

**AIR QUALITY EFFECTS ANALYSIS
 FOR
 PERMIT TO CONSTRUCT
 ACP-17556 v1.1**

Applicant:

Hiland Partners Holdings LLC
 1001 Louisiana Street, Suite 1000
 Houston, TX 77002

Facility Location:

Bethel Compressor Station
 Williams County, North Dakota
 48.220, -103.800
 SE ¼, NE ¼, Sec. 28, T155N, R102W

Introduction:

On September 4, 2024, The Department of Environmental Quality – Division of Air Quality (Department) received a permit to operate renewal application from Hiland Partners Holdings LLC (Hiland Partners) for Air Permit to Operate No. AOP-27979 v2.0 for the Bethel Compressor Station. Since issuance of AOP-27979 v2.0, Department policy now requires facilities with compressor engines having enforceable emission limits limiting emissions below major source thresholds be updated to synthetic minor permits and undergo public comment review. Before renewal of the Air Permit to Operate, this policy necessitates a modification of the underlying Air Permit to Construct No. ACP-17556 v1.0 where these emission limits were established.

Table 1 – Emission units associated with the Bethel Compressor Station

Emission Unit Description	Emission Unit (EU)	Emission Point (EP)	Air Pollution Control Equipment
Waukesha L5794GSI (4SRB) natural gas-fired compressor engine rated at 1,380 bhp manufactured October 2012 (NSPS JJJJ, OOOO) (MACT ZZZZ)	C1	C1	Non-Selective Catalytic Reduction (NSCR)
Waukesha L5794GSI (4SRB) natural gas-fired compressor engine rated at 1,380 bhp manufactured May 2012 (NSPS JJJJ, OOOO) (MACT ZZZZ)	C2	C2	NSCR

Emission Unit Description	Emission Unit (EU)	Emission Point (EP)	Air Pollution Control Equipment
Waukesha L5794GSI (4SRB) natural gas-fired compressor engine rated at 1,380 bhp manufactured October 2008 (NSPS JJJJ) (MACT ZZZZ)	C3	C3	NSCR
Waukesha L5794 (4SRB) natural gas-fired compressor engine rated at 1,380 bhp manufactured June 2013 (NSPS JJJJ, OOOO) (MACT ZZZZ)	C4	C4	NSCR
Phoenix natural gas-fired hot oil heater rated at 14.7×10^6 Btu/hr (NSPS Dc)	5	5	None
MRW Technologies, Inc. air-assisted flare (process and emergency)	6	6	None ^A
One 400 bbl produced water/condensate tank	7	7	Submerged Fill Pipe
Fugitive emissions	FUG	FUG	Leak Detection and Repair (LDAR)
Produced water truck loading ^B			
NGL truck loading ^B			
Pigging ^B			
Three methanol chemical storage tanks ^B			

^A The flare will handle compressor blowdown emissions from EUs C1 through C4, first stage scrubber venting emissions, and flash tank venting emissions.

^B Insignificant source of emissions.

Current/Proposed Engine Emission Limits:

Unit	Pollutant/Parameter	Current Emission Limits ^A	Proposed Emission Limit ^A
Four Waukesha engines	NO _x	1.0 g/hp-hr or 82 ppmvd at 15% O ₂	1.0 g/hp-hr or 82 ppmvd at 15% O ₂
	CO	1.0 g/hp-hr or 135 ppmvd at 15% O ₂ ^B	1.0 g/hp-hr ^B
	VOC	0.7 g/hp-hr or 60 ppmvd at 15% O ₂	0.7 g/hp-hr or 60 ppmvd at 15% O ₂
	Opacity	20% ^C	20% ^C

^A Emission limits apply to each individual emission point.

^B Less restrictive 40 CFR 60 Subpart JJJJ limits also apply as follows: CO of 2.0 g/hp-hr or 270 ppmvd @ 15% O₂.

^C 40% opacity is permissible for not more than one six-minute period per hour.

Facility Wide Emissions Profile
Potential to Emit (PTE)

Table 2 - PTE (tons per year) ^A

Emission Unit Description	EU	CO	NO_x	SO₂	VOCs	Total PM	PM₁₀	PM_{2.5}	Total HAPs	HAP Name (Largest HAP)
Waukesha L5794GSI compressor engine	C1	13.33	13.33	0.03	9.46	0.88	0.88	0.88	0.40	Formaldehyde
Waukesha L5794GSI compressor engine	C2	13.33	13.33	0.03	9.46	0.88	0.88	0.88	0.40	Formaldehyde
Waukesha L5794GSI compressor engine	C3	13.33	13.33	0.03	9.46	0.88	0.88	0.88	0.40	Formaldehyde
Waukesha L5794GSI compressor engine	C4	13.33	13.33	0.03	9.46	0.88	0.88	0.88	0.40	Formaldehyde
Phoenix hot oil heater rated at 14.7 MMBtu/hr	5	5.30	6.31	0.04	0.35	0.48	0.48	0.48	0.08	Hexane
MRW Technologies, Inc. flare	6	12.54	2.86	0.00	12.89	0.21	0.21	0.21	0.17	Hexane
400-bbl condensate/ produced water storage tank	7	---	---	---	5.02	---	---	---	---	---
Fugitives	FUG	---	---	---	3.03	---	---	---	0.03	Hexane
Produced water truck loading	---	---	---	---	0.15	---	---	---	---	---
NGL truck loading	---	---	---	---	1.43	---	---	---	---	---
Pigging	---	---	---	---	1.13	---	---	---	---	---
Three methanol chemical storage tanks	---	---	---	---	0.03	---	---	---	---	---
Total (without Fugitives):		71.16	62.49	0.16	58.84	4.21	4.21	4.21	1.85	---
Total (with Fugitives):		71.16	62.49	0.16	61.87	4.21	4.21	4.21	1.88	---

^A Abbreviations:

Total PM: filterable and condensable particulate matter

PM₁₀: particulate matter with an aerodynamic diameter less than or equal to 10 microns ($\leq 10 \mu\text{m}$) including PM_{2.5}

PM_{2.5}: particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($\leq 2.5 \mu\text{m}$)

SO₂: sulfur dioxide

NO_x: oxides of nitrogen

CO: carbon monoxide

VOCs: volatile organic compounds

HAPs: hazardous air pollutants as defined in Section 112(b) of the Clean Air Act

As shown in Table 2, the facility wide PTE is below 100 tons per year (tpy) for all criteria air pollutants, below 10 tpy for any single hazardous air pollutant (HAP), and below 25 tpy for the combined HAP emissions. Detailed calculations were provided in a flare replacement permit application for ACP-18117 v1.0, from April 13, 2021. The Department has reviewed these calculations and believes they accurately represent the proposed facility operations.

The facility PTE is based on enforceable emissions restrictions put in place on the four natural gas compressor engines, limiting the allowable amount of CO. These restrictions mean the facility will be a synthetic minor source of air pollution, as the emissions are limited to below major source thresholds for both the prevention of significant deterioration (PSD) and Title V programs.

Summary and Recommendations:

A complete review of the project indicates that the Bethel Compressor Station is expected to comply with the applicable federal and state air pollution rules and regulations. The Department will make a final recommendation on the issuance of a revised Permit to Construct for the Bethel Compressor Station following completion of a 30-day public comment period. The public comment period will run from January 2, 2025, through February 1, 2025.

Date of Draft Analysis: December 30, 2024

Date of Final Analysis: [Reserved]

Analysis By:

Russell Martin
Environmental Scientist
Division of Air Quality

RSM:er