

**AIR QUALITY EFFECTS ANALYSIS  
 FOR  
 PERMIT TO CONSTRUCT  
 ACP-18202 v1.1**

**Applicant:**

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

**Facility Location:**

Rivers Edge Compressor Station  
 McKenzie County, North Dakota  
 47.993, -103.711  
 NW ¼, NW ¼, Sec. 14, T152N, R102W

**Introduction:**

On July 8, 2024, The Department of Environmental Quality – Division of Air Quality (Department) received a permit to operate renewal application for Air Permit to Operate No. AOP-28062 v1.0 for the Rivers Edge Compressor Station. Hiland Partners Holdings LLC (Hiland Partners) requested revisions to the compressor engine emission limits to incorporate the changes authorized by Air Permit to Construct No. ACP-18202 v1.0 as well as to update the permit to include minor changes that have occurred at the facility. Since issuance of ACP-18202 v1.0, Department policy now requires compressor engines with 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 update necessitates a modification of Air Permit to Construct No. ACP-18202 v1.0.

***Table 1 – Emission units associated with the Rivers Edge Compressor Station***

<b>Emission Unit Description</b>	<b>Emission Unit (EU)</b>	<b>Emission Point (EP)</b>	<b>Air Pollution Control Equipment</b>
Waukesha L5794GSI (4SRB) natural gas-fired compressor engine rated at 1,380 bhp manufactured March 2007 (NSPS JJJJ, OOOOa) (MACT ZZZZ)	C1	C1	Non-Selective Catalytic Reduction (NSCR)
Waukesha L5794GSI (4SRB) natural gas-fired compressor engine rated at 1,380 bhp manufactured June 2008 (NSPS JJJJ, OOOOa) (MACT ZZZZ)	C2	C2	NSCR

<b>Emission Unit Description</b>	<b>Emission Unit (EU)</b>	<b>Emission Point (EP)</b>	<b>Air Pollution Control Equipment</b>
Waukesha L5794GSI (4SRB) natural gas-fired compressor engine rated at 1,380 bhp manufactured June 2013 (NSPS JJJJ, OOOO) (MACT ZZZZ)	C3	C3	NSCR
Waukesha L5794GSI (4SRB) natural gas-fired compressor engine rated at 1,380 bhp manufactured April 2012 (NSPS JJJJ, OOOO) (MACT ZZZZ)	C4	C4	NSCR
Triethylene glycol (TEG) reboiler rated at $0.5 \times 10^6$ Btu/hr	5 <sup>A</sup>	5	None
TEG dehydration unit rated at $25 \times 10^6$ scfd (MACT HH)	6	5, 7 & 8	BTEX Condenser & TEG Reboiler <sup>B</sup>
Two 400 barrel (bbl) produced water/condensate tanks	7 & 8	7 & 8	Submerged Fill Pipe (SFP)
Natural gas liquid (NGL) truck loading	NGL-TL <sup>D</sup>	NGL-TL	Vapor Return System
Produced water truck loading	PW-TL <sup>D</sup>	PW-TL	None
Compressor blowdowns	BD	BD	Gas Recycle System <sup>C</sup>
Two methanol storage tanks	TK <sup>D</sup>	TK	None
Pigging	PIG <sup>D</sup>	PIG	None
Fugitives (NSPS OOOOb)	FUG	FUG	Leak Detection and Repair (LDAR)

<sup>A</sup> Reboiler may use recycled flash tank and/or non-condensed fluid from the TEG dehydration system as fuel.

<sup>B</sup> Rich TEG from the gas dehydrator (contactor) is routed to a flash tank (depressurized) and the flash tank emissions are recompressed or recycled back into the process. Vapor emissions from the TEG regenerator (stripper) are routed to a condenser, which provides 80% VOC (BTEX) reduction. The non-condensables from the condenser are routed to the reboiler firebox which assumes an additional 90% VOC (BTEX) reduction.

<sup>C</sup> Compressor blowdowns are manually controlled, and emissions are recycled to the suction header (inlet) of the compressor station when technically feasible.

<sup>D</sup> Insignificant source of emissions.

**Current/Proposed Engine Emission Limits:**

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

<sup>A</sup> Emission limits apply to each individual emission point.

<sup>B</sup> Less restrictive 40 CFR 60 Subpart JJJJ limits also apply as follows: CO of 2.0 g/hp-hr or 270 ppmvd @ 15% O<sub>2</sub>.

<sup>C</sup> 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) <sup>A</sup>

Emission Unit Description	EU	CO	NO <sub>x</sub>	SO <sub>2</sub>	VOCs	Total PM	PM <sub>10</sub>	PM <sub>2.5</sub>	Total HAPs	HAP Name (Largest HAP)
Waukesha L5794GSI compressor engine	C1	13.33	13.33	0.03	9.33	0.88	0.88	0.88	0.40	Formaldehyde
Waukesha L5794GSI compressor engine	C2	13.33	13.33	0.03	9.33	0.88	0.88	0.88	0.40	Formaldehyde
Waukesha L5794GSI compressor engine	C3	13.33	13.33	0.03	9.33	0.88	0.88	0.88	0.40	Formaldehyde
Waukesha L5794GSI compressor engine	C4	13.33	13.33	0.03	9.33	0.88	0.88	0.88	0.40	Formaldehyde
Triethylene glycol (TEG) natural gas-fired reboiler	5	0.13	0.15	---	0.01	0.02	0.02	0.02	---	---
TEG dehydration unit	6	---	---	---	0.49	---	---	---	0.16	Benzene
400-bbl condensate/ produced water storage tank	7	---	---	---	1.00	---	---	---	---	---
400-bbl condensate/ produced water storage tank	8	---	---	---	1.00	---	---	---	---	---
Natural gas liquid (NGL) truck loading	NGL-TL	---	---	---	0.37	---	---	---	---	---
Produced water truck loading	PW-TL	---	---	---	0.44	---	---	---	---	---
Compressor blowdowns	BD	---	---	---	12.45	---	---	---	0.06	Hexane
Methanol storage tanks	TK	---	---	---	0.02	---	---	---	---	---
Pigging	PIG	---	---	---	1.00	---	---	---	---	---
Fugitives	FUG	---	---	---	9.34	---	---	---	0.01	Hexane
<b>Total (without Fugitives):</b>		<b>53.45</b>	<b>53.47</b>	<b>0.12</b>	<b>54.10</b>	<b>3.54</b>	<b>3.54</b>	<b>3.54</b>	<b>1.82</b>	---
<b>Total (with Fugitives):</b>		<b>53.45</b>	<b>53.47</b>	<b>0.12</b>	<b>63.44</b>	<b>3.54</b>	<b>3.54</b>	<b>3.54</b>	<b>1.83</b>	---

<sup>A</sup> Abbreviations:

Total PM: filterable and condensable particulate matter

PM<sub>10</sub>: particulate matter with an aerodynamic diameter less than or equal to 10 microns ( $\leq 10 \mu\text{m}$ ) including PM<sub>2.5</sub>

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

SO<sub>2</sub>: sulfur dioxide

NO<sub>x</sub>: 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 the original permit application for ACP-18202 v1.0 from August 10, 2023. 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 Rivers Edge 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 Rivers Edge Compressor Station following completion of a 30-day public comment period. The public comment period will run from January 10, 2025, through February 9, 2025.

**Date of Draft Analysis:** December 30, 2024

**Date of Final Analysis:** [Reserved]

**Analysis By:**

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Division of Air Quality

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