANSFER FROM TANK TO:	Truck					
gallons per day (GPD) (d)	GPD	GPD	GPD	GPD	GPD	GPD

(a) Select from: White/White (W/W); Aluminum/Specular (A/S); Aluminum/Diffuse (A/D); Gray/Light (G/L); Gray/Medium (G/M); Red/Primer (R/P)

If tank color unknown, list "default"

(b) Select from: Good or Poor. If tank condition unknown, list "default"

(c) Use Product ID from Table 108.2 or list "ALL" if tank may store all of the products listed in Table 108.2.

(d) Should be completed if product in tank is being transferred to a specific piece of equipment or process which is not a loading rack (e.g. boiler).

If applying for the construction/modification/reconstruction of more than six tanks, make additional copies of this form as needed and attach to the application. Make sure to identify the additional sheets such as 5a of 8 or 5.1 of 8.

TABLE 108.5-EXTERNAL FLOATING ROOF STORAGE TANK : N/A

TANK ID →							
SHELL DIAMETER (ft-in)							
DOMED? (Y or N)		☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO
INTERNAL SHELL CONDITION (a)							
PAINT COLOR/SHADE (b)							
PAINT CONDITION (c)							
ROOF CHARACTERISTICS	PONTOON OR DOUBLE DECK	☐ PONTOON ☐ DOUBLE DECK	☐ PONTOON ☐ DOUBLE DECK	☐ PONTOON ☐ DOUBLE DECK	☐ PONTOON ☐ DOUBLE DECK	☐ PONTOON ☐ DOUBLE DECK	☐ PONTOON ☐ DOUBLE DECK
	ROOF FITTING CATEGORY (d)						
TANK CONSTRUCTION	CHOOSE ONE WELDED OR RIVETED	☐ WELDED ☐ RIVETED	☐ WELDED ☐ RIVETED	☐ WELDED ☐ RIVETED	☐ WELDED ☐ RIVETED	☐ WELDED ☐ RIVETED	☐ WELDED ☐ RIVETED
SEAL TYPE	PRIMARY (e)						
	SECONDARY (f)						
PROPOSED PRODUCTS TO BE STORED (g)							
PRODUCT TRANSFER FROM TANK TO: gallons per day (GPD) (h)		GPD	GPD	GPD	GPD	GPD	GPD

(a) Select from: Light Rust; Dense Rust; Gunite™ Lining. If internal shell condition unknown, list "default"

(b) Select from: White/White (W/W); Aluminum/Specular (A/S); Aluminum/Diffuse (A/D); Gray/Light (G/L); Gray/Medium (G/M); Red/Primer (R/P)
If paint color unknown, list "default"

(c) Select From: Good or Poor. If tank condition unknown, list "default"

(d) Typical or Detail. If detail, list fittings and quantities for each tank on Table 108.7

(e) Select from: Mechanical Shoe (MS); Liquid Mounted (LM); or Vapor Mounted (VM)

(f) Select from: None, Shoe Mounted (SM), Rim Mounted (RM) or Weather Shield (WS)

(g) Use Product ID from Table 108.2 or list "ALL" if tank may store all of the products listed in Table 108.2.

(h) Should be completed if product in tank is being transferred to a specific piece of equipment or process which is not a loading rack (e.g. boiler).

If applying for the construction/modification/reconstruction of more than six tanks, make additional copies of this form as needed and attach to the application. Make sure to identify the additional sheets such as 6a of 8 or 6.1 of 8.

TABLE 108.6-INTERNAL FLOATING ROOF STORAGE TANK: N/A

TANK ID →							
SHELL DIAMETER (ft-in)							
SELF SUPPORT. ROOF? (Y or N)		☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO
NUMBER OF COLUMNS							
EFFECTIVE COLUMN DIAMETER ^(a)							
INTERNAL SHELL CONDITION ^(b)							
EXTERNAL SHELL	PAINT COLOR/SHADE (c)						
	PAINT CONDITION ^(d)						
ROOF CHARACTERISTICS	PAINT COLOR/SHADE (c)						
	PAINT CONDITION ^(d)						
DECK CHARAC.	BOLTED OR WELDED ^(e)	☐ BOLTED ☐ WELDED	☐ BOLTED ☐ WELDED	☐ BOLTED ☐ WELDED	☐ BOLTED ☐ WELDED	☐ BOLTED ☐ WELDED	☐ BOLTED ☐ WELDED
SEAL TYPE	PRIMARY ^(f)						
	SECONDARY ^(g)						
PROPOSED PRODUCTS TO BE STORED (h)							
PRODUCT TRANSFER FROM TANK TO:							
gallons per day (GPD) ⁽ⁱ⁾		GPD	GPD	GPD	GPD	GPD	GPD

(a) Select from: 9" by 7" Built-Up Column, 8" Diameter Pipe, or Unknown

(b) Select from: Light Rust; Dense Rust; Gunite™ Lining. If internal shell condition unknown, list "default"

(c) Select from: White/White (W/W); Aluminum/Specular (A/S); Aluminum/Diffuse (A/D); Gray/Light (G/L); Gray/Medium (G/M); Red/Primer (R/P)
If paint color unknown, list "default"

(d) Select From: Good or Poor. If tank condition unknown, list "default"

(e) Typical or Detail. If detail, list fittings and quantities for each tank on Table 108.7

(f) Select from: Mechanical Shoe (MS); Liquid Mounted (LM); or Vapor Mounted (VM)

(g) Select from: None, Shoe Mounted (SM), or Rim Mounted (RM)

(h) Use Product ID from Table 108.2 or list "ALL" if tank may store all of the products listed in Table 108.2.

(i) Should be completed if product in tank is being transferred to a specific piece of equipment or process which is not a loading rack (e.g. boiler).

TABLE 108.7-FLOATING ROOF FITTINGS-DETAIL
(DECK OR ROOF CHARACTERISTICS)

TANK ID. N/A
(fill out separate page for each IFRT or EFRT)

TANK CONSTRUCTION: ☐ IFRT
☐ EFRT

Specify deck fitting type(s) and indicate quantity of each fitting from the following:

A. Access Hatch Qty: _____
☐ Bolted cover, gasketed
☐ Unbolted cover, gasketed
☐ Unbolted cover, ungasketed

B. Automatic, Gauge Float Well Qty: _____
☐ Bolted cover, gasketed
☐ Unbolted cover, gasketed
☐ Unbolted cover, ungasketed

C. Column Well Qty: _____
☐ Built-up column-sliding cover, gasketed
☐ Built-up column-sliding cover, ungasketed
☐ Pipe column-flexible fabric sleeve seal
☐ Pipe column-sliding cover, gasketed
☐ Pipe column-sliding cover, ungasketed

D. Gauge-Hatch/Sample Well, 8 in diameter Qty: _____
☐ Weighted mechanical actuation, gasketed
☐ Weighted mechanical actuation, ungasketed

E. Ladder Well
☐ Sliding cover, gasketed
☐ Sliding cover, ungasketed

F. Rim Vent, 6 inch diameter Qty: _____
☐ Weighted mechanical actuation, gasketed
☐ Weighted mechanical actuation, ungasketed

G. Roof Drain, 3 inch diameter
☐ Open
☐ 90% Closed

H. Roof Leg, 3 inch diameter Qty: _____
☐ Adjustable, Pontoon Area, ungasketed
☐ Adjustable, Center Area, ungasketed
☐ Adjustable, Double Deck Roofs
☐ Adjustable, Double Deck Roofs
☐ Fixed
☐ Adjustable, Pontoon Area, gasketed
☐ Adjustable, Pontoon Area, socks
☐ Adjustable, Center Area, gasketed
☐ Adjustable, Center Area, socks

I. Roof Leg or Hanger Well Qty: _____
☐ Adjustable
☐ Fixed

J. Sample pipe or well Qty: _____
☐ Slotted pipe sliding cover, gasketed
☐ Slotted pipe sliding cover, ungasketed
☐ Slit fabric seal, 10% open area

K. Slotted Guide-Pole/Sample Well Qty: _____
☐ Ungasketed sliding cover without float
☐ Ungasketed sliding cover with float
☐ Gasketed sliding cover without float
☐ Gasketed sliding cover with float
☐ Gasketed sliding cover with pole wiper
☐ Gasketed sliding cover with pole sleeve
☐ Gasketed sliding cover with float, wiper
☐ Gasketed sliding cover with float, sleeve, wiper
☐ Gasketed sliding cover with pole sleeve, wiper

L. Stub drain, 1 inch diameter
☐ Yes
☐ No

M. Unslotted Guide-Pole Well Qty: _____
☐ Ungasketed sliding cover
☐ Gasketed sliding cover
☐ Ungasketed sliding cover with sleeve
☐ Gasketed sliding cover with sleeve
☐ Gasketed sliding cover with wiper

N. Vacuum breaker Qty: _____
☐ Weighted mechanical actuation, gasketed
☐ Weighted mechanical actuation, ungasketed

For an IFRT, if **bolted**, give deck construction method for the following:

A. Continuous Sheet
[5 ft, 6 ft, or 7 ft wide] _____

OR

B. Panel Construction
[5x7.5 ft or 5x12 ft] _____

TABLE 108.8-CHEMICAL DATA INFORMATION

Use a separate form for each chemical not in the current version of EPA's TANKS Program's chemical database.

Section I:

Chemical Name: Condensate

CAS Number: 64741-47-5

Category: ☐ Crude Oil ☒ Petroleum Distillates ☐ Organic Liquids

Liquid Molecular Weight: _____

Vapor Molecular Weight: 130 lb/lb-mole

Liquid Density (lb/gal @ 60°F): 6.25

Section II: Vapor Pressure Information (fill in one or more of the following options completely)

Option 1 Enter Vapor Pressure (psia) for each temperature:

40F: _____ 80F: _____

50F: _____ 90F: _____

60F: _____ 100F: _____

70F: _____

Option 2 Constants for Antoine's Equation (using Celsius):

A: _____ B: _____ C: _____

Option 3 Constants for Antoine's Equation (using Kelvin):

A: _____ B: _____ C: _____

Option 4 Reid Vapor Pressure (psia): (Distillates and Crude Oils only) _____

ASTM Slope: (Distillates Only) _____

TABLE 108.8-CHEMICAL DATA INFORMATION

Use a separate form for each chemical not in the current version of EPA's TANKS Program's chemical database.

Section I:

Chemical Name: Ethylene Glycol

CAS Number: 107-21-1

Category: ☐ Crude Oil ☐ Petroleum Distillates ☒ Organic Liquids

Liquid Molecular Weight: _____

Vapor Molecular Weight: 130 lb/lb-mole

Liquid Density (lb/gal @ 60°F): 9.28

Section II: Vapor Pressure Information (fill in one or more of the following options completely)

Option 1 Enter Vapor Pressure (psia) for each temperature:

40F: _____ 80F: _____

50F: _____ 90F: _____

60F: _____ 100F: _____

70F: _____

Option 2 Constants for Antoine's Equation (using Celsius):

A: _____ B: _____ C: _____

Option 3 Constants for Antoine's Equation (using Kelvin):

A: _____ B: _____ C: _____

Option 4 Reid Vapor Pressure (psia): (Distillates and Crude Oils only) _____

ASTM Slope: (Distillates Only) _____

TABLE 108.8-CHEMICAL DATA INFORMATION

Use a separate form for each chemical not in the current version of EPA's TANKS Program's chemical database.

Section I:

Chemical Name: Process (Lube) Oil
CAS Number: 64742-54-7
Category: ☐ Crude Oil ☐ Petroleum Distillates ☒ Organic Liquids
Liquid Molecular Weight: _____
Vapor Molecular Weight: 130 lb/lb-mole
Liquid Density (lb/gal @ 60°F): 7.228

Section II: Vapor Pressure Information (fill in one or more of the following options completely)

Option 1 Enter Vapor Pressure (psia) for each temperature:

40F: _____ 80F: _____
50F: _____ 90F: _____
60F: _____ 100F: _____
70F: _____

Option 2 Constants for Antoine's Equation (using Celsius):

A: _____ B: _____ C: _____

Option 3 Constants for Antoine's Equation (using Kelvin):

A: _____ B: _____ C: _____

Option 4 Reid Vapor Pressure (psia): (Distillates and Crude Oils only) _____

ASTM Slope: (Distillates Only) _____



PERMIT APPLICATION FOR AIR POLLUTION CONTROL DEVICE
ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
AIR DIVISION

101 - 0024 - 8005

Do not write in this space

1. Name of facility or organization NextEra Energy Pipeline Holding (Lowman), Inc. - Lowman Compressor Station

2. Type of pollution control device: (if more than one, check each; however, separate forms are to be submitted for each specific device.)

- | | |
|---|---|
| ☐ Settling chamber | ☐ Electrostatic precipitator |
| ☐ Afterburner | ☐ Baghouse |
| ☐ Cyclone | ☐ Multiclone |
| ☐ Absorber | ☐ Adsorber |
| ☐ Condenser | ☐ Wet Suppression |
| ☐ Thermal Oxidizer | |
| ☐ Wet scrubber (kind): | |
| ☐ Other (describe): | <u>Oxidation Catalyst on Engines C-3 and C-4</u> |

3. Control device manufacturer's information:

Name of manufacturer DCL Model No. 2DC3W

4. Emission source(s) to which device is installed or is to be installed:

5,500-hp Compressors (C-3 and C-4)

5. Emission parameters:

	Pollutants Removed		
	Pollutant #1	Pollutant #2	Pollutant #3
	CO	Formaldehyde	VOC
Mass emission rate (#/hr)			
Uncontrolled			
Designed.....			
Manufacturer's guaranteed			
Mass emission rate (Expressed as units of standard)			
Required by regulation.....	2.0 g/bhp-hr (NSPS Subpart JJJJ)		0.7 g/bhp-hr (NSPS Subpart JJJJ)
Manufacturer's guaranteed	0.15 g/bhp-hr	0.03 g/bhp-hr	0.04 g/bhp-hr
Removal efficiency (%)			
Designed.....			
Manufacturer's guaranteed	93%	70%	75%

6. Gas conditions:

	Inlet	Intermediate Locations	Outlet
Volume (SDCFM, 68°F, 29.92" hg)			
(ACFM, existing conditions)			33,822
Temperature (°F)			897 @ 50% load
Velocity (ft/sec)			
Percent moisture			

Pressure drop across device: _____ (inches H₂O)

7. Stack dimensions:

Stack No. & Description: C-3 and C-4 Stack

Stack Type: V

Stack UTM Coordinate (E-W)	<u>371.620</u> (km)	Stack UTM Coordinate (N-S)	<u>3,545.962</u> (km)
Latitude	<u>32.0426</u> (LAT)	Longitude	<u>-88.3597</u> (LONG)
Height above grade	<u>38</u> (ft)	Gas temperature at exit	<u>897 @ 50% load</u> (°F)
Inside diameter at exit (round)	<u>2.5</u> (ft)	Gas Velocity	_____ (ft/Sec)
Inside area at exit (not round)	_____ (ft ²)	Volume of gas discharged	<u>33,822</u> (ACFM)
Base Elevation	<u>470</u> (ft)	GEP Stack Height	_____ (ft)

Are sampling ports available? (If "yes", describe. Draw on separate sheet if necessary) ☒ Yes ☐ No :

Is this a merged stack (do multiple units use this release point)? ☐ Yes ☒ No

If yes, provide units:

8. Provide a flow diagram which includes gas exit from process, each control device, location of by-pass, fan or blower, each emission point, exits for collected pollutants, and location of sampling ports.

9. Enclosed are:

- | | |
|--|--|
| ☐ Blueprints | ☐ Particle size distribution report |
| ☒ Manufacturer's literature | ☐ Size efficiency- curves |
| ☐ Emissions test of existing installation | ☐ Fan curves |
| ☐ Other _____ | |

10. If the pollution control device is of unusual design, please provide a sketch of the device.

11. List below the important operating parameters for the device. (For example: air/cloth ratio and fabric type, weight, and weave for baghouse; throat velocity and water use rate for a venturi scrubber; etc.)

N/A

12. By-pass (if any) is to be used and when:

N/A

13. Disposal of collected air pollutants:

	Solid waste	Solid waste	Liquid waste	Liquid waste
Volume				
Composition				
Is waste hazardous?				
Method of disposal				
Final destination				

If collected air pollutants are recycled, describe:

N/A

Name of person preparing application: Caleb Fetner

Company of preparer ALL4 LLC

Signature: Caleb Fetner

Date: April 17, 2026

**APPENDIX B -
PTE CALCULATIONS**

Table B-1
Pre-Project Facility-Wide Potential to Emit Summary^(a)
NextEra Energy Pipeline Holdings (Lowman), Inc. - Lowman Compressor Station

Emissions Unit	EU ID	NO _x	CO	SO ₂	PM	PM ₁₀	PM _{2.5}	VOC	Formaldehyde	Total HAP
		tpy	tpy	tpy	tpy	tpy	tpy	tpy	tpy	tpy
1,875-hp Compressor	C-1	18.11	36.21	0.08	0.57	0.57	0.57	12.67	4.30	5.31
1,875-hp Compressor	C-2	18.11	36.21	0.08	0.57	0.57	0.57	12.67	4.30	5.31
Condensate Tank 1	T-5001A	--	--	--	--	--	--	0.03	--	--
Lube Oil Tank 1	T-5002A	--	--	--	--	--	--	7.35E-05	--	--
Lube Oil Tank 2	T-5002B	--	--	--	--	--	--	7.35E-05	--	--
Ethylene Glycol Tank 1	T-5003A	--	--	--	--	--	--	6.50E-06	--	6.50E-06
Lube Oil Day Tank 1	T-5004D	--	--	--	--	--	--	7.35E-05	--	--
Lube Oil Day Tank 2	T-5005D	--	--	--	--	--	--	7.35E-05	--	--
Standby Generator 1	ENG-1	0.27	0.54	7.00E-04	0.01	0.01	0.01	0.13	0.01	0.02
Fuel Gas Heater 1	HTR-1	0.02	0.01	2.20E-04	1.17E-03	1.17E-03	1.17E-03	8.50E-04	1.20E-05	2.90E-04
Truck Loading	LL-1	--	--	--	--	--	--	6.41E-03	--	--
Fugitives	FUG-1	--	--	--	--	--	--	0.18	--	--
MSS-Station Blowdown	MSS-SB	--	--	--	--	--	--	0.19	--	--
MSS-Compressor Blowdown	MSS-CB	--	--	--	--	--	--	10.79	--	--
Total		36.50	72.97	0.16	1.15	1.15	1.15	36.68	8.61	10.63
PSD Major Stationary Source Thresholds		250	250	250	250	250	250	250	--	--
PSD Major Stationary Source?		NO	NO	NO	NO	NO	NO	NO	--	--
Title V Major Source Thresholds		100	100	100	100	100	100	100	10	25
Title V Major Source?		NO	NO	NO	NO	NO	NO	NO	NO	NO

^(a) Potential to Emit (PTE) rates for the existing Facility operating under Air Permit Nos. X001 - X003.

Table B-2
Project Potential to Emit Summary
NextEra Energy Pipeline Holdings (Lowman), Inc. - Lowman Compressor Station

Source	EU ID	NO _x tpy	CO tpy	SO ₂ tpy	PM tpy	PM ₁₀ tpy	PM _{2.5} tpy	VOC tpy	Formaldehyde tpy	Total HAP tpy
5,500-hp Compressor	C-3	53.11	106.22	0.25	1.79	1.79	1.79	37.18	2.71	6.19
5,500-hp Compressor	C-4	53.11	106.22	0.25	1.79	1.79	1.79	37.18	2.71	6.19
Standby Generator 2	ENG-2	1.33	2.67	3.02E-03	0.04	0.04	0.04	0.67	0.04	0.07
Condensate Tank 2	T-5001B	--	--	--	--	--	--	0.03	--	--
Lube Oil Tank 3	T-5002C	--	--	--	--	--	--	7.35E-05	--	--
Lube Oil Tank 4	T-5002D	--	--	--	--	--	--	7.35E-05	--	--
Ethylene Glycol Tank 2	T-5003B	--	--	--	--	--	--	6.50E-06	--	6.50E-06
Lube Oil Day Tank 3	T-5006D	--	--	--	--	--	--	7.35E-05	--	--
Lube Oil Day Tank 4	T-5007D	--	--	--	--	--	--	7.35E-05	--	--
Fuel Gas Heater 2	HTR-2	0.02	0.01	2.21E-04	1.17E-03	1.17E-03	1.17E-03	8.50E-04	1.16E-05	2.91E-04
New Truck Loading	LL-2	--	--	--	--	--	--	7.72E-03	--	--
New Fugitives	FUG-2	--	--	--	--	--	--	0.26	--	--
New MSS-Station Blowdown	MSS-SB2	--	--	--	--	--	--	0.23	--	--
New MSS-Compressor Blowdown	MSS-CB2	--	--	--	--	--	--	12.95	--	--
Pigging Equipment	PIG-1	--	--	--	--	--	--	4.19E-03	--	--
Total		107.57	215.12	0.51	3.63	3.63	3.63	88.50	5.46	12.45
PSD Major Stationary Source Thresholds^(a)		250	250	250	250	250	250	250	--	--
PSD Major Stationary Source?		NO	NO	NO	NO	NO	NO	NO	--	--

^(a) The existing Facility is a minor source because existing PTE rates are below major stationary thresholds for all regulated NSR pollutants. Therefore, Project PTE rates are compared to the major stationary source threshold to determine if the Project constitutes a major stationary source by itself. Project PTE rates for all regulated NSR pollutants are below the major stationary source thresholds, so the Project is not subject to PSD permitting.

Table B-3
5,500-hp Compressors Potential to Emit Calculations
NextEra Energy Pipeline Holdings (Lowman), Inc. - Lowman Compressor Station

Pollutant	Emissions Factor		Emissions Per Engine		Total Emissions	
	Value	Units	lb/hr	tpy	lb/hr	tpy
Criteria Pollutants						
NO _x ^(a)	1.00	g/bhp-hr	12.13	53.11	24.25	106.22
CO ^(a)	2.00	g/bhp-hr	24.25	106.22	48.50	212.44
VOC ^(a)	0.70	g/bhp-hr	8.49	37.18	16.98	74.35
SO ₂ ^(b)	1.40E-03	lb/MMBtu	0.06	0.25	0.11	0.50
PM ^{(c)(d)}	7.71E-05	lb/MMBtu	3.16E-03	0.01	6.32E-03	0.03
PM ₁₀ ^{(c)(d)}	7.71E-05	lb/MMBtu	3.16E-03	0.01	6.32E-03	0.03
PM _{2.5} ^{(c)(d)}	7.71E-05	lb/MMBtu	3.16E-03	0.01	6.32E-03	0.03
PM Condensable ^(c)	9.91E-03	lb/MMBtu	0.41	1.78	0.81	3.56
PM Total ^(e)	9.99E-03	lb/MMBtu	0.41	1.79	0.82	3.58
PM ₁₀ Total ^(e)	9.99E-03	lb/MMBtu	0.41	1.79	0.82	3.58
PM _{2.5} Total ^(e)	9.99E-03	lb/MMBtu	0.41	1.79	0.82	3.58
Hazardous Air Pollutants^(c)						
1,1,2,2-Tetrachloroethane	4.00E-05	lb/MMBtu	1.64E-03	7.18E-03	3.28E-03	0.01
1,1,2-Trichloroethane	3.18E-05	lb/MMBtu	1.30E-03	5.70E-03	2.60E-03	0.01
1,3-Butadiene	2.67E-04	lb/MMBtu	0.01	0.05	0.02	0.10
1,3-Dichloropropene	2.64E-05	lb/MMBtu	1.08E-03	4.74E-03	2.16E-03	9.47E-03
2-Methylnaphthalene	3.32E-05	lb/MMBtu	1.36E-03	5.96E-03	2.72E-03	0.01
2,2,4-Trimethylpentane	2.50E-04	lb/MMBtu	0.01	0.04	0.02	0.09
Acetaldehyde	8.36E-03	lb/MMBtu	0.34	1.50	0.68	3.00
Acrolein	5.14E-03	lb/MMBtu	0.21	0.92	0.42	1.84
Acenaphthene	1.25E-06	lb/MMBtu	5.12E-05	2.24E-04	1.02E-04	4.48E-04
Acenaphthylene	5.53E-06	lb/MMBtu	2.27E-04	9.92E-04	4.53E-04	1.98E-03
Benzene	4.40E-04	lb/MMBtu	0.02	0.08	0.04	0.16
Benzo(b)fluoranthene	1.66E-07	lb/MMBtu	6.80E-06	2.98E-05	1.36E-05	5.96E-05
Benzo(e)pyrene	4.15E-07	lb/MMBtu	1.70E-05	7.45E-05	3.40E-05	1.49E-04
Benzo(g,h,i)perylene	4.14E-07	lb/MMBtu	1.70E-05	7.43E-05	3.39E-05	1.49E-04
Biphenyl	2.12E-04	lb/MMBtu	8.68E-03	0.04	0.02	0.08
Carbon Tetrachloride	3.67E-05	lb/MMBtu	1.50E-03	6.58E-03	3.01E-03	0.01
Chlorobenzene	3.04E-05	lb/MMBtu	1.25E-03	5.45E-03	2.49E-03	0.01
Chloroform	2.85E-05	lb/MMBtu	1.17E-03	5.11E-03	2.33E-03	0.01
Chrysene	6.93E-07	lb/MMBtu	2.84E-05	1.24E-04	5.68E-05	2.49E-04
Ethylbenzene	3.97E-05	lb/MMBtu	1.63E-03	7.12E-03	3.25E-03	0.01
Ethylene Dibromide	4.43E-05	lb/MMBtu	1.81E-03	7.95E-03	3.63E-03	0.02
Fluoranthene	1.11E-06	lb/MMBtu	4.55E-05	1.99E-04	9.09E-05	3.98E-04
Fluorene	5.67E-06	lb/MMBtu	2.32E-04	1.02E-03	4.64E-04	2.03E-03
Formaldehyde ^(f)	0.05	g/bhp-hr	0.62	2.71	1.24	5.42
Methanol	2.50E-03	lb/MMBtu	0.10	0.45	0.20	0.90
Methylene Chloride	2.00E-05	lb/MMBtu	8.19E-04	3.59E-03	1.64E-03	7.18E-03

Table B-3
5,500-hp Compressors Potential to Emit Calculations
NextEra Energy Pipeline Holdings (Lowman), Inc. - Lowman Compressor Station

Pollutant	Emissions Factor		Emissions Per Engine		Total Emissions	
	Value	Units	lb/hr	tpy	lb/hr	tpy
n-Hexane	1.11E-03	lb/MMBtu	0.05	0.20	0.09	0.40
Naphthalene	7.44E-05	lb/MMBtu	3.05E-03	0.01	6.09E-03	0.03
PAH	2.69E-05	lb/MMBtu	1.10E-03	4.83E-03	2.20E-03	9.65E-03
Phenanthrene	1.04E-05	lb/MMBtu	4.26E-04	1.87E-03	8.52E-04	3.73E-03
Phenol	2.40E-05	lb/MMBtu	9.83E-04	4.31E-03	1.97E-03	8.61E-03
Pyrene	1.36E-06	lb/MMBtu	5.57E-05	2.44E-04	1.11E-04	4.88E-04
Styrene	2.36E-05	lb/MMBtu	9.67E-04	4.23E-03	1.93E-03	8.47E-03
Perchloroethylene	2.48E-06	lb/MMBtu	1.02E-04	4.45E-04	2.03E-04	8.90E-04
Toluene	4.08E-04	lb/MMBtu	0.02	0.07	0.03	0.15
Vinyl Chloride	1.49E-05	lb/MMBtu	6.10E-04	2.67E-03	1.22E-03	5.35E-03
Xylene	1.84E-04	lb/MMBtu	7.54E-03	0.03	0.02	0.07
Total HAP			1.41	6.19	2.83	12.38

Note that the following were used to calculate PTE:

Parameter	Value	Units
Number of Engines	2	Engines
Engine Power	5,500	bhp
Fuel Consumption per Engine	7,447	Btu/bhp-hr
Natural Gas Usage per Engine	40.96	MMBtu/hr
	40,155	scf/hr
Operating Hours per Engine	8,760	hr/yr
Gram to Pound Conversion	453.59	g/lb
Pound to Ton Conversion	2,000	lb/ton
Natural Gas Higher Heating Value (HHV)	1,020	Btu/scf
Btu to MMBtu Conversion	1,000,000	Btu/MMBtu

^(a) Emissions factors based on limits established in 40 CFR Part 60, Subpart JJJJ. An oxidation catalyst will be installed on the engines to meet the federally enforceable Subpart JJJJ CO emissions standards.

^(b) Emissions factor based on the following mass balance with pipeline quality natural gas, assuming 100% conversion of sulfur to SO₂:

Parameter	Value	Units
Grains to Pounds Conversion	7,000	grains/lb
Natural Gas Sulfur (S) Content	0.50	grains/100 scf
Natural Gas S Emissions Rate	200.78	grains/hr
	2.87E-02	lb/hr
S to Sulfur Dioxide (SO ₂) Conversion	100%	SO ₂ /S
S Molecular Weight	32	lb/lb-mol
SO ₂ Molecular Weight	64	lb/lb-mol
Natural Gas SO ₂ Emissions Rate	0.06	lb/hr
Natural Gas SO ₂ Emissions Factor	1.40E-03	lb/MMBtu

^(c) Emissions factors from U.S. EPA AP-42, Chapter 3.2, Table 3.2-2 for 4-Stroke Lean-Burn Natural Gas Combustion Engines.

^(d) Filterable particulate matter only.

^(e) Total particulate matter is equal to the sum of filterable and condensable particulate matter.

^(f) The oxidation catalyst vendor guarantees a formaldehyde emissions rate of 0.03 g/bhp-hr. The formaldehyde emissions factor presented includes a 70% safety factor.

Table B-4
Standby Generator 2 Potential to Emit Calculations
NextEra Energy Pipeline Holdings (Lowman), Inc. - Lowman Compressor Station

Pollutant	Emissions Factor		Total Emissions	
	Value	Units	lb/hr	tpy
Criteria Pollutants				
NO _x ^(a)	2.00	g/bhp-hr	2.67	1.33
CO ^(a)	4.00	g/bhp-hr	5.34	2.67
VOC ^(a)	1.00	g/bhp-hr	1.33	0.67
SO ₂ ^(b)	1.40E-03	lb/MMBtu	6.04E-03	3.02E-03
PM ^{(c)(d)}	9.50E-03	lb/MMBtu	0.04	0.02
PM ₁₀ ^{(c)(d)}	9.50E-03	lb/MMBtu	0.04	0.02
PM _{2.5} ^{(c)(d)}	9.50E-03	lb/MMBtu	0.04	0.02
PM Condensable ^(c)	9.91E-03	lb/MMBtu	0.04	0.02
PM Total ^(e)	0.02	lb/MMBtu	0.08	0.04
PM ₁₀ Total ^(e)	0.02	lb/MMBtu	0.08	0.04
PM _{2.5} Total ^(e)	0.02	lb/MMBtu	0.08	0.04
Hazardous Air Pollutants ^(c)				
1,1,2,2-Tetrachloroethane	2.53E-05	lb/MMBtu	1.09E-04	5.46E-05
1,1,2-Trichloroethane	1.53E-05	lb/MMBtu	6.60E-05	3.30E-05
1,3-Butadiene	6.63E-04	lb/MMBtu	2.86E-03	1.43E-03
1,3-Dichloropropene	1.27E-05	lb/MMBtu	5.48E-05	2.74E-05
Acetaldehyde	2.79E-03	lb/MMBtu	0.01	6.02E-03
Acrolein	2.63E-03	lb/MMBtu	0.01	5.67E-03
Benzene	1.58E-03	lb/MMBtu	6.82E-03	3.41E-03
Carbon Tetrachloride	1.77E-05	lb/MMBtu	7.64E-05	3.82E-05
Chlorobenzene	1.29E-05	lb/MMBtu	5.57E-05	2.78E-05
Chloroform	1.37E-05	lb/MMBtu	5.91E-05	2.96E-05
Ethylbenzene	2.48E-05	lb/MMBtu	1.07E-04	5.35E-05
Ethylene Dibromide	2.13E-05	lb/MMBtu	9.19E-05	4.60E-05
Formaldehyde	0.02	lb/MMBtu	0.09	0.04
Methanol	3.06E-03	lb/MMBtu	0.01	6.60E-03
Methylene Chloride	4.12E-05	lb/MMBtu	1.78E-04	8.89E-05
Naphthalene	9.71E-05	lb/MMBtu	4.19E-04	2.09E-04
PAH	1.41E-04	lb/MMBtu	6.08E-04	3.04E-04
Styrene	1.19E-05	lb/MMBtu	5.13E-05	2.57E-05
Toluene	5.58E-04	lb/MMBtu	2.41E-03	1.20E-03
Vinyl Chloride	7.18E-06	lb/MMBtu	3.10E-05	1.55E-05
Xylene	1.95E-04	lb/MMBtu	8.41E-04	4.21E-04
Total HAP			0.14	0.07

Table B-4**Standby Generator 2 Potential to Emit Calculations****NextEra Energy Pipeline Holdings (Lowman), Inc. - Lowman Compressor Station**

Note that the following were used to calculate PTE:

Parameter	Value	Units
Fuel Consumption	4.31	MMBtu/hr
	4,230	scf/hr
Engine Power	605	bhp
Proposed Synthetic Minor Operating Hours Limit	1,000	hr/yr
Gram to Pound Conversion	453.59	g/lb
lb to Ton Conversion	2,000	lb/ton
Natural Gas HHV	1,020	Btu/scf
Btu to MMBtu Conversion	1,000,000	Btu/MMBtu

^(a) Emissions factor based on limits established in 40 CFR Part 60, Subpart JJJJ.

^(b) Emissions factor based on the following mass balance with pipeline quality natural gas, assuming 100% conversion of sulfur to SO₂:

Parameter	Value	Units
Grains to Pounds Conversion	7,000	grains/lb
Natural Gas Sulfur (S) Content	0.50	grains/100 scf
Natural Gas S Emissions Rate	21.15	grains/hr
	3.02E-03	lb/hr
S to Sulfur Dioxide (SO ₂) Conversion	100%	SO ₂ /S
S Molecular Weight	32	lb/lb-mol
SO ₂ Molecular Weight	64	lb/lb-mol
Natural Gas SO ₂ Emissions Rate	6.04E-03	lb/hr
Natural Gas SO ₂ Emissions Factor	1.40E-03	lb/MMBtu

^(c) Emissions factors from U.S. EPA AP-42, Chapter 3.2, Table 3.2-3 for 4-Stroke Rich-Burn Natural Gas Combustion Engines.

^(d) Filterable particulate matter only.

^(e) Total particulate matter is equal to the sum of filterable and condensable particulate matter.

Table B-5
Fuel Gas Heater 2 Potential to Emit Calculations
NextEra Energy Pipeline Holdings (Lowman), Inc. - Lowman Compressor Station

Pollutant	Emissions Factor		Total Emissions	
	Value	Units	lb/hr	tpy
Criteria Pollutants				
NO _x ^(a)	100.00	lb/MMscf	3.53E-03	0.02
CO ^(a)	84.00	lb/MMscf	2.96E-03	0.01
VOC ^(b)	5.50	lb/MMscf	1.94E-04	8.50E-04
SO ₂ ^(c)	1.43	lb/MMscf	5.04E-05	2.21E-04
PM ^{(b)(d)}	1.90	lb/MMscf	6.71E-05	2.94E-04
PM ₁₀ ^{(b)(d)}	1.90	lb/MMscf	6.71E-05	2.94E-04
PM _{2.5} ^{(b)(d)}	1.90	lb/MMscf	6.71E-05	2.94E-04
PM Condensable ^(b)	5.70	lb/MMscf	2.01E-04	8.81E-04
PM Total ^(e)	7.60	lb/MMscf	2.68E-04	1.17E-03
PM ₁₀ Total ^(e)	7.60	lb/MMscf	2.68E-04	1.17E-03
PM _{2.5} Total ^(e)	7.60	lb/MMscf	2.68E-04	1.17E-03
Pb ^(b)	5.00E-04	lb/MMscf	1.76E-08	7.73E-08
Hazardous Air Pollutants ^(f)				
2-Methylnaphthalene	2.40E-05	lb/MMscf	8.47E-10	3.71E-09
3-Methylcholanthrene	1.80E-06	lb/MMscf	6.35E-11	2.78E-10
7,12-Dimethylbenz(a)anthracene	1.60E-05	lb/MMscf	5.65E-10	2.47E-09
Acenaphthene	1.80E-06	lb/MMscf	6.35E-11	2.78E-10
Acenaphthylene	1.80E-06	lb/MMscf	6.35E-11	2.78E-10
Anthracene	2.40E-06	lb/MMscf	8.47E-11	3.71E-10
Benz(a)anthracene	1.80E-06	lb/MMscf	6.35E-11	2.78E-10
Benzene	2.10E-03	lb/MMscf	7.41E-08	3.25E-07
Benzo(a)pyrene	1.20E-06	lb/MMscf	4.24E-11	1.86E-10
Benzo(b)fluoranthene	1.80E-06	lb/MMscf	6.35E-11	2.78E-10
Benzo(g,h,i)perylene	1.20E-06	lb/MMscf	4.24E-11	1.86E-10
Benzo(k)fluoranthene	1.80E-06	lb/MMscf	6.35E-11	2.78E-10
Chrysene	1.80E-06	lb/MMscf	6.35E-11	2.78E-10
Dibenzo(a,h)anthracene	1.20E-06	lb/MMscf	4.24E-11	1.86E-10
Dichlorobenzene	1.20E-03	lb/MMscf	4.24E-08	1.86E-07
Fluoranthene	3.00E-06	lb/MMscf	1.06E-10	4.64E-10
Fluorene	2.80E-06	lb/MMscf	9.88E-11	4.33E-10
Formaldehyde	0.08	lb/MMscf	2.65E-06	1.16E-05
Hexane	1.80	lb/MMscf	6.35E-05	2.78E-04
Indeno(1,2,3-cd)pyrene	1.80E-06	lb/MMscf	6.35E-11	2.78E-10
Naphthalene	6.10E-04	lb/MMscf	2.15E-08	9.43E-08
Phenanthrene	1.70E-06	lb/MMscf	6.00E-11	2.63E-10
Pyrene	5.00E-06	lb/MMscf	1.76E-10	7.73E-10
Toluene	3.40E-03	lb/MMscf	1.20E-07	5.26E-07
Total HAP			6.65E-05	2.91E-04

Table B-5
Fuel Gas Heater 2 Potential to Emit Calculations
NextEra Energy Pipeline Holdings (Lowman), Inc. - Lowman Compressor Station

Note that the following were used to calculate PTE:

Parameter	Value	Units
Fuel Consumption	0.036	MMBtu/hr
	3.53E-05	MMscf/hr
Operating Hours	8,760	hr/yr
Lb to Ton Conversion	2,000	lb/ton
Natural Gas HHV	1,020	Btu/scf
Btu to MMBtu Conversion	1,000,000	Btu/MMBtu

^(a) Emissions factors from U.S. EPA AP-42, Chapter 1.4, Table 1.4-1 for Small Uncontrolled Boilers (<100 MMBtu/hr Heat Input).

^(b) Emissions factors from U.S. EPA AP-42, Chapter 1.4, Table 1.4-2 for Natural Gas Combustion.

^(c) Emissions factor based on the following mass balance with pipeline quality natural gas, assuming 100% conversion of sulfur to SO₂:

Parameter	Value	Units
Grains to Pounds Conversion	7,000	grains/lb
Natural Gas Sulfur (S) Content	0.50	grains/100 scf
Natural Gas S Emissions Rate	0.18	grains/hr
	2.52E-05	lb/hr
S to Sulfur Dioxide (SO ₂) Conversion	100%	SO ₂ /S
S Molecular Weight	32	lb/lb-mol
SO ₂ Molecular Weight	64	lb/lb-mol
Natural Gas SO ₂ Emissions Rate	5.04E-05	lb/hr
Natural Gas SO ₂ Emissions Factor	1.43	lb/MMscf

^(d) Filterable particulate matter only. Conservatively assumed that PM=PM₁₀=PM_{2.5}

^(e) Total particulate matter is equal to the sum of filterable and condensable particulate matter.

^(f) Emissions factors from U.S. EPA AP-42, Chapter 1.4, Table 1.4-3 for Natural Gas Combustion.

Table B-6
Tanks Potential to Emit Calculations
NextEra Energy Pipeline Holdings (Lowman), Inc. - Lowman Compressor Station

Parameter	Variable	Units	Lube Oil Tank 3 Horizontal	Lube Oil Tank 4 Horizontal	EG Tank 2 Horizontal	Lube Day Tank 3 Horizontal	Lube Day Tank 4 Horizontal	Source
Annual Standing Storage Loss, L_s								
Standing Storage Losses	L_s	lb/yr	0.02	0.02	0.01	0.02	0.02	AP-42 Section 7.1, Eqn. (1-2) (Nov 2019): $L_s = 365 V_v W_v K_1 K_2$
Vapor Space Volume	V_v	ft ³	62.26	62.26	62.26	62.26	62.26	Calculated below - AP-42 Section 7.1 Eqn. (1-3) (Nov 2019): $V_v = (\pi/4 \times D^3) H_{vo}$
Stock Vapor Density	W_v	lb/ft ³	4.62E-05	4.62E-05	2.20E-05	4.62E-05	4.62E-05	Calculated below - AP-42 Section 7.1 Eqn. (1-22) (Nov 2019): $W_v = (M_v P_{va})/(R T_v)$
Vapor Space Expansion Factor	K_1	day ⁻¹	0.02	0.02	0.02	0.02	0.02	Calculated below - AP-42 Section 7.1 Eqn. (1-12) (Nov 2019): $K_1 = 0.0018 \Delta T_v = 0.0018 [0.7 (T_{sk} - T_{amb}) + 0.02 \alpha]$
Vented Vapor Saturation Factor	K_2	Dimensionless	1.00	1.00	1.00	1.00	1.00	Calculated below - AP-42 Section 7.1 Eqn. (1-21) (Nov 2019): $K_2 = 1/(1+0.053 P_{va} H_{vo})$
Tank Vapor Space Volume, V_v								
Vapor Space Volume	V_v	ft ³	62.26	62.26	62.26	62.26	62.26	Calculated below - AP-42 Section 7.1 Eqn. (1-3) (Nov 2019): $V_v = (\pi/4 \times D^3) H_{vo}$; For Horizontal Tanks $V_v = (\pi/4 \times D^2 \times H_{vo})$
Tank Radius	R_t	ft	3	3	3	3	3	
Vapor Space Outage	H_{vo}	ft	1.75	1.75	1.75	1.75	1.75	AP-42 Section 7.1, Eqn. (1-16) (Nov 2019): $H_{vo} = H_t - H_s + H_{so}$
Shell Height	H_t	ft	3.4	3	3.4	2.3	2.3	500 gallon tanks each
Average Liquid Height	H_s	ft	1.7	1.7	1.7	1.2	1.2	50% of shell height
Roof Outage	H_{so}	ft	0.05	0.05	0.05	0.05	0.05	AP-42 Section 7.1, Eqn. (1-17) (Nov 2019): $H_{so} = 1/3 H_s$ (for a cone roof)
Tank Roof Height	H_R	ft	0.16	0.16	0.16	0.16	0.16	AP-42 Section 7.1, Eqn. (1-18) (Nov 2019): $H_R = S_R R_t$, used standard value of 0.0625 ft/ft for S_R , and R_t is the tank shell radius (ft)
Tank Diameter Equivalent	D_t	ft	5	5	5	5	5	For Horizontal Tanks; AP-42 Ch. 7 Eq 1-13
Diameter	D	ft	5	5	5	5	5	
Vapor Space Outage	H_{vo}/H_t	ft	4	4	4	4	4	For Horizontal Tanks; $H_t = \pi/4 \times D_t$; Equation 1-14 AP-42 ch 7, pg. 14
Stock Vapor Density, W_v								
Stock Vapor Density	W_v	lb/ft ³	4.62E-05	4.62E-05	2.20E-05	4.62E-05	4.62E-05	AP-42 Section 7.1 Eqn. (1-22) (Nov 2019): $W_v = (M_v P_{va})/(R T_v)$
Vapor Molecular Weight	M_v	lb/lb-mole	130	130	62	130	130	AP-42 Section 7.1, Table 7.1-2 (Nov 2019) for No. 6 Fuel Oil, Ethylene Glycol Information taken from SDS
Vapor Pressure	P_{va}	psia	0.002	0.002	0.002	0.002	0.002	AP-42 Section 7.1, Table 7.1-2 (Nov 2019) for No. 6 Fuel Oil, Ethylene Glycol Information taken from SDS
Ideal Gas Constant	R	psia ft ³ / lb-mole R	10.731	10.731	10.731	10.731	10.731	
Average Bulk Liquid Temperature	T_v	R	524.67	524.67	524.67	524.67	524.67	Based on 65 °F, converted to R by adding 459.67
Vapor Space Expansion Factor, K_1								
Vapor Space Expansion Factor	K_1	day ⁻¹	0.02	0.02	0.02	0.02	0.02	AP-42 Section 7.1 Eqn. (1-12) (Nov 2019): $K_1 = 0.0018 \Delta T_v = 0.0018 [0.7 (T_{sk} - T_{amb}) + 0.02 \alpha]$
Daily Vapor Temperature Range	ΔT_v	R	10.86	10.86	10.86	10.86	10.86	AP-42 Section 7.1, Eqn. (1-8) (Nov 2019): $\Delta T_v = 0.6 \Delta T_s + 0.02 \alpha$; assuming $\Delta T_s = 10$
Average Bulk Liquid Temperature	T_{sk}	R	524.67	524.67	524.67	524.67	524.67	Based on 65 °F, converted to R by adding 459.67
Daily Maximum Temperature	T_{sk}	R	530.10	530.10	530.10	530.10	530.10	Based on 65 °F, converted to R by adding 459.67 $T_{sk} = T_{sk} + 0.5 \Delta T_v$, converted to R by adding 459.67
Daily Minimum Temperature	T_{amb}	R	519.24	519.24	519.24	519.24	519.24	Based on 6 °F, converted to R by adding 459.67 $T_{amb} = T_{sk} - 0.5 \Delta T_v$, converted to R by adding 459.67
Tank Paint Solar Absorptance	α	Dimensionless	0.17	0.17	0.17	0.17	0.17	New white tank, AP-42 Section 7.1 Table 7.1-6 (Nov 2019)
Daily Total Solar Insolation on a Horizontal Surface	I	Btu/ft ² -day	1430	1430	1430	1430	1430	Annual value for Montgomery, AL, AP-42 Section 7.1 Table 7.1-7 (Nov 2019)
Vented Vapor Saturation Factor, K_2								
Vented Vapor Saturation Factor	K_2	Dimensionless	1.00	1.00	1.00	1.00	1.00	AP-42 Section 7.1, Eqn. (1-21) (Nov 2019): $K_2 = 1/(1+0.053 P_{va} H_{vo})$
Vapor Pressure	P_{va}	psia	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	AP-42 Section 7.1, Table 7.1-2 (Nov 2019) for No. 6 Fuel Oil, Ethylene Glycol Information taken from SDS
Vapor Space Outage	H_{vo}	ft	1.75	1.75	1.75	1.75	1.75	Calculated above: AP-42 Section 7.1, Eqn. (1-16) (Nov 2019): $H_{vo} = H_t - H_s + H_{so}$
Annual Working Loss, L_w								
Working Losses	L_w	lb/yr	0.12	0.12	1.77E-03	0.12	0.12	AP-42 Section 7.1, Eqn. (1-35) (Nov 2019): $L_w = V_v K_3 K_4 W_v K_5$
Net Throughput	Q_t	bbbl/yr	238	238	5	119	119	
Net Working Loss Throughput	V_{Q_1}	ft ³ /yr	1,336.67	1,336.67	26.73	1,336.67	1,336.67	AP-42 Section 7.1, Eqn. (1-39) (Nov 2019): $V_{Q_1} = 5.614 Q_t$
Working Loss Turnover Factor	K_3	Dimensionless	1.00	1.00	1.00	1.00	1.00	AP-42 Section 7.1, Eqn. (1-35) (Nov 2019): for turnovers > 35, $K_3 = (180 + N)/6N$; for turnovers ≤ 35, $K_3 = 1$
Working Loss Product Factor	K_4	Dimensionless	1	1	1	1	1	Variable definition in AP-42 Section 7.1, Eqn. (1-35) (Nov 2019), $K_4 = 1$ for organic liquids not crude oils
Stock Vapor Density	W_v	lb/ft ³	4.62E-05	4.62E-05	2.20E-05	4.62E-05	4.62E-05	Calculated above: AP-42 Section 7.1 Eqn. (1-22) (Nov 2019): $W_v = (M_v P_{va})/(R T_v)$
Vent Setting Correction Factor	K_5	Dimensionless	2	2	3	2	2	Default vent settings used, per AP-42 Section 7.1, Eqn. (1-35) (Nov 2019)
Number of Turnovers per Year	N	turnovers / year	168.08	168.08	-2.29E+00	168.08	168.08	AP-42 Section 7.1, Eqn. (1-36) (Nov 2019): $N = 2 H_{LQ} / (H_{LQ} - H_{min})$
Annual Sum of the Increases in Liquid Level	$\sum H_{LQ}$	ft/yr	68.08	68.08	1.35	68.08	68.08	AP-42 Section 7.1, Eqn. (1-37) (Nov 2019): $\sum H_{LQ} = (5.614 Q_t) / ((\pi/4) D^3)$
Turnover Rate	-	Dimensionless	20	20	0.4	20	20	
Tank Capacity	-	bbbl	12	12	12	1	1	
Tank Diameter	D	ft	5	5	5	2	2	
Max Liquid Height	H_{LQ}	ft	1	1	1	1	1	
Min Liquid Height	H_{min}	ft	1	1	2	1	1	

Table B-6
Tanks Potential to Emit Calculations
NextEra Energy Pipeline Holdings (Lowman), Inc. - Lowman Compressor Station

Parameter	Variable	Units	Lube Oil Tank 3 Horizontal	Lube Oil Tank 4 Horizontal	EG Tank 2 Horizontal	Lube Day Tank 3 Horizontal	Lube Day Tank 4 Horizontal	Source
Hourly Working Loss								
Maximum Hourly Working Loss	L_{MAX}	lb/hr	0.05	0.05	0.02	0.05	0.05	TCEQ APDG 6250v1 Estimating Short Term Emission Rates from Fixed Roof Tanks (Feb 2018): $L_{MAX} = [(M_v \times P_{va}) / (R \times T)] FR_{in}$
Vapor Molecular Weight	M_v	lb/lb-mole	130	130	62	130	130	AP-42 Section 7.1, Table 7.1-2 (Nov 2019) for No. 6 Fuel Oil
Vapor Pressure	P_{va}	psia	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	Based on SDS
Ideal Gas Constant	R	(psia-gal) / (lb-mol-R)	81.273	81.273	81.273	81.273	81.273	
Maximum Temperature	T_{MAX}	R	530.10	530.10	530.10	530.10	530.10	Based on 70 °F (Daily Maximum Temperature, above) converted to R by adding 459.67.
Maximum Fill Rate	FR_{in}	gal/hour	7,500	7,500	7,500	7,500	7,500	Based on 125 gal/min
		TOTAL LOSS						
Total losses	L_T	lb/yr	0.15	0.15	0.01	0.15	0.15	AP-42 Section 7.1, Eqn. (1-1) (Nov 2019): $L_T = L_3 + L_{wv}$
		tpy	7.35E-05	7.35E-05	6.50E-06	7.35E-05	7.35E-05	
Standing Storage Losses	L_3	lb/yr	0.02	0.02	0.01	0.02	0.02	AP-42 Section 7.1, Eqn. (1-2) (Nov 2019): $L_3 = 365 V_o W_v K_4 K_5$
Working Losses	L_w	lb/yr	0.12	0.12	1.77E-03	0.12	0.12	AP-42 Section 7.1, Eqn. (1-35) (Nov 2019): $L_w = V_o K_4 K_5 W_v K_6$
Hourly Losses	L_{MAX}	lb/hr	0.05	0.05	0.02	0.05	0.05	TCEQ APDG 6250v1 Estimating Short Term Emission Rates from Fixed Roof Tanks (Feb 2018): $L_{MAX} = [(M_v \times P_{va}) / (R \times T)] FR_{in}$

Parameter	Units	Condensate Tank 3 ^(a)
Annual Working Loss	lb/yr	17.39
Annual Breathing Loss	lb/yr	33.72
Annual Total Loss	lb/yr	51.10
Annual Total Loss	ton/yr	0.03
Annual Average Hourly Loss	lb/hr	5.83E-03

^(a) Condensate tank losses were estimated using EPA TANIS 5.2. A print out is provided in the attachment. Condensate is assumed to be RVP 5 Grade Oil.

Table B-7
New Truck Loading Potential to Emit Calculations
NextEra Energy Pipeline Holdings (Lowman), Inc. - Lowman Compressor Station

Parameter	Value	Units	Source
Maximum Hourly Loading Rate	172.00	bbl/hr	Conservative Case
Maximum Annual Throughput	172.00	bbl/yr	Annual throughput is equal to 7224 gallons/yr
Saturation Factor (S)	0.60	lb/Mgal	Saturation factors obtained from U.S. EPA AP-42 Section 5.2 (July 2008), Chapter 5.2, Table 5.2-1 for Submerged Loading: Dedicated Normal Service.
Physical Properties			
Maximum True Vapor Pressure (P _{max})	3	psia	U.S. EPA AP-42, Chapter 7.1, Figure 7.1-13a (Nov 2019) for Crude Oil, RVP 5
Average True Vapor Pressure (P _{avg})	3	psia	
Vapor Molecular Weight (M)	50	lb/lb-mol	U.S. EPA AP-42, Chapter 7.1, Table 7.1-2 (Nov 2019) for Midcontinent Crude Oil, RVP 5
Maximum Loading Temperature (T _{max})	85	°F	Ambient Temperature
	544.67	R	
Average Loading Temperature (T _{avg})	65	°F	
	524.67	R	
Uncontrolled Loading Loss			
VOC Emissions Factor at Maximum Loading Temperature (LL _{max})	2.06	lb/Mgal loaded	Uncontrolled Loading Loss calculation based on U.S. EPA AP-42, Chapter 5.2 (July 2008), Equation 1.
			LL _{max} = 12.46 x S x P _{max} x M / T _{max} (R)
VOC Emissions Factor at Average Loading Temperature (LL _{avg})	2.14	lb/Mgal loaded	Uncontrolled Loading Loss calculation based on U.S. EPA AP-42, Chapter 5.2 (July 2008), Equation 1.
			LL _{avg} = 12.46 x S x P _{avg} x M / T _{avg} (R)
Maximum Hourly Loading Loss	14.87	lb/hr	Maximum hourly loading rate (bbl/hr) x (42 gal/bbl) x LL _{max} (lb/Mgal loaded)
Annual Loading Loss	7.72E-03	tpy	Maximum annual throughput (bbl/yr) x (42 gal/bbl) x LL _{avg} (lb/Mgal loaded) / (2000 lb/ton)

Table B-8
New Fugitive Potential to Emit Calculations
NextEra Energy Pipeline Holdings (Lowman), Inc. - Lowman Compressor Station

Equipment Type	Service	Count	Emissions Factor ^(a)	VOC Emissions Rate ^(b)	
			kg/hr-source	lb/hr	tpy
Valves	Gas	335	4.50E-03	0.05	0.20
Pump Seals	Gas	0	2.40E-03	0.00	0.00
Connectors	Gas	407	2.00E-04	2.48E-03	0.01
Flanges	Gas	634	3.90E-04	7.52E-03	0.03
Open Ends	Gas	44	2.00E-03	2.68E-03	0.01
Other	Gas	0	8.80E-03	0.00	0.00
			Total	0.06	0.26

Note that the following were used to calculate PTE:

Parameter	Value	Units
Natural Gas VOC Content	1.20%	wt%
Pound to Ton Conversion	2,000	lb/ton
Gram to Pound Conversion	453.59	g/lb
Operating Hours	8,760	hr/yr
Safety Factor	15.00%	

^(a) Emissions factors from U.S. EPA Protocol for Equipment Leak Emission Estimates Table 2-4.

^(b) VOC emissions include a 15% safety factor.

Table B-9
New MSS Station Blowdowns Potential to Emit Calculations
NextEra Energy Pipeline Holdings (Lowman), Inc. - Lowman Compressor Station

Vent Calculations		
Volume	172,800	ft ³ /event
Short Term Duration	5.00	min/event
Compressor Blowdowns per Year	4	events/yr
Natural Gas Vapor Density	0.06	lb/ft ³
Natural Gas VOC Content	1.20%	wt%

Potential VOC Emissions		
Hourly Emissions Rate ^(a)	116.12	lb/hr
Annual Emissions Rate	0.23	tpy

^(a) Hourly emissions rate based on one blowdown event per hour.

Table B-10
New MSS Compressor Blowdowns Potential to Emit Calculations
NextEra Energy Pipeline Holdings (Lowman), Inc. - Lowman Compressor Station

Vent Calculations		
Volume	52,800	ft ³ /event
Short Term Duration	5.00	min/event
Compressor Blowdowns per Year	730	events/yr
Natural Gas Vapor Density	0.06	lb/ft ³
Natural Gas VOC Content	1.20%	wt%

Potential VOC Emissions		
Hourly Emissions Rate ^(a)	35.48	lb/hr
Annual Emissions Rate	12.95	tpy

^(a) Hourly emissions rate based on one blowdown event per hour.

Table B-11
Pigging Equipment Potential to Emit Calculations
NextEra Energy Pipeline Holdings (Lowman), Inc. - Lowman Compressor Station

Natural Gas Components ^(a)	Mol %	Molecular Weight	Emissions ^(b)	
			lb/yr	tpy
Methane	94.90%	16.04	2,201	1.10
Ethane	2.50%	30.07	108.68	0.05
Propane	0.20%	44.10	12.75	6.38E-03
iso-Butane	0.03%	58.12	2.52	1.26E-03
Butane	0.03%	58.12	2.52	1.26E-03
iso-Pentane	0.01%	72.15	1.04	5.22E-04
Pentane	0.01%	72.15	1.04	5.22E-04
Hexane	0.01%	86.18	1.25	6.23E-04
Nitrogen	1.60%	28.01	64.79	0.03
Carbon Dioxide	0.70%	44.01	44.54	0.02
Oxygen	0.02%	32.00	0.93	4.63E-04

Note that the following were used to calculate PTE:

Parameter	Value	Units
Barrel Length	20.60	ft
Barrel diameter	20.00	in
Barrel Volume (V_{Tank})	44.94	ft ³
Barrel Pressure (P_{Gauge})	1,480	psig
Atmospheric Pressure	14.70	psi
inch to feet conversion	12.00	in/ft
Gas Volume (V_{Gas})	4,570	ft ³
Yearly Pigging Events	12	events/yr
Molar Volume Conversion	379.30	scf/lb-mol
Pound to Ton Conversion	2,000	lb/ton

^(a) Natural gas compositions from Florida Power and Light Company Fuel Oil Purchase Contract.

^(b) Emissions are calculated using Compendium of Greenhouse Gas Emissions Methodologies for the Natural Gas and Oil Industry, Section 6.4.6.

Table B-12
1875-hp Compressors Post-Project Potential to Emit Calculations
NextEra Energy Pipeline Holdings (Lowman), Inc. - Lowman Compressor Station

Pollutant	Emissions Factor		Emissions Per Engine		Total Emissions	
	Value	Units	lb/hr	tpy	lb/hr	tpy
Criteria Pollutants						
NO _x ^(a)	1.00	g/bhp-hr	4.13	8.27	8.27	16.53
CO ^(a)	2.00	g/bhp-hr	8.27	16.53	16.53	33.07
VOC ^(a)	0.70	g/bhp-hr	2.89	5.79	5.79	11.57
SO ₂ ^(b)	1.40E-03	lb/MMBtu	0.02	0.04	0.04	0.07
PM ^{(c)(d)}	7.71E-05	lb/MMBtu	9.99E-04	2.00E-03	2.00E-03	4.00E-03
PM ₁₀ ^{(c)(d)}	7.71E-05	lb/MMBtu	9.99E-04	2.00E-03	2.00E-03	4.00E-03
PM _{2.5} ^{(c)(d)}	7.71E-05	lb/MMBtu	9.99E-04	2.00E-03	2.00E-03	4.00E-03
PM Condensable ^(c)	9.91E-03	lb/MMBtu	0.13	0.26	0.26	0.51
PM Total ^(e)	9.99E-03	lb/MMBtu	0.13	0.26	0.26	0.52
PM ₁₀ Total ^(e)	9.99E-03	lb/MMBtu	0.13	0.26	0.26	0.52
PM _{2.5} Total ^(e)	9.99E-03	lb/MMBtu	0.13	0.26	0.26	0.52
Hazardous Air Pollutants^(c)						
1,1,2,2-Tetrachloroethane	4.00E-05	lb/MMBtu	5.18E-04	1.04E-03	1.04E-03	2.07E-03
1,1,2-Trichloroethane	3.18E-05	lb/MMBtu	4.12E-04	8.24E-04	8.24E-04	1.65E-03
1,3-Butadiene	2.67E-04	lb/MMBtu	3.46E-03	6.92E-03	6.92E-03	0.01
1,3-Dichloropropene	2.64E-05	lb/MMBtu	3.42E-04	6.84E-04	6.84E-04	1.37E-03
2-Methylnaphthalene	3.32E-05	lb/MMBtu	4.30E-04	8.61E-04	8.61E-04	1.72E-03
2,2,4-Trimethylpentane	2.50E-04	lb/MMBtu	3.24E-03	6.48E-03	6.48E-03	0.01
Acenaphthene	1.25E-06	lb/MMBtu	1.62E-05	3.24E-05	3.24E-05	6.48E-05
Acenaphthylene	5.53E-06	lb/MMBtu	7.17E-05	1.43E-04	1.43E-04	2.87E-04
Acetaldehyde	8.36E-03	lb/MMBtu	0.11	0.22	0.22	0.43
Acrolein	5.14E-03	lb/MMBtu	0.07	0.13	0.13	0.27
Benzene	4.40E-04	lb/MMBtu	5.70E-03	0.01	0.01	0.02
Benzo(b)fluoranthene	1.66E-07	lb/MMBtu	2.15E-06	4.30E-06	4.30E-06	8.61E-06
Benzo(e)pyrene	4.15E-07	lb/MMBtu	5.38E-06	1.08E-05	1.08E-05	2.15E-05
Benzo(g,h,i)perylene	4.14E-07	lb/MMBtu	5.37E-06	1.07E-05	1.07E-05	2.15E-05
Biphenyl	2.12E-04	lb/MMBtu	2.75E-03	5.50E-03	5.50E-03	0.01
Carbon Tetrachloride	3.67E-05	lb/MMBtu	4.76E-04	9.51E-04	9.51E-04	1.90E-03
Chlorobenzene	3.04E-05	lb/MMBtu	3.94E-04	7.88E-04	7.88E-04	1.58E-03
Chloroform	2.85E-05	lb/MMBtu	3.69E-04	7.39E-04	7.39E-04	1.48E-03
Chrysene	6.93E-07	lb/MMBtu	8.98E-06	1.80E-05	1.80E-05	3.59E-05
Ethylbenzene	3.97E-05	lb/MMBtu	5.15E-04	1.03E-03	1.03E-03	2.06E-03
Ethylene Dibromide	4.43E-05	lb/MMBtu	5.74E-04	1.15E-03	1.15E-03	2.30E-03
Fluoranthene	1.11E-06	lb/MMBtu	1.44E-05	2.88E-05	2.88E-05	5.76E-05
Fluorene	5.67E-06	lb/MMBtu	7.35E-05	1.47E-04	1.47E-04	2.94E-04
Formaldehyde ^(f)	0.24	g/bhp-hr	0.98	1.96	1.96	3.93
Methanol	2.50E-03	lb/MMBtu	0.03	0.06	0.06	0.13

Table B-12
1875-hp Compressors Post-Project Potential to Emit Calculations
NextEra Energy Pipeline Holdings (Lowman), Inc. - Lowman Compressor Station

Pollutant	Emissions Factor		Emissions Per Engine		Total Emissions	
	Value	Units	lb/hr	tpy	lb/hr	tpy
Methylene Chloride	2.00E-05	lb/MMBtu	2.59E-04	5.18E-04	5.18E-04	1.04E-03
n-Hexane	1.11E-03	lb/MMBtu	0.01	0.03	0.03	0.06
Naphthalene	7.44E-05	lb/MMBtu	9.64E-04	1.93E-03	1.93E-03	3.86E-03
PAH	2.69E-05	lb/MMBtu	3.49E-04	6.97E-04	6.97E-04	1.39E-03
Phenanthrene	1.04E-05	lb/MMBtu	1.35E-04	2.70E-04	2.70E-04	5.39E-04
Phenol	2.40E-05	lb/MMBtu	3.11E-04	6.22E-04	6.22E-04	1.24E-03
Pyrene	1.36E-06	lb/MMBtu	1.76E-05	3.53E-05	3.53E-05	7.05E-05
Styrene ^(c)	2.36E-05	lb/MMBtu	3.06E-04	6.12E-04	6.12E-04	1.22E-03
Perchloroethylene	2.48E-06	lb/MMBtu	3.21E-05	6.43E-05	6.43E-05	1.29E-04
Toluene	4.08E-04	lb/MMBtu	5.29E-03	0.01	0.01	0.02
Vinyl Chloride	1.49E-05	lb/MMBtu	1.93E-04	3.86E-04	3.86E-04	7.73E-04
Xylene	1.84E-04	lb/MMBtu	2.38E-03	4.77E-03	4.77E-03	9.54E-03
Total HAP			1.23	2.47	2.47	4.93

Note that the following were used to calculate PTE:

Parameter	Value	Units
Number of Engines	2	Engines
Engine Power	1,875	bhp
Fuel Consumption per Engine	6,913	Btu/bhp-hr
Natural Gas Usage per Engine	12.96	MMBtu/hr
	12,708	scf/hr
Operating Hours per Engine ^(d)	4,000	hr/yr
Gram to Pound Conversion	453.59	g/lb
Pound to Ton Conversion	2,000	lb/ton
Natural Gas Higher Heating Value (HHV)	1,020	Btu/scf
Btu to MMBtu Conversion	1,000,000	Btu/MMBtu

^(a) Emissions factors based on limits established in 40 CFR Part 60, Subpart JJJJ. An oxidation catalyst is installed on the engines to meet Subpart JJJJ CO emissions standards.

^(b) Emissions factor based on the following mass balance with pipeline quality natural gas, assuming 100% conversion of sulfur to SO₂:

Parameter	Value	Units
Grains to Pounds Conversion	7,000	grains/lb
Natural Gas Sulfur (S) Content	0.50	grains/100 scf
Natural Gas S Emissions Rate	63.54	grains/hr
	9.08E-03	lb/hr
S to Sulfur Dioxide (SO ₂) Conversion	100%	SO ₂ /S
S Molecular Weight	32	lb/lb-mol
SO ₂ Molecular Weight	64	lb/lb-mol
Natural Gas SO ₂ Emissions Rate	0.02	lb/hr
Natural Gas SO ₂ Emissions Factor	1.40E-03	lb/MMBtu

^(c) Emissions factors from U.S. EPA AP-42, Chapter 3.2, Table 3.2-2 for 4-Stroke Lean-Burn Natural Gas Combustion Engines.

^(d) Filterable particulate matter only.

^(e) Total particulate matter is equal to the sum of filterable and condensable particulate matter.

^(f) Emissions factors from vendor specification sheet.

^(g) Combined operating time for the existing compressor engines will be limited to 8,000 hours per year. 4,000 hours per each engine was used to calculate PTE for simplicity. No other existing emissions units will be affected as a result of this project.

Table B-13
Standby Generator 1 Potential to Emit Calculations
NextEra Energy Pipeline Holdings (Lowman), Inc. - Lowman Compressor Station

Pollutant	Emissions Factor		Total Emissions	
	Value	Units	lb/hr	tpy
Criteria Pollutants				
NO _x ^(a)	2.00	g/bhp-hr	1.48	0.74
CO ^(a)	4.00	g/bhp-hr	2.95	1.48
VOC ^(a)	1.00	g/bhp-hr	0.74	0.37
SO ₂ ^(b)	1.40E-03	lb/MMBtu	4.24E-03	2.12E-03
PM ^{(c)(d)}	9.50E-03	lb/MMBtu	0.03	0.01
PM ₁₀ ^{(c)(d)}	9.50E-03	lb/MMBtu	0.03	0.01
PM _{2.5} ^{(c)(d)}	9.50E-03	lb/MMBtu	0.03	0.01
PM Condensable ^(c)	9.91E-03	lb/MMBtu	0.03	0.02
PM Total ^(e)	0.02	lb/MMBtu	0.06	0.03
PM ₁₀ Total ^(e)	0.02	lb/MMBtu	0.06	0.03
PM _{2.5} Total ^(e)	0.02	lb/MMBtu	0.06	0.03
Hazardous Air Pollutants ^(c)				
1,1,2,2-Tetrachloroethane	2.53E-05	lb/MMBtu	7.66E-05	3.83E-05
1,1,2-Trichloroethane	1.53E-05	lb/MMBtu	4.63E-05	2.32E-05
1,3-Butadiene	6.63E-04	lb/MMBtu	2.01E-03	1.00E-03
1,3-Dichloropropene	1.27E-05	lb/MMBtu	3.85E-05	1.92E-05
Acetaldehyde	2.79E-03	lb/MMBtu	8.45E-03	4.23E-03
Acrolein	2.63E-03	lb/MMBtu	7.97E-03	3.98E-03
Benzene	1.58E-03	lb/MMBtu	4.79E-03	2.39E-03
Carbon Tetrachloride	1.77E-05	lb/MMBtu	5.36E-05	2.68E-05
Chlorobenzene	1.29E-05	lb/MMBtu	3.91E-05	1.95E-05
Chloroform	1.37E-05	lb/MMBtu	4.15E-05	2.08E-05
Ethylbenzene	2.48E-05	lb/MMBtu	7.51E-05	3.76E-05
Ethylene Dibromide	2.13E-05	lb/MMBtu	6.45E-05	3.23E-05
Formaldehyde	0.02	lb/MMBtu	0.06	0.03
Methanol	3.06E-03	lb/MMBtu	9.27E-03	4.63E-03
Methylene Chloride	4.12E-05	lb/MMBtu	1.25E-04	6.24E-05
Naphthalene	9.71E-05	lb/MMBtu	2.94E-04	1.47E-04
PAH	1.41E-04	lb/MMBtu	4.27E-04	2.14E-04
Styrene	1.19E-05	lb/MMBtu	3.60E-05	1.80E-05
Toluene	5.58E-04	lb/MMBtu	1.69E-03	8.45E-04
Vinyl Chloride	7.18E-06	lb/MMBtu	2.18E-05	1.09E-05
Xylene	1.95E-04	lb/MMBtu	5.91E-04	2.95E-04
Total HAP			0.10	0.05

Table B-13
Standby Generator 1 Potential to Emit Calculations
NextEra Energy Pipeline Holdings (Lowman), Inc. - Lowman Compressor Station

Note that the following were used to calculate PTE:

Parameter	Value	Units
Fuel Consumption	2,970	scf/hr
	3.03	MMBtu/hr
Engine Power	335	bhp
Proposed Synthetic Minor Operating Hours Limit	1,000	hr/yr
Gram to Pound Conversion	453.59	g/lb
lb to Ton Conversion	2,000	lb/ton
Natural Gas HHV	1,020	Btu/scf
Btu to MMBtu Conversion	1,000,000	Btu/MMBtu

^(a) Emissions factor based on limits established in 40 CFR Part 60, Subpart JJJJ.

^(b) Emissions factor based on the following mass balance with pipeline quality natural gas, assuming 100% conversion of sulfur to SO₂:

Parameter	Value	Units
Grains to Pounds Conversion	7,000	grains/lb
Natural Gas Sulfur (S) Content	0.50	grains/100 scf
Natural Gas S Emissions Rate	14.85	grains/hr
	2.12E-03	lb/hr
S to Sulfur Dioxide (SO ₂) Conversion	100%	SO ₂ /S
S Molecular Weight	32	lb/lb-mol
SO ₂ Molecular Weight	64	lb/lb-mol
Natural Gas SO ₂ Emissions Rate	4.24E-03	lb/hr
Natural Gas SO ₂ Emissions Factor	1.40E-03	lb/MMBtu

^(c) Emissions factors from U.S. EPA AP-42, Chapter 3.2, Table 3.2-3 for 4-Stroke Rich-Burn Natural Gas Combustion Engines.

^(d) Filterable particulate matter only.

^(e) Total particulate matter is equal to the sum of filterable and condensable particulate matter.

Table B-14
Post-Project Facility-Wide Potential to Emit Summary
NextEra Energy Pipeline Holdings (Lowman), Inc. - Lowman Compressor Station

Source	EU ID	NO _x tpy	CO tpy	SO ₂ tpy	PM tpy	PM ₁₀ tpy	PM _{2.5} tpy	VOC tpy	Formaldehyde tpy	Total HAP tpy
1875-hp Compressor	C-1	8.27	16.53	0.04	0.26	0.26	0.26	5.79	1.96	2.47
1875-hp Compressor	C-2	8.27	16.53	0.04	0.26	0.26	0.26	5.79	1.96	2.47
5500-hp Compressor	C-3	53.11	106.22	0.25	1.79	1.79	1.79	37.18	2.71	6.19
5500-hp Compressor	C-4	53.11	106.22	0.25	1.79	1.79	1.79	37.18	2.71	6.19
Condensate Tank 1	T-5001A	--	--	--	--	--	--	0.03	--	--
Condensate Tank 2	T-5001B	--	--	--	--	--	--	0.03	--	--
Lube Oil Tank 1	T-5002A	--	--	--	--	--	--	7.35E-05	--	--
Lube Oil Tank 2	T-5002B	--	--	--	--	--	--	7.35E-05	--	--
Lube Oil Tank 3	T-5002C	--	--	--	--	--	--	7.35E-05	--	--
Lube Oil Tank 4	T-5002D	--	--	--	--	--	--	7.35E-05	--	--
Ethylene Glycol Tank 1	T-5003A	--	--	--	--	--	--	6.50E-06	--	6.50E-06
Ethylene Glycol Tank 2	T-5003B	--	--	--	--	--	--	6.50E-06	--	6.50E-06
Lube Oil Day Tank 1	T-5004D	--	--	--	--	--	--	7.35E-05	--	--
Lube Oil Day Tank 2	T-5005D	--	--	--	--	--	--	7.35E-05	--	--
Lube Oil Day Tank 3	T-5006D	--	--	--	--	--	--	7.35E-05	--	--
Lube Oil Day Tank 4	T-5007D	--	--	--	--	--	--	7.35E-05	--	--
Standby Generator 1	ENG-1	0.74	1.48	2.12E-03	0.03	0.03	0.03	0.37	0.03	0.05
Standby Generator 2	ENG-2	1.33	2.67	3.02E-03	0.04	0.04	0.04	0.67	0.04	0.07
Fuel Gas Heater 1	HTR-1	0.02	0.01	2.20E-04	1.17E-03	1.17E-03	1.17E-03	8.50E-04	1.20E-05	2.90E-04
Fuel Gas Heater 2	HTR-2	0.02	0.01	2.21E-04	1.17E-03	1.17E-03	1.17E-03	8.50E-04	1.16E-05	2.91E-04
Truck Loading	LL-1	--	--	--	--	--	--	6.41E-03	--	--
New Truck Loading	LL-2	--	--	--	--	--	--	7.72E-03	--	--
Fugitives	FUG-1	--	--	--	--	--	--	0.18	--	--
New Fugitives	FUG-2	--	--	--	--	--	--	0.26	--	--
MSS-Station Blowdown	MSS-SB	--	--	--	--	--	--	0.19	--	--
New MSS-Station Blowdown	MSS-SB2	--	--	--	--	--	--	0.23	--	--
MSS-Compressor Blowdown	MSS-CB	--	--	--	--	--	--	10.79	--	--
New MSS-Compressor Blowdown	MSS-CB2	--	--	--	--	--	--	12.95	--	--
Pigging Equipment	PIG-1	--	--	--	--	--	--	4.19E-03	--	--
Total		124.86	249.68	0.58	4.17	4.17	4.17	111.63	9.42	17.43
PSD Major Stationary Source Thresholds^(a)		250	250	250	250	250	250	250	--	--
PSD Major Source?		NO	NO	NO	NO	NO	NO	NO	--	--
Title V Major Source Thresholds		100	100	100	100	100	100	100	10	25
Title V Major Source?		YES	YES	NO	NO	NO	NO	YES	NO	NO

^(a) Following the Project, the Facility is proposing Federally enforceable operating hours limitations on the C-1 and C-2 Compressors, ENG-1, and ENG-2 to limit Facility-wide emissions below major stationary source thresholds. The Facility will be a synthetic minor with respect to NSR and PSD, but will be considered a major source under the Title V Operating Permit program.

NextEra Energy Pipeline Holdings (Lowman), Inc. - Lowman Compressor Station
Tank Dimensions

	Condensate Tank		Lube Tanks		EG Tank		Day Tank 1		Day Tank 2	
Type	Atmospheric		Atmospheric		Atmospheric		Atmospheric		Atmospheric	
Volume	22	bbl	11.9	bbl	11.9	bbl	1.3	bbl	1.3	bbl
	924	gallons	500	gallons	500	gallons	55	gallons	55	gallons
	124	cft	67	cft	67	cft	7	cft	7	cft
Diameter	5	ft	5	ft	5	ft	2	ft	2	ft
Ht	6.3	ft	3.4	ft	3.4	ft	2.3	ft	2.3	ft
Throughput	6000	gallons/yr	10000	gallons/yr	200	gallons/yr	5000	gallons/yr	5000	gallons/yr

Routine Losses Report for TANKS 5.2

Storage Tank Emissions Calculation Application

Version 5.2

(released December 2025)

**U.S. Environmental Protection Agency
Office of Clean Air Programs
Natural Resources Division
Emissions Data and Assessment Branch
Research Triangle Park, NC 27711**

Report Contents

Accumulated Annual Routine Losses for All Tanks

3

For each tank and all tanks combined:

- Standing Losses
- Rim Seal Losses
- Deck Seam Losses
- Deck Fitting Losses
- Working Losses
- Total Routine Losses

For each tank:

- Tank Characteristics and Meteorological Location by Tank
- Tank Contents by Tank
- Tank Calculations by Tank
 - Fixed Roof Tanks
- Routine Losses by Tank

Accumulated Annual Routine Losses for All Tanks

Tank ID	Standing Losses	Working Losses	Total Losses
T-5001A	33.7129	17.3920	51.1049
T-5001B	33.7129	17.3920	51.1049
Total	67.4258	34.7839	102.2097

Tank Characteristics and Meteorological Location by Tank

Identification

Tank ID	T-5001A
Tank Type	Vertical Fixed Roof Tank
Tank Description	Lowman Compressor Station Condensate Tank A.
City	Montgomery
State	Alabama
Company	NextEra
Meteorological Location	Montgomery, AL

Tank Characteristics

Tank Shape	Cylinder
Shell Diameter (ft)	5
Maximum Liquid Height (ft)	5
Average Liquid Height (ft)	4
Tank Bottom Type	flat
Liquid Heel Type at Tank Minimum (ft)	none
Vapor Space Pressure at Normal Operating Conditions (psig)	0
Is Tank Insulated?	Not Insulated
Liquid Bulk Temperature Calculation Method	AP-42 Calculation

Shell Characteristics

Shell Color/Shade	White
Shell Condition	New

Roof Characteristics

Roof Color/Shade	White
Roof Condition	New
Roof Type	Cone
Tank Cone Roof Slope (ft/ft)	0.060

Breather Vent Settings

Vacuum Setting (psig)	-0.030
Pressure Setting (psig)	0.030

Control Device Settings

Is Tank Equipped with a Control Device?	No Control Device
---	-------------------

Tank Contents by Tank

Tank Contents Input Summary

Tank ID	T-5001A
Input Type	Annual
Chemical Category of Liquid	Petroleum Liquids
Sum of Increases in Liquid Level Method	AP-42 Calculation
Working Loss Turnover Factor Method	AP-42 Calculation

Annual Contents

Chemical Name	Throughput (gal/yr)
Midcontinent Crude Oil RVP 5	6006

Tank Calculations by Tank -- Fixed Roof**Tank ID: T-5001A****Annual Calculations****Chemical: Midcontinent Crude Oil RVP 5**

Annual Vapor Space Volume (cu ft)	46.1421
Annual Avg. Vented Vapor Saturation Factor	0.0546
Vapor Space Outage (ft)	2.3500
Avg. Liquid Height (ft)	4
Roof Outage (ft)	0.0500
Tank Cone Roof Slope (ft/ft)	0.0600
Shell Radius (ft)	2.5000
Annual Stock Vapor Density (lb/cu ft)	0.0022
Annual Avg. Vapor Molecular Weight (lb/lb-mole)	3.8462
Annual Avg. Vapor Pressure at Avg. Liquid Surface Temp. (psia)	0.2520
Annual Avg. Liquid Surface Temp. (°R)	40.4900
Annual Avg. Ambient Temp. (°R)	40.3823
Annual Avg. Liquid Bulk Temp. (°R)	525.6993
Tank Paint Solar Absorptance (Shell)	0.1700
Tank Paint Solar Absorptance (Roof)	0.1700
Annual Avg. Vapor Space Expansion Factor	0.0075
Annual Vapor Temp. Range (°R)	1.6890
Annual Vapor Pressure Range (psia)	0.0530
Breather Vent Pressure Setting Range (psia)	0.0600
Annual Avg. Vapor Pressure at Min Liquid Surface Temp. (psia)	0.2266
Annual Avg. Vapor Pressure at Max Liquid Surface Temp. (psia)	0.2796
Annual Avg. Min. Liquid Surface Temp. (°R)	40.0677
Annual Avg. Max. Liquid Surface Temp. (°R)	40.9122
Annual Avg. Ambient Temp. Range (°R)	1.6769
Annual Throughput (gal)	6006
Annual Turnovers	8.1773
Annual Sum of Increases in Liquid Level (ft/yr)	40.8864
Working Loss Turnover Factor	1
Working Loss Product Factor	0.7500

Routine Losses by Tank

Tank ID: T-5001A

Annual Routine Losses

Chemical	Standing Losses	Working Losses	Total Losses
Midcontinent Crude Oil RVP 5	33.7129	17.3920	51.1049

Tank Characteristics and Meteorological Location by Tank

Identification

Tank ID	T-5001B
Tank Type	Vertical Fixed Roof Tank
Tank Description	Lowman Compressor Station Condensate Tank B.
City	Montgomery
State	Alabama
Company	NextEra
Meteorological Location	Montgomery, AL

Tank Characteristics

Tank Shape	Cylinder
Shell Diameter (ft)	5
Maximum Liquid Height (ft)	5
Average Liquid Height (ft)	4
Tank Bottom Type	flat
Liquid Heel Type at Tank Minimum (ft)	none
Vapor Space Pressure at Normal Operating Conditions (psig)	0
Is Tank Insulated?	Not Insulated
Liquid Bulk Temperature Calculation Method	AP-42 Calculation

Shell Characteristics

Shell Color/Shade	White
Shell Condition	New

Roof Characteristics

Roof Color/Shade	White
Roof Condition	New
Roof Type	Cone
Tank Cone Roof Slope (ft/ft)	0.060

Breather Vent Settings

Vacuum Setting (psig)	-0.030
Pressure Setting (psig)	0.030

Control Device Settings

Is Tank Equipped with a Control Device?	No Control Device
---	-------------------

Tank Contents by Tank

Tank Contents Input Summary

Tank ID	T-5001B
Input Type	Annual
Chemical Category of Liquid	Petroleum Liquids
Sum of Increases in Liquid Level Method	AP-42 Calculation
Working Loss Turnover Factor Method	AP-42 Calculation

Annual Contents

Chemical Name	Throughput (gal/yr)
Midcontinent Crude Oil RVP 5	6006

Tank Calculations by Tank -- Fixed Roof

Tank ID: T-5001B

Annual Calculations

Chemical: Midcontinent Crude Oil RVP 5

Annual Vapor Space Volume (cu ft)	46.1421
Annual Avg. Vented Vapor Saturation Factor	0.0546
Vapor Space Outage (ft)	2.3500
Avg. Liquid Height (ft)	4
Roof Outage (ft)	0.0500
Tank Cone Roof Slope (ft/ft)	0.0600
Shell Radius (ft)	2.5000
Annual Stock Vapor Density (lb/cu ft)	0.0022
Annual Avg. Vapor Molecular Weight (lb/lb-mole)	3.8462
Annual Avg. Vapor Pressure at Avg. Liquid Surface Temp. (psia)	0.2520
Annual Avg. Liquid Surface Temp. (°R)	40.4900
Annual Avg. Ambient Temp. (°R)	40.3823
Annual Avg. Liquid Bulk Temp. (°R)	525.6993
Tank Paint Solar Absorptance (Shell)	0.1700
Tank Paint Solar Absorptance (Roof)	0.1700
Annual Avg. Vapor Space Expansion Factor	0.0075
Annual Vapor Temp. Range (°R)	1.6890
Annual Vapor Pressure Range (psia)	0.0530
Breather Vent Pressure Setting Range (psia)	0.0600
Annual Avg. Vapor Pressure at Min Liquid Surface Temp. (psia)	0.2266
Annual Avg. Vapor Pressure at Max Liquid Surface Temp. (psia)	0.2796
Annual Avg. Min. Liquid Surface Temp. (°R)	40.0677
Annual Avg. Max. Liquid Surface Temp. (°R)	40.9122
Annual Avg. Ambient Temp. Range (°R)	1.6769
Annual Throughput (gal)	6006
Annual Turnovers	8.1773
Annual Sum of Increases in Liquid Level (ft/yr)	40.8864
Working Loss Turnover Factor	1
Working Loss Product Factor	0.7500

Routine Losses by Tank

Tank ID: T-5001B

Annual Routine Losses

Chemical	Standing Losses	Working Losses	Total Losses
Midcontinent Crude Oil RVP 5	33.7129	17.3920	51.1049

5,500-HP COMPRESSORS (C-3 AND C-4) ENGINE SPEC SHEET

ENGINE SPEED (rpm):	1000	RATING STRATEGY:	GEN 2 ENGINE AND KIT - HIGH ALTITUDE - CCV
COMPRESSION RATIO:	7.6	APPLICATION:	GAS COMPRESSION
AFTERCOOLER TYPE:	SCAC	RATING LEVEL:	CONTINUOUS
AFTERCOOLER - STAGE 2 INLET (°F):	130	FUEL:	NAT GAS
AFTERCOOLER - STAGE 1 INLET (°F):	174	FUEL SYSTEM:	GAV
JACKET WATER OUTLET (°F):	190		WITH AIR FUEL RATIO CONTROL
ASPIRATION:	TA	FUEL PRESSURE RANGE(psia): (See note 1)	84.8-94.6
COOLING SYSTEM:	JW+1AC, OC+2AC	FUEL METHANE NUMBER:	85
CONTROL SYSTEM:	ADEM4	FUEL LHV (Btu/scf):	905
EXHAUST MANIFOLD:	DRY	ALTITUDE CAPABILITY AT 100°F INLET AIR TEMP. (ft):	5732
COMBUSTION:	LOW EMISSION		
NOx EMISSION LEVEL (g/bhp-hr NOx):	0.3		

RATING	NOTES	LOAD	100%	75%	50%
ENGINE POWER (WITHOUT FAN)	(2)	bhp	5500	4125	2750
ENGINE EFFICIENCY (ISO 3046/1)	(3)(4)	%	39.1	38.1	35.9
ENGINE EFFICIENCY (NOMINAL)	(3)(4)	%	38.2	37.2	35.0

ENGINE DATA						
FUEL CONSUMPTION (ISO 3046/1)	(5)	Btu/bhp-hr	6503	6681	7090	
FUEL CONSUMPTION (NOMINAL)	(5)	Btu/bhp-hr	6661	6844	7262	
AIR FLOW (77°F, 14.7 psia) (WET)	(6)(7)	ft ³ /min	13609	10266	6965	
AIR FLOW (WET)	(6)(7)	lb/hr	60342	45520	30884	
FUEL FLOW (60°F, 14.7 psia)		scfm	675	520	368	
COMPRESSOR OUT PRESSURE		psi(abs)	61.8	46.1	31.5	
COMPRESSOR OUT TEMPERATURE		°F	443	361	261	
AFTERCOOLER AIR OUT TEMPERATURE		°F	135	135	135	
INLET MAN. PRESSURE	(8)	psi(abs)	60.4	44.9	30.7	
INLET MAN. TEMPERATURE (MEASURED IN PLENUM)	(9)	°F	135	135	135	
TIMING	(10)	°BTDC	18	17	16	
EXHAUST TEMPERATURE - ENGINE OUTLET	(11)	°F	790	844	897	
EXHAUST GAS FLOW (@engine outlet temp, 14.5 psia) (WET)	(7)(12)	ft ³ /min	33810	26625	18837	
EXHAUST GAS MASS FLOW (WET)	(7)(12)	lb/hr	62192	46946	31892	

EMISSIONS DATA - EXHAUST OUT						
NOx (as NO ₂) (8760 hrs/yr)	(13)(14)	tons/yr	15.93	11.95	7.97	
CO (8760 hrs/yr)	(13)(15)	tons/yr	114.40	85.67	57.09	
NMHC (mol. wt. of 15.84) (8760 hrs/yr)	(13)(15)	tons/yr	12.79	10.62	7.61	
NMNEHC (VOCs) (mol. wt. of 15.84) (8760 hrs/yr)	(13)(15)(16)	tons/yr	8.60	7.14	5.12	
HCHO (Formaldehyde) (8760 hrs/yr)	(13)(15)	tons/yr	5.43	4.42	3.65	
CH ₄ (mol. wt. of 16.04) (NOMINAL)(8760 hrs/yr)	(13)(17)	tons/yr	107.24	89.07	63.82	
CO ₂ (NOMINAL)(8760 hrs/yr)	(13)(17)	tons/yr	20364	15919	11216	
EXHAUST OXYGEN (NOMINAL)	(13)(18)	% DRY	11.4	11.1	10.7	
LAMBDA	(13)(18)		2.06	2.02	1.93	

ENERGY BALANCE DATA						
LHV INPUT	(19)	Btu/min	610568	470498	332837	
HEAT REJECTION TO JACKET WATER (JW)	(20)(28)	Btu/min	55575	47645	42345	
HEAT REJECTION TO ATMOSPHERE	(21)	Btu/min	19751	17841	16213	
HEAT REJECTION TO LUBE OIL (OC)	(22)(29)	Btu/min	30768	28452	25159	
HEAT REJECTION TO EXHAUST (LHV TO 77°F)	(23)(24)	Btu/min	192211	156620	113611	
HEAT REJECTION TO EXHAUST (LHV TO 350°F)	(23)	Btu/min	120652	102554	77525	
HEAT REJECTION TO A/C - STAGE 1 (1AC)	(25)(28)	Btu/min	60356	31629	9998	
HEAT REJECTION TO A/C - STAGE 2 (2AC)	(26)(29)	Btu/min	15730	10440	5944	
PUMP POWER	(27)	Btu/min	2957	2957	2957	

CONDITIONS AND DEFINITIONS

Engine rating obtained and presented in accordance with ISO 3046/1. (Standard reference conditions of 77°F, 14.50 PSI barometric pressure.) No overload permitted at rating shown. Consult the altitude deration factor chart for applications that exceed the rated altitude or temperature.

Emission levels are at engine exhaust flange prior to any after treatment. Values are based on engine operating at steady state conditions, adjusted to the specified NOx level at 100% load. Tolerances specified are dependent upon fuel quality. Fuel methane number cannot vary more than ± 3 . Annual totals are based on 8760 operating hours per year.

For notes information consult page three.

FUEL USAGE GUIDE

METHANE NUMBER	<10	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	100
SET POINT TIMING	16	16	16	16	16	16	16	16	16	16	17	17	17	17	18	18	18	18
DERATION FACTOR	0	0.50	0.62	0.75	0.87	1	1	1	1	1	1	1	1	1	1	1	1	1

WOBBE INDEX(BTU/scfm)	700	850	1550	1870
DERATION FACTOR	0.7	1	1	0.82

ALTITUDE DERATION FACTORS AT RATED SPEED

INLET AIR TEMP °F	130	120	110	100	90	80	70	60	50	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
130	1	1	1	1	0.97	0.92	0.87	0.82	0.78	0.73	0.69	0.67	0.64	0.62								
120	1	1	1	1	1	0.97	0.92	0.88	0.83	0.78	0.73	0.69	0.66	0.63								
110	1	1	1	1	1	1	0.98	0.94	0.89	0.84	0.79	0.75	0.70	0.66								
100	1	1	1	1	1	1	1	0.99	0.94	0.88	0.83	0.78	0.72	0.68								
90	1	1	1	1	1	1	1	1	0.97	0.91	0.85	0.80	0.74	0.69								
80	1	1	1	1	1	1	1	1	0.98	0.93	0.87	0.81	0.75	0.70								
70	1	1	1	1	1	1	1	1	1	0.94	0.89	0.83	0.77	0.72								
60	1	1	1	1	1	1	1	1	1	0.96	0.90	0.85	0.79	0.74								
50	1	1	1	1	1	1	1	1	1	0.97	0.92	0.86	0.81	0.75								

ALTITUDE (FEET ABOVE SEA LEVEL)

AFTERCOOLER HEAT REJECTION FACTORS (ACHRF)

INLET AIR TEMP °F	130	120	110	100	90	80	70	60	50	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
130	1.27	1.31	1.35	1.39	1.43	1.48	1.52	1.56	1.56	1.56	1.56	1.56	1.56	1.56								
120	1.22	1.26	1.30	1.34	1.38	1.42	1.47	1.50	1.50	1.50	1.50	1.50	1.50	1.50								
110	1.16	1.20	1.24	1.28	1.32	1.36	1.41	1.44	1.44	1.44	1.44	1.44	1.44	1.44								
100	1.11	1.15	1.19	1.23	1.27	1.31	1.35	1.38	1.38	1.38	1.38	1.38	1.38	1.38								
90	1.05	1.09	1.13	1.17	1.21	1.25	1.29	1.32	1.32	1.32	1.32	1.32	1.32	1.32								
80	1	1.04	1.07	1.11	1.15	1.19	1.23	1.26	1.26	1.26	1.26	1.26	1.26	1.26								
70	1	1	1.02	1.05	1.09	1.13	1.17	1.20	1.20	1.20	1.20	1.20	1.20	1.20								
60	1	1	1	1	1.04	1.07	1.11	1.14	1.14	1.14	1.14	1.14	1.14	1.14								
50	1	1	1	1	1	1.02	1.05	1.08	1.08	1.08	1.08	1.08	1.08	1.08								

ALTITUDE (FEET ABOVE SEA LEVEL)

MINIMUM SPEED CAPABILITY AT THE RATED SPEED'S SITE TORQUE (RPM)

INLET AIR TEMP °F	130	120	110	100	90	80	70	60	50	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
130	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
120	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
110	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
100	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
90	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
80	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
70	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
60	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
50	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750

ALTITUDE (FEET ABOVE SEA LEVEL)

FUEL USAGE GUIDE:

This table shows the derate factor and full load set point timing required for a given fuel. Note that deration and set point timing adjustment may be required as the methane number decreases. Methane number is a scale to measure detonation characteristics of various fuels. The methane number of a fuel is determined by using the Caterpillar methane number calculation.

The Fuel Lower Heating Value (LHV) table shows the derate factor required for a given fuel. To determine the actual power available, use the lowest factor between the Fuel LHV table and the Methane Number table.

ALTITUDE DERATION FACTORS:

This table shows the deration required for various air inlet temperatures and altitudes. Use this information along with the fuel usage guide chart to help determine actual engine power for your site. The derate factors shown do not account for the external cooling system capacity. The derate factors provided assume the external cooling system can maintain the specified cooling water temperatures at site conditions.

ACTUAL ENGINE RATING:

To determine the actual rating of the engine at site conditions, one must consider separately, limitations due to fuel characteristics and air system limitations. The Fuel Usage Guide deration establishes fuel limitations. The Altitude/ Temperature deration factors and RPC (reference the Caterpillar Methane Program) establish air system limitations. RPC comes into play when the Altitude/Temperature deration is less than 1.0 (100%). Under this condition, add the two factors together. When the site conditions do not require an Altitude/Temperature derate (factor is 1.0), it is assumed the turbocharger has sufficient capability to overcome the low fuel relative power, and RPC is ignored. To determine the actual power available, take the lowest rating between 1) and 2).

- 1) Fuel Usage Guide Deration
- 2) $1 - ((1 - \text{Altitude / Temperature Deration}) + (1 - \text{RPC}))$

AFTERCOOLER HEAT REJECTION FACTORS(ACHRF):

To maintain a constant air inlet manifold temperature, as the inlet air temperature goes up, so must the heat rejection. As altitude increases, the turbocharger must work harder to overcome the lower atmospheric pressure. This increases the amount of heat that must be removed from the inlet air by the aftercooler. Use the aftercooler heat rejection factor (ACHRF) to adjust for inlet air temp and altitude conditions. See notes (28) and (29) for application of this factor in calculating the heat exchanger sizing criteria. Failure to properly account for these factors could result in detonation and cause the engine to shutdown or fail.

MINIMUM SPEED CAPABILITY AT THE RATED SPEED'S SITE TORQUE (RPM):

This table shows the minimum allowable engine turndown speed where the engine will maintain the Rated Speed's Torque for the given ambient conditions.

NOTES:

1. Fuel pressure range specified is to the engine gas shutoff valve (GSOV). Additional fuel train components should be considered in pressure and flow calculations.
2. Engine rating is with two engine driven water pumps. Tolerance is $\pm 3\%$ of full load.
3. Efficiency represents a Closed Crankcase Ventilation (CCV) system installed on the engine.
4. ISO 3046/1 engine efficiency tolerance is $(+0, -)5\%$ of full load % efficiency value. Nominal engine efficiency tolerance is $\pm 2.5\%$ of full load % efficiency value.
5. ISO 3046/1 fuel consumption tolerance is $(+5, -)0\%$ of full load data. Nominal fuel consumption tolerance is $\pm 2.5\%$ of full load data.
6. Air flow value is on a 'wet' basis. Flow is a nominal value with a tolerance of $\pm 5\%$.
7. Inlet and Exhaust Restrictions must not exceed A&I limits based on full load flow rates from the standard technical data sheet.
8. Inlet manifold pressure is a nominal value with a tolerance of $\pm 5\%$.
9. Inlet manifold temperature is a nominal value with a tolerance of $\pm 9^\circ\text{F}$.
10. Timing indicated is for use with the minimum fuel methane number specified. Consult the appropriate fuel usage guide for timing at other methane numbers.
11. Exhaust temperature is a nominal value with a tolerance of $(+63^\circ\text{F}, -)54^\circ\text{F}$.
12. Exhaust flow value is on a 'wet' basis. Flow is a nominal value with a tolerance of $\pm 6\%$.
13. Emissions data is at engine exhaust flange prior to any after treatment.
14. NOx values are the maximum values expected under steady state conditions.
15. CO, NMHC, NMNEHC, and HCHO are the maximum values expected under steady state conditions. NMHC, and NMNEHC do not include aldehydes. An oxidation catalyst may be required to meet Federal, State or local CO or HC requirements.
16. VOCs - Volatile organic compounds as defined in US EPA 40 CFR 60, subpart JJJJ
17. CO2 tolerance is $\pm 2.5\%$. CH4 tolerance is $\pm 26.0\%$. Fuel methane number cannot vary more than ± 3 .
18. Exhaust Oxygen tolerance is ± 0.5 ; Lambda tolerance is ± 0.05 . Lambda and Exhaust Oxygen level are the result of adjusting the engine to operate at the specified NOx level.
19. LHV rate tolerance is $\pm 2.5\%$.
20. Heat rejection to jacket water value displayed includes heat to jacket water alone. Value is based on treated water. Tolerance is $\pm 10\%$ of full load data.
21. Heat rejection to atmosphere based on treated water. Tolerance is $\pm 50\%$ of full load data.
22. Lube oil heat rate based on treated water. Tolerance is $\pm 20\%$ of full load data.
23. Exhaust heat rate based on treated water. Tolerance is $\pm 10\%$ of full load data.
24. Heat rejection to exhaust (LHV to 77°F) value shown includes unburned fuel and is not intended to be used for sizing or recovery calculations.
25. Heat rejection to A/C - Stage 1 based on treated water. Tolerance is $\pm 5\%$ of full load data.
26. Heat rejection to A/C - Stage 2 based on treated water. Tolerance is $\pm 5\%$ of full load data.
27. Pump power includes engine driven jacket water and aftercooler water pumps. Engine brake power includes effects of pump power.
28. Total Jacket Water Circuit heat rejection is calculated as: $(\text{JW} \times 1.1) + (1\text{AC} \times 1.05) + [0.91 \times (1\text{AC} + 2\text{AC}) \times (\text{ACHRF} - 1) \times 1.05]$. Heat exchanger sizing criterion is maximum circuit heat rejection at site conditions, with applied tolerances. A cooling system safety factor may be multiplied by the total circuit heat rejection to provide additional margin.
29. Total Second Stage Aftercooler Circuit heat rejection is calculated as: $(\text{OC} \times 1.2) + (2\text{AC} \times 1.05) + [(1\text{AC} + 2\text{AC}) \times 0.09 \times (\text{ACHRF} - 1) \times 1.05]$. Heat exchanger sizing criterion is maximum circuit heat rejection at site conditions, with applied tolerances. A cooling system safety factor may be multiplied by the total circuit heat rejection to provide additional margin.

FREE FIELD MECHANICAL & EXHAUST NOISE
MECHANICAL: Sound Power (1/3 Octave Frequencies)

Percent Load	Engine Power	Overall	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	600 Hz	630 Hz	800 Hz
%	bhp	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
100	5500	132.1	96.9	100.6	101.0	104.2	105.8	108.6	109.9	110.6	113.8	117.2
75	4125	128.7	90.2	97.7	98.1	100.8	103.3	107.4	107.7	108.5	111.6	114.3
50	2750	125.7	86.2	94.2	94.0	100.8	102.9	106.6	108.3	108.3	110.5	111.5

MECHANICAL: Sound Power (1/3 Octave Frequencies)

Percent Load	Engine Power	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz
%	bhp	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
100	5500	117.7	119.4	120.8	120.1	122.0	121.0	119.7	131.3	116.3	108.4	113.8
75	4125	114.4	117.1	119.2	118.4	120.2	118.8	120.6	118.7	112.2	114.8	107.8
50	2750	111.8	114.3	117.9	115.5	117.8	116.7	115.8	112.3	110.6	109.4	103.2

EXHAUST: Sound Power (1/3 Octave Frequencies)

Percent Load	Engine Power	Overall	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz
%	bhp	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
100	5500	144.8	107.2	113.7	115.7	115.1	115.3	121.9	124.5	122.8	122.7	129.3
75	4125	142.9	106.4	112.7	110.8	109.3	111.4	117.5	119.3	118.5	118.0	126.8
50	2750	139.7	105.7	109.3	104.5	103.9	106.7	111.7	113.7	113.3	114.1	124.2

EXHAUST: Sound Power (1/3 Octave Frequencies)

Percent Load	Engine Power	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz
%	bhp	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
100	5500	130.0	131.0	133.5	133.6	134.8	136.0	136.1	135.5	135.2	134.1	131.9
75	4125	127.1	128.7	130.7	131.8	133.0	134.1	134.9	134.1	133.5	131.5	128.8
50	2750	124.0	125.8	127.4	129.6	131.0	132.0	131.3	130.5	129.1	126.3	123.4

SOUND PARAMETER DEFINITION:
Sound Power Level Data

Sound power is defined as the total sound energy emanating from a source irrespective of direction or distance. Sound power level data is presented under two index headings:

Sound power level – Mechanical

Sound power level – Exhaust

Mechanical: Sound power level data is calculated in accordance with ISO 3747. The data is recorded with the exhaust sound source isolated.

Exhaust: Sound power level data is calculated in accordance with ISO 6798 Annex A. Exhaust data is post-catalyst on gas engine ratings labeled as "Integrated Catalyst".

Measurements made in accordance with ISO 3747 and ISO 6798 for mechanical and exhaust sound level only. Frequency bands outside the displayed ranges are not measured, due to physical test, and environmental conditions that affect the accuracy of the measurement. No cooling system noise is included unless specifically indicated. Sound level data is indicative of noise levels recorded on one engine sample in a survey grade 3 environment.

How an engine is packaged, installed and the site acoustical environment will affect the site specific sound levels. For site specific sound level guarantees, sound data collection needs to be done on-site or under similar conditions.

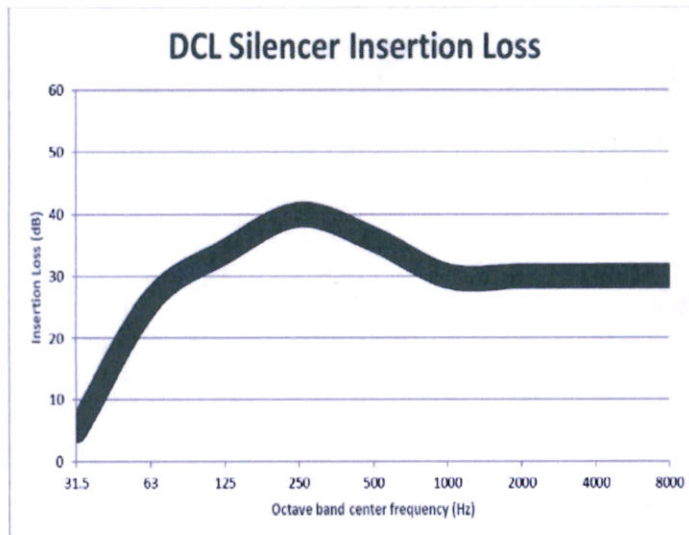
C-3 AND C-4 OXIDATION CATALYST SPEC SHEET

Exhaust System

- One (1) DCL ARC3W16-30/36HGS "Hospital" grade exhaust silencer with catalytic converter mounted vertically by base mount no more than 5ft from skid edge.
- Silencer foundation to be supplied by others. Insulation of silencer body to be completed by others at site.
- Exhaust tail piece piped up to an 8ft from silencer discharge.
- Piping between engine and silencer fabricated in 30" schedule 10, CS welded pipe, c/w two (2) flex connectors / expansion bellows and two (2) 2"-npt exhaust testing ports.
- Exterior exhaust piping to remain un-insulated.
- Piping systems designed and fabricated as per Bidell Standard ASME B31 / Non-Code Utility Piping Classes (ENG-STD-0005).
- *Silencer is offered as EXW Houston.

* This is in an effort to save the purchaser extra transport costs of shipping to fabrication facility unloading then reload and shipping to purchaser's site. Any connecting piping included in offer will be fabricated from as built drawings and sent to location with package-installation by others. This will involve some site completion of silencer ancillary items by purchaser such as mounting of tubing or wiring to pressure or temperature sensors and possibly some minor exhaust piping adjustments, units will be provided with a detailed list of items to be completed in the field.

Acoustics & Emissions



Catalytic Silencer (Table 1A)		
Application	Gas Compression	
Engine Model	CAT G3616	
Engine Mechanical Power	5500 hp	
Fuel	Natural Gas (PQNG)	
Exhaust Flowrate	64003 lb/h	
Exhaust Temperature	792 deg. F	
Catalytic Silencer Model	ARC3W16-30/36HGS	
Catalyst Model	2DC3W (48x15x3.7")	
Number of Elements	4 (capacity of 8)	
Coating Code	27 / 300 cpsi	
Housing Material	Carbon steel	
Silencer Material	Carbon steel	
Silencer Grade	Hospital Grade (30-42 dBA)	
Jacket Diameter (Approx.)	78 inches	
Overall Length (Approx.)	300 inches	
Inlet Connection	30 inches	
Outlet Connection	36 inches	
Flow Direction	Vertical	
Backpressure	6.0 inches H2O (with elements installed)	
Pre-Catalyst Emissions tons/yr	NOx	15.93
	CO	114.21
	NMNEHC	8.57
	CH2O	5.45
Post-Catalyst g/bhp-h <i>*with 4 elements installed</i>	NOx	0.30
	CO	0.15
	NMNEHC	0.04
	CH2O	0.03
Limited Warranty	(doc. X0000-0000-K1) one year or 8000 hours operation, whichever first	
Additional Notes		

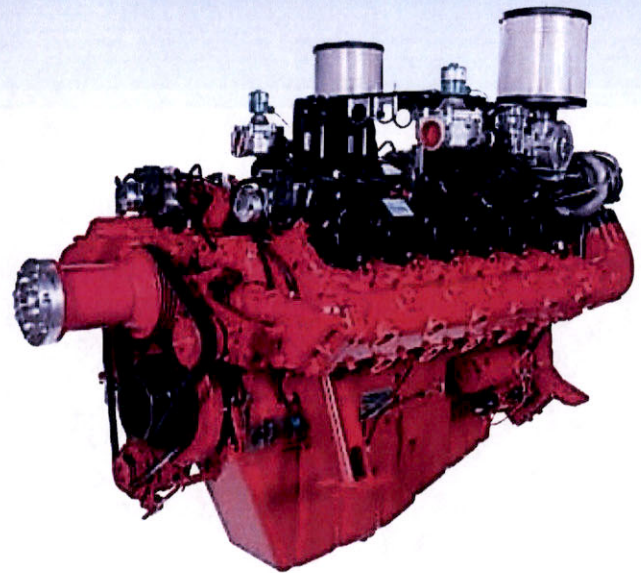
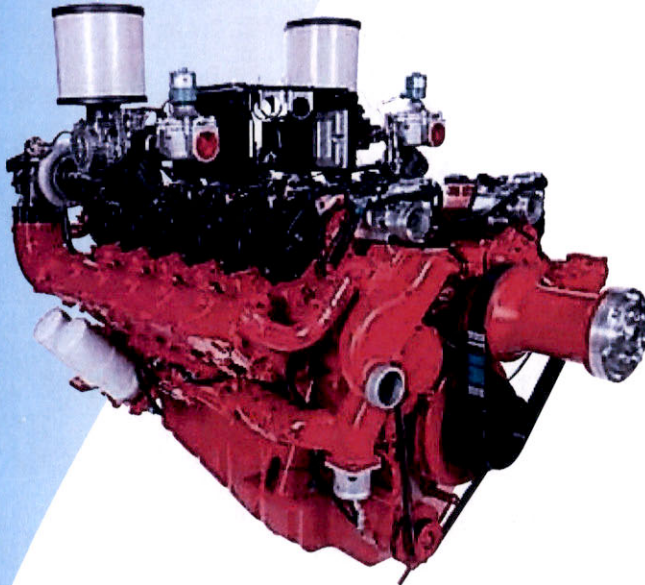
Air Intake System

- Two (2) Caterpillar standard OEM remote mount air intake filters, stands mounted at operator level on **either side of the silencer**.
- 20" schedule 10S, Grade 304L, SS (welded tubing), un-insulated piping downstream of filter box to engine air intake (CS material upstream of air filter inlet).
- Piping systems designed and fabricated as per Bidell Standard ASME B31 / Non-Code Utility Piping Classes (ENG-STD-0005).

Fuel Gas System

- 2"-150#RF (threaded) skid edge connection for 150 psig maximum dry clean customer supplied fuel gas c/w relief valve vented to flare header.

STANDYBY GENERATOR 2 (ENG-2) SPEC SHEET



FEATURES / OPTIONS

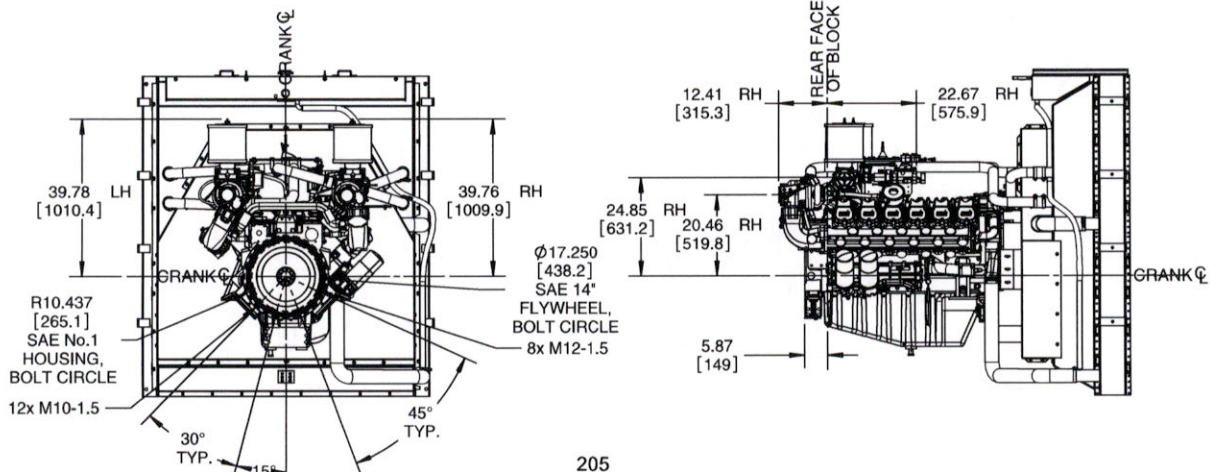
- US -EPA Certified and CARB Compliant
- Power: 455kWm Standby on NG
- Integrated Engine Controls Protection with CANBUS
- 50c Ambient Cooling Capacity
- UL2200 Compliant or Listed Components
- MasterTrak Telematics service (included for 1 year)

DESCRIPTION

The NGE 21.9L is a US-EPA CERTIFIED Natural Gas and Propane engine. Built upon a proven marine-diesel grade block, the 12-Cylinder V, turbocharged and after-cooled engine features replaceable wet liners and watercooled exhaust. The engine was developed from the block-up to be a reliable and durable power unit.

Superior engine performance is provided by an ECU that integrates and coordinates all critical functions including: Governor, Variable Ignition Timing, Air:Fuel Ratio Control, Knock Suppression and Engine Protection.

NGEngines is an extension of the Power Solutions, Inc. (PSI) product line which is based upon GM blocks from 650cc to 8.1L. The NGE product lineup has 5 models with displacements of 8.1L, 11.1L, 14.6L, 18.3L and 21.9L. All PSI/NGE engines feature the same fuel systems and controls simplifying your application development and support.





21.9L

		UNITS		21.9L CAC		
		STD	METRIC	1500		1800
GENERAL ENGINE MOUNTING						
Type	N/A		V-type 4 cycle			
Number of cylinders	N/A		12			
Aspiration	N/A		Turbo Charge Air Cooled			
Bore	in	mm	5.04	128	5.04	128
Stroke	in	mm	5.59	142	5.59	142
Displacement	in^3	L	1338	21.93	1338	21.93
Compression Ratio	N/A		10.5			
Mean Piston Speed	ft/min	m/s	1398	7.10	1677	8.52
Rated Load	Hp	kW	516	385	605	451
MEP (@ rated Load)	psi	kPa	204	14	199	14
Rotation Viewed from Flywheel	N/A		Counter Clockwise			
Firing Order	N/A		1-12-5-8-3-10-6-7-2-11-4-9			
DRY WEIGHT						
Fan to Flywheel	lb	kg	3638	1650	3638	1650
Rad to Flywheel	lb	kg	5238	2376	5238	2376
WET WEIGHT						
Fan to Flywheel	lb	kg	3813	1706	3813	1706
Rad to Flywheel	lb	kg	5884	2688	5884	2688
CG						
Distance from FW housing	in	mm	7.17	182	7.17	182
Distance above center of crankshaft	in	mm	23.71	602.2	23.71	602.2
ENGINE MOUNTING						
Maximum Allowable Bending Moment at Rear of Block	lb ft	N m	0	0	0	0
Moment of Inertia About Roll Axis	lb ft^2	kg m^2	0	0	0	0
Flywheel housing	N/A		SAE No. 1			
Flywheel	N/A		No. 14			
EXHAUST SYSTEM						
Type						
Maximum allowable Back pressure	in HG	kPa	3	10.2	3	10.2
Standard Catalyst Back pressure	in HG	kPa	1.5	5.1	1.5	5.1
Exhaust Outlet Pipe Size						
Maximum Turbine Inlet Temperature	F	C	1382	750	1382	750
Exhaust Flow at Rated Power	lb/hr	kg/hr	3191	1448	3939	1787
Exhaust Flow at Rated Power @1350F	cfm	m^3/min	2427	68.7	2995	84.8
AIR INDUCTION SYSTEM						
Maximum allowable Intake Air Restriction with Air Cleaner						
Clean	inH2O	kPa	5	1.24	5	1.24
Dirty	inH2O	kPa	15	3.74	15	3.74
Combustion Air required	lb/hr	kg/hr	3004	1362	3707	1682
Combustion Air required	cfm	m^3/min	681	19.9	841	24.6
ELECTRICAL SYSTEM						
Minimum Recommended Battery Capacity	AH			200		
Cold Cranking Current						
Engine only	CCA			1000		
Engine with Drive train	CCA			1000		
Maximum Allowable Resistance of Starting Circuit	Ohms			0.002		
Starting Motor Power	HP	kW	9.4	7	9.4	7
Battery Charging Alternator						
Voltage	Volts			24		
Current	Amps			45		

	UNITS		21.9L CAC			
	STD	METRIC	1500	1800		
COOLING SYSTEM						
Coolant Capacity						
Engine only	gal	L	11.5	52.3	11.5	52.3
Engine with Radiator	gal	L	64	291	64	291
Engine Coolant Flow	gal/min	L/min	145	550	174	660
Water Pump Speed	RPM		0	0	0	0
Heat rejected to Cooling water at rated Load	btu/min	kcal/sec	21451	90.1	25760	108.2
Maximum Intake Air Temperature (IAT)	F	C	155	68	155	68
ECU IAT Warning	F	C	0	0	0	0
ECU IAT Shutdown	F	C	0	0	0	0
Maximum Coolant Friction Head External to the engine	psi	bar	5.8	0.4	5.8	0.4
Maximum Air Restriction Across a Radiator	inH2O	mmH2O	0.5	12.8	0.5	12.8
Standard Thermostat Range						
Cracking Temperature	F	C	160	71	160	71
Full Open Temperature	F	C	185	85	185	85
Maximum Output Pressure of Engine Water Pump						
Maximum Allowable Pressure Cap	psi	bar	14.7	1	14.7	1
Ambient Clearance Open Genset (water)						
Specified	F	C	122	50	122	50
Ambient Clearance (Oil)						
Specified	F	C	122	50	122	50
Maximum Allowable Top Tank Temperature	F	C	230	110	230	110
ECU Warning	F	C	220	104	220	104
ECU Shutdown	F	C	230	110	230	110
Fan Power	HP	kW	24	17.9	42	31.3
Fan Diameter, including blades	in	mm	52	1321	52	1321
Fan Speed	RPM		1200		1440	
Cooling Fan Air Flow @ 1" H2O Stat. Press and 125F @ Rad Charge Air Cooler	CFM	m^3/min	34286	970.8	40000	1132.6
Compressor Outlet Temperature	F	C	245.6	120	302.6	152.0
Compressor Flow Rate	CFM	m^3/min	0	0	1254	35.5
LUBRICATION SYSTEM						
Oil Specification	SAE 15W-40 Low Ash Gas engine oil (.25-.5% by wt), API CD/CF or higher					
Oil Pressure						
Idle						
Min	Psi	Bar	13	0.9	13	0.9
Max	Psi	Bar	43.5	3	43.5	3
Rated Speed						
Min	Psi	Bar	43.5	3	43.5	3
Max	Psi	Bar	94.5	6.5	94.5	6.5
Maximum Allowable Oil Temperature	F	C	230	110	230	110
Engine Oil Capacity						
Min	Qts	L	34.75	33	34.75	33
Max	Qts	L	42.25	40.0	42.25	40.0
Oil Filter Capacity	Qts	L	7.5	7.1	7.5	7.1
FUEL SYSTEM						
Low Pressure Dry Processed Natural Gas (Spec)						
Fuel Composition						
Maximum EPR Rated Pressure	psi	kPa	1	6.89	1	6.89
Maximum Running pressure to Electronic Pressure Regulator (EPR)	inH2O	kPa	11	2.74	11	2.74
Minimum Running pressure to EPR	inH2O	kPa	7	1.74	7	1.74
Minimum Gas Supply Pipe Size			2 x 2" NPT			
Low Pressure Vapor Propane (HD5)						
Fuel Composition						
Maximum EPR Rated Pressure	psi	kPa	1	6.89	1	6.89
Maximum Running Pressure to EPR	inH2O	kPa	11	2.74	11	2.74
Minimum Running Pressure to EPR	inH2O	kPa	7	1.74	7	1.74
Minimum LPG Supply Pipe Size			2 x 2" NPT			

206 The preceding pipe sizes are only suggestions and piping sizes may vary with temperature, pressure, distance from supply and application of local codes. Gas must be available at adequate volume and pressure for engine at the EPR.

BALDOR GENERATORS

IGLC420-2N

Gaseous Fuel

Ratings Range – 60 Hertz Operation

Liquid Propane: kW 175 - 259
kVA 175 - 324

Natural Gas: kW 175 - 396
kVA 175 - 495

Baldor generators are available in a variety of power ratings and installation styles to meet the energy needs of the smallest businesses and the largest manufacturing facilities. All generator sets are designed to meet the specifications to ensure the fastest startup and dependable long-term operation. Rely on Baldor generators to provide the clean, quiet and environmentally friendly electrical power when you need it most. Emergency backup, standby, peak shaving or for any of your day or night electrical power needs, you can count on a dependable Baldor generator to provide the peace of mind and security you desire.

Standby Power Features

- ✓ Heavy-duty industrial gaseous fuel engine that meets the latest EPA emissions levels
- ✓ Brushless synchronous alternators with dynamic balancing and four pole construction
- ✓ Fully featured microprocessor based controller that's easy to use and field programmable for customized installations
- ✓ Generator sets are prototype tested and production tested to ensure easy startup
- ✓ Gen-set accepts rated load in one step
- ✓ Heavy duty construction that's designed for use in standby applications
- ✓ Manufactured in a dedicated and secure ISO-9001 certified facility
- ✓ Generator sets are backed by a world wide network of parts and service centers
- ✓ Optional agency approvals available including UL2200 and NFPA110
- ✓ Optional environmental enclosures available including weather resistant, sound attenuated, containerized, and walk-in models
- ✓ Full range of genset accessories and factory installed options available

Genset Ratings

Genset Model Number	Alternator	Voltage L-L / L-N	Phase	Hertz	150°C Rise Alternator Standby Rating – LP Fuel		150°C Rise Alternator Standby Rating – Natural Gas		125°C Rise Alternator Prime Rating – Natural Gas	
					kW / kVA	Amps	kW / kVA	Amps	kW / kVA	Amps
IGLC420-2N	UCDI274K-311	208 / 120	3	60	200 / 250	695	243 / 304	844	233 / 291	809
		220 / 127	3	60	250 / 313	821	250 / 313	821	239 / 299	785
		240 / 120 (1)	3	60	200 / 250	602	243 / 304	732	233 / 291	701
		240 / 120 (1)	1	60	175 / 175	729	175 / 175	729	175 / 175	729
		240 / 139	3	60	257 / 321	774	265 / 331	798	250 / 313	753
		380 / 220	3	60	215 / 269	409	215 / 269	409	206 / 258	392
		416 / 240	3	60	200 / 250	347	243 / 304	422	233 / 291	405
		440 / 254	3	60	250 / 313	411	250 / 313	411	239 / 299	392
		480 / 277	3	60	257 / 321	387	265 / 331	399	250 / 313	376
	UCDI274J-17	600 / 347	3	60	256 / 320	308	262 / 328	316	244 / 305	294
	HCI434F-311	208 / 120	3	60	257 / 321	893	388 / 485	1348	356 / 445	1237
		220 / 127	3	60	257 / 321	844	392 / 490	1287	356 / 445	1169
		240 / 120 (1)	3	60	257 / 321	774	388 / 485	1168	356 / 445	1072
		240 / 120 (1)	1	60	230 / 230	958	230 / 230	958	230 / 230	958
		240 / 139	3	60	258 / 323	777	394 / 493	1186	358 / 448	1078
		380 / 220	3	60	252 / 315	479	344 / 430	654	355 / 444	675
		416 / 240	3	60	257 / 321	446	388 / 485	674	356 / 445	618
		440 / 254	3	60	257 / 321	422	392 / 490	644	356 / 445	585
		480 / 277	3	60	258 / 323	388	394 / 493	593	357 / 446	537
	HCI434F-17	600 / 347	3	60	259 / 324	312	396 / 495	477	358 / 448	431
	HCI534C-311	208 / 120	3	60	259 / 324	900	395 / 494	1372	358 / 448	1244
		220 / 127	3	60	259 / 324	851	396 / 495	1301	358 / 448	1176
		240 / 120 (1)	3	60	259 / 324	780	395 / 494	1189	358 / 448	1078
		240 / 139	3	60	259 / 324	780	396 / 495	1192	359 / 449	1081
		380 / 220	3	60	257 / 321	489	392 / 490	745	357 / 446	679
		416 / 240	3	60	259 / 324	450	395 / 494	686	358 / 448	622
		440 / 254	3	60	259 / 324	425	396 / 495	650	358 / 448	588
		480 / 277	3	60	259 / 324	390	396 / 495	596	359 / 449	540

NOTES: (1) Alternator connections have two circuits available for low voltage. Available current in each low voltage circuit is equal to high voltage current listed in table. For ratings and voltages not listed above refer to the Genset Selector. Standby ratings do not have an overload capability but can be used for the duration of the utility failure per ISO-3046, DIN6271 and BS5514. Baldor reserves the right to implement specifications or design change without notice.

Engine Application Data

Engine Specifications

Manufacturer	NG Engine
Engine Model #	D219TIC
Engine Type	4 Cycle, 12 Cylinder
Induction System	Turbocharged/ Charge Air Cooled
Displacement, L (in ³)	21.93 (1338)
EPA Emissions Certification	40 CFR Part 60 & 1048
HP at Rated Speed BHP (kW _m) NG	605 (451)
HP at Rated Speed BHP (kW _m) Propane	405 (302)
Rated RPM	1800
Bore and Stroke in (mm)	5.04x5.59 (128x142)
Compression Ratio	10.5:1
Air Filter Type	Dry
Governor Type / Model	Electronic
Governor Manufacturer	EControls
Freq Reg NL to FL	Isochronous
Freq Reg Steady State	+/-0.5%

Engine Lubrication System

Oil Pan Capacity gal (L)	10.6 (40.0)
Oil Capacity w/Filter gal (L)	12.5 (47.1)
Oil Filter Quantity	2
Oil Filter Type	Cartridge
Oil Cooler	Water Cooled
Recommended Oil	15W-40 Low Ash
Oil Press psi (kPa)	20.3 (140)

Engine Cooling System

Genset Max Ambient Temp °F (°C)	122 (50)
Engine Coolant Cap qt (L)	46 (52.3)
Engine + Radiator System Cap qt (L)	256 (291.0)
Water Pump Type	Centrifugal
Coolant Flow gpm (Lpm)	174 (660)
Charge Air Cooler Flow cfm (cmm)	1254 (35.5)
Heat Rejected to Charge Air Cooler @ Rated kW; Btu/min (kW)	3040 (53.5)
Heat Rejected to Radiator @ Rated kW; Btu/min(kW)	25760 (453.0)
Max Restriction of Cooling Air in H ₂ O (kPa)	0.5 (0.124)

Engine Exhaust System

Exhaust Manifold Type	Wet
Exhaust Flow @ Rated kW cfm (cmm)	2995 (84.8)
Exhaust Temp (dry manifold) °F (°C)	1382 (750)
Min Back Pressure in H ₂ O (kPa)	0 (0)
Max Back Pressure in H ₂ O (kPa)	20.4 (5.1)
Exhaust Outlet Diameter in (mm)	3.5 (88.9)
Exhaust Outlet Type	Flange
Exhaust Catalyst	Included

Engine Electrical System

Charging Alternator Volts dc	24
Charging Alternator Amps	45
Grounding Polarity	Negative
Starter Motor Volts dc	24
Battery Recommendations	
Battery Volts dc	24
Min Cold Cranking Amps	900
Quantity Required	2

Ventilation Requirements

Cooling Airflow, scfm (cmm)	40000 (1133)
Combustion Airflow, cfm (cmm)	841 (23.8)
Heat Rejected to Ambient	
From Engine, Btu/min (kW)	3583 (63)
From Alternator, Btu/min (kW)	1672 (29.4)
Recommended Free Area Intake	
Louver Size, ft ² (m ²)	82.0 (7.62)

Engine Fuel System

Recommended Fuel	
Natural Gas min HHV (Btu/ft ³)	1015
Propane Vapor min HHV (Btu/ft ³)	2650
Fuel Supply Pressure in-H ₂ O (kPa)	7-11 (1.7-2.7)
Fuel Line At Engine	
Supply Line, npt	3

Propane Fuel Consumption - Standby Rating

100% Load cfph (m ³ ph)	1410 (39.9)
75% Load cfph (m ³ ph)	1200 (34.0)
50% Load cfph (m ³ ph)	810 (22.9)
25% Load cfph (m ³ ph)	512 (14.5)

NG Fuel Consumption - Standby Rating

100% Load cfph (m ³ ph)	4230 (119.8)
75% Load cfph (m ³ ph)	3297 (93.4)
50% Load cfph (m ³ ph)	2314 (65.5)
25% Load cfph (m ³ ph)	1410 (39.9)

NG Fuel Consumption - Standby Rating

100% Load cfph (m ³ ph)	3849 (109.0)
75% Load cfph (m ³ ph)	3000 (85.0)
50% Load cfph (m ³ ph)	2106 (59.6)
25% Load cfph (m ³ ph)	1283 (36.3)

Engine Output Deratings - Standby

Rated Temp	77°F
Rated Altitude	325 ft
Max Altitude	10,000 ft
Temperature Derate	-1% / 8° F
Altitude Derate	-3% / 1000 ft

Alternator Specifications

Alternator Type	4-Pole, Rotating Field	Automatic Voltage Regulator	
Exciter Type	Brushless	PMG	MX341, MX321
Excitation System		Voltage Regulation	No Load to Full Load
PMG	Standard	Std Regulator	N/A
Insulation	per NEMA MG1	PMG Regulator	+/- 1%, +/- 0.5%
Material	Class H	Load Acceptance	100% of Rating, One Step
Standby Temp Rise	150°C		
Lead Connection	12 Lead, Reconnectable	Subtransient Reactance	
Stator Pitch	2/3	480V, Per Unit	11%
Amortisseur Winding	Full	TIF (1960 Weighting)	<50
Bearing	Single, Double Shielded	Line Harmonics	5% Maximum
Drive Coupling	Flexible Disk	Motor Starting kVA	30% Max Voltage Dip
Unbalanced Load	20% of Standby Rating	Alt @ 480V SkVA	UCDI274K-311 830 kVA
		Alt @ 480V SkVA	HCI534C-311 1480 kVA

Genset Controller Specifications

Baldor IntelliLite NT Features

Large back-lit graphical LCD Display

64x128 pixel resolution

6 LED Genset Status Indicators

Alarm	Red LED
Not In Auto	Red LED
Warning	Yellow LED
Running	Green LED
Ready / Auto	Green LED
Supplying Load	Green LED

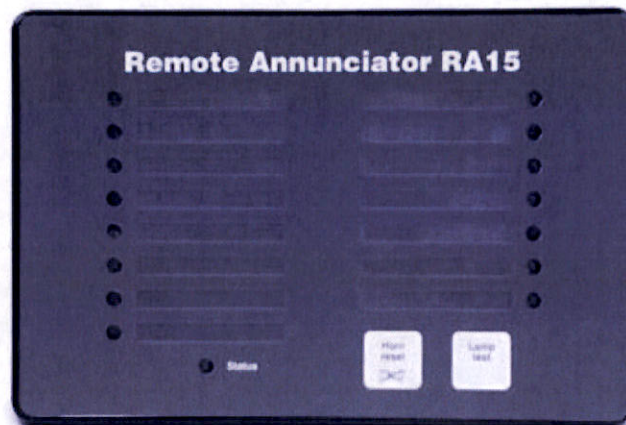
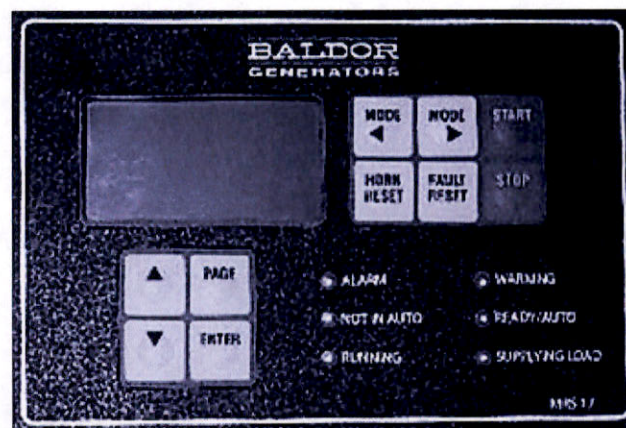
Sealed Membrane Panel to IP65

Push Buttons for Simple Control

Start, Stop, Fault Reset, Horn Reset, Mode, Page, and Enter Keys

Display Metering and Protection

Oil Pressure Warning / Shutdown
 High / Low Coolant Temperature Warning
 High Coolant Temperature Shutdown
 Low Coolant Level Shutdown
 Over Speed Protection
 Battery Voltage Over / Under Warning
 Running Hour Meter
 Generator Under / Over Volts Warn / Shutdown
 Generator Under / Over Freq Warn / Shutdown
 Generator Over Current Shutdown
 Generator Output Metering for V1-V3, I1-I3,
 Hz, kW, kWh, kVAh, kVARh



Additional Standard Genset Features

- ✓ Structural Steel Sub-Base
- ✓ Sub-Base Lifting Eyes
- ✓ Unit Mounted Radiator
- ✓ Engine Mounted Fan
- ✓ Radiator Fan Guard
- ✓ Battery Charging Alternator
- ✓ Battery Rack and Cables
- ✓ Unit Mounted Control Panel
- ✓ Spin-On Oil Filter
- ✓ Enamel Finish
- ✓ One Set - Operation / Maintenance Manual
- ✓ Factory Tested Prior to Shipment
- ✓ Limited Warranty

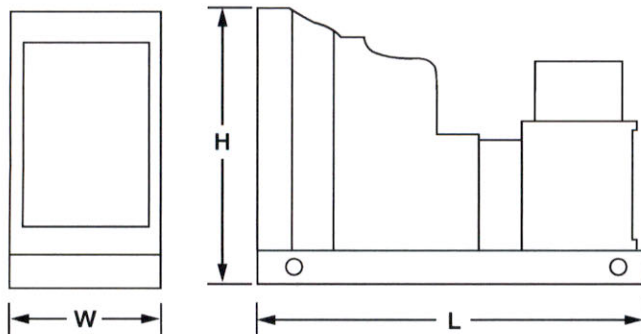
Optional Agency Approvals

- ☐ UL2200 (Review Option Availability)
- ☐ NFPA110 (Request Remote Annunciator)

Weight and Dimensions (Open Unit)

Weight – Wet lb (kg)	9960 (4518)
Overall Dimensions	Length x Width x Height
inches	162 x 84 x 97
mm	4114 x 2133 x 2463

Note: Drawing is provided for reference only.
Use engineering outline for installation planning.



Available Accessories and Options

Open Unit

- ☐ Industrial Silencer
- ☐ Critical Silencer
- ☐ Exhaust Flex Pipe
- ☐ Radiator Duct Flange
- ☐ Residential Silencer
- ☐ Hospital Grade Silencer
- ☐ Rain Cap

Enclosed Units

- ☐ Weather Resistant Enclosure
- ☐ Sound Attenuated w/Internal Critical Silencer
- ☐ ISO Container
- ☐ Walk-In Enclosure

Alternator Accessories

- ☐ AVR Upgrade
- ☐ Alternator Space Heater
- ☐ Exciter Field Circuit Breaker
- ☐ Alternator Drip Shield

Genset Accessories

- ☐ Voltage Adjust Potentiometer
- ☐ Starting Battery
- Battery Charger ☐ Auto/Float
- Auto/ Float Equalize Timer ☐ Manual ☐ Automatic
- ☐ Battery Heater
- ☐ Engine Coolant Heater
- ☐ Oil & Coolant Drain Valves (Engine/Radiator)
- ☐ Oil & Coolant Drain Extended to Base

Main Output Breaker

- ☐ Wall Mount
- ☐ Unit Mount

Transfer Switch

- ☐ Manual
- ☐ Automatic

Control Panel

- ☐ Remote Annunciator
- ☐ Remote Communications
- ☐ Remote E-Stop

Fuel System

- ☐ Fuel Strainer
- ☐ Dual Fuel Automatic Changeover

Vibration Isolators

- ☐ Elastomer Isolator
- ☐ Standard Spring
- ☐ Seismic Spring

BALDOR
GENERATORS
WORLD HEADQUARTERS

Baldor Electric Company • P. O. Box 2400 • Fort Smith, AR 72902-2400 U.S.A.
Phone (479) 646-4711 • Fax (479) 648-5792 • International Fax (479) 648-5895

www.baldor.com



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
2024 MODEL YEAR
CERTIFICATE OF CONFORMITY
WITH THE CLEAN AIR ACT

OFFICE OF TRANSPORTATION
AND AIR QUALITY
ANN ARBOR, MICHIGAN 48105

Certificate Issued To: Power Solutions International, Inc.
(U.S. Manufacturer or Importer)

Certificate Number: RPSIB21.9NGP-023

Effective Date:
05/12/2023

Expiration Date:
12/31/2024

Byron J. Bunker, Division Director
Compliance Division

Issue Date:
05/12/2023

Revision Date:
N/A

Manufacturer: Power Solutions International, Inc.

Engine Family: RPSIB21.9NGP

Mobile/Stationary Certification Type: Mobile and Stationary

Fuel : Natural Gas (CNG/LNG)
LPG/Propane

Emission Standards :

Part 60 Subpart JJJJ Table 1

NOx (g/Hp-hr) : 1.0

VOC (g/Hp-hr) : 0.7

CO (g/Hp-hr) : 2.0

Mobile Part 1048

NMHC + NOx (g/kW-hr) : 2.7

HC + NOx (g/kW-hr) : 2.7

CO (g/kW-hr) : 4.4

Stationary Part 1048

CO (g/kW-hr) : 4.4

NMHC + NOx (g/kW-hr) : 2.7

HC + NOx (g/kW-hr) : 2.7

Emergency Use Only : N

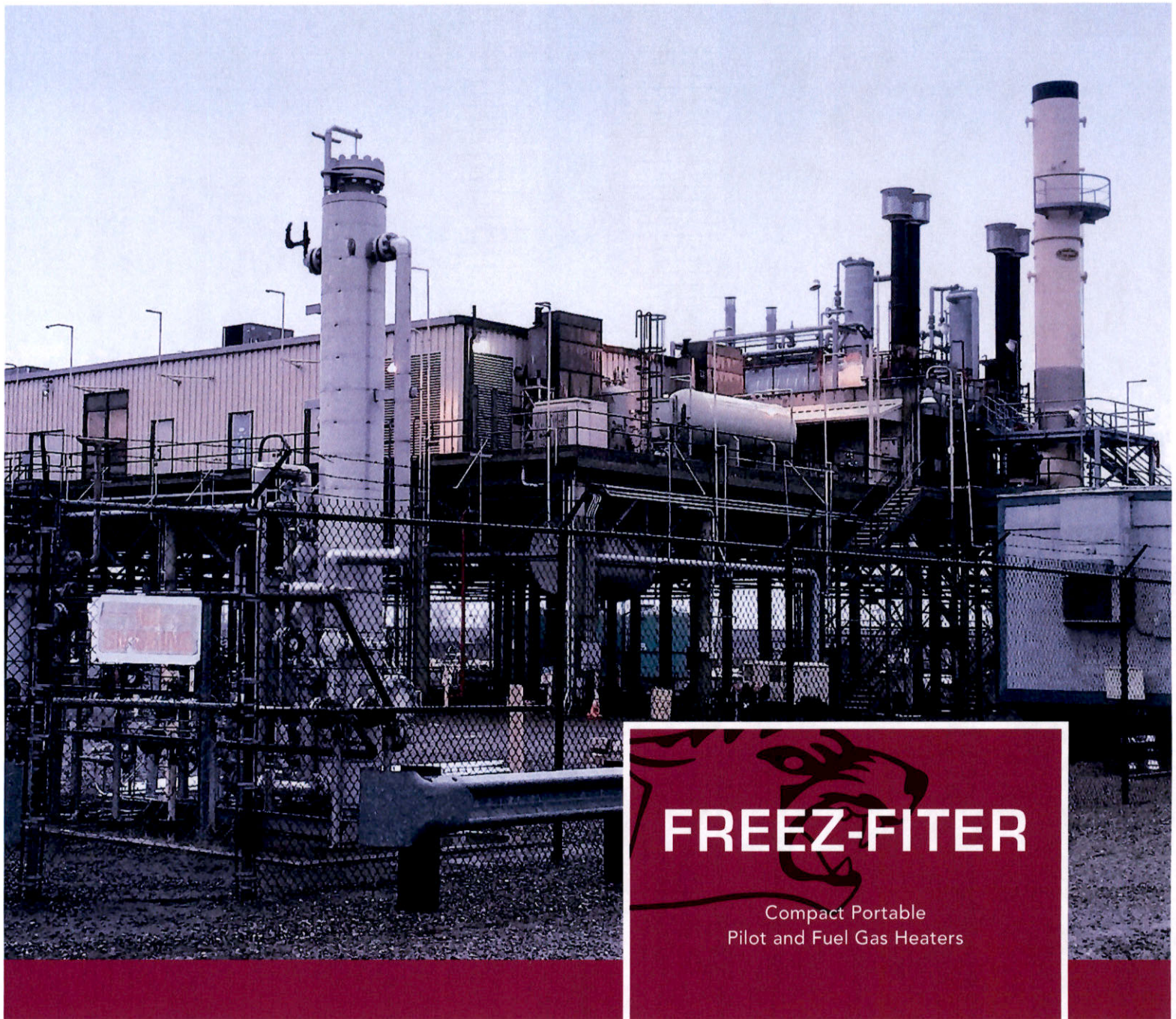
Pursuant to Section 213 of the Clean Air Act (42 U.S.C. section 7547) and 40 CFR Part 60, 40 CFR Part 1048, 1065, 1068, and 60 (stationary only and combined stationary and mobile) and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following nonroad engines, by engine family, more fully described in the documentation required by 40 CFR Part 60, 40 CFR Part 1048 and produced in the stated model year.

This certificate of conformity covers only those new nonroad spark-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 60, 40 CFR Part 1048 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 60, 40 CFR Part 1048. This certificate of conformity does not cover nonroad engines imported prior to the effective date of the certificate.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 1068.20 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 60, 40 CFR Part 1048. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void *ab initio* for other reasons specified in 40 CFR Part 60, 40 CFR Part 1048.

This certificate does not cover large nonroad engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

FUEL GAS HEATER 2 (HTR-2) SPEC SHEET



FREEZ-FITER

Compact Portable
Pilot and Fuel Gas Heaters

 **BRUEST**
CATALYTIC HEATERS

www.bruestcatalyticheaters.com



TECHNOLOGY OVERVIEW

Bruest Catalytic Freez-Fiter Fuel Gas Heaters were designed to heat low to medium volume of gas with either one or two catalytic heaters to heat a serpentine process gas coil. The Freez-Fiter family of heaters is offered with high pressure regulators to reduce the inlet gas pressure to the fuel gas train, an integral filter to remove contaminants, and temperature controllers to adjust the temperature of the process gas. Bruest's Freez-Fiter family of fuel gas heaters are great alternatives to larger fuel gas systems.

SPECIFICATIONS

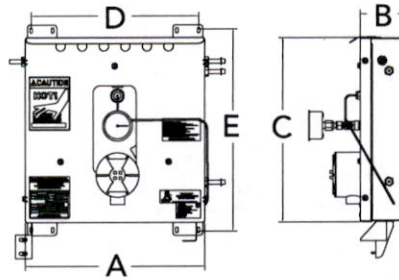
The Freez-Fiter family of heaters operates on the same principle as all of Bruest's Catalytic Heaters. An electric source is required to warm up the catalytic pad. Once the pads are warmed up, which should take between 15 to 20 minutes, the electric supply can be removed and the gas supply takes over. After the gas is introduced, the catalytic reaction will supply the necessary heat to continue the process.

Model	S1800	S4000	S6000	S8000	S12000	S16000
BTUH	2,500	5,000	12,000	24,000	36,000	48,000
Heater Size	R8	R12	6X24	12X24	12X36	12X48
Qty of Heater	1	1	2	2	2	2
Coil Size	3/8" Tubing	3/8" Tubing	1/2" Tubing	1/2" Tubing	3/4" Tubing	3/4" Tubing
# of Coils	1 or 2	1 or 2	1	1	1	1
MAOP (PSIG)	3000	3000	3000, 4300, 5200	3000, 4300, 5200	3000, 4300, 5200	3000, 4300, 5200
Starting Voltage	12DC/120AC	12DC/120AC	12DC, 120, 240AC	12DC, 120, 240AC	12DC, 120, 240AC	AC Only, 120, 240
Low Pressure Regulator (up to 50 PSIG Inlet)	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD
Filter	STANDARD Inline	STANDARD Inline	STANDARD	STANDARD	STANDARD	STANDARD
Fuel Input Gauge	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD
Temperature Controller	OPTIONAL	OPTIONAL	STANDARD	STANDARD	STANDARD	STANDARD
High Pressure Regulator	OPTIONAL	OPTIONAL	STANDARD	STANDARD	STANDARD	STANDARD
Power Cable Options (Feet)	16, 20, 25	16, 20, 25	16, 20, 25	16, 20, 25	16, 20, 25	16, 20, 25
Heater Panel Classification Available	General, Class 1, Div 1 or Div 2, Gr. D	General, Class 1, Div 1 or Div 2, Gr. D	Class I, Div 1, Gr. D	Class I, Div 1, Gr. D	Class I, Div 1, Gr. D	Class I, Div 1, Gr. D

Models S1800 and S4000

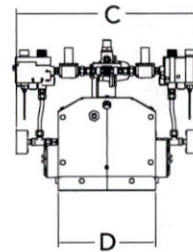
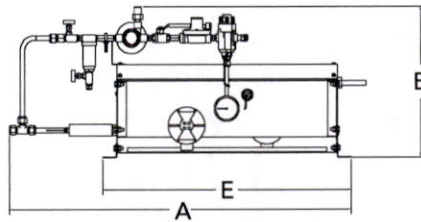
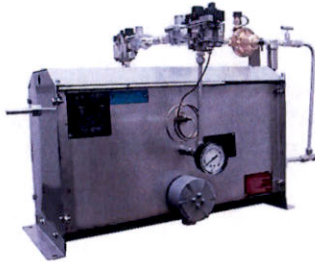


S1800 Shown on Stand



Model Number	A		B		C		D		E		Heat Value	Est. Weight
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	BTU	Lbs
S1800	12.8	323.9	4.9	125.5	12.8	323.9	11.7	296.4	14.0	355.6	2500	22
S4000	16.6	421.6	4.1	104.1	16.6	421.6	15.5	393.7	18.2	462.3	5000	35

Models S6000, S8000, S12000, and S16000



Model Number	A		B		C		D		E		Heat Value	Est. Weight
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	BTU	Lbs
S6000	38.1	972.0	16.1	410.0	19.7	500.0	10.5	268.0	27.1	689	12000	50
S8000	38.1	972.0	20.8	527.0	20.4	519.0	11.3	286.0	27.1	689	24000	60
S12000	49.1	1247.0	21.6	548.0	23.8	604.0	13.0	330.0	39.1	994	36000	75
S16000	61.3	1557.0	21.6	548.0	23.8	604.0	13.0	330.0	51.1	1299	48000	110

FEATURES	BENEFITS
Stainless steel construction	Suitable for outdoor installation with little to zero maintenance required
DC startup power option	Allows heaters to be started without costly AC power installation, can be run off car batteries
Light weight, compact design	Portable and easy to install. Can be relocated where heat is required with minimal tools
Direct heating of process coil	No costly heat exchange medium to fill, no risk of spills
Temperature control based on gas temperature	Accurate temperature control ensuring consistent gas heating
Larger (S6000 and higher) models with dual temperature controllers	Increased turn down ratio to cover wide spectrum of flow rate ranges

APPLICATIONS

- Fuel Gas Heating
- Pilot Gas Heating
- CNG Decompression System (see Bruest LD Series Let Down Stations for more information)
- LPG Vaporization
- Glycol Heating

■ HOW TO BUILD A SYSTEM

Use this chart to identify the capacity and features required for your application. For assistance, please call the Bruest Engineering Team at **800-835-0557**.

FF	12	0	0	-	A	B	C	D	E	F
Location	Designation / Options									
FF	Freez-Fiter Family				A	Pressure Rating Continued	3/4" Tubing			
12	Freez-Fiter Size		BTU Rating			4	2750PSIG (12000/16000)			
	06	S6000	12,000			5	4000PSIG (12000/16000)			
	08	S8000	24,000			6	4900PSIG (12000/16000)			
	12	S12000	36,000							
	16	S16000	48,000		B	Gas Train				
						0	Dual Mertik with Fisher 1301, Belgas P912 High/Low pressure regulators			
0	Starting Voltage *					1	Dual Mertik with Fisher 1301, Fisher 912 High/Low pressure regulators			
	1	12VDC (N/A on S16000)				2	Dual Mertik with Belgas P39, Belgas P912 High/Low pressure regulators			
	2	120VAC								
	3	240VAC			C	Pigtail - Power Cable *				
						0	None			
3	Certification					1	16ft XP Pigtail			
	3	Heater Panels - Class 1 Division 1 Group D rated				2	20ft XP Pigtail			
						3	25ft XP Pigtail			
A	Pressure Rating - 1/2" Tubing				D	Fuel Gas Type	0	Natural Gas		
	1	3000PSIG (6000/8000)					1	LPG - Specify Propane or LPG Mix		
	2	4300PSIG (6000/8000)			E	Reserved	0			
	3	5200PSIG (6000/8000)			F	Reserved	0			

* S16000 cannot have a starting voltage of 12VDC or a pigtail option. Please contact factory for assistance on configuring a S1800 or S4000

■ Example Models

FF0613-101000	FF1633-410000
Freez-Fiter S6000 rated at 24,000 BTU with 12VDC startup voltage	Freez-Fiter S16000 rated at 48,000 BTU, 240VAC startup voltage
Class I Division 1 Group D heater panels	Class I Division 1 Group D heater panels
3000 PSIG operating pressure, 1/2" process gas tubing	2750 PSIG operating pressure, 3/4" process gas tubing
Dual Mertik temperature controller	Dual Mertik temperature controller
Fisher 1301 high pressure regulator	Fisher 1301 and 912 regulators
Belgas low pressure regulators	No power cable
16 foot explosion proof pigtail power cable	Natural gas fuel supply



Bruest Catalytic Heaters,
Division of Catalytic Industrial Group, Inc.
713 N. 20th Street, P.O. Box 827
Independence, KS 67301
800.835.0557
Ph: 620.331.0750 | Fax: 620.331.3402
www.bruestcatalyticheaters.com
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Your Local Bruest Representative

1,875-HP COMPRESSORS (C-1 AND C-2) ENGINE SPEC SHEET

GAS COMPRESSION APPLICATION

ENGINE SPEED (rpm): 1000
 COMPRESSION RATIO: 7.6
 AFTERCOOLER TYPE: SCAC
 AFTERCOOLER - STAGE 2 INLET (°F): 130
 AFTERCOOLER - STAGE 1 INLET (°F): 174
 JACKET WATER OUTLET (°F): 190
 ASPIRATION: TA
 COOLING SYSTEM: JW+1AC, OC+2AC
 CONTROL SYSTEM: ADEM4
 EXHAUST MANIFOLD: DRY
 COMBUSTION: LOW EMISSION
 NOx EMISSION LEVEL (g/bhp-hr NOx): 0.3
 SET POINT TIMING: 18

RATING STRATEGY:
 RATING LEVEL:
 FUEL SYSTEM:

STANDARD
 CONTINUOUS
 GAV
 WITH AIR FUEL RATIO CONTROL

SITE CONDITIONS:

FUEL: Nat Gas
 FUEL PRESSURE RANGE (psig): (See note 1) 58.0-70.3
 FUEL METHANE NUMBER: 84.7
 FUEL LHV (Btu/scf): 905
 ALTITUDE (ft): 150
 INLET AIR TEMPERATURE (°F): 105
 STANDARD RATED POWER: 1875 bhp@1000rpm

RATING	NOTES	LOAD	MAXIMUM RATING	SITE RATING AT MAXIMUM INLET AIR TEMPERATURE			
			100%	100%	75%	50%	
ENGINE POWER (WITHOUT FAN)	(2)	bhp	1875	1875	1406	938	
INLET AIR TEMPERATURE		°F	105	105	105	105	

ENGINE DATA							
FUEL CONSUMPTION (LHV)	(3)	Btu/bhp-hr	6913	6913	7193	7770	
FUEL CONSUMPTION (HHV)	(3)	Btu/bhp-hr	7669	7669	7979	8619	
AIR FLOW (@inlet air temp, 14.7 psia)	(4)(5)	ft ³ /min	4947	4947	3758	2580	
AIR FLOW (WET)	(4)(5)	lb/hr	20848	20848	15839	10875	
FUEL FLOW (60°F, 14.7 psia)		scfm	239	239	186	134	
INLET MANIFOLD PRESSURE	(6)	in Hg(abs)	102.1	102.1	78.8	56.1	
EXHAUST TEMPERATURE - ENGINE OUTLET	(7)	°F	822	822	893	971	
EXHAUST GAS FLOW (@engine outlet temp, 14.5 psia)	(8)(5)	ft ³ /min	11998	11998	9630	7010	
EXHAUST GAS MASS FLOW (WET)	(8)(5)	lb/hr	21502	21502	16349	11242	

EMISSIONS DATA - ENGINE OUT							
NOx (as NO2)	(9)(10)	g/bhp-hr	0.30	0.30	0.30	0.30	
CO	(9)(10)	g/bhp-hr	2.50	2.50	2.50	2.50	
THC (mol. wt. of 15.84)	(9)(10)	g/bhp-hr	5.23	5.23	5.40	5.73	
NMHC (mol. wt. of 15.84)	(9)(10)	g/bhp-hr	0.48	0.48	0.50	0.53	
NMNEHC (VOCs) (mol. wt. of 15.84)	(9)(10)(11)	g/bhp-hr	0.33	0.33	0.34	0.36	
HCHO (Formaldehyde)	(9)(10)	g/bhp-hr	0.19	0.19	0.20	0.22	
CO2	(9)(10)	g/bhp-hr	438	438	454	492	
EXHAUST OXYGEN	(9)(12)	% DRY	11.0	11.0	10.9	10.5	

HEAT REJECTION							
HEAT REJ. TO JACKET WATER (JW)	(13)	Btu/min	22822	22822	18354	15210	
HEAT REJ. TO ATMOSPHERE	(13)	Btu/min	5813	5813	5595	5388	
HEAT REJ. TO LUBE OIL (OC)	(13)	Btu/min	11668	11668	10790	9350	
HEAT REJ. TO A/C - STAGE 1 (1AC)	(13)(14)	Btu/min	16378	16378	8399	2543	
HEAT REJ. TO A/C - STAGE 2 (2AC)	(13)(14)	Btu/min	7533	7533	4661	2315	

COOLING SYSTEM SIZING CRITERIA			
TOTAL JACKET WATER CIRCUIT (JW+1AC)	(14)(15)	Btu/min	42302
TOTAL STAGE 2 AFTERCOOLER CIRCUIT (OC+2AC)	(14)(15)	Btu/min	21911
A cooling system safety factor of 0% has been added to the cooling system sizing criteria.			

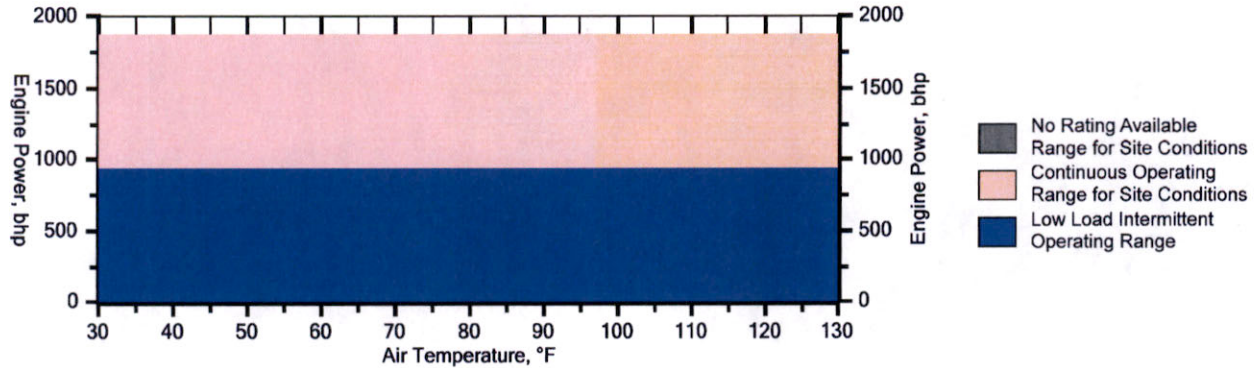
CONDITIONS AND DEFINITIONS

Engine rating obtained and presented in accordance with ISO 3046/1, adjusted for fuel, site altitude and site inlet air temperature. 100% rating at maximum inlet air temperature is the maximum engine capability for the specified fuel at site altitude and maximum site inlet air temperature. Maximum rating is the maximum capability at the specified aftercooler inlet temperature for the specified fuel at site altitude and reduced inlet air temperature. Lowest load point is the lowest continuous duty operating load allowed. No overload permitted at rating shown.

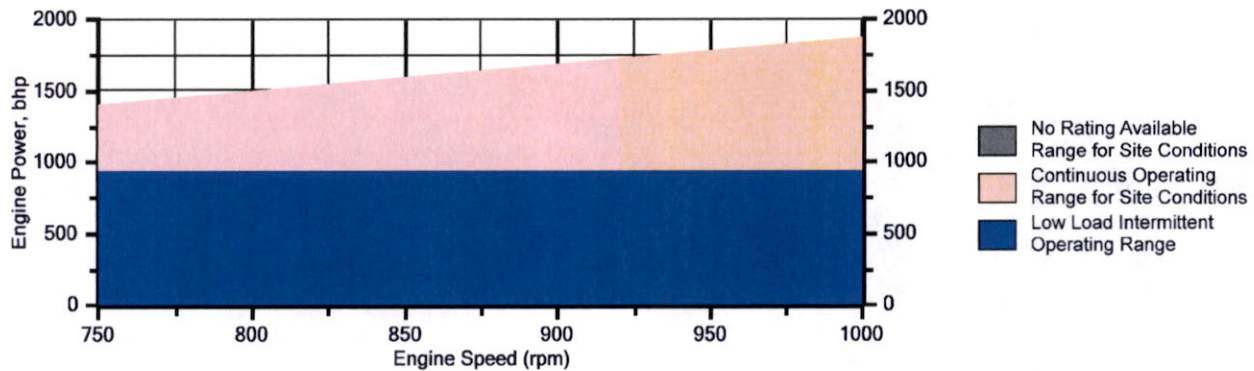
For notes information consult page three.

Engine Power vs. Inlet Air Temperature

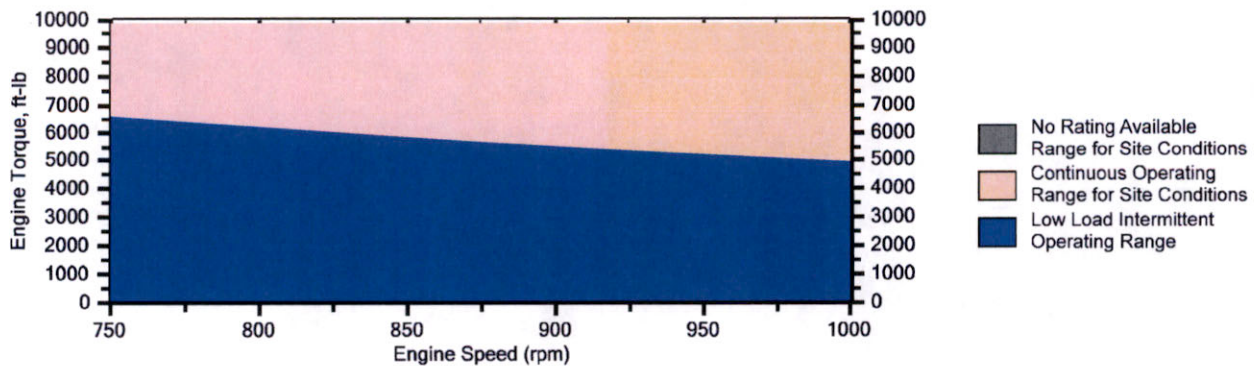
Data represents temperature sweep at 150 ft and 1000 rpm

**Engine Power vs. Engine Speed**

Data represents speed sweep at 150 ft and 105 °F

**Engine Torque vs. Engine Speed**

Data represents speed sweep at 150 ft and 105 °F



Note: At site conditions of 150 ft and 105°F inlet air temp., constant torque can be maintained down to 750 rpm. The minimum speed for loading at these conditions is 750 rpm.

NOTES

1. Fuel pressure range specified is to the engine gas shutoff valve (GSOV). Additional fuel train components should be considered in pressure and flow calculations.
2. Engine rating is with two engine driven water pumps. Tolerance is $\pm 3\%$ of full load.
3. Fuel consumption tolerance is $\pm 2.5\%$ of full load data.
4. Air flow value is on a 'wet' basis. Flow is a nominal value with a tolerance of $\pm 5\%$.
5. Inlet and Exhaust Restrictions must not exceed A&I limits based on full load flow rates from the standard technical data sheet.
6. Inlet manifold pressure is a nominal value with a tolerance of $\pm 5\%$.
7. Exhaust temperature is a nominal value with a tolerance of $(+63^{\circ}\text{F}, -54^{\circ}\text{F})$.
8. Exhaust flow value is on a "wet" basis. Flow is a nominal value with a tolerance of $\pm 6\%$.
9. Emissions data is at engine exhaust flange prior to any after treatment.
10. Values listed are higher than nominal levels to allow for instrumentation, measurement, and engine-to-engine variations. They indicate the maximum values expected under steady state conditions. Fuel methane number cannot vary more than ± 3 . THC, NMHC, and NMNEHC do not include aldehydes. An oxidation catalyst may be required to meet Federal, State or local CO or HC requirements.
11. VOCs - Volatile organic compounds as defined in US EPA 40 CFR 60, subpart JJJJ
12. Exhaust Oxygen level is the result of adjusting the engine to operate at the specified NOx level. Tolerance is ± 0.5 .
13. Heat rejection values are nominal. Tolerances, based on treated water, are $\pm 10\%$ for jacket water circuit, $\pm 50\%$ for radiation, $\pm 20\%$ for lube oil circuit, and $\pm 5\%$ for aftercooler circuit.
14. Aftercooler heat rejection includes an aftercooler heat rejection factor for the site elevation and inlet air temperature specified. Aftercooler heat rejection values at part load are for reference only. Do not use part load data for heat exchanger sizing.
15. Cooling system sizing criteria are maximum circuit heat rejection for the site, with applied tolerances.

Constituent	Abbrev	Mole %	Norm		
Water Vapor	H2O	0.0000	0.0000		
Methane	CH4	92.2700	92.2700	Fuel Makeup:	Nat Gas
Ethane	C2H6	2.5000	2.5000	Unit of Measure:	English
Propane	C3H8	0.5000	0.5000		
Isobutane	iso-C4H10	0.0000	0.0000	Calculated Fuel Properties	
Norbutane	nor-C4H10	0.2000	0.2000	Caterpillar Methane Number:	84.7
Isopentane	iso-C5H12	0.0000	0.0000		
Norpentane	nor-C5H12	0.1000	0.1000	Lower Heating Value (Btu/scf):	905
Hexane	C6H14	0.0500	0.0500	Higher Heating Value (Btu/scf):	1004
Heptane	C7H16	0.0000	0.0000	WOBBE Index (Btu/scf):	1168
Nitrogen	N2	3.4800	3.4800		
Carbon Dioxide	CO2	0.9000	0.9000		
Hydrogen Sulfide	H2S	0.0000	0.0000	THC: Free Inert Ratio:	21.83
Carbon Monoxide	CO	0.0000	0.0000	Total % Inerts (% N2, CO2, He):	4.38%
Hydrogen	H2	0.0000	0.0000	RPC (%) (To 905 Btu/scf Fuel):	100%
Oxygen	O2	0.0000	0.0000		
Helium	HE	0.0000	0.0000		
Neopentane	neo-C5H12	0.0000	0.0000	Compressibility Factor:	0.998
Octane	C8H18	0.0000	0.0000	Stoich A/F Ratio (Vol/Vol):	9.45
Nonane	C9H20	0.0000	0.0000	Stoich A/F Ratio (Mass/Mass):	15.75
Ethylene	C2H4	0.0000	0.0000	Specific Gravity (Relative to Air):	0.600
Propylene	C3H6	0.0000	0.0000	Fuel Specific Heat Ratio (K):	1.313
TOTAL (Volume %)		100.0000	100.0000		

CONDITIONS AND DEFINITIONS

Caterpillar Methane Number represents the knock resistance of a gaseous fuel. It should be used with the Caterpillar Fuel Usage Guide for the engine and rating to determine the rating for the fuel specified. A Fuel Usage Guide for each rating is included on page 2 of its standard technical data sheet.

RPC always applies to naturally aspirated (NA) engines, and turbocharged (TA or LE) engines only when they are derated for altitude and ambient site conditions.

Project specific technical data sheets generated by the Caterpillar Gas Engine Rating Pro program take the Caterpillar Methane Number and RPC into account when generating a site rating.

Fuel properties for Btu/scf calculations are at 60F and 14.696 psia.

Caterpillar shall have no liability in law or equity, for damages, consequently or otherwise, arising from use of program and related material or any part thereof.

FUEL LIQUIDS

Field gases, well head gases, and associated gases typically contain liquid water and heavy hydrocarbons entrained in the gas. To prevent detonation and severe damage to the engine, hydrocarbon liquids must not be allowed to enter the engine fuel system. To remove liquids, a liquid separator and coalescing filter are recommended, with an automatic drain and collection tank to prevent contamination of the ground in accordance with local codes and standards.

To avoid water condensation in the engine or fuel lines, limit the relative humidity of water in the fuel to 80% at the minimum fuel operating temperature.

SPECIFICATIONS & DETAILS

APPLICATION INFORMATION DRIVER

Make:	Caterpillar
Model:	G3606A4
Horsepower:	1875
RPM:	1000
Compression Ratio:	7.6
Exhaust Flow Rate (CFM):	11995
Exhaust Temperature (°F):	826
Allowable Backpressure:	12" WC
Reference:	EM1402-04-001
Fuel:	Choctaw Fuel
Annual Operating Hours:	8760

GAS COOLER

Make	N/A
Model	N/A
Orientation	Vertical

UNCONTROLLED EMISSIONS DATA

	g/bhp-hr
NOx:	0.30
CO:	2.50
THC:	5.23
NMHC:	0.48
NMNEHC:	0.33
HCHO:	0.19
Oxygen:	11.00%

EMISSIONS AND SILENCING INFORMATION HOUSING INFORMATION (Standard Offering)

Make:	Hospital Grade Cooler Mount Catalyst/Silencer
Insertion Loss:	35-40 dBA
Model:	ELH-5000-1820F-6CE0-362
Element Capacity	6
Weight	2167 Lbs

CATALYST

Catalyst Model	RT-3615-Z
Catalyst Type	Oxidation, Standard Precious Metals Group
Catalyst Size	Rectangle, 36" x 15" x 3.5"
Catalyst Qty	2
Blank Qty	4

POST CATALYST EMISSIONS

	g/bhp-hr
NOx:	Unaffected by Oxidation Catalyst
CO:	<2.00
VOC:	<0.70

SYSTEM BACKPRESSURE

Total System Backpressure <9.80" WC

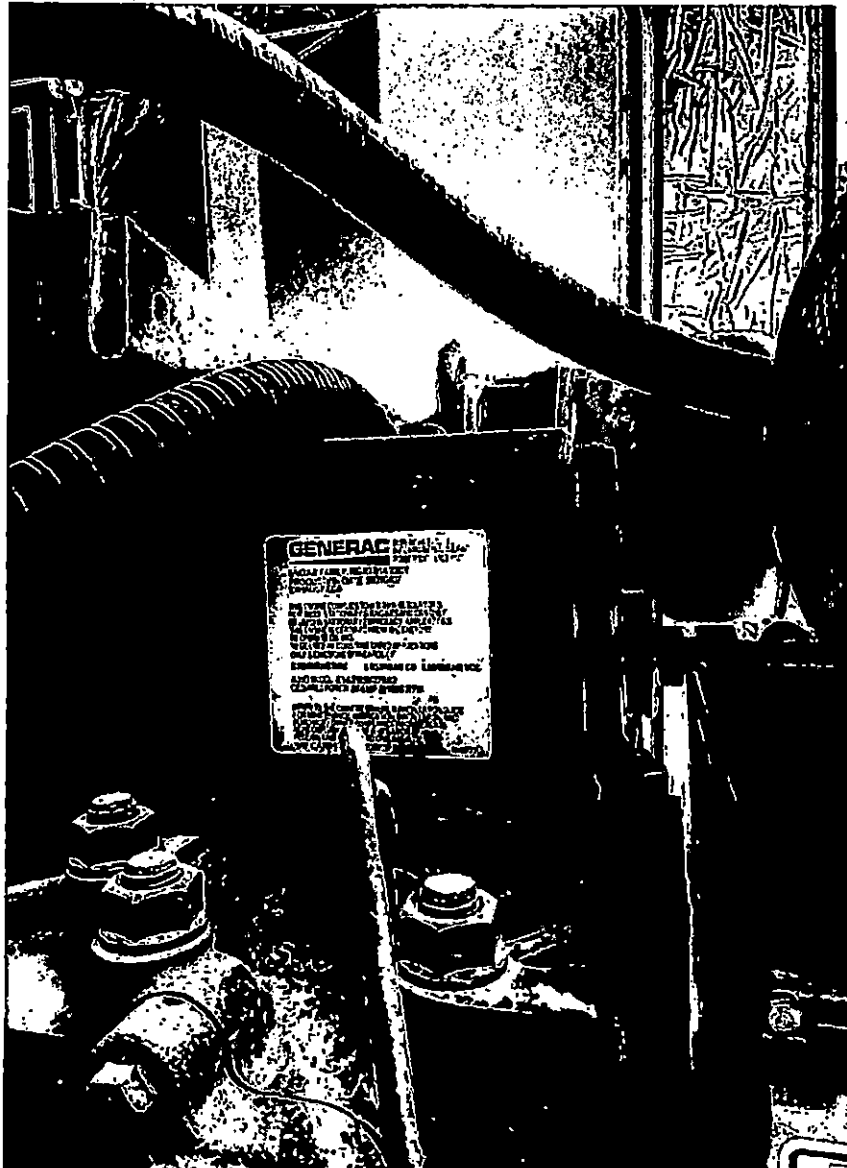
STANDBY GENERATOR 1 (ENG-1) CERTIFICATE OF CONFORMITY

Lowman Compressor Station, Butler, Al

Nameplate of Standby Generator Engine

Generator Make/Model: Caterpillar – DG 250GC (Power Output = 250 kw)

Engine Make/Model: Generac – MXNXB14.22C1





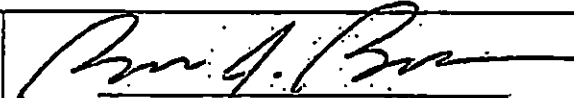
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
2021 MODEL YEAR
CERTIFICATE OF CONFORMITY
WITH THE CLEAN AIR ACT

OFFICE OF TRANSPORTATION
AND AIR QUALITY
ANN ARBOR, MICHIGAN 48105

Certificate Issued To: Generac Power Systems, Inc.
(U.S. Manufacturer or Importer)
Certificate Number: MGNXB14.22C1-037

Effective Date:
10/16/2020

Expiration Date:
12/31/2021


Byron J. Bunker, Division Director
Compliance Division

Issue Date:
10/16/2020
Revision Date:
N/A

Manufacturer: Generac Power Systems, Inc.
Engine Family: MGNXB14.22C1
Mobile/Stationary Certification Type: Stationary
Fuel: Natural Gas (CNG/LNG)
Emission Standards:
Part 60 Subpart JJJJ Table 1
CO (g/Hp-hr): 4.0
VOC (g/Hp-hr): 1.0
NOx (g/Hp-hr): 2.0
Emergency Use Only: Y

Pursuant to Section 213 of the Clean Air Act (42 U.S.C. section 7547) and 40 CFR Part 60, 1065, 1068, and 60 (stationary only and combined stationary and mobile) and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following nonroad engines, by engine family, more fully described in the documentation required by 40 CFR Part 60 and produced in the stated model year.

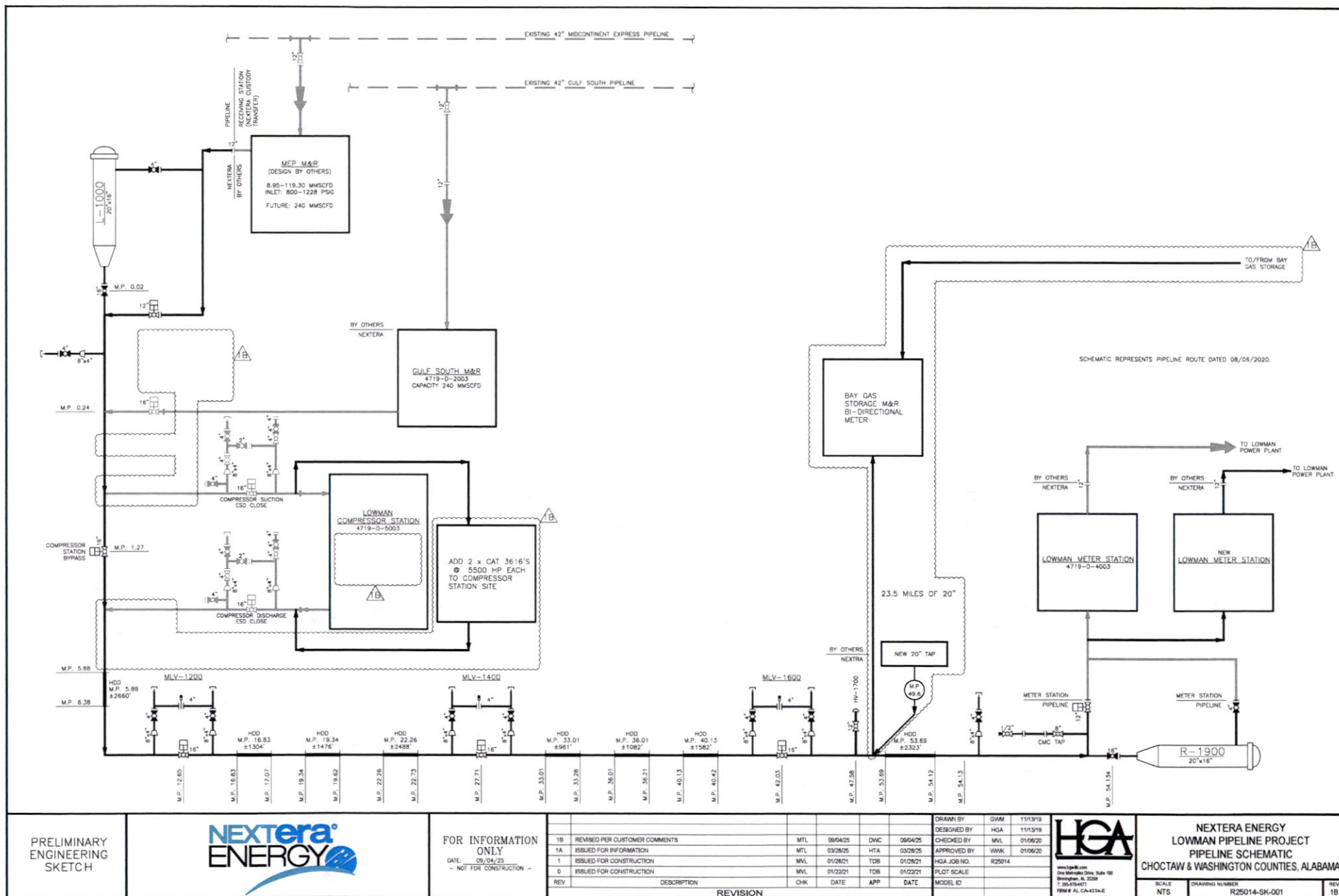
This certificate of conformity covers only those new nonroad spark-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 60 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 60. This certificate of conformity does not cover nonroad engines imported prior to the effective date of the certificate.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 1068.20 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 60. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void *ab initio* for other reasons specified in 40 CFR Part 60.

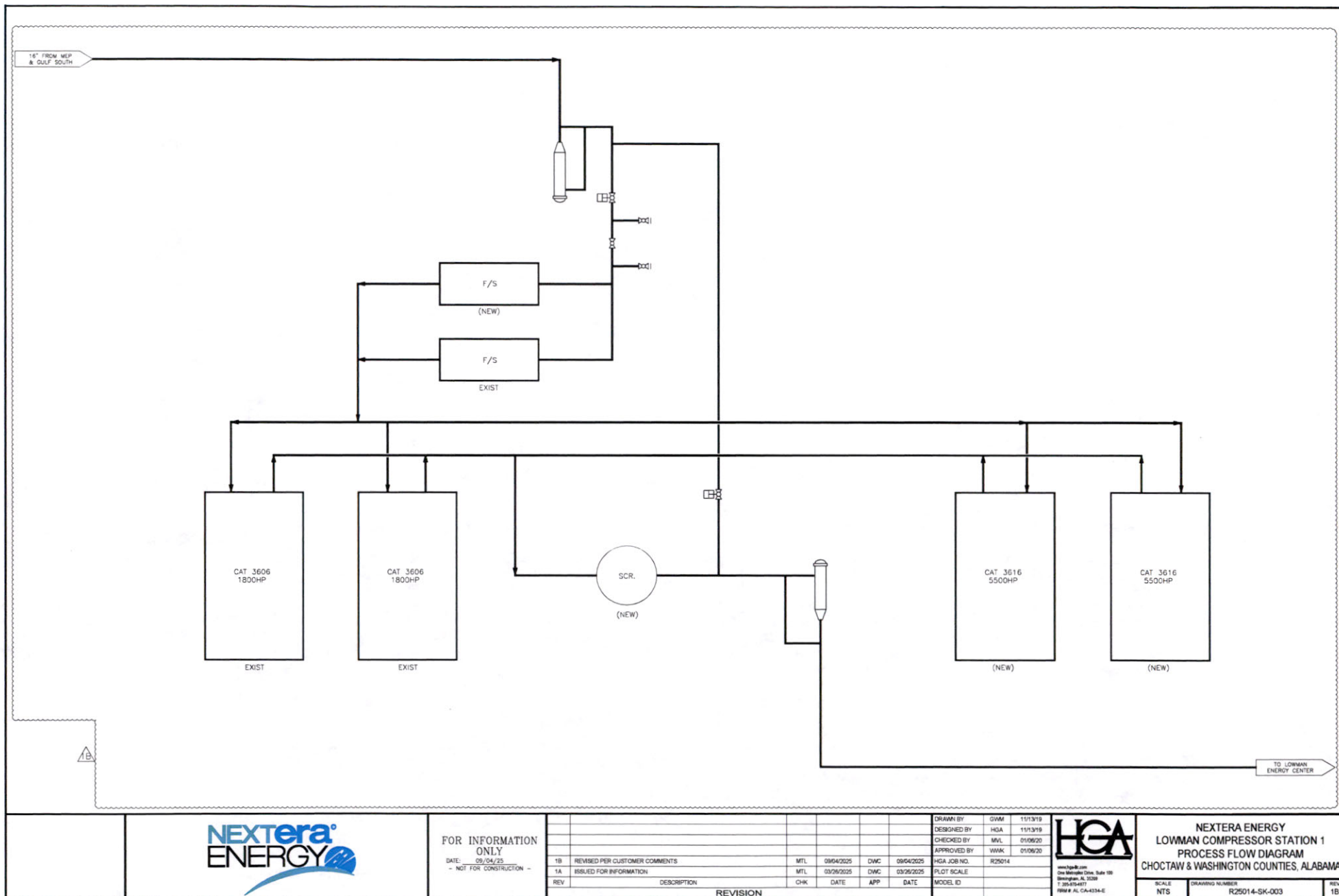
This certificate does not cover large nonroad engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

**APPENDIX C -
FIGURES**

FACILITY PIPING AND INSTRUMENTATION DIAGRAMS



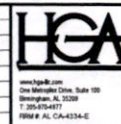
FACILITY PROCESS FLOW DIAGRAM



FOR INFORMATION ONLY
DATE: 09/04/2025
- NOT FOR CONSTRUCTION -

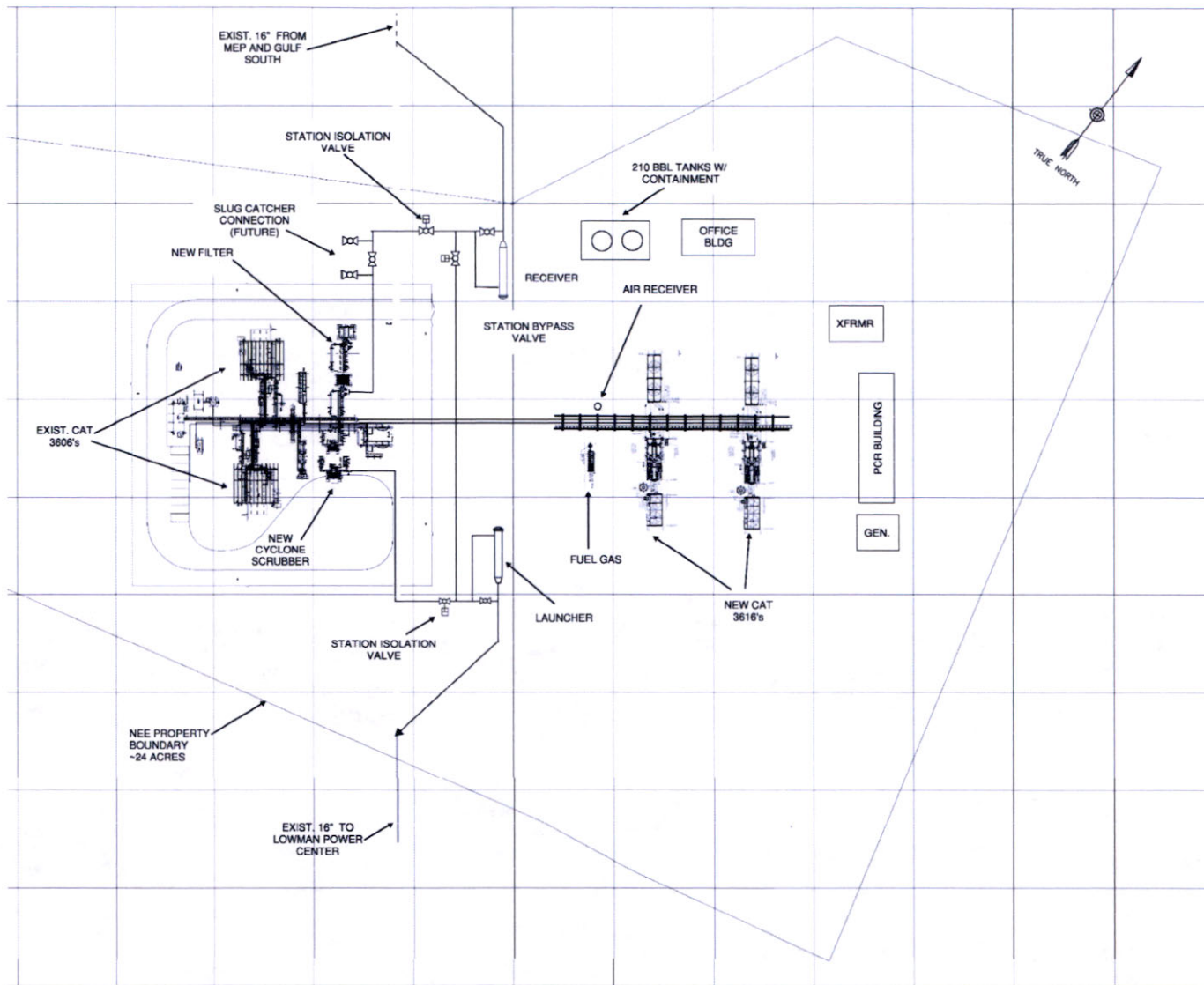
REV	DESCRIPTION	CHK	DATE	APP	DATE	MODEL ID
1B	REVISED PER CUSTOMER COMMENTS	MTL	09/04/2025	DWC	09/04/2025	HGA JOB NO. R25014
1A	ISSUED FOR INFORMATION	MTL	03/26/2025	DWC	03/26/2025	PLOT SCALE

DRAWN BY	GWM	11/13/19
DESIGNED BY	HGA	11/13/19
CHECKED BY	MVL	01/06/20
APPROVED BY	WWK	01/06/20



NEXTERA ENERGY
LOWMAN COMPRESSOR STATION 1
PROCESS FLOW DIAGRAM
CHOCTAW & WASHINGTON COUNTIES, ALABAMA

SCALE NTS	DRAWING NUMBER R25014-SK-003	REV 1B
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1B



FOR INFORMATION ONLY
DATE: 05/04/25
- NOT FOR CONSTRUCTION -

REVISION		DESCRIPTION	CHK	DATE	APP	DATE	MODEL ID
1B	REVISED PER CUSTOMER COMMENTS		MTL	08/04/2025	DWC	09/04/2025	HGA JOB NO. R25014
1A	ISSUED FOR INFORMATION		MTL	03/25/2025	DWC	03/25/2025	PLOT SCALE
REV							



NEXTERA ENERGY
LOWMAN COMPRESSOR STATION 1
SITE PLAN
CHOCTAW & WASHINGTON COUNTIES, ALABAMA

SCALE NTS	DRAWING NUMBER R25014-SK-002	REV 1B
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