

FACT SHEET FOR: CP26-021**DATE: DRAFT****NDWEE ID:** 69723**Name of Source:** Phelps County Feeders, LLC**Source Classification:** Minor New Source Review (NSR) source at time of issuance
Area Source of Hazardous Air Pollutants (HAPs)

Regulatory changes may supersede information in this document. If the source should add or change equipment or change processes such that a NESHAP or NSPS subpart becomes an applicable requirement, it is the source's obligation to comply with that subpart and applicable requirements whether or not they are identified in the associated permitting action or Title 129. Also note that the NESHAP and NSPS subparts are subject to change. Detailed information related to NESHAP and NSPS subparts can be found on the NDWEE Air Toxics Notebook and NDWEE NSPS Notebook located on the NDWEE website (<http://dwee.nebraska.gov/>). The NDWEE website can also be used to find other permit related and facility specific information that is not identified in this fact sheet.

DESCRIPTION OF THE SOURCE OR ACTIVITY:

Phelps County Feeders, LLC (Phelps County Feeders) is a feedlot with an anaerobic digestion and biogas processing facility near Bertrand, Nebraska. The facility receives cow manure from the feedlot present at the facility and converts the manure into renewable natural gas.

PERMIT HISTORY:

Date Issued	Number	Status
11/08/2023	CP23-015	Partially Active, Conditions III.(A), III.(B), and III.(C) superseded by CP26-021.
tbd	CP26-021	Active

PERMIT ACTION:

On June 24, 2026, the NDWEE received a construction permit application (#26-021) from Phelps County Feeders for a significant permit revision (SPR) to permit CP23-015. The revision would include changing the rated heat input of the bypass flare (EP-7A), used to combust biogas when it is not sent to the adsorption towers for cleaning, from 20.64 MMBtu/hr to 18.4 MMBtu/hr, as well as permitting the installation of a second 18.4 MMBtu/hr flare (EP-7B). While the overall increase in total heat input for the two flares would increase Phelps County Feeders's capacity to handle biogas, this will not result in an increase in potential-to-emit (PTE), as Condition III.(A)(3)(c) limits biogas production from the digesters to 34,875 dscf per hour. Since this limit was not revised in CP26-021, and the PTE calculations for the flares assume all biogas produced is routed to the flares as a conservative assumption, the PTE of the flares will not change as part of this permitting action.

Other revisions made as part of CP26-021 include replacing a 469 hp natural gas-fired emergency generator engine (EU-9) with a 1490 hp diesel-fired emergency generator engine and revision of the heat input for all six (6) of the boilers (EP-1 through EP-6) from 1.256 MMBtu/hr to 1.0 MMBtu/hr per boiler. As the boilers do not require any specific permit limitations on emissions, operation, or monitoring, they were not included in the specific conditions section of the permit. Conditions I. and II. still apply to all emission units and emission points at a facility, regardless of inclusion in a permit, and the PTE for the boilers has been accounted for when evaluating Phelps County Feeders's regulatory applicability.

TYPE AND QUANTITY OF AIR CONTAMINANT EMISSIONS ANTICIPATED:

The emissions for this project, including fugitive emissions, are shown in the potential-to-emit (PTE) table below:

Regulated Pollutant	Pre-Project PTE ^[1] (tpy)	Post-Project PTE (tpy)	Project PTE (tpy)
Particulate Matter (PM)	2.97	3.17	0.20
PM smaller than or equal to 10 microns (PM ₁₀)	2.97	3.17	0.20
PM smaller than or equal to 2.5 microns (PM _{2.5})	2.97	3.17	0.20
Sulfur Dioxide (SO ₂)	103.62	103.66	0.04
Oxides of Nitrogen (NO _x)	16.26	14.54	1.42
Carbon Monoxide (CO)	36.87	37.95	1.08
Volatile Organic Compounds (VOC)	5.63	4.46	-1.17
Hazardous Air Pollutants (HAPs)			
Highest Individual HAP: Formaldehyde	0.67	0.22	-0.45
Total HAPs	1.24	0.66	-0.58

^[1] Pre-Project PTE obtained from CP23-015.

SUPPLEMENTAL INFORMATION:

Title 129, Chapter 2 – Nebraska Air Quality Standards

Nebraska Ambient Air Quality Standards (Section 001)

The changes in potential emissions from this permitting action are below the threshold for which modeling is required as summarized below; therefore, the NDWEE is not requiring ambient air quality dispersion modeling to support this permitting action. The NDWEE generally follows these thresholds.

Pollutant	Project Potential Emissions Change (tpy)	Emission Change Threshold (tpy)
CO	1.08	100
NO ₂	1.42	40
SO ₂	0.04	40
PM ₁₀	0.20	15
PM _{2.5}	0.20	10

Title 129, Chapter 12 – New Source Performance Standards and Emission Limits for Existing Sources

Standards of Performance for New Stationary Sources (NSPS) (Section 001)

The subparts which are applicable to the emission units at Phelps County Feeders involved in this permitting action are discussed below. For further information of all NSPS subparts applicable to emission units at Phelps County Feeders, please refer to the fact sheets accompanying previous permitting actions.

Subpart A – General Provisions: This subpart, adopted by reference in Title 129, Chapter 12, Section 001.01, applies to those units subject to another NSPS subpart. Phelps County Feeders is subject to this subpart because it is subject to Subparts IIII and JJJJ.

Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines:

This subpart, adopted by reference in Title 129, Chapter 12, Section 001.80, applies to new, modified and reconstructed compression ignition (CI) internal combustion engines (ICE). New engines are subject to this subpart if construction of the CI ICE commenced after July 11, 2005, and if the engine was manufactured after April 1, 2006, for CI ICE that are not fire pump engines, or after July 1, 2006, for CI ICE that are fire pump engines.

The diesel-fired back-up generator engine (EU-9) is subject to this subpart since it was manufactured after April 1, 2006. EU-9 is certified to meet the EPA Tier 2 standards for non-road engines, and thus is expected to be in compliance with the emission standards applicable under Subpart IIII.

In order for a stationary engine to be considered an emergency ICE under NSPS Subpart IIII, the run time restrictions in 40 CFR §60.4211(f) must be met. There is no restriction on use of an emergency ICE in emergency situations within the requirements of NSPS Subpart IIII. Each engine is restricted to a maximum of 100 hours per calendar year of operation for non-emergency activities such as maintenance checks and readiness testing. Each engine is allowed up to 50 hours per calendar year of non-emergency operation other than maintenance, testing and demand response; however, any non-emergency run time must be counted as part of the 100 hours per calendar year for maintenance and testing.

Phelps County Feeders must comply with all applicable NSPS subparts and requirements regardless of their inclusion in this permitting action or Title 129. These rules are subject to change. Additional and updated information on all NSPS is available on the NDWEE NSPS Notebook, which can be located by visiting the NDWEE website at <http://dwee.nebraska.gov/>, by first selecting “Menu” at the top of the page, then the “Air” dropdown menu tab, then the “NSPS Program” dropdown menu tab, and then “NSPS Notebook”.

Title 129, Chapter 13 – Hazardous Air Pollutants

Phelps County Feeders is classified as an area source of HAPs because potential emissions are below major source thresholds of 10 tons per year of an individual HAP or 25 tons per year of total HAPs. The highest individual HAP for Phelps County Feeders is formaldehyde, with a potential to emit of 0.22 tons per year, while the potential to emit for total HAPs is 0.66 tons per year.

National Emission Standards for Hazardous Air Pollutants (NESHAP) (Section 002)

Subpart A – General Provisions: This subpart, adopted by reference in Title 129, Chapter 13, Section 002.01, applies to those units subject to another NESHAP subpart. Phelps County Feeders is subject to this subpart because it is subject to Subpart ZZZZ.

Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines: This subpart, adopted by reference in Title 129, Chapter 13, Section 002.88, applies to existing, new, or reconstructed stationary reciprocating internal combustion engines (RICE) located at a major or area source of HAP emissions, excluding stationary RICE being tested at a stationary RICE test cell/stand and existing residential, commercial, and institutional emergency RICE at area sources, provided they are not also used for local reliability. The back-up generator engine (EU-9) and feed gas compressor engine (EU-10) are subject to Subpart ZZZZ since they are stationary RICE located at an area source and construction began after June 12, 2006.

New RICE located at area sources can comply with NSPS Subpart IIII or JJJJ as applicable to demonstrate compliance with NESHAP Subpart ZZZZ. As a new RICE, the applicable requirement for EU-9 under NESHAP Subpart ZZZZ is to comply with NSPS Subpart IIII. The applicable requirements for EU-10 can be found in Table 2d of NESHAP Subpart ZZZZ.

Phelps County Feeders must comply with all applicable NESHAP requirements regardless of their inclusion in this permitting action or Title 129. These rules are subject to change. Information regarding NESHAP is available on the NDWEE Air Toxics Notebook, which can be located by visiting the NDWEE website at <https://dwee.nebraska.gov>, by first selecting “Menu” at the top of the page, the “Air” dropdown menu tab, then the “Air Toxics Program” dropdown menu tab, and then “Air Toxics Notebook”.

Maximum Achievable Control Technology (MACT) (Section 004)

Chapter 13, Section 004.02 prescribes the following:

“004.02 For new, modified, or reconstructed sources of hazardous air pollutants. A permit as required under Section 001.03A8 of Chapter 3 will be issued for construction, reconstruction, or modification of a source with the potential to emit any hazardous air pollutant in an amount equal to or in excess of 2.5 tpy or more of any hazardous air pollutant or an aggregate of 10.0 tpy or more of any hazardous air

pollutants only if best available control technology (BACT), as determined by the Director, is applied for each hazardous air pollutant and the source will comply with all other requirements of these regulations. In no event will application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under Chapters 12 or 13.”

This permitting action does not subject Phelps County Feeders to any new Toxics BACT requirements as specified in Section 004.02 of this chapter because the project’s potential to emit for any single HAP and for total HAPs are below the respective 2.5 and 10 tpy thresholds as defined in this section.

Phelps County Feeders is not subject to any MACT requirements specified in Section 004.03 of this chapter because this project does not meet the definition of reconstruction.

Title 129, Chapter 15 - Particulate Emissions; Limitations and Standards

Particulate Emissions from Combustion Sources (Section 001.02)

The PM emission points subject to Chapter 15, Section 001.02 limitations are compliant with those limitations, as the potential to emit for the emission points is less than the limitations. Supporting emission calculations are located in the attachment to this fact sheet.

Opacity Limitations from Emission Units (Section 001.04)

Specific Condition I.(J) specifies that no person shall cause or allow emissions, from any source, which has an opacity equal to or greater than twenty percent (20%). Opacity must be determined using an EPA-approved method or recorded by a continuous opacity monitoring system which has been operated and maintained pursuant to 40 CFR Part 60 Appendix B except as provided for in Chapter 15, Sections 001.05 and 001.05E (Title 129, Chapter 15, Section 001.04). Therefore, while not specifically stated in Condition III., this requirement is still applicable to all emission units at the source.

REVISED SPECIFIC PERMIT CONDITIONS:

Below is a mark-up that identifies all of the revisions to the original conditions. Additions are **bolded and underlined**, deletions are in ~~strike through~~, and NDWEE comments are in *italics*.

References to the “Nebraska Department of Environmental Quality” or “Nebraska Department of Environment and Energy” have been revised to “Nebraska Department of Water, Energy, and Environment” and references to “NDEQ” or “NDEE” have been revised to “NDWEE” to reflect the agency name change, effective July 01, 2025.

Condition III.(A) now reads:

III.(A) Specific Conditions for Biogas Treatment

- (1) Permitted Equipment: The source is permitted to construct the emission points and associated emission units identified in the following table and controlled by the required control equipment as indicated:

Emission Point ID#	Required Control Unit ID# and Description	Equipment Description
EP-8: Tail Gas Vent	CE-8A: H ₂ S Adsorption Tower 1	EU-11: Digester 1 EU-12: Digester 2 EU-13: Digester 3 EU-14: Digester 4 EU-15: Digester 5 EU-16: Digester 6
	CE-8B: H ₂ S Adsorption Tower 2	
Rerouted for Combustion: EP-7A: Flare 1 ^[1] <u>EP-7B: Flare 2^[1]</u>	CE-7A: Flare 1	
	<u>CE-7B: Flare 2</u>	

^[1] Emissions limitations and other applicable conditions for EP-7A and EP-7B are found in Condition III.(B).

(2) Emission Limitations and Testing Requirements:

- (a) The volumetric concentration of Hydrogen Sulfide (H₂S) at the outlet of the Digesters (EU-11 through EU-16) shall not exceed 4,475 parts per million on a dry basis (ppmvd) measured as a 3-hour rolling average. (Chapter 3)
- (b) The volumetric concentration of Hydrogen Sulfide (H₂S) at the outlet of the Tail Gas Vent (EP-8) shall not exceed 45 parts per million on a dry basis (ppmvd) measured as a 3-hour rolling average. (Chapter 3)

(3) Operational and Monitoring Requirements and Limitations:

- (a) Biogas shall not be discharged directly to the atmosphere. All biogas shall be controlled by either the H₂S Adsorption Towers (CE-8A and/or CE-8B) before exhausting out of the Tail Gas Vent (EP-8) or combusted in either of the flares (CE-7A/EP-7A and/or CE-7B/EP-7B). (Chapter 3)
- (b) The permittee shall install, operate, and maintain continuous H₂S monitors that measures H₂S concentration of biogas at the outlet of the Digesters (EU-11 through EU-16) and the Tail Gas Vent (EP-8). The continuous H₂S monitors shall be operated in accordance with the following: (Chapter 3)
 - (i) Each H₂S monitor shall be calibrated as frequently as recommended in the manufacturer's specifications.
 - (ii) Each monitor shall record H₂S concentrations a minimum of once every 15 minutes.
 - (iii) The biogas H₂S concentrations shall be used to calculate a 1-hour average of the biogas H₂S concentration at each outlet. The 1-hour average concentrations shall then be averaged into a 3-hour rolling average at each outlet.
- (c) The flow rate of biogas exiting the Digesters (EU-11 through EU-16) shall not exceed 34,875 dscf per hour measured as a 3-hour rolling average. (Chapter 3)
 - (i) The permittee shall install, operate, and maintain a continuous flow meter that measures biogas at the outlet of the Digesters. The continuous flow meter shall be operated in accordance with the following:
 - 1. The flow meter shall be maintained, operated, and calibrated as recommended in the manufacturer's specifications.
 - 2. The monitor shall record flow of biogas a minimum of once every 15 minutes.
 - 3. The biogas flow rates shall be used to calculate a 1-hour average of the biogas flow rate. The 1-hour average flow rates shall then be averaged into a 3-hour rolling average.
- (d) The flow rate of the tail gas shall not exceed 13,800 dscf per hour measured as a 3-hour rolling average. (Chapter 3)
 - (i) The permittee shall install, operate, and maintain a continuous flow meter that measures biogas at EP-8. The continuous flow meter shall be operated in accordance with the following:
 - 1. The flow meter shall be maintained, operated, and calibrated as recommended in the manufacturer's specifications.
 - 2. The monitor shall record flow of biogas a minimum of once every 15 minutes.

3. The biogas flow rates shall be used to calculate a 1-hour average of the biogas flow rate. The 1-hour average flow rates shall then be averaged into a 3-hour rolling average.

(4) Applicable NSPS, NESHAP, and MACT Requirements:

The ~~NDEE~~ **NDWEE** has not identified any NSPS, NESHAP, or MACT requirements that apply to the emission points or emission units listed in Condition III.(A)(1).

(5) Reporting and Recordkeeping Requirements:

- (a) Records shall be kept documenting the average hourly and 3-hour rolling averages of H₂S concentrations of biogas, in ppmvd at the outlet of the Digesters (EU-11 through EU-16) and the outlet of the Tail Gas Vent (EP-8).
- (b) Records shall be kept documenting the average hourly and 3-hour rolling averages of biogas flow rate from the digesters and tail gas flow rate, in scf per hour.
- (c) Recordkeeping and reporting associated with the continuous H₂S monitor and continuous flow meter shall be as follows:
 - (i) Calibration records shall be kept on site and readily available to ~~NDEE~~ **NDWEE** representatives.

Condition III.(B) now reads:

III.(B) Specific Conditions for the Flares

- (1) Permitted Emission Points: The source is permitted to construct the emission points and associated emission units identified in the following table at the capacities and using the fuel types listed:

Emission Point ID#	Required Control Unit ID# and Description	Emission Unit ID# and Descriptions	Maximum Capacity (MMBtu/hr)	Permitted Fuel Type
EP-7A	CE-7A: Flare 1	EU-7A: Bypass Flare 1	20.64 18.4	Biogas (Flare) Natural Gas (Pilot)
EP-7B	CE-7B: Flare 2	EU-7B: Bypass Flare 2	18.4	Biogas (Flare) Natural Gas (Pilot)

(2) Emission Limitations and Testing Requirements:

The ~~NDEE~~ **NDWEE** has not identified any emission limitations and testing requirements that apply to the emission units listed in Condition III.(B)(1).

(3) Operational and Monitoring Requirements and Limitations:

- (a) When biogas is being routed to ~~the a~~ bypass flare (CE-7A **and/or CE-7B**), a flame shall be present at the flare **to which any amount of biogas is routed.** (Chapter 3)
 - (i) The facility shall install an appropriate safety device or flame monitoring system to ensure that the presence of a flame at the flare.

(4) Applicable NSPS, NESHAP, and MACT Requirements:

The ~~NDEE~~ **NDWEE** has not identified any NSPS, NESHAP, or MACT requirements that apply to the emission points or emission units listed in Condition III.(B)(1).

(5) Reporting and Recordkeeping Requirements:

- (a) Records shall be kept of a flame presence at the bypass flares (CE-7A, **CE-7B**) when in use.

Condition III.(C) now reads:

III.(C) Specific Conditions for Engines

- (1) Permitted Emission Points: The source is permitted to construct the emission points and associated emission units identified in the following table at the capacities, using the fuel types listed, and controlled by the required control equipment as indicated:

Emission Point ID#	Required Control Equipment ID# and Description	Emission Unit ID# and Description	Maximum Capacity (hp)	Permitted Fuel Type
EP-9	-	EU-9: Back-up Generator	~~469~~ 1490	~~Natural Gas~~ Ultra-Low Sulfur Diesel
EP-10	CE-10: Non-Selective Catalytic Reduction System	EU-10: Feed Gas Compressor Engine	325	Natural Gas

- (2) Emission Limitations and Testing Requirements:

- (a) Pollutant emission rates from each emission point identified in the table below shall not exceed the permitted limits. Performance testing, if required, shall be conducted in accordance with Condition I.(M) and Condition II.(G).

Emission Point ID#	Pollutant	Permitted Limit	Averaging Period	Basis for Permit Limit	Performance Testing Required
EP-10	NO _x	1.43 lb/hr	Three 1-hour test runs or test method average	Chapter 3	Yes

- ~~(b) Refer to 40 CFR 60 Subpart JJJ and 40 CFR 63 Subpart ZZZZ for any applicable emission limitations and testing requirements associated with the emission points identified in Condition III.(C)(1).~~

- (b) The permittee shall comply with the applicable emissions limitations and testing requirements specified in 40 CFR Part 60 Subparts A and IIII and 40 CFR Part 63 Subparts A and ZZZZ for emission unit EU-9. (Chapters 12 and 13)**

- (c) The permittee shall comply with the applicable emissions limitations and testing requirements specified in 40 CFR Part 63 Subparts A and ZZZZ for emission unit EU-10. (Chapter 13)**

- (3) Operational and Monitoring Requirements and Limitations:

- (a) The back-up generator (EU-9) shall be limited to 500 operating hours each per any period of twelve (12) consecutive calendar months. At no time during the first eleven (11) months after start-up shall any emergency generator and fire pump engine total operating hours exceed 500 hours. (Chapters 3, 12, and 13)
- (i) The back-up generator (EU-9) shall be operated for no more than 100 hours per calendar year for non-emergency situations as prescribed 40 CFR Part 60 Subpart ~~JJJ~~ **IIII**, and 40 CFR Part 63 Subpart ZZZZ.
- (ii) The back-up generator (EU-9) shall be equipped with a non-resettable hour meter to record the operating hours.
- (iii) Non-emergency operation of the back-up generator (EU-9) shall be limited to between the hours of 11:00 AM to 4:00 PM CDT/CST.

- (iv) The source shall comply with the operational and monitoring requirements and limitations as specified in 40 CFR 60 Subpart ~~III~~ **III**, and 40 CFR 63 Subpart ZZZZ. (Chapters 12 and 13)

(b) The permittee shall comply with the applicable operational and monitoring requirements and limitations specified in 40 CFR Part 63 Subparts A and ZZZZ for emission unit EU-10. (Chapter 13)

(4) Applicable NSPS, NESHAP, and MACT Requirements:

- (a) The following standards apply to the Back-up generator (EU-9):

Applicable Standard	Title	Rule Citation
NSPS, Subpart A	General Provisions	Title 129, Chapter 12, Sec. <u>001.01</u> 40 CFR 60.1 through 60.19
NSPS, Subpart ~~III~~ III	Stationary ~~Spark~~ Compression Ignition Internal Combustion Engines	Title 129, Chapter 12, Sec. ~~001.81~~ 001.80 40 CFR ~~60.4230~~ 60.4200 through ~~60.4248~~ 60.4219
NESHAP, Subpart A	General Provisions	Title 129, Chapter 13, Sec. <u>002.01</u> 40 CFR 63.1 through 63.16
NESHAP, Subpart ZZZZ	Stationary Reciprocating Internal Combustion Engines	Title 129, Chapter 13, Sec. <u>002.78</u> 40 CFR 63.6580 through 63.6675

- (b) The following standards apply to the Feed Gas Compressor engine (EU-10):

Applicable Standard	Title	Rule Citation
NESHAP, Subpart A	General Provisions	Title 129, Chapter 13, Sec. <u>002.01</u> 40 CFR 63.1 through 63.16
NESHAP, Subpart ZZZZ	Stationary Reciprocating Internal Combustion Engines	Title 129, Chapter 13, Sec. <u>002.78</u> 40 CFR 63.6580 through 63.6675

(5) Reporting and Recordkeeping Requirements:

The owner or operator shall maintain the following records:

- (a) Records shall be kept documenting hours of operation for the back-up generator (EU-9) for each calendar month and for each period of twelve (12) consecutive calendar months.
- (b) Records shall be kept documenting hours of non-emergency operation for the back-up generator (EU-9) for each calendar month and for each period of twelve (12) consecutive calendar months.
- ~~(c) Notification, reporting and recordkeeping as required by 40 CFR 60 Subparts A and III.~~
- (c) Applicable reporting and recordkeeping requirements specified in 40 CFR Part 60 Subparts A and III and 40 CFR Part 63 Subparts A and ZZZZ for emission unit EU-9.**
- ~~(d) Notification, reporting and recordkeeping as required by 40 CFR 63 Subparts A and ZZZZ.~~
- (d) Applicable reporting and recordkeeping requirements specified in 40 CFR Part 63 Subparts A and ZZZZ for emission unit EU-10.**

No other terms or conditions of construction permit CP23-015 are being revised as part of this permitting action.

Fact Sheet Attachment

PTE Summary

Facility PTE (tpy)											
Emission Point	Description	PM	PM ₁₀	PM _{2.5}	NO _x	SO _x	CO	VOC	Largest HAP (Formaldehyde)	Total HAPs	H ₂ S
EP-1 through EP-6	Boilers 1 through 6	0.20	0.20	0.20	2.58	0.02	2.16	0.14	1.93E-03	0.05	-
EP-7A and EP-7B	Flares 1 and 2	2.60	2.60	2.60	6.18	103.64	28.06	0.84	0.01	0.28	0.03
EP-8	Tail Gas	-	-	-	-	-	-	3.02	-	-	0.25
EP-9	Back-up Generator	0.18	0.18	0.18	2.65	2.74E-03	1.45	0.16	1.42E-04	0.01	-
EP-10	Compressor Engine	0.19	0.19	0.19	6.28	5.89E-03	6.28	0.30	0.21	0.32	-
Post Project PTE:		3.17	3.17	3.17	17.68	103.66	37.95	4.46	0.22	0.66	0.28
Pre Project PTE:^[1]		2.97	2.97	2.97	16.26	103.62	36.87	5.63	0.67	1.24	0.28
Change in PTE:		0.20	0.20	0.20	1.42	0.04	1.08	-1.17	-0.45	-0.58	0.00

^[1] Pre Project PTE obtained from CP23-015.

Emission Point	Description	GHG (tpy)			
		CO ₂	CH ₄	N ₂ O	Total (as CO ₂ e) ^[1]
EP-1 through EP-6	Boilers 1 through 6	3,092	0.06	0.06	3,108
EP-7A and EP-7B	Flares 1 and 2	18,362	0.35	0.34	18,461
EP-8	Tail Gas	4,321	22.88	-	4,962
EP-9	Back-up Generator	648	2.63E-02	5.26E-03	650
EP-10	Compressor Engine	1,172	2.21E-02	2.21E-03	1,173
Post Project PTE:		27,594	23.34	0.40	28,354
Pre Project PTE:^[2]		28,086	23.34	0.41	28,792
Change in PTE:		-492	1.2E-03	-9.2E-03	-438

^[1] tons CO₂e/yr = [(tons/yr CO₂)*1] or [(tons/yr CH₄)*28] or [(tons/yr N₂O)*265]; CO₂ equivalents are found in 40 CFR Part 98 Subpart A Table A-1 Global Warming Potentials published on April 25, 2024. The CO₂e for CO₂ =1, for CH₄ =28, and for N₂O = 265.

^[2] Pre Project PTE obtained from CP23-015.

Fact Sheet Attachment

Boilers EP-1 through EP-6 (Natural Gas Fired)

Heat Input:	1.0 MMBtu/hr (each)
Fuel Heat Content:	1020 MMBtu/MMscf
	0.00588 MMscf/hr (total)
Hours of Operation:	8,760 hr/yr

EP-1 through EP-6: Total Combined Boiler Emissions

Pollutant	Emission Factors ^[1]	Emission Rate	
	lb/MMscf	(lb/hr)	(tpy)
PM	7.6	0.04	0.20
PM ₁₀	7.6	0.04	0.20
PM _{2.5}	7.6	0.04	0.20
NO _x	100	0.59	2.58
SO ₂	0.60	3.53E-03	1.55E-02
CO	84	0.49	2.16
VOC	5.5	0.03	0.14
CO ₂	120,000	705.88	3,092
CH ₄	2.3	1.35E-02	0.06
N ₂ O	2.2	1.29E-02	0.06
CO ₂ e ^[2]	-	709.69	3,108
Hazardous Air Pollutants			
Benzene	2.10E-03	1.24E-05	5.41E-05
Dichlorobenzene	1.20E-03	7.06E-06	3.09E-05
Formaldehyde	0.08	4.41E-04	1.93E-03
n-Hexane	1.80	1.06E-02	0.05
Lead Compounds	5.00E-04	2.94E-06	1.29E-05
Naphthalene	6.10E-04	3.59E-06	1.57E-05
Polycyclic Organic Matter (POM)	8.82E-05	5.19E-07	2.27E-06
Toluene	3.40E-03	2.00E-05	8.76E-05
Arsenic Compounds (ASC)	2.00E-04	1.18E-06	5.15E-06
Beryllium Compounds (BEC)	1.20E-05	7.06E-08	3.09E-07
Cadmium Compounds (CDC)	1.10E-03	6.47E-06	2.83E-05
Chromium Compounds (CRC)	1.40E-03	8.24E-06	3.61E-05
Cobalt Compounds (COC)	8.40E-05	4.94E-07	2.16E-06
Manganese Compounds (MNC)	3.80E-04	2.24E-06	9.79E-06
Mercury Compounds (HGC)	2.60E-04	1.53E-06	6.70E-06
Nickel Compounds (NIC)	2.10E-03	1.24E-05	5.41E-05
Selenium Compounds (SEC)	2.40E-05	1.41E-07	6.18E-07
Total HAPs		1.11E-02	0.05

^[1] Emission factors are from AP-42 Chapter 1.4, Tables 1.4-1, 1.4-2, and 1.4-3. (April 2026)

^[2] CO₂e is the sum of each GHG pollutant multiplied by its GWP found in 40 CFR 98, Subpart A, Table A-1, as published on April 25, 2024.

Fact Sheet Attachment

Flares EP-7A and EP-7B (combustion)

Flare Capacity ^[1] :	18.40 MMBtu/hr (each)
Biogas Heat Content:	592.08 MMBtu/MMscf
Max Flare Capacity ^[1] :	0.062 MMscf/hr (total)
Permitted Biogas Flowrate:	0.035 MMscf/hr (total)
Flare Operational hours:	8,760 hr/yr

EP-7A and EP-7B: Flare Biogas Combustion Emissions

Pollutant	Emission Factors ^[2]	Emission Rate	
	lb/MMscf	(lb/hr)	(tpy)
PM ^[3]	17	0.59	2.60
PM ₁₀ ^[3]	17	0.59	2.60
PM _{2.5} ^[3]	17	0.59	2.60
NO _x ^[4]	40	1.40	6.15
SO ₂ ^[5]	678.47	23.66	103.64
CO ^[4]	184	6.40	28.04
VOC	5.5	0.19	0.84
CO ₂	120,000	4185.00	18,330
CH ₄	2.3	0.08	0.35
N ₂ O	2.2	0.08	0.34
CO ₂ e ^[6]	-	4,208	18,429
Hazardous Air Pollutants			
Benzene	2.10E-03	7.32E-05	3.21E-04
Dichlorobenzene	1.20E-03	4.19E-05	1.83E-04
Formaldehyde	0.08	2.62E-03	1.15E-02
n-Hexane	1.80	6.28E-02	0.27
Lead Compounds	5.00E-04	1.74E-05	7.64E-05
Naphthalene	6.10E-04	2.13E-05	9.32E-05
Polycyclic Organic Matter (POM)	8.82E-05	3.08E-06	1.35E-05
Toluene	3.40E-03	1.19E-04	5.19E-04
Arsenic Compounds (ASC)	2.00E-04	6.98E-06	3.06E-05
Beryllium Compounds (BEC)	1.20E-05	4.19E-07	1.83E-06
Cadmium Compounds (CDC)	1.10E-03	3.84E-05	1.68E-04
Chromium Compounds (CRC)	1.40E-03	4.88E-05	2.14E-04
Cobalt Compounds (COC)	8.40E-05	2.93E-06	1.28E-05
Manganese Compounds (MNC)	3.80E-04	1.33E-05	5.80E-05
Mercury Compounds (HGC)	2.60E-04	9.07E-06	3.97E-05
Nickel Compounds (NIC)	2.10E-03	7.32E-05	3.21E-04
Selenium Compounds (SEC)	2.40E-05	8.37E-07	3.67E-06
Total HAPs		0.07	0.29
Single Greatest HAP (Hexane)		0.06	0.27

^[1] Provided by Phelps County Feeders in the application.

^[2] Unless otherwise noted, emission factors are from AP-42 Chapter 1.4. (April, 2026)

^[3] Emission factors for PM/PM₁₀/PM_{2.5} are from AP-42 Chapter 2.4-5. (May, 2025)

^[4] NO_x emission factor (0.068 lb/MMBtu) and CO emission factor (0.31 lb/MMBtu) were taken from AP-42 Chapter 13.5, Tables 13.5-1 and 13.5-2. (February, 2018)

^[5] Sulfur Dioxide Calculation: SO₂ emissions are based on the amount of H₂S in the gas from the biological reactor (see calculations next page)

^[6] GHG emission factors from 40 CFR 98, Subpart C, Tables C-1 and C-2 for natural gas. CO₂e is the sum of each GHG pollutant multiplied by its GWP found in 40 CFR 98, Subpart A, Table A-1, as published on April 25, 2024.

Fact Sheet Attachment

H₂S Mass Balance

H₂S Content: 4,475 ppmv^[a]
H₂S Concentration: ppmv*M/V_m 10⁻⁶ g/L or µg/L
Where V_m = standard molar volume of ideal gas or 22.71108 L/mol @std temperature and pressure (STP)
And M = molecular weight of gas or 34.1 g/mol for H₂S^[c]
Or H₂S Content: 6,719 µg/L
Converts to: 6.71876E-06 kg/L
Conversion: 2.2046 lb/kg
Conversion: 28.31684659 L/ft³
or Concentration @STP 4.19E-04 lb/ft³
Standard Temp: 491.67 °R
Operating Temp: 559.67 °R (100 °F)
Actual Concentration: 3.68E-04 lb/ft³
Assume 98% conversion of H₂S to SO₂^(b)
H₂S Concentration: 3.68E-04 lb/ft³
Conversion: 98%
Equals: 3.61E-04 lb/ft³ H₂S
Converts to^{(c)(d)}: 6.78E-04 lb/ft³ SO₂

^(a) Concentration of H₂S was calculated based on a sulfur balance using a sample with the maximum %sulfur from the past four years of samples at Phelps County Feeders.

^(b) Texas Commission on Environmental Quality (TCEQ) *Publication RG-360A*, Revised January 2007

^(c) Molecular Weight of H₂S is: 34.1 g/mol

^(d) Molecular Weight of SO₂ is: 64.07 g/mol

Fact Sheet Attachment

Flares EP-7A and EP-7B (pilot)

Natural gas flowrate

3.04E-05 MMscf/hr (each)

6.08E-05 MMscf/hr (total)

Pollutant	Emission Factor ^[1] (lb/MMscf)	Potential Uncontrolled Emissions (lb/hr)	Potential Uncontrolled Emissions (tpy)
PM	7.6	4.62E-04	2.02E-03
PM ₁₀	7.6	4.62E-04	2.02E-03
PM _{2.5}	7.6	4.62E-04	2.02E-03
SO ₂	0.6	3.65E-05	1.60E-04
NO _x	100	6.08E-03	2.66E-02
CO	84	5.11E-03	2.24E-02
VOC	5.5	3.34E-04	1.46E-03
CO ₂	120,000	7.29	31.95
CH ₄	2.3	1.40E-04	6.12E-04
N ₂ O	2.2	1.34E-04	5.86E-04
CO ₂ e ^[2]	-	7.33	32.12
Individual HAPS			
Arsenic	2.00E-04	1.22E-08	5.32E-08
Benzene	2.10E-03	1.28E-07	5.59E-07
Beryllium	1.20E-05	7.29E-10	3.19E-09
Cadmium	1.10E-03	6.69E-08	2.93E-07
Chromium	1.40E-03	8.51E-08	3.73E-07
Cobalt	8.40E-05	5.11E-09	2.24E-08
Dichlorobenzene	1.20E-03	7.29E-08	3.19E-07
Formaldehyde	7.50E-02	4.56E-06	2.00E-05
n-Hexane	1.8	1.09E-04	4.79E-04
Lead	5.00E-04	3.04E-08	1.33E-07
Manganese	3.80E-04	2.31E-08	1.01E-07
Mercury	2.60E-04	1.58E-08	6.92E-08
Naphthalene	6.10E-04	3.71E-08	1.62E-07
Nickel	2.10E-03	1.28E-07	5.59E-07
POM	8.82E-05	5.36E-09	2.35E-08
Selenium	2.40E-05	1.46E-09	6.39E-09
Toluene	3.40E-03	2.07E-07	9.05E-07
Total HAPS		1.15E-04	5.03E-04

^[1] The emission factors are from AP-42, Chapter 1.4 (April, 2026).

^[2] GHG emission factors from 40 CFR 98, Subpart C, Tables C-1 and C-2 for natural gas. CO₂e is the sum of each GHG pollutant multiplied by its GWP found in 40 CFR 98, Subpart A, Table A-1, as published on April 25, 2024.

Fact Sheet Attachment

Back-up Generator EP-9

Engine Power Output (kW) ^[1]	750
Max fuel consumption (gal/hr) ^[1]	52.6
Heat Input Capacity (MMBtu/hr) ^[2]	7.21
Annual Operating Hours (hr/yr)	500

Pollutant	Emission Factor ^{[3][4]}	Units	PTE (lb/hr)	PTE (tpy)
PM	0.1	lb/MMBtu	7.21E-01	1.80E-01
PM ₁₀	0.1	lb/MMBtu	7.21E-01	1.80E-01
PM _{2.5}	0.1	lb/MMBtu	7.21E-01	1.80E-01
SO _x	1.52E-03	lb/MMBtu	1.10E-02	2.74E-03
CO	3.50	g/kW-hr	5.79	1.45
VOC	0.09	lb/MMBtu	0.65	0.16
NO _x	6.4	g/kW-hr	10.58	2.65
Hazardous Air Pollutants^[3]				
Acetaldehyde	2.52E-05	lb/MMBtu	1.82E-04	4.54E-05
Acrolein	7.88E-06	lb/MMBtu	5.68E-05	1.42E-05
Benzene	7.76E-04	lb/MMBtu	5.59E-03	1.40E-03
Formaldehyde	7.89E-05	lb/MMBtu	5.69E-04	1.42E-04
Total PAH	2.12E-04	lb/MMBtu	1.53E-03	3.82E-04
Propylene	2.79E-03	lb/MMBtu	2.01E-02	5.03E-03
Toluene	2.81E-04	lb/MMBtu	2.03E-03	5.06E-04
Xylene	1.93E-04	lb/MMBtu	1.39E-03	3.48E-04
Total HAPs			0.03	0.01
Greenhouse Gases^[5]				
CO ₂	163.08	lb/MMBtu	2,591.45	647.86
CH ₄	6.62E-03	lb/MMBtu	0.11	2.63E-02
N ₂ O	1.32E-03	lb/MMBtu	2.10E-02	5.26E-03
Total GHGs (mass basis)		-	2,591.58	647.89
Total GHGs (ton CO ₂ e/yr)		-	2,599.97	649.99

^[1] Obtained from manufacturer Specification sheet for Cummins DQFAA 750kW.

^[2] Heat input based on fuel consumption and 137,030 Btu/gal, taken from AP-42 Table 3.4-1 footnote a (04/2025).

^[3] Emissions factors are obtained from AP-42, Chapter 3.4, Tables 3.4-1, 3.4-3, and 3.4-4 for HAPs and criteria pollutants other than NO_x and CO (04/2025).

^[4] Emission factors for NO_x and CO are the NSPS III Standards for emergency engines >2,237 kW and <10 L of displacement per cylinder.

^[5] GHG emission factors from 40 CFR 98, Subpart C, Tables C-1 and C-2 for No. 2 fuel oil and converted to lb/MMBtu. CO₂e is the sum of each GHG pollutant multiplied by its GWP found in 40 CFR 98, Subpart A, Table A-1, as published on April 25, 2024.

Fact Sheet Attachment

Feed Gas Compressor Engine EP-10

Engine Power Output^[1] 325 bhp
Heat Input Capacity^[2] 7037 Btu/bhp-hr
2.29 MMBtu/hr
Annual Operating Hours 8,760 hr/yr

Pollutant	Emission Factor^{[3][4]}	Units	PTE (lb/hr)	PTE (tpy)
PM	1.94E-02	lb/MMBtu	4.44E-02	0.19
PM ₁₀	1.94E-02	lb/MMBtu	4.44E-02	0.19
PM _{2.5}	1.94E-02	lb/MMBtu	4.44E-02	0.19
SO _x	5.88E-04	lb/MMBtu	1.34E-03	5.89E-03
CO	2.00	g/hp-hr	1.43	6.28
VOC	2.96E-02	lb/MMBtu	0.07	0.30
NO _x	2.0	g/hp-hr	1.43	6.28
Hazardous Air Pollutants^[3]				
Acetaldehyde	2.79E-03	lb/MMBtu	6.38E-03	2.79E-02
Acrolein	2.63E-03	lb/MMBtu	6.01E-03	2.63E-02
Benzene	1.58E-03	lb/MMBtu	3.61E-03	1.58E-02
1,3-Butadiene	6.63E-04	lb/MMBtu	1.52E-03	6.64E-03
Ethylbenzene	2.48E-05	lb/MMBtu	5.67E-05	2.48E-04
Formaldehyde	2.05E-02	lb/MMBtu	4.69E-02	0.21
Methanol	3.06E-03	lb/MMBtu	7.00E-03	3.07E-02
Naphthalene	9.71E-05	lb/MMBtu	2.22E-04	9.73E-04
PAH	1.41E-04	lb/MMBtu	3.22E-04	1.41E-03
Toluene	5.58E-04	lb/MMBtu	1.28E-03	5.59E-03
Xylene	1.95E-04	lb/MMBtu	4.46E-04	1.95E-03
Other HAPs	1.79E-04	lb/MMBtu	4.10E-04	1.79E-03
Total HAPs			0.07	0.32
Greenhouse Gases^[5]				
CO ₂	53.06	(kg/MMBtu)	267.53	1,171.77
CH ₄	1.00E-03	(kg/MMBtu)	0.01	2.21E-02
N ₂ O	1.00E-04	(kg/MMBtu)	0.00	2.21E-03
Total GHGs (mass basis)		-	267.53	1,171.79
Total GHGs (ton CO ₂ e/yr)		-	267.80	1,172.97

^[1] Obtained from manufacturer Specification sheet for Caterpillar G3406 4-stroke-cycle engine.

^[2] Heat input based on fuel consumption and 1,020 Btu/cf, taken from AP-42 Table 3.2-2 footnote b (10/2024).

^[3] Emissions factors are obtained from AP-42, Chapter 3.2, Table 3.2-3 for 4SRB for HAPs and criteria pollutants other than NO_x and CO (10/2024).

^[4] Emission factor for NO_x and CO are from the NSPS JJJJ Table 1 standards for non-emergency engines > 100 hp.

^[5] GHG emission factors from 40 CFR 98, Subpart C, Tables C-1 and C-2 for natural gas. CO₂e is the sum of each GHG pollutant multiplied by its GWP found in 40 CFR 98, Subpart A, Table A-1, as published on April 25, 2024.

Fact Sheet Attachment

Title 129, Chapter 15, Section 001.02

Total Heat Input (MMBtu/hr)	Maximum Allowable Emissions of PM (lbs/MMBtu)
10 or less	0.6
Between 10 and 10,000	$1.026/I^{0.233}$ Where I = total heat input in MMBtu/hr.
10,000 or more	0.12

Chapter 15, Section 001.02 Calculations

Emission Point	Emission Unit	Description	Rating	Individual Emission Rate	Allowable PM, Individual Emissions
			MMBtu/hr	lb/MMBtu	lb/MMBtu
EP-1 through EP-6		Any individual Boiler	1.00	7.45E-03	0.60
EP-7A	EU-7A	Flare 1	18.40	0.02	0.52
EP-7B	EU-7B	Flare 2	18.40	0.02	0.52
EP-9	EU-9	Back-up Generator	7.21	0.10	0.60
EP-10	EU-10	Compressor Engine	2.29	0.02	0.60