



**Hiland Partners
Holdings LLC**
a Kinder Morgan company

5151 E. Broadway, Suite 1680, Tucson, Arizona 85711

August 11, 2022

Mr. Craig Thorstenson
Director of Air Quality
North Dakota Department of Environmental Quality
Division of Air Quality
4201 Normandy Street 2nd Floor
Bismarck ND 58503-1324

**Re: Air Permit Revision – ACP-18145 v 1.0
Replace (2) Waukesha Series 5 Engines with (2) Waukesha Series 4 Engines
Hiland Partners Holdings LLC
4Runner Compressor Station
Williams County, North Dakota**

Dear Mr. Thorstenson:

In December 2021, Hiland Partners Holdings LLC (Hiland) submitted an air permit application to construct a new 4Runner Compressor Station. Additional information was provided in February 2022.

A Permit to Construct, ACP-18145 v 1.0 was issued on March 16, 2022 for (4) Waukesha Series 5 rich burn engines and (2) Caterpillar lean burn engines. Earlier, two Waukesha Series 5 units were available and two Waukesha Series 5 units are pending with the manufacturer. The Waukesha Series 5 units are not available, therefore, (2) Waukesha Series 4 units will need to be installed.

The following permit revisions are needed:

- The compressor station name changed from Four Runner Compressor Station to 4Runner Compressor Station.
- Emissions Unit C1 and Emissions Unit C6 are Waukesha L7044GSI Series 5 (4SRB). Earlier, it was our understanding that the two Series 5 units would be C1 and C2.
- Emissions Unit C2 and Emissions Unit C3 revised to “Waukesha L7044GSI Series 4 (4SRB) natural gas-fired compressor engine rated at 1680 bhp (NSPS JJJJ) (NSPS OOOOa) (MACT ZZZZ)”

- Emissions Unit Table revised to reflect (2) Waukesha L7044GSI Series 4 (4SRB) natural gas-fired compressor engines
 - NOx = 3.52 lb/hr and 0.95 grams/hp-hr or 82 ppmvd@ 15 % O₂
 - CO = 3.52 lb/hr and 0.95 grams/hp-hr or 270 ppmvd@ 15 % O₂
 - VOC = 2.37 lb/hr and 0.64 grams/hp-hr or 60 ppmvd@ 15 %

Attached is updated Emissions Calculations, several NDDEQ forms, and Waukesha Series 4 Engine Specifications. All other forms are not submitted since only (2) engines need to be changed from Waukesha Series 5 to Waukesha Series 4.

A draft permit is also included with the submittal.

The Project Engineer would like to ship the Waukesha Series 4 to the station during the first week of September. As possible, please issue the revised permit by September 2nd.

If you need additional information or have any questions, please contact me at (520) 349-0611 or by email at Anu_Pundari@KinderMorgan.com.

Sincerely,



Anu Pundari
Engineer – EHS Staff

EMISSIONS CALCULATIONS

4Runner Compressor Station
Site Emissions Summary

Emissions Summary

Emission Unit #	Emission Unit Description	PM-10 (tpy)	NOx (tpy)	CO (tpy)	SOx (tpy)	VOC (tpy)	HAPS (tpy)	Formaldehyde (tpy)	CO2e (tpy)	GHG (tpy)
C1	Waukesha L7044 GSI Series 5 - 1,900 bhp w/NSCR	1.34	15.41	15.41	0.04	10.11	0.43	0.020	8,009	7,598
C2	Waukesha L7044 GSI Series 4 - 1,680 bhp w/NSCR	1.32	15.41	15.41	0.04	10.40	0.43	0.016	7,872	7,469
C3	Waukesha L7044 GSI Series 4 - 1,680 bhp w/NSCR	1.32	15.41	15.41	0.04	10.40	0.43	0.016	7,872	7,469
C4	Caterpillar 3606 A4 - 1875 bhp w oxidation catalyst	1.19	18.11	18.11	0.04	13.58	1.29	0.905	7,150	6,783
C5	Caterpillar 3606 A4 - 1875 bhp w oxidation catalyst	1.19	18.11	18.11	0.04	13.58	1.29	0.905	7,150	6,783
C6	Waukesha L7044 GSI Series 5 - 1,900 bhp w/NSCR	1.34	15.41	15.41	0.04	10.11	0.43	0.020	8,009	7,598
EU7	TEG Reboiler (1.5 MMBtu/hr)	0.05	0.44	0.37	0.00	0.04	0.01	--	529	526
EU8	TEG Still Vent (TEG Dehy Unit rated at 60 MMscfd)	--	--	--	--	3.41	0.66	--	--	--
EU9	Produced Water Tank - 400 bbl - 15,000 bbl/year	--	--	--	--	1.22	--	--	--	--
EU10	Produced Water Tank - 400 bbl - 15,000 bbl/year	--	--	--	--	1.22	--	--	--	--
PW-TL	Produced Water Truck Loading	--	--	--	--	0.44	--	--	--	--
FUG	Fugitives	0.00	0.00	0.00	0.00	5.40	0.05	0.00	0.00	0
TK	Three Methanol Chemical Storage Tanks	--	--	--	--	0.03	--	--	--	--
BD	Compressor Blowdowns w/recycle	--	--	--	--	17.97	0.22	--	--	--
PIG	Pigging	--	--	--	--	1.00	--	--	--	--
Total Sitewide Emissions		7.75	98.29	98.22	0.23	98.92	5.24	1.88	46591	44227
Total Sitewide Emissions ACP-18145 v1.0 Permitted PTE		7.80	98.29	98.22	0.23	98.34	5.24	1.89	46864	44486
Total Sitewide Emissions without Fugitives		7.75	98.29	98.22	0.23	93.52	5.19	1.88	46591	44227

Notes:

1. Pigging emissions are conservatively assumed to be 1.00 tpy of VOC.
2. Methanol storage tank emissions are conservatively assumed to be 0.01 tpy of VOC for each tank.

**4Runner Compressor Station
Engine Emissions**

4Runner Compressor Station

Equipment Data:

Emission Unit (EU):	C1 and C6
Emission Unit Name:	Waukesha L7044GSI Series 5
Engine Type:	4SRB

Fuel Usage =	91.908 MMscf/yr	(Calculated value based on max fuel combustion rate.)
Horsepower =	1,900 bhp	
Speed =	1,200 rpm	
Hours of Operation =	8,760 hr/yr	
Max. Fuel Combustion Rate (HHV) =	8,283 Btu/bhp-hr	(Based on Manufacturer Specs)
Fuel Heating Value (HHV) =	1,500 MMBtu/MMscf	estimated
Max. Heat Rate (HHV) =	15.74 MMBtu/hr	
CO ₂ GWP (100 year) =	1	7,891 cubic feet per min 0.785 area
CH ₄ GWP (100 year) =	25	10052.2293 feet per minute
N ₂ O GWP (100 year) =	298	167.537155

Pollutant	Emission Factor	Units	Emission Factor Reference	Hourly Emissions (lb/hr)	Annual Emissions (ton/yr)
PM-10 (Front and Back Half)	0.01941	lb/MMBtu	AP-42 Table 3.2-3 (07/00)	0.31	1.34
NOx	0.84	g/BHP-hr	Permit Limit	3.52	15.41
CO	0.84	g/BHP-hr	Permit Limit	3.52	15.41
SOx	5.88E-04	lb/MMBtu	AP-42 Table 3.2-3 (07/00)	0.01	0.04
VOC	0.55	g/BHP-hr	Permit Limit	2.31	10.11
Total HAPs			Engine Vendor/AP-42 Table 3.2-3	0.10	0.43
Formaldehyde	0.001	g/BHP-hr	Manufacturer Estimate	0.004	0.02
Pollutant	Emission Factor	Units	Emission Factor Reference	Hourly Emissions (lb/hr)	Annual Emissions (ton/yr)
CO ₂ e	--	--	--	1,829	8,009
GHG	--	--	--	1,735	7,598
CO ₂	110	lb/MMBtu	AP-42 Table 3.2-3 (07/00)	1,731	7,582
CH ₄	0.23	lb/MMBtu	AP-42 Table 3.2-3 (07/00)	3.62	15.85
N ₂ O	2.2	lb/MMscf	AP-42 Table 1.4-2 (07/00)	0.02	0.10

Notes:

1. NO_x and VOC emissions based on 40 CFR 60 Subpart JJJJ standards. Formaldehyde emissions are based on manufacturer data. PM/PM₁₀ and SO₂ emissions based on AP-42 Table 3.2-3.
2. Per AP-42, all particulate is considered to be less than 1.0 micrometer in diameter.
3. VOC emissions include formaldehyde.

Sample Calculation:

PM-10 Emissions (ton/yr) = (Emission Factor, lb/MMBtu) x (Max Heat Input Rate (HHV), MMBtu/hr) x (Hours of Operation, hr/yr) / (2,000 lb/ton)
 PM-10 Emissions (ton/yr) = (0.01941 lb/MMBtu) x (15.74 MMBtu/hr) x (8,760 hr/yr) / (2,000 lb/ton) = 1.34 ton/yr

VOC Emissions (ton/yr) = (Emission Factor, g/bhp-hr) x (Horsepower, bhp) x (Hours of Operation, hr/yr) / (2,000 lb/ton) / (453.59 grams/1 lb)
 VOC Emissions (ton/yr) = (0.55 g/bhp-hr) x (1900 bhp) x (8,760 hr/yr) / (2,000 lb/ton) / (453.59 g/lb) = 10.11 ton/yr

CO₂e Emissions (ton/yr) = (CO₂ emissions x 1) + (CH₄ emissions x 25) + (N₂O emissions x 298)
 CO₂e Emissions (ton/yr) = ((7582.42 ton/yr x 1) + (15.85 ton/yr x 25) + (0.10 ton/yr x 298)) = 8008.91 ton/yr

GHG Emissions (ton/yr) = (CO₂ emissions) + (CH₄ emissions) + (N₂O emissions)
 GHG Emissions (ton/yr) = (7582.42 ton/yr) + (15.85 ton/yr) + (0.10 ton/yr) = 7598.38 ton/yr

**4Runner Compressor Station
Site Emissions Summary**

4Runner Compressor Station

HAP Emissions per engine

HAP Emissions from Rich-Burn Compressor Engines

Engines	Horsepower (hp)	Hours per Year	Heat Input (MMBtu/yr)	Fuel Input (MMscf/yr)
Engine C-1 and C-6	1,900	8,760	137,862	91.91

HAP	Emission Factor (lb/MMBtu)	Emission Factor (g/bhp-hr)	Control Efficiency (%)	Emissions (tpy) (Controlled)	Notes
1,1,2,2-Tetrachloroethane	2.53E-05	--	50%	8.72E-04	1,4
1,1,2-Trichloroethane	1.53E-05	--	50%	5.27E-04	1,4
1,1-Dichloroethane	1.13E-05	--	50%	3.89E-04	1,4
1,2-Dichloroethane	1.13E-05	--	50%	3.89E-04	1,4
1,2-Dichloropropane	1.30E-05	--	50%	4.48E-04	1,4
1,3-Butadiene	6.63E-04	--	50%	2.29E-02	1,4
1,3-Dichloropropene	1.27E-05	--	50%	4.38E-04	1,4
Acetaldehyde	2.79E-03	--	50%	9.62E-02	1,4
Acrolein	2.63E-03	--	50%	9.06E-02	1,4
Benzene	1.58E-03	--	50%	5.45E-02	1,4
Carbon Tetrachloride	1.77E-05	--	50%	6.10E-04	1,4
Chlorobenzene	1.29E-05	--	50%	4.45E-04	1,4
Chloroform	1.37E-05	--	50%	4.72E-04	1,4
Ethylbenzene	2.48E-05	--	50%	8.55E-04	1,4
Ethylene Dibromide	2.13E-05	--	50%	7.34E-04	1,4
Formaldehyde	--	0.001	NA	0.018	2
Methanol	3.06E-03	--	50%	1.05E-01	1,4
Methylene Chloride	4.12E-05	--	50%	1.42E-03	1,4
Naphthalene	9.71E-05	--	50%	3.35E-03	1,4
PAH	1.41E-04	--	50%	4.86E-03	1,4
Styrene	1.19E-05	--	50%	4.10E-04	1,4
Toluene	5.58E-04	--	50%	1.92E-02	1,4
Vinyl Chloride	7.18E-06	--	50%	2.47E-04	1,4
Xylene	1.95E-04	--	50%	6.72E-03	1,4
HAP	Emission Factor (lb/MMscf)		Control Efficiency (%)	Emissions (tpy) (Uncontrolled)	Notes
Arsenic	2.04E-04	--	0%	9.37E-06	3
Beryllium	1.20E-05	--	0%	5.51E-07	3
Cadmium	1.10E-03	--	0%	5.05E-05	3
Chromium	1.40E-03	--	0%	6.43E-05	3
Cobalt	8.40E-05	--	0%	3.86E-06	3
Manganese	3.80E-04	--	0%	1.75E-05	3
Mercury	2.60E-04	--	0%	1.19E-05	3
Nickel	2.10E-03	--	0%	9.65E-05	3
Selenium	2.40E-05	--	0%	1.10E-06	3
Total HAP Emissions				0.43	

1. Emission factor from AP-42 Table 3.2-3, Uncontrolled Emission Factors for 4-Stroke Rich-Burn Engines (July 2000)
2. Vendor Information.
3. Emission factor from AP-42 Table 1.4-4, Emission Factors for Metals from Natural Gas Combustion (July 1998)
4. Control efficiency from the dual catalytic converter unit was conservatively assumed to be 50% per verbal guidance by NDDH on 4/29/10.

**4Runner Compressor Station
Engine Emissions**

4Runner Compressor Station

Equipment Data:

Emission Unit (EU):	C2 to C3
Emission Unit Name:	Waukesha L7044GSI Series 4
Engine Type:	4SRB

Fuel Usage =	90,342 MMscf/yr	(Calculated value based on max fuel combustion rate.)
Horsepower =	1,680 bhp	
Speed =	1,200 rpm	
Hours of Operation =	8,760 hr/yr	
Max. Fuel Combustion Rate (HHV) =	9,208 Btu/bhp-hr	(Based on Manufacturer Specs)
Fuel Heating Value (HHV) =	1,500 MMBtu/MMscf	estimated
Max. Heat Rate (HHV) =	15.47 MMBtu/hr	

Pollutant	Emission Factor	Units	Emission Factor Reference	Hourly Emissions (lb/hr)	Annual Emissions (ton/yr)
PM-10 (Front and Back Half)	0.01941	lb/MMBtu	AP-42 Table 3.2-3 (07/00)	0.30	1.32
NOx	0.95	g/BHP-hr	Permit Limit	3.52	15.41
CO	0.95	g/BHP-hr	Permit Limit	3.52	15.41
SOx	5.88E-04	lb/MMBtu	AP-42 Table 3.2-3 (07/00)	0.01	0.04
VOC	0.64	g/BHP-hr	Permit Limit	2.37	10.40
Total HAPs			Engine Vendor/AP-42 Table 3.2-3	0.10	0.43
Formaldehyde	0.001	g/BHP-hr	Manufacturer Estimate	0.004	0.02
Pollutant	Emission Factor	Units	Emission Factor Reference	Hourly Emissions (lb/hr)	Annual Emissions (ton/yr)
CO ₂ e	--	--	--	1,797	7,872
GHG	--	--	--	1,705	7,469
CO ₂	110	lb/MMBtu	AP-42 Table 3.2-3 (07/00)	1,702	7,453
CH ₄	0.23	lb/MMBtu	AP-42 Table 3.2-3 (07/00)	3.56	15.58
N ₂ O	2.2	lb/MMscf	AP-42 Table 1.4-2 (07/00)	0.02	0.10

Notes:

1. NO_x and VOC emissions based on 40 CFR 60 Subpart JJJJ standards. Formaldehyde emissions are based on manufacturer data. PM/PM₁₀ and SO₂ emissions based on AP-42 Table 3.2-3.
2. Per AP-42, all particulate is considered to be less than 1.0 micrometer in diameter.
3. VOC emissions include formaldehyde.

Sample Calculation:

PM-10 Emissions (ton/yr) = (Emission Factor, lb/MMBtu) x (Max Heat Input Rate (HHV), MMBtu/hr) x (Hours of Operation, hr/yr) / (2,000 lb/ton)
PM-10 Emissions (ton/yr) = (0.01941 lb/MMBtu) x (15.47 MMBtu/hr) x (8,760 hr/yr) / (2,000 lb/ton) = 1.32 ton/yr

VOC Emissions (ton/yr) = (Emission Factor, g/bhp-hr) x (Horsepower, bhp) x (Hours of Operation, hr/yr) / (2,000 lb/ton) / (453.59 grams/1 lb)
VOC Emissions (ton/yr) = (0.64 g/bhp-hr) x (1680 bhp) x (8,760 hr/yr) / (2,000 lb/ton) / (453.59 g/lb) = 10.4 ton/yr

CO₂e Emissions (ton/yr) = (CO₂ emissions x 1) + (CH₄ emissions x 25) + (N₂O emissions x 298)
CO₂e Emissions (ton/yr) = ((7453.18 ton/yr x 1) + (15.58 ton/yr x 25) + (0.10 ton/yr x 298)) = 7872.39 ton/yr

GHG Emissions (ton/yr) = (CO₂ emissions) + (CH₄ emissions) + (N₂O emissions)
GHG Emissions (ton/yr) = (7453.18 ton/yr) + (15.58 ton/yr) + (0.10 ton/yr) = 7468.86 ton/yr

4Runner Compressor Station
Site Emissions Summary

HAP Emissions per engine

HAP Emissions from Rich-Burn Compressor Engines

Engines	Horsepower (hp)	Hours per Year	Heat Input (MMBtu/yr)	Fuel Input (MMscf/yr)
Engine C-2 and C-3	1,680	8,760	137,862	91.91

HAP	Emission Factor (lb/MMBtu)	Emission Factor (g/bhp-hr)	Control Efficiency (%)	Emissions (tpy) (Controlled)	Notes
1,1,2,2-Tetrachloroethane	2.53E-05	--	50%	8.72E-04	1,4
1,1,2-Trichloroethane	1.53E-05	--	50%	5.27E-04	1,4
1,1-Dichloroethane	1.13E-05	--	50%	3.89E-04	1,4
1,2-Dichloroethane	1.13E-05	--	50%	3.89E-04	1,4
1,2-Dichloropropane	1.30E-05	--	50%	4.48E-04	1,4
1,3-Butadiene	6.63E-04	--	50%	2.29E-02	1,4
1,3-Dichloropropene	1.27E-05	--	50%	4.38E-04	1,4
Acetaldehyde	2.79E-03	--	50%	9.62E-02	1,4
Acrolein	2.63E-03	--	50%	9.06E-02	1,4
Benzene	1.58E-03	--	50%	5.45E-02	1,4
Carbon Tetrachloride	1.77E-05	--	50%	6.10E-04	1,4
Chlorobenzene	1.29E-05	--	50%	4.45E-04	1,4
Chloroform	1.37E-05	--	50%	4.72E-04	1,4
Ethylbenzene	2.48E-05	--	50%	8.55E-04	1,4
Ethylene Dibromide	2.13E-05	--	50%	7.34E-04	1,4
Formaldehyde	--	0.001	NA	0.016	2
Methanol	3.06E-03	--	50%	1.05E-01	1,4
Methylene Chloride	4.12E-05	--	50%	1.42E-03	1,4
Naphthalene	9.71E-05	--	50%	3.35E-03	1,4
PAH	1.41E-04	--	50%	4.86E-03	1,4
Styrene	1.19E-05	--	50%	4.10E-04	1,4
Toluene	5.58E-04	--	50%	1.92E-02	1,4
Vinyl Chloride	7.18E-06	--	50%	2.47E-04	1,4
Xylene	1.95E-04	--	50%	6.72E-03	1,4
HAP	Emission Factor (lb/MMscf)		Control Efficiency (%)	Emissions (tpy) (Uncontrolled)	Notes
Arsenic	2.04E-04	--	0%	9.37E-06	3
Beryllium	1.20E-05	--	0%	5.51E-07	3
Cadmium	1.10E-03	--	0%	5.05E-05	3
Chromium	1.40E-03	--	0%	6.43E-05	3
Cobalt	8.40E-05	--	0%	3.86E-06	3
Manganese	3.80E-04	--	0%	1.75E-05	3
Mercury	2.60E-04	--	0%	1.19E-05	3
Nickel	2.10E-03	--	0%	9.65E-05	3
Selenium	2.40E-05	--	0%	1.10E-06	3
Total HAP Emissions				0.43	

1. Emission factor from AP-42 Table 3.2-3, Uncontrolled Emission Factors for 4-Stroke Rich-Burn Engines (July 2000)
2. Vendor Information.
3. Emission factor from AP-42 Table 1.4-4, Emission Factors for Metals from Natural Gas Combustion (July 1998)
4. Control efficiency from the dual catalytic converter unit was conservatively assumed to be 50% per verbal guidance by NDDH on 4/29/10.

**4Runner Compressor Station
Engine Emissions**

Equipment Data:

Emission Unit (EU):	C4 to C5
Emission Unit Name:	Caterpillar G3606 1875 bhp
Engine Type:	4SLB

Fuel Usage =	82.048 MMscf/yr	(Calculated value based on max fuel combustion rate.)
Horsepower =	1,875 bhp	
Speed =	1,000 rpm	
Hours of Operation =	8,760 hr/yr	
Max. Fuel Combustion Rate (HHV) =	7,493 Btu/bhp-hr	(Based on Manufacturer Specs)
Fuel Heating Value (HHV) =	1,500 MMBtu/MMscf	estimated
Max. Heat Rate (HHV) =	14.05 MMBtu/hr	
Unit Conversion:	2000 lb/ton	
Unit Conversion:	453.59 g/lb	
Unit Conversion:	2.2 lb/kg	
Unit Conversion:	0.907185 tonne/ton	
CO ₂ GWP (100 year) =	1	
CH ₄ GWP (100 year) =	25	
N ₂ O GWP (100 year) =	298	

Pollutant	Emission Factor	Units	Emission Factor Reference	Hourly Emissions (lb/hr)	Annual Emissions (ton/yr)
PM-10 (Front and Back Half)	0.01941	lb/MMBtu	AP-42 Table 3.2-3 (07/00)	0.27	1.19
NOx	1.00	g/BHP-hr	NSPS JJJJ Lean Burn Limit	4.13	18.11
CO	1.00	g/BHP-hr	Permit Limit	4.13	18.11
SOx	5.88E-04	lb/MMBtu	AP-42 Table 3.2-3 (07/00)	0.01	0.04
VOC	0.70	g/BHP-hr	NSPS JJJJ Lean Burn Limit	3.10	13.58
Total HAPs			Engine Vendor/AP-42 Table 3.2-3	0.29	1.29
Formaldehyde	0.05	g/BHP-hr	Manufacturer Estimate + 25 % safety factor	0.207	0.91
Pollutant	Emission Factor	Units	Emission Factor Reference	Hourly Emissions (lb/hr)	Annual Emissions (ton/yr)
CO ₂ e	--	--	--	1,632	7,150
GHG	--	--	--	1,549	6,783
CO ₂	110	lb/MMBtu	AP-42 Table 3.2-3 (07/00)	1,545	6,769
CH ₄	0.23	lb/MMBtu	AP-42 Table 3.2-3 (07/00)	3.23	14.15
N ₂ O	2.2	lb/MMscf	AP-42 Table 1.4-2 (07/00)	0.02	0.09

Notes:

1. NO_x and VOC emissions based on manufacturer data. Formaldehyde emissions are based on manufacturer data with assumption of 50 % reduction, similar to VOC percent reduction.

PM/PM₁₀ and SO₂ emissions based on AP-42 Table 3.2-3.

2. Per AP-42, all particulate is considered to be less than 1.0 micrometer in diameter.

3. VOC emissions include formaldehyde.

Sample Calculation:

PM-10 Emissions (ton/yr) = (Emission Factor, lb/MMBtu) x (Max Heat Input Rate (HHV), MMBtu/hr) x (Hours of Operation, hr/yr) / (2,000 lb/ton)
PM-10 Emissions (ton/yr) = (0.01941 lb/MMBtu) x (14.05 MMBtu/hr) x (8,760 hr/yr) / (2,000 lb/ton) = 1.19 ton/yr

VOC Emissions (ton/yr) = (Emission Factor, g/bhp-hr) x (Horsepower, bhp) x (Hours of Operation, hr/yr) / (2,000 lb/ton) / (453.59 grams/1 lb)
VOC Emissions (ton/yr) = (0.7 g/bhp-hr) x (1875 bhp) x (8,760 hr/yr) / (2,000 lb/ton) / (453.59 g/lb) = 13.58 ton/yr

CO₂e Emissions (ton/yr) = (CO₂ emissions x 1) + (CH₄ emissions x 25) + (N₂O emissions x 298)
CO₂e Emissions (ton/yr) = ((6768.99 ton/yr x 1) + (14.15 ton/yr x 25) + (0.09 ton/yr x 298)) = 7149.72 ton/yr

GHG Emissions (ton/yr) = (CO₂ emissions) + (CH₄ emissions) + (N₂O emissions)
GHG Emissions (ton/yr) = (6768.99 ton/yr) + (14.15 ton/yr) + (0.09 ton/yr) = 6783.23 ton/yr

**4Runner Compressor Station
Site Emissions Summary**

HAP Emissions per engine

HAP Emissions from 4 Stroke Lean-Burn Compressor Engines

Engines	Horsepower (hp)	Hours per Year	Heat Input (MMBtu/yr)	Fuel Input (MMscf/yr)
Engines C4 and C5	1,875	8,760	123,073	82.05

HAP	Emission Factor (lb/MMBtu)	Emission Factor (g/bhp-hr)	Control Efficiency (%)	Emissions (tpy) (Controlled)	Notes
1,1,2,2-Tetrachloroethane	4.00E-05	--	0%	2.46E-03	1
1,1,2-Trichloroethane	3.18E-05	--	0%	1.96E-03	1
1,3-Butadiene	2.67E-04	--	0%	1.64E-02	1
1,3-Dichloropropene	2.64E-05	--	0%	1.62E-03	1
2-Methylnaphthalene	3.32E-05	--	0%	2.04E-03	1
2,2,4-Trimethylpentane	2.50E-04	--	0%	1.54E-02	1
Acenaphthene	1.25E-06	--	0%	7.69E-05	1
Acenaphthylene	5.53E-06	--	0%	3.40E-04	1
Acetaldehyde	8.36E-03	--	0%	5.14E-01	1
Acrolein	5.14E-03	--	0%	3.16E-01	1
Benzene	4.40E-04	--	0%	2.71E-02	1
Benzo(e)fluoranthene	1.66E-07	--	0%	1.02E-05	1
Benzo(e)pyrene	4.15E-07	--	0%	2.55E-05	1
Benzo(e)perylene	4.14E-07	--	0%	2.55E-05	1
Biphenyl	2.12E-04	--	0%	1.30E-02	1
Carbon Tetrachloride	3.67E-05	--	0%	2.26E-03	1
Chlorobenzene	3.04E-05	--	0%	1.87E-03	1
Chloroform	2.85E-05	--	0%	1.75E-03	1
Chrysene	6.93E-07	--	0%	4.26E-05	1
Ethylbenzene	3.97E-05	--	0%	2.44E-03	1
Ethylene Dibromide	4.43E-05	--	0%	2.73E-03	1
Fluoranthene	1.11E-06	--	0%	6.83E-05	1
Fluorene	5.67E-06	--	0%	3.49E-04	1
Formaldehyde	--	0.050	NA	0.21	1
Methanol	2.50E-03	--	0%	1.54E-01	1
Methylene Chloride	2.00E-05	--	0%	1.23E-03	1
n-Hexane	1.11E-03	--	0%	6.83E-02	1
Naphthalene	7.44E-05	--	0%	4.58E-03	1
PAH	2.69E-05	--	0%	1.66E-03	1
Phenanthrene	1.04E-05	--	0%	6.40E-04	1
Phenol	2.40E-05	--	0%	1.48E-03	1
Pyrene	1.36E-06	--	0%	5.58E-08	1
Styrene	2.36E-05	--	0%	9.68E-07	1
Tetrachloroethane	2.48E-06	--	0%	1.02E-07	1
Toluene	4.08E-04	--	0%	1.67E-05	1
Vinyl Chloride	1.49E-05	--	0%	6.11E-07	1
Xylene (mixed isomers)	1.84E-04	--	0%	7.55E-06	1
Total				1.29	

1) Emission factor based on EPA's AP-42 Section 3.2, Table 3.2-2 (07/00) [4-Stroke Lean-Burn Engines].

4Runner Compressor Station Glycol Reboiler Emissions

Equipment Data:

Emission Unit (EU):	EU8
Emission Unit Name:	TEG Reboiler
Rating:	1.5 MMBtu/hr

Maximum Fuel Usage =	8.76 MMscf/yr	(Calculated value based on max fuel combustion rate)
Maximum Fuel Usage =	0.0010 MMscf/hr	
Hours of Operation =	8,760 hr/yr	
design Heat Input Rate =	1.50 MMBtu/hr	
Fuel Heating Value (HHV) =	1,500 MMBtu/MMscf	
CO ₂ GWP (100 year) =	1	
CH ₄ GWP (100 year) =	25	
N ₂ O GWP (100 year) =	298	

Pollutant	Emission Factor	Units	Emission Factor Reference	Hourly Emissions (lb/hr)	Annual Emissions (ton/yr)
PM-10 (Front and Back Half)	7.6	lb/MMscf	AP-42 Table 1.4-2 (07/98)	0.011	0.05
NOx	100	lb/MMscf	AP-42 Table 1.4-1 (07/98)	0.10	0.44
CO	84	lb/MMscf	AP-42 Table 1.4-1 (07/98)	0.08	0.37
SOx	0.6	lb/MMscf	AP-42 Table 1.4-2 (07/98)	0.0009	0.004
VOC	5.5	lb/MMscf	AP-42 Table 1.4-2 (07/98)	0.008	0.04
Pollutant	Emission Factor	Units	Emission Factor Reference	Hourly Emissions (lb/hr)	Annual Emissions (tons/yr)
CO ₂ e	--	--	--	120.71	528.72
GHG	--	--	--	120.00	525.62
CO ₂	120,000	lb/MMscf	AP-42 Table 3.2-2 (07/00)	120.00	525.60
CH ₄	2.3	lb/MMscf	AP-42 Table 3.2-2 (07/00)	0.002	0.010
N ₂ O	2.2	lb/MMscf	AP-42 Table 3.2-2 (07/00)	0.002	0.010

Notes:

1. Emission factors based on AP-42 Table 1.4-1 and Table 1.4-2. Per AP-42, all particulate is considered to be less than 1.0 micrometer in diameter.

Sample Calculation:

Fuel Usage (MMscf/yr) = (Design Heat Input Rate, MMBtu/hr) / (Fuel heating Value, MMBtu/MMscf) * (Hours of Operation, hr/yr)
 Fuel Usage (MMscf/yr) = (1.5 MMBtu/hr) / (1500 MMBtu/MMscf) x (8,760 hr/yr) = 8.76 MMscf/yr

PM Total Emissions (lb/hr) = (Emission Factor, lb/MMscf) x (Fuel Heating Value, MMBtu/MMscf) / (1,020 MMBtu/MMscf) x (Fuel Usage, MMscf/yr) / (Hours of Operation, hr/yr)
 PM Total Emissions (lb/hr) = (7.6 lb/MMscf) x (1500 MMBtu/scf) / (1,020 MMBtu/MMscf) x (8.76 MMscf/yr) / (8760 hr/yr) = 0.011 lb/hr

PM-10 Emissions (ton/yr) = (Hourly Emissions, lb/hr) x (8,760 hrs/yr) / (2,000 lb/ton)
 PM-10 Emissions (ton/yr) = (0.011 lb/hr) x (8760 hr/yr) / (2000 lb/ton) = 0.05 ton/yr

4Runner Compressor Station
Glycol Reboiler HAPs Emissions

Emission Unit 7 - TEG Reboiler - 1.5 MMBtu/hr

HAP Emissions

Equipment	Heat Input Rate (MMBtu/hr)	Fuel Consumption (MMscf/yr)
Rating:	1.50	8.76

HAP	Emission Factor ¹ (lb/MMscf)	Control Efficiency (%)	Emissions (tpy) (Uncontrolled)
2-Methylanthalene	2.40E-05	0%	1.55E-07
3-Methylchloranthrene	1.80E-06	0%	1.16E-08
7,12-Dimethylben(a)anthracene	1.60E-05	0%	1.03E-07
Acenaphthene	1.80E-06	0%	1.16E-08
Acenaphthylene	1.80E-06	0%	1.16E-08
Anthracene	2.40E-06	0%	1.55E-08
Benz(a)anthracene	1.80E-06	0%	1.16E-08
Benzene	2.10E-03	0%	1.35E-05
Benzo(a)pyrene	1.20E-06	0%	7.73E-09
Benzo(b)fluorathene	1.80E-06	0%	1.16E-08
Benzo(g,h,i)perylene	1.20E-06	0%	7.73E-09
Benzo(k)fluorathene	1.80E-06	0%	1.16E-08
Chrysene	1.80E-06	0%	1.16E-08
Dibenzo(a,h)anthracene	1.20E-06	0%	7.73E-09
Dichlorobenzene	1.20E-03	0%	7.73E-06
Fluoranthene	3.00E-06	0%	1.93E-08
Fluorene	2.80E-06	0%	1.80E-08
Formaldehyde	7.50E-02	0%	4.83E-04
Hexane	1.80E+00	0%	0.01
Indeno(1,2,3-cd)pyrene	1.80E-05	0%	1.16E-07
Napthalene	6.10E-04	0%	3.93E-06
Phenanathrene	1.70E-05	0%	1.10E-07
Pyrene	5.00E-06	0%	3.22E-08
Toluene	3.40E-03	0%	2.19E-05
HAP	Emission Factor ² (lb/MMscf)	Control Efficiency (%)	Emissions (tpy) (Uncontrolled)
Arsenic	2.04E-04	0%	8.94E-07
Beryllium	1.20E-05	0%	5.26E-08
Cadmium	1.10E-03	0%	4.82E-06
Chromium	1.40E-03	0%	6.13E-06
Cobalt	8.40E-05	0%	3.68E-07
Manganese	3.80E-04	0%	1.66E-06
Mercury	2.60E-04	0%	1.14E-06
Nickel	2.10E-03	0%	9.20E-06
Selenium	2.40E-05	0%	1.05E-07
Total HAP Emissions			0.012

1. Emission factor from AP-42 Table 1.4-3, Emission Factors for Speciated Organic Compounds from Natural Gas Combustion (July 1998).

2. Emission factor from AP-42 Table 1.4-4, Emission Factors for Metals from Natural Gas Combustion (July 1998).

4Runner Compressor Station
Glycol Still Vent Emissions

Equipment Data:

Emission Unit (EU):	EU8
Emission Unit Name:	TEG Dehydrator Still Vent

Emissions Data:

	Model
Wet Gas Pressure (psig)	1100
Wet Gas Temperature (°F)	100
Gas Throughput (mmscf/day)	60
Dry Gas Water Content (lb/H ₂ O/mmscf)	4
Glycol Type =	TEG
Lean Glycol Water Content (wt% H ₂ O)	1.5
Lean Glycol Flow Rate (gpm)	13.366
Glycol Pump Type	Gas Injection
Gas Injection Pump Ratio (acfm gas/gpm glycol)	0.08
Flash Tank Pressure (psig)	55
Flash Tank Temperature (°F)	150
Flash Tank Control	Recycle/Recomp.
Regen Controls:	
Condenser Pressure (psig)	14.7
Condenser Temperature (°F)	100
Combustion Device:	
Destruction Efficiency:	95
Excess Oxygen:	5
Ambient Air Temperature (°F)	100

Pollutant	Controlled	
	Hourly Emissions	Annual Emissions
	lb/hr	tpy
-Propane	0.2105	0.9221
-Isobutane	0.0473	0.2070
-n-Butane	0.1984	0.8691
-Isopentane	0.0407	0.1784
-n-Pentane	0.0687	0.3009
-Cyclopentane	0.0046	0.0203
-n-Hexane	0.0163	0.0715
-Cyclohexane	0.0170	0.0746
-Other Hexanes	0.0190	0.0830
-Heptanes	0.0165	0.0725
-Methylcyclohexane	0.0063	0.0277
-2,2,4-Trimethylpentane	0.0002	0.0010
-Benzene	0.0923	0.4044
-Toluene	0.0311	0.1362
-Ethylbenzene	0.0000	0.0000
-Xylenes	0.0103	0.0451
-C8+ Heavies	0.0001	0.0005
Total VOC	0.7795	3.4142
Total HAPs	0.1503	0.6582
Total BTEX	0.1337	0.5857

Notes:

1. The flash tank off-gas will be recycled.
2. There is a condenser controlling the BTEX emissions.
3. The non-condensable gas from the condenser will be routed to the reboiler firebox.

**4Runner Compressor Station
Fugitive Emissions**

Component Type	Service	Emission Factor ¹ (lb/hr/comp)	Component Count	Total Loss (lb/hr)	Total Loss (tpy)
Valves	Gas/Vapor	0.00992	103	1.02	4.48
	Light Liquid	0.0055	35	0.19	0.84
Pumps	Gas Vapor	0.00529	0	0.00	0.00
	Light Liquid	0.02866	1	0.03	0.13
Flanges ²	Gas/Vapor	0.00086	1749	1.50	6.59
	Light Liquid	0.000243	72	0.02	0.08
Connectors	Gas/Vapor	0.00044	0	0.00	0.00
	Light Liquid	0.000463	0	0.00	0.00
Open Ended Lines	Gas/Vapor	0.00441	0	0.00	0.00
	Light Liquid	0.00309	0	0.00	0.00
Other ³	Gas/Vapor	0.0194	0	0.00	0.00
	Light Liquid	0.0165	0	0.00	0.00
Compressors	Gas/Vapor	0.0194	6	0.12	0.51
	Light Liquid	0.0165	0	0.00	0.00
Component Emission Total Losses				2.88	12.62
Gas/Vapor Emissions				2.64	11.57
Light Liquid Emissions				0.24	1.05

Component	Gas (wt%)	Gas/Vapor Emissions		Total Emissions ⁴	
		(lb/hr)	(tpy)	(lb/hr)	(tpy)
CO ₂	1.4377	0.038	0.166	0.038	0.166
Nitrogen	2.4518	0.065	0.284	0.065	0.284
H ₂ S	0.0000	0.00E+00	0.00E+00	0.000	0.000
Methane	35.5342	0.939	4.112	0.939	4.112
Ethane	22.9403	0.606	2.655	0.606	2.655
Propane	19.0675	0.504	2.207	0.504	2.207
i-Butane	2.9837	0.079	0.345	0.079	0.345
n-Butane	9.4381	0.249	1.092	0.249	1.092
i-Pentane	1.9540	0.052	0.226	0.052	0.226
n-Pentane	2.6219	0.069	0.303	0.069	0.303
Benzene	0.0299	0.001	0.003	0.001	0.003
n-Hexane	0.4121	0.011	0.048	0.011	0.048
Hexanes	0.7088	0.019	0.082	0.019	0.082
Toluene	0.0141	0.000	0.002	0.000	0.002
Heptanes	0.0524	0.001	0.006	0.001	0.006
Ethylbenzene	0.0000	0.000	0.000	0.000	0.000
Xylenes	0.0081	0.000	0.001	0.000	0.001
Octanes	0.0524	0.001	0.006	0.001	0.006
Nonanes	0.0049	0.000	0.001	0.000	0.001
C10+	0.2880	0.008	0.033	0.008	0.033
Total	100.000	2.642	11.573	2.642	11.573
Total VOC	37.636	0.994	4.356	1.233	5.401
Total HAPs	0.464	0.012	0.054	0.012	0.054

Notes:

1. Emission factors are from EPA's "Protocol for Equipment Leak Emission Estimates" EPA-453/R-95-017, 11/1995, Table 2-4.
2. Maintenance Plugs & Blind Flanges are treated as screwed connectors. Per TCEQ's "Air Permit Technical Guidance for Chemical Sources: Equipment Leak Fugitives" dated October 2000, screwed fittings should be estimated as flanges.
3. For Oil and Gas Production Operations, "Other" includes compressors, diaphragms, drains, dump arms, hatches, instruments, meters, pressure relief valves, polished rods, relief valves, and vents.
4. The total emissions include the light liquid emissions assuming 100% VOC of light liquid.
5. Water/Oil emissions are assumed to be 100% VOC.
6. Assume n-hexane weight percent is sum of n-hexane, cyclohexane, other hexanes, and methylcyclohexane weight percent.

4Runner Compressor Station
Produced Water Storage Tank Emissions

Equipment Data:

Emission Unit (EU):	EU9	EU10
Emission Unit Name:	Produced Water Storage Tank	Produced Water Storage Tank

Emissions Data:

Tank Contents = Produced Water
 Tank Type = Vertical Fixed Roof
 Tank Capacity = 16,800 gallons
 Annual Throughput = 15,000 bbl/year per tank
 Annual Throughput = 630,000 gallons/year per tank

Emission Unit	Standing Losses (lb/hr)	Working Losses (lb/hr)	Total Losses (lb/hr)	Standing Losses (ton/yr)	Working Losses (ton/yr)	Total Losses (ton/yr)
Produced Water Storage Tank EU5	0.089	0.190	0.279	0.39	0.83	1.223
Produced Water Storage Tank EU6	0.089	0.190	0.279	0.39	0.83	1.223

Notes:

1. Emissions calculated using ProMax model.
2. The liquid stored is essentially water. To be conservative, an additional 20 % safety factor was added to the emissions calculated via ProMax.

4Runner Compressor Station
Compressor Blowdown Emissions

Emission Units	Designation	Compressor Volume	Compressor Pressure	Number of Events	Gas VOC Weight %	Gas MW	Average Gas Temperature	Estimated MCF per event	Estimated SCF per event	Estimated SCF per year	Potential VOC Emissions		
		(ft ³)	(psig)	(#/ per Year)	(%)	(lb/lb-mol)	(°F)				lb/scf	lb/year	(tpy)
6	Compressor	197	100	60	37.64	26.14	60	1.58	1580	568800	0.026	14746	7.37
1	Compressor	197	1,250	24	37.64	26.14	60	34.06	34060	817440	0.026	21192	10.60
												Total Losses	17.97

Emission Units	Designation	Compressor Volume	Compressor Pressure	Number of Events	Gas HAPs Weight %	Gas MW	Average Gas Temperature	Estimated MCF per event	Estimated SCF per event	Estimated SCF per year	Potential HAPs Emissions		
		(ft ³)	(psig)	(#/ per Year)	(%)	(lb/lb-mol)	(°F)				lb/scf	lb/year	(tpy)
6	Compressor	197	100	60	0.47	26.14	60	1.58	1580	568800	0.00032	184	0.09
1	Compressor	197	1,250	24	0.47	26.14	60	34.06	34060	817440	0.00032	264	0.13
												Total Losses	0.22

Notes:

1. To be conservative, a 20% buffer is added to the total number of controlled blowdown events at 100 psig.
2. Assumes the majority of blowdowns are using the recycle process of reducing the pressure to 100 psig.
3. Assumes 24 blowdowns/year released to atmosphere at 1250 psig.
4. Number of Events based on Sacramento CS and Stony Creek CS since Four Runner CS has no data.

Calculation:

VOC weight percentage is from Stony Creek Inlet Gas Analysis 10/13/2020.

Molecular Weight of Gas = 26.14 approx Molecular Weight of Gas = 26.14
VOC Weight Percent = 37.64% approx HAPs Weight Percent = 0.4697%

Universal Gas Content = 379.5 ft³/lb-mol @ 60 F and 14.696 psia

Specific Gravity = 0.90264

Calculation:

Pound "X" / scf = Wt Fraction (wt%) * MW of Gas * 1 lb mol/379.5 scf

lbs NM/E VOC/scf = 0.026 lb HAPs/scf = 0.00032

Estimated MCF per event from using Blowdown Volumes Compressibility Spreadsheet

Emissions (tpy) = (Estimated scf/event * number of events per year * lb/scf)/2000 (lb/ton)

4Runner Compressor Station Tank Truck Loading Emissions

Parameter	
Product	Produced Water
Saturation Factor, S ¹	0.6
Vapor MW ²	62.00 lb/lb-mol
Maximum Vapor Pressure	10.06 psia
Average Vapor Pressure	7.93 psia
Max Temperature	78.28 °F
Average Temperature	64.9 °F
Short-Term Loading Loss Factor ^{4, 5}	8.67 lb/1000 gal
Annual Loading Loss Factor ^{4, 5}	7.01 lb/1000 gal
Hourly Throughput	7,560 gal/hr
Annual Throughput	1,260,000 gal/yr
Water Content Reduction (%) ⁷	90%
Fugitive Losses	
Hourly Losses	65.52 lb/hr
Annual Losses	4.41 tpy
Hourly Losses (minus water)	6.55 lb/hr
Annual Losses (minus water)	0.44 tpy

Notes:

1. Saturation factor is from EPA's AP-42, 5th Edition, Section 5.2, Table 5.2-1; for submerged loading; dedicated normal service.
2. Molecular weight of vapors was taken from Tanks 4.09d.
3. Vapor pressure was determined using AP-42, Figure 7.1-13b.
4. Losses are based on the loading losses equation from EPA's AP-42, Section 2, 5th Edition, June, 2008, Equation 1:

$$L = \frac{12.46 * S * P * M}{T}$$

where:

L = Loading Losses, lb/1000 gallons
S = Saturation Factor, see Table 5.2-1 in AP-42, Section 5.2.
P = True vapor pressure, psia
M = Molecular weight of vapors, lb/lb-mol
T = Temperature of bulk liquid loaded, R (F + 460)

5. Short-term loading loss factor is calculated based on the worst-case (highest) temperature and vapor pressure.
6. Annual loading loss factor is calculated based on the average temperature and vapor pressure.
7. The volume of liquids loaded are estimated to be 90% water; therefore, overall fugitive losses from loading are assumed to be 10% of the total emissions.

4Runner Compressor Station
Pigging Blowdown Emissions

Pig Receiver/Pig Launcher	Designation	Pigging Volume	Pig Receiver or Launcher Pressure	Number of Events	Gas VOC Weight %	Gas MW	Average Gas Temperature	Estimated MCF per event	Estimated SCF per event	Estimated SCF per year	Potential VOC Emissions		
		(ft ³)	(psig)	(#/ per Year)	(%)	(lb/lb-mol)	(°F)				lb/scf	lb/year	(tpy)
High Pressure	Pigging	7	1,250	12	37.64	26.14	60	1.21	1210	14520	0.026	376	0.19
Low Pressure	Pigging	12	250	52	37.64	26.14	60	0.2	200	10400	0.026	270	0.13
Low Pressure	Pigging	12	250	52	37.64	26.14	60	0.2	200	10400	0.026	270	0.13
												Total Losses	0.46

Notes:

1. Assume 12 events per year for each high pressure (HP) launcher/receiver and 52 events per year for each low pressure(LP) launcher/receiver.

VOC weight percentage is from Stony Creek Inlet Gas Analysis 10/13/2020.

Molecular Weight of Gas =

26.14 approx

VOC Weight Percent =

37.64% approx

Universal Gas Content = 379.5 ft³/lb-mol @ 60 F and 14.696 psia

Specific Gravity =

0.90264

Calculation:

Pound " X" / scf = Wt Fraction (wt%) * MW of Gas * 1 lb mol/379.5 scf

lbs NM/E VOC/scf =

0.026

Estimated MCF per event from using Blowdown Volumes Compressibility Spreadsheet

Emissions (tpy) = (Estimated scf/event * number of events per year * lb/scf)/2000 (lb/ton)

4Runner Compressor Station
Gas Analysis

Sample name	Gas Taken Before Dehydrator			
Sample location	Stony Creek Compressor Station			
Sample temperature and pressure	80 °F, 1050 psig			
Date of sample	10/13/2020			
Component	MW (g/mol)	Mole %	Gas Weight (lb/lbmol)	Weight %
CO2	44.010	0.8540	0.376	1.4377
Nitrogen	28.013	2.2880	0.641	2.4518
methane (C1)	16.042	57.9040	9.289	35.5342
ethane (C2)	30.069	19.9440	5.997	22.9403
propane (C3)	44.096	11.3040	4.985	19.0675
iso-butane (C4)	58.122	1.3420	0.780	2.9837
nor-butane (C4)	58.122	4.2450	2.467	9.4381
iso-pentane (C5)	72.149	0.7080	0.511	1.9540
n-pentane	72.149	0.9500	0.685	2.6219
Cyclopentane	72.149	0.0110	0.008	0.0304
2,2,4 Trimethyl pentane	72.149	0.0020	0.001	0.0055
n-Hexane	86.180	0.1250	0.108	0.4121
Cyclohexane	86.180	0.0230	0.020	0.0758
Other Hexanes	86.180	0.1830	0.158	0.6033
Methylcyclohexane	86.180	0.0090	0.008	0.0297
heptane (C7+)	100.200	0.0780	0.078	0.2990
octane (C8+)	114.230	0.0120	0.014	0.0524
nonane (C9+)	128.260	0.0010	0.001	0.0049
decane (C10+)	142.290	0.0010	0.001	0.0054
benzene	78.110	0.0100	0.008	0.0299
toluene	92.140	0.0040	0.004	0.0141
Ethylbenzene	106.170	0.0000	0.000	0.0000
xylene (M, P, O)	106.170	0.0020	0.002	0.0081
H2S	34.082	0.0000	0.000	0.0000
Total		100.0000	26.1416	100.0000
Vapor MW (lb/lb-mol)	26.142			
VOC Weight (%)	37.6360			
HAPs Weight (%)	0.4697			

Specific Gravity = 0.90264

NDDEQ FORMS



PERMIT APPLICATION FOR AIR CONTAMINANT SOURCES
NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 8516 (3-2019)

SECTION A - FACILITY INFORMATION

Name of Firm or Organization Hiland Partners Holdings LLC - 4Runner Compressor Station				
Applicant's Name Anu Pundari				
Title Senior Engineer - EHS Staff		Telephone Number 520-663-4249	E-mail Address anu_pundari@kindermorgan.com	
Contact Person for Air Pollution Matters Anu Pundari				
Title Senior Engineer - EHS Staff		Telephone Number 520-663-4249	E-mail Address anu_pundari@kindermorgan.com	
Mailing Address (Street & No.) 5151 E. Broadway, Suite 1680				
City Tucson		State AZ	ZIP Code 85711	
Facility Name 4Runner Compressor Station				
Facility Address (Street & No.) Located approximately 15 miles southwest of Williston, North Dakota				
City Williston		State ND	ZIP Code 58849	
County Williams	Latitude (Nearest Second) 48° 3'23.89"N		Longitude (Nearest Second) -103°23'35.39"W	
Legal Description of Facility Site				
Quarter	Quarter SE	Section 22	Township 153N	Range 99W
Land Area at Facility Site 6 Acres (or)		MSL Elevation at Facility 1930 feet		

SECTION B - GENERAL NATURE OF BUSINESS

Describe Nature of Business	North American Industry Classification System Number	Standard Industrial Classification Number (SIC)
Natural Gas Compressor Station	213112	1389

SECTION C - GENERAL PERMIT INFORMATION

Type of Permit? <input checked="" type="checkbox"/> Permit to Construct (PTC) <input type="checkbox"/> Permit to Operate (PTO)	
If application is for a Permit to Construct, please provide the following data:	
Planned Start Construction Date Construction of Emissions Sources in Summer/Fall 2022.	Planned End Construction Date November 1, 2022.

SECTION D – SOURCE IDENTIFICATION AND CATEGORY OF EACH SOURCE INCLUDED ON THIS PERMIT APPLICATION

Your Source ID Number	Source or Unit (Equipment, Machines, Devices, Boilers, Processes, Incinerators, Etc.)	Permit to Construct				Minor Source Permit to Operate						
		New Source	Existing Source Modification	Existing Source Expansion	Existing Source Change of Location	New Source	Existing Source Initial Application	Existing Source After Modification	Existing Source After Expansion	Existing Source After Change of Location	Existing Source After Change of Ownership	Other
C2 and C3	Compressor Engine C2 and C3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Add additional pages if necessary

SECTION D2 – APPLICABLE REGULATIONS

Source ID No.	Applicable Regulations (NSPS/MACT/NESHAP/etc.)
Facility-wide	NSPS OOOOa - Fugitive Emissions at a Compressor Station
1-6	NSPS OOOOa - Reciprocating Compressors
1-6	NSPS JJJJ - Compressor Engines
1-6	MACT ZZZZ - Compressor Engines
8	MACT HH - TEG Still Vent

SECTION E – TOTAL POTENTIAL EMISSIONS

Pollutant	Amount (Tons Per Year)
NO _x	98.29
CO	98.22
PM	7.75

Pollutant	Amount (Tons Per Year)
PM ₁₀ (filterable and condensable)	7.75
PM _{2.5} (filterable and condensable)	7.75
SO ₂	0.23
VOC	98.92
GHG (as CO ₂ e)	46591
Largest Single HAP	1.88
Total HAPS	5.24

If performance test results are available for the unit, submit a copy of test with this application. If manufacturer guarantee is used provide spec sheet.

SECTION F1 – ADDITIONAL FORMS

Indicate which of the following forms are attached and made part of the application	
<input checked="" type="checkbox"/> Air Pollution Control Equipment (SFN 8532)	<input type="checkbox"/> Fuel Burning Equipment Used for Indirect Heating (SFN 8518)
<input type="checkbox"/> Construct/Operate Incinerators (SFN 8522)	<input checked="" type="checkbox"/> Hazardous Air Pollutant (HAP) Sources (SFN 8329)
<input type="checkbox"/> Natural Gas Processing Plants (SFN 11408)	<input type="checkbox"/> Manufacturing or Processing Equipment (SFN 8520)
<input type="checkbox"/> Glycol Dehydration Units (SFN 58923)	<input type="checkbox"/> Volatile Organic Compounds Storage Tank (SFN 8535)
<input type="checkbox"/> Flares (SFN 59652)	<input checked="" type="checkbox"/> Internal Combustion Engines and Turbines (SFN 8891)
<input type="checkbox"/> Grain, Feed, and Fertilizer Operations (SFN 8524)	<input type="checkbox"/> Oil/Gas Production Facility Registration (SFN 14334)

SECTION F2 – OTHER ATTACHMENTS INCLUDED AS PART OF THIS APPLICATION

1.	NDDEQ Engine Forms	4.	
2.	Emissions Estimate Calculations	5.	
3.	Engine Specifications	6.	

I, the undersigned applicant, am fully aware that statements made in this application and the attached exhibits and statements constitute the application for Permit(s) to Construct and/or Operate Air Contaminant sources from the North Dakota Department of Environmental Quality and certify that the information in this application is true, correct and complete to the best of my knowledge and belief. Further, I agree to comply with the provisions of Chapter 23.1-06 of the North Dakota Century Code and all rules and regulations of the Department, or revisions thereof. I also understand the permit is nontransferable and, if granted a permit, I will promptly notify the Department upon sale or legal transfer of this permitted establishment.

Signature <i>Ann Pundari</i>	Date 8/11/22
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PERMIT APPLICATION FOR INTERNAL COMBUSTION ENGINES AND TURBINES
NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 8891 (3-2019)

NOTE: READ INSTRUCTIONS BEFORE COMPLETING THIS FORM.
- Must include SFN 8516 or SFN 52858

SECTION A – GENERAL INFORMATION

Name of Firm or Organization Hiland Partners Holdings LLC	Facility Name 4Runner Compressor Station
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SECTION B – FACILITY AND UNIT INFORMATION

Source ID Number (From form SFN 8516) C1 to C6		
Type of Unit (check all that apply)	<input checked="" type="checkbox"/> Stationary Natural Gas-Fired Engine	<input type="checkbox"/> Emergency Use Only
	<input type="checkbox"/> Stationary Diesel and Dual Fuel Engine	<input checked="" type="checkbox"/> Non-Emergency Use
	<input type="checkbox"/> Stationary Gasoline Engine	<input type="checkbox"/> Peaking
	<input type="checkbox"/> Stationary Natural Gas-Fired Turbine	<input type="checkbox"/> Demand Response
<input type="checkbox"/> Other – Specify:		

SECTION C – MANUFACTURER DATA

Make Waukesha	Model L7044 GSI Series 5	Date of Manufacture Post July 2010
Reciprocating Internal Combustion Engine		
<input checked="" type="checkbox"/> Spark Ignition <input type="checkbox"/> Compression Ignition		
<input checked="" type="checkbox"/> 4 Stroke <input type="checkbox"/> 2 Stroke <input checked="" type="checkbox"/> Rich Burn <input type="checkbox"/> Lean Burn		
Maximum Rating (BHP @ rpm) 1900 @1200 rpm	Operating Capacity (BHP @ rpm) 1900 @ 1200 rpm	
Engine Subject to: <input type="checkbox"/> 40 CFR 60, Subpart IIII <input checked="" type="checkbox"/> 40 CFR 60, Subpart JJJJ <input type="checkbox"/> 40 CFR 63, Subpart ZZZZ <input type="checkbox"/> 40 CFR 60, Subpart OOOO <input type="checkbox"/> 40 CFR 60, Subpart OOOOa		
Turbine <input type="checkbox"/> Dry Low Emissions? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Heat Input (MMBtu/hr)	Maximum Rating (HP)	75% Rating (HP)
Efficiency		
Turbine Subject to: <input type="checkbox"/> 40 CFR 60, Subpart GG <input type="checkbox"/> 40 CFR 60, Subpart KKKK		

SECTION D – FUELS USED

Natural Gas (10 ⁶ cu ft/year) 91,908 MMscf/year	Percent Sulfur Negligible	Percent H ₂ S Negligible
Oil (gal/year)	Percent Sulfur	Grade No.
LP Gas (gal/year)	Other – Specify:	

SECTION E – NORMAL OPERATING SCHEDULE

Hours Per Day 24	Days Per Week 7	Weeks Per Year 52	Hours Per Year 8760	Peak Production Season (if any)
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SECTION F – STACK PARAMETERS

Emission Point ID Number Engines C1 and C6	Stack Height Above Ground Level (feet) 1.5 X Building Height (approximately 35 feet)		
Stack Diameter (feet at top) 12 inches estimated	Gas Discharged (SCFM) 8857	Exit Temp (°F) 1150	Gas Velocity (FPS) 56.5

SECTION G – EMISSION CONTROL EQUIPMENT

Is any emission control equipment installed on this unit?

☐ No☒ Yes – Complete and attach form SFN 8532**SECTION H – MAXIMUM AIR CONTAMINANTS EMITTED**

Pollutant	Maximum Pounds Per Hour	Amount (Tons Per Year)	Basis of Estimate*
NO _x	3.52	15.41	Permit Limit
CO	3.52	15.41	Permit Limit
PM	0.31	1.34	AP-42 Table 3.2-3
PM ₁₀ (filterable and condensable)	0.31	1.34	AP-42 Table 3.2-3
PM _{2.5} (filterable and condensable)	0.31	1.34	AP-42 Table 3.2-3
SO ₂	0.01	0.04	AP-42 Table 3.2-3
VOC	2.31	10.11	Permit Limit
GHG (as CO ₂ e)	1829	8009	AP-42 Table 3.2-3
Largest Single HAP	0.004	0.02	Vendor Data
Total HAPS	0.10	0.43	Vendor Data/AP-42

* If performance test results are available for the unit, submit a copy of test with this application, if manufacture data used, submit manufacturers specification sheets.

IS THIS UNIT IN COMPLIANCE WITH ALL APPLICABLE AIR POLLUTION RULES AND REGULATIONS?

☒ YES☐ NO

If "NO" a Compliance Schedule (SFN 61008) must be completed and attached.

Attach and label separate sheet(s) if you need more space to explain any system or answers or to provide complete listings of Emissions, Contaminants, or other items.

SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of Environmental Quality
 Division of Air Quality
 918 E Divide Avenue, 2nd Floor
 Bismarck, ND 58501-1947
 (701) 328-5188



PERMIT APPLICATION FOR AIR POLLUTION CONTROL EQUIPMENT
NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 8532 (3-2019)

NOTE: READ INSTRUCTIONS BEFORE COMPLETING THIS FORM.
- Must also include forms SFN 8516 or SFN 52858

SECTION A – GENERAL INFORMATION

Name of Firm or Organization Hiland Partners Holdings LLC	Facility Name 4Runner Compressor Station
Source ID No. of Equipment being Controlled C1 and C6	

SECTION B – EQUIPMENT

Type:	<input type="checkbox"/> Cyclone	<input type="checkbox"/> Multiclone	<input type="checkbox"/> Baghouse	<input type="checkbox"/> Electrostatic Precipitator
	<input type="checkbox"/> Wet Scrubber	<input type="checkbox"/> Spray Dryer	<input type="checkbox"/> Flare/Combustor	
	<input checked="" type="checkbox"/> Other – Specify: NSCR			
Name of Manufacturer Waukesha INNIO		Model Number emPACT	Date to Be Installed upon startup	
Application: <input type="checkbox"/> Boiler <input type="checkbox"/> Kiln <input type="checkbox"/> Engine <input type="checkbox"/> Other – Specify:				
Pollutants Removed	NO _x	CO	NMNE HC (VOC)	
Design Efficiency (%)	98.7 %	97.0 %	85.7 %	
Operating Efficiency (%)	TBD	TBD	TBD	
Describe method used to determine operating efficiency:				

SECTION CD – GAS CONDITIONS

Gas Conditions			Inlet	Outlet
Gas Volume (SCFM; 68°F; 14.7 psia)				8857
Gas Temperature (°F)				1,150
Gas Pressure (in. H ₂ O)				
Gas Velocity (ft/sec)				56.5
Pollutant Concentration (Specify Pollutant and Unit of Concentration)	Pollutant	Unit of Concentration		
	NO _x	g/bhp-hr	11.6	0.15 (permitting 0.84)
	CO	g/bhp-hr	9.9	0.3 (permitting 0.84)
	VOC	g/bhp-hr	0.07	0.01(permitting 0.55)
Pressure Drop Through Gas Cleaning Device (in. H ₂ O) TBD				



PERMIT APPLICATION FOR HAZARDOUS AIR POLLUTANT (HAP) SOURCES
NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 8329 (3-2019)

SECTION A1 - APPLICANT INFORMATION

Name of Firm or Organization Hiland Partners Holdings LLC - 4Runner Compressor Station		
Applicant's Name Anu Pundari		
Title Senior Engineer - EHS	Telephone Number 520-663-4249	E-mail Address anu_pundari@kindermorgan.com
Mailing Address (Street & No.) 5151 E. Broadway, Suite 1680		
City Tucson	State AZ	ZIP Code 85711

SECTION A2 - FACILITY INFORMATION

Contact Person for Air Pollution Matters Anu Pundari		
Title Senior Engineer - EHS	Telephone Number 520-663-4249	E-mail Address anu_pundari@kindermorgan.com
Facility Address (Street & No. or Lat/Long to Nearest Second) Located approximately 15 miles southwest of Williston, North Dakota		
City Williston	State ND	ZIP Code 58849
County Williams	Number of Employees at Location 0	
Land Area at Plant Site 6 Acres (or)	Sq. Ft.	MSL Elevation at Plant 1930

Describe Nature of Business/Process
Natural gas compressor station

SECTION B - STACK DATA

Inside Diameter (ft) 12 " (estimated)	Height Above Grade (ft) 1.5 X Building Height (Approximately 35 feet)	
Gas Temperature at Exit (°F) 1,150	Gas Velocity at Exit (ft/sec) 56	Gas Volume (scfm) 8857
Basis of any Estimates (attach separate sheet if necessary)		
Are Emission Control Devices in Place? If YES – Complete SFN 8532 <input checked="" type="radio"/> Yes <input type="radio"/> No		
Nearest Residences or Building Residence	Distance (ft) 4224 (0.8 mile)	Direction West
Nearest Property Line	Distance (ft)	Direction

SECTION C – EMISSION STREAM DATA

Source ID No. From SFN 8516 C1 and C6	Mean Particle Diameter (um) Unknown
Flow Rate (scfm) 8867	Drift Velocity (ft/sec) Unknown
Stream Temperature (°F) 1,150	Particulate Concentration (gr/dscf) Unknown
Moisture Content (%) Unknown	Halogens or Metals Present? Unknown
Pressure (in. Hg) Unknown	Organic Content (ppmv) Unknown
Heat Content (Btu/scfm) Unknown	O ₂ Content (%) Unknown

SECTION D – POLLUTANT SPECIFIC DATA**(Complete One Box for Each Pollutant in Emission Stream)**

Pollutant Emitted Formaldehyde	Chemical Abstract Services (CAS) Number 50-00-0
Proposed Emission Rate (lb/hr) 0.001	Emission Source (describe) 1900 hp Compressor Engines #1 and Engine # 2
Source Classification (process point, process fugitive, area fugitive) Process point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic- Vapor
Concentration in Emission Stream (ppmv) Unknown	Vapor Pressure (in. Hg @ °F) 3890 mm Hg at 25 degrees Celius
Solubility >100 g/100 ml (20 degrees Celius)	Molecular Weight (lb/lb-mole) 30
Absorptive Properties Unknown	

Pollutant Emitted	Chemical Abstract Services (CAS) Number
Proposed Emission Rate (lb/hr)	Emission Source (describe)
Source Classification (process point, process fugitive, area fugitive)	Pollutant Class and Form (organic/inorganic - particulate/vapor)
Concentration in Emission Stream (ppmv)	Vapor Pressure (in. Hg @ °F)
Solubility	Molecular Weight (lb/lb-mole)
Absorptive Properties	

(Add additional pages if necessary)

Signature of Applicant <i>Ann Pundari</i>	Date 8/11/22
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SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of Environmental Quality
Division of Air Quality
918 E Divide Avenue, 2nd Floor
Bismarck, ND 58501-1947
(701) 328-5188



PERMIT APPLICATION FOR INTERNAL COMBUSTION ENGINES AND TURBINES
NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 8891 (3-2019)

NOTE: READ INSTRUCTIONS BEFORE COMPLETING THIS FORM.
- Must include SFN 8516 or SFN 52858

SECTION A – GENERAL INFORMATION

Name of Firm or Organization Hiland Partners Holdings LLC	Facility Name 4Runner Compressor Station
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SECTION B – FACILITY AND UNIT INFORMATION

Source ID Number (From form SFN 8516) C2 and C3											
Type of Unit (check all that apply)	<table border="0"><tr><td><input checked="" type="checkbox"/> Stationary Natural Gas-Fired Engine</td><td><input type="checkbox"/> Emergency Use Only</td></tr><tr><td><input type="checkbox"/> Stationary Diesel and Dual Fuel Engine</td><td><input checked="" type="checkbox"/> Non-Emergency Use</td></tr><tr><td><input type="checkbox"/> Stationary Gasoline Engine</td><td><input type="checkbox"/> Peaking</td></tr><tr><td><input type="checkbox"/> Stationary Natural Gas-Fired Turbine</td><td><input type="checkbox"/> Demand Response</td></tr><tr><td colspan="2"><input type="checkbox"/> Other – Specify:</td></tr></table>	<input checked="" type="checkbox"/> Stationary Natural Gas-Fired Engine	<input type="checkbox"/> Emergency Use Only	<input type="checkbox"/> Stationary Diesel and Dual Fuel Engine	<input checked="" type="checkbox"/> Non-Emergency Use	<input type="checkbox"/> Stationary Gasoline Engine	<input type="checkbox"/> Peaking	<input type="checkbox"/> Stationary Natural Gas-Fired Turbine	<input type="checkbox"/> Demand Response	<input type="checkbox"/> Other – Specify:	
<input checked="" type="checkbox"/> Stationary Natural Gas-Fired Engine	<input type="checkbox"/> Emergency Use Only										
<input type="checkbox"/> Stationary Diesel and Dual Fuel Engine	<input checked="" type="checkbox"/> Non-Emergency Use										
<input type="checkbox"/> Stationary Gasoline Engine	<input type="checkbox"/> Peaking										
<input type="checkbox"/> Stationary Natural Gas-Fired Turbine	<input type="checkbox"/> Demand Response										
<input type="checkbox"/> Other – Specify:											

SECTION C – MANUFACTURER DATA

Make Waukesha	Model L7044 GSI Series 4	Date of Manufacture Post July 2010
Reciprocating Internal Combustion Engine		
<input checked="" type="checkbox"/> Spark Ignition <input type="checkbox"/> Compression Ignition		
<input checked="" type="checkbox"/> 4 Stroke <input type="checkbox"/> 2 Stroke <input checked="" type="checkbox"/> Rich Burn <input type="checkbox"/> Lean Burn		
Maximum Rating (BHP @ rpm) 1680 @ 1200 rpm	Operating Capacity (BHP @ rpm) 1680 @ 1200 rpm	
Engine Subject to: <input type="checkbox"/> 40 CFR 60, Subpart IIII <input checked="" type="checkbox"/> 40 CFR 60, Subpart JJJJ <input type="checkbox"/> 40 CFR 63, Subpart ZZZZ <input type="checkbox"/> 40 CFR 60, Subpart OOOO <input type="checkbox"/> 40 CFR 60, Subpart OOOOa		
Turbine <input type="checkbox"/> Dry Low Emissions? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Heat Input (MMBtu/hr)	Maximum Rating (HP)	75% Rating (HP)
Efficiency		
Turbine Subject to: <input type="checkbox"/> 40 CFR 60, Subpart GG <input type="checkbox"/> 40 CFR 60, Subpart KKKK		

SECTION D – FUELS USED

Natural Gas (10 ⁶ cu ft/year) 90,342 MMscf/year	Percent Sulfur Negligible	Percent H ₂ S Negligible
Oil (gal/year)	Percent Sulfur	Grade No.
LP Gas (gal/year)	Other – Specify:	

SECTION E – NORMAL OPERATING SCHEDULE

Hours Per Day 24	Days Per Week 7	Weeks Per Year 52	Hours Per Year 8760	Peak Production Season (if any)
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SECTION F – STACK PARAMETERS

Emission Point ID Number Engines 2 and 3	Stack Height Above Ground Level (feet) 1.5 X Building Height (approximately 35 feet)		
Stack Diameter (feet at top) 12 inches estimated	Gas Discharged (SCFM) 3094	Exit Temp (°F) 1208	Gas Velocity (FPS) 51.6

SECTION G – EMISSION CONTROL EQUIPMENT

Is any emission control equipment installed on this unit?

☐ No☒ Yes – Complete and attach form SFN 8532**SECTION H – MAXIMUM AIR CONTAMINANTS EMITTED**

Pollutant	Maximum Pounds Per Hour	Amount (Tons Per Year)	Basis of Estimate*
NO _x	3.52	15.41	Permit Limit
CO	3.52	15.41	Permit Limit
PM	0.30	1.32	AP-42 Table 3.2-3
PM ₁₀ (filterable and condensable)	0.30	1.32	AP-42 Table 3.2-3
PM _{2.5} (filterable and condensable)	0.30	1.32	AP-42 Table 3.2-3
SO ₂	0.01	0.04	AP-42 Table 3.2-3
VOC	2.37	10.40	Permit Limit
GHG (as CO ₂ e)	1797	7872	AP-42 Table 3.2-3
Largest Single HAP	0.004	0.02	Vendor Data
Total HAPS	0.10	0.43	Vendor Data/AP-42

* If performance test results are available for the unit, submit a copy of test with this application, if manufacture data used, submit manufacturers specification sheets.

IS THIS UNIT IN COMPLIANCE WITH ALL APPLICABLE AIR POLLUTION RULES AND REGULATIONS?

☒ YES☐ NO

If "NO" a Compliance Schedule (SFN 61008) must be completed and attached.

Attach and label separate sheet(s) if you need more space to explain any system or answers or to provide complete listings of Emissions, Contaminants, or other items.

SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of Environmental Quality
 Division of Air Quality
 918 E Divide Avenue, 2nd Floor
 Bismarck, ND 58501-1947
 (701) 328-5188



PERMIT APPLICATION FOR AIR POLLUTION CONTROL EQUIPMENT
NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 8532 (3-2019)

NOTE: READ INSTRUCTIONS BEFORE COMPLETING THIS FORM.
- Must also include forms SFN 8516 or SFN 52858

SECTION A – GENERAL INFORMATION

Name of Firm or Organization Hiland Partners Holdings LLC	Facility Name 4Runner Compressor Station
Source ID No. of Equipment being Controlled C2 and C3	

SECTION B – EQUIPMENT

Type:	<input type="checkbox"/> Cyclone	<input type="checkbox"/> Multiclone	<input type="checkbox"/> Baghouse	<input type="checkbox"/> Electrostatic Precipitator
	<input type="checkbox"/> Wet Scrubber	<input type="checkbox"/> Spray Dryer	<input type="checkbox"/> Flare/Combustor	
	<input checked="" type="checkbox"/> Other – Specify: NSCR			
Name of Manufacturer Waukesha INNIO		Model Number emPACT	Date to Be Installed upon startup	
Application: <input type="checkbox"/> Boiler <input type="checkbox"/> Kiln <input type="checkbox"/> Engine <input type="checkbox"/> Other – Specify:				
Pollutants Removed	NOx	CO	NMNE HC (VOC)	
Design Efficiency (%)	98.9 %	97.6 %	23.7 %	
Operating Efficiency (%)	TBD	TBD	TBD	
Describe method used to determine operating efficiency: Compared ENGINE OUT and CATALYST OUT numbers from specification sheets. Though VOC efficiency low, the catalyst out number of 0.45 g/hp-hr is well below the NSPS limit of 0.7 g/hp-hr.				

SECTION CD – GAS CONDITIONS

Gas Conditions			Inlet	Outlet
Gas Volume (SCFM; 68°F; 14.7 psia)				7891
Gas Temperature (°F)				1208
Gas Pressure (in. H ₂ O)				
Gas Velocity (ft/sec)				51.6
Pollutant Concentration (Specify Pollutant and Unit of Concentration)	Pollutant	Unit of Concentration		
	NOx	g/bhp-hr	14.1	0.15 (permitting 0.95)
	CO	g/bhp-hr	12.7	0.30(permitting 0.95)
	VOC	g/bhp-hr	0.59	0.45(permitting 0.64)
Pressure Drop Through Gas Cleaning Device (in. H ₂ O) TBD				



PERMIT APPLICATION FOR HAZARDOUS AIR POLLUTANT (HAP) SOURCES
NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 8329 (3-2019)

SECTION A1 - APPLICANT INFORMATION

Name of Firm or Organization Hiland Partners Holdings LLC - 4Runner Compressor Station		
Applicant's Name Anu Pundari		
Title Senior Engineer - EHS	Telephone Number 520-663-4249	E-mail Address anu_pundari@kindermorgan.com
Mailing Address (Street & No.) 5151 E. Broadway, Suite 1680		
City Tucson	State AZ	ZIP Code 85711

SECTION A2 - FACILITY INFORMATION

Contact Person for Air Pollution Matters Anu Pundari		
Title Senior Engineer - EHS	Telephone Number 520-663-4249	E-mail Address anu_pundari@kindermorgan.com
Facility Address (Street & No. or Lat/Long to Nearest Second) Located approximately 15 miles southwest of Williston, North Dakota		
City Williston	State ND	ZIP Code 58849
County Williams	Number of Employees at Location 0	
Land Area at Plant Site 6 Acres (or)	Sq. Ft.	MSL Elevation at Plant 1930

Describe Nature of Business/Process
Natural gas compressor station

SECTION B - STACK DATA

Inside Diameter (ft) 12 " (estimated)	Height Above Grade (ft) 1.5 X Building Height (Approximately 35 feet)	
Gas Temperature at Exit (°F) 1,208	Gas Velocity at Exit (ft/sec) 52	Gas Volume (scfm) 7891
Basis of any Estimates (attach separate sheet if necessary)		
Are Emission Control Devices in Place? If YES – Complete SFN 8532 <input checked="" type="radio"/> Yes <input type="radio"/> No		
Nearest Residences or Building Residence	Distance (ft) 4224 (0.8 mile)	Direction West
Nearest Property Line	Distance (ft)	Direction

SECTION C – EMISSION STREAM DATA

Source ID No. From SFN 8516 C2 and C3	Mean Particle Diameter (um) Unknown
Flow Rate (scfm) 3094	Drift Velocity (ft/sec) Unknown
Stream Temperature (°F) 1208	Particulate Concentration (gr/dscf) Unknown
Moisture Content (%) Unknown	Halogens or Metals Present? Unknown
Pressure (in. Hg) Unknown	Organic Content (ppmv) Unknown
Heat Content (Btu/scfm) Unknown	O ₂ Content (%) Unknown

SECTION D – POLLUTANT SPECIFIC DATA**(Complete One Box for Each Pollutant in Emission Stream)**

Pollutant Emitted Formaldehyde	Chemical Abstract Services (CAS) Number 50-00-0
Proposed Emission Rate (lb/hr) 0.004	Emission Source (describe) 1680 hp Compressor Engines #C2 and Engine # C3
Source Classification (process point, process fugitive, area fugitive) Process point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic- Vapor
Concentration in Emission Stream (ppmv) Unknown	Vapor Pressure (in. Hg @ °F) 3890 mm Hg at 25 degrees Cellus
Solubility >100 g/100 ml (20 degrees Cellus)	Molecular Weight (lb/lb-mole) 30
Absorptive Properties Unknown	

Pollutant Emitted	Chemical Abstract Services (CAS) Number
Proposed Emission Rate (lb/hr)	Emission Source (describe)
Source Classification (process point, process fugitive, area fugitive)	Pollutant Class and Form (organic/inorganic - particulate/vapor)
Concentration in Emission Stream (ppmv)	Vapor Pressure (in. Hg @ °F)
Solubility	Molecular Weight (lb/lb-mole)
Absorptive Properties	

(Add additional pages if necessary)

Signature of Applicant <i>Ann Pundani</i>	Date 8/11/22
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SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of Environmental Quality
Division of Air Quality
918 E Divide Avenue, 2nd Floor
Bismarck, ND 58501-1947
(701) 328-5188

WAUKESHA SERIES 4 ENGINE SPECIFICATIONS



Kinder Morgan - 4 Runner - ND

VHP - L7044GSI

Archrock Tom

Gas Compression

ENGINE SPEED (rpm):	1200	NOx SELECTION (g/bhp-hr):	Customer Catalyst
DISPLACEMENT (in3):	7040	COOLING SYSTEM:	JW, IC + OC
COMPRESSION RATIO:	8:1	INTERCOOLER WATER INLET (°F):	130
IGNITION SYSTEM:	ESM2	JACKET WATER OUTLET (°F):	180
EXHAUST MANIFOLD:	Water Cooled	JACKET WATER CAPACITY (gal):	100
COMBUSTION:	Rich Burn, Turbocharged	AUXILIARY WATER CAPACITY (gal):	11
ENGINE DRY WEIGHT (lbs):	24250	LUBE OIL CAPACITY (gal):	190
AIR/FUEL RATIO SETTING:	0.38% CO	MAX. EXHAUST BACKPRESSURE (in. H2O):	18
ENGINE SOUND LEVEL (dBA)	104	MAX. AIR INLET RESTRICTION (in. H2O):	15
IGNITION TIMING:	ESM2 Controlled	EXHAUST SOUND LEVEL (dBA)	111

SITE CONDITIONS:			
FUEL:	Natural Gas	ALTITUDE (ft):	2000
FUEL PRESSURE RANGE (psig):	30 - 60	MAXIMUM INLET AIR TEMPERATURE (°F):	100
FUEL HHV (BTU/ft3):	1,336.2	FUEL WKI:	56.1
FUEL LHV (BTU/ft3):	1,208.0		

SITE SPECIFIC TECHNICAL DATA			MAX RATING AT 100 °F AIR TEMP	SITE RATING AT MAXIMUM INLET AIR TEMPERATURE OF 100 °F		
POWER RATING	UNITS			100%	75%	53%
CONTINUOUS ENGINE POWER	BHP		1593	1593	1196	843
OVERLOAD	% 2/24 hr		0	0	-	-
MECHANICAL EFFICIENCY (LHV)	%		27.7	27.7	25.5	23.4
CONTINUOUS POWER AT FLYWHEEL	BHP		1442	1442	1045	692
<i>based on 75 HP cooling fan, 76 HP misc. power</i>						

AVAILABLE TURNDOWN SPEED RANGE	RPM	700 - 1200
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FUEL CONSUMPTION						
FUEL CONSUMPTION (LHV)	BTU/BHP-hr		8324	8324	8729	8941
FUEL CONSUMPTION (HHV)	BTU/BHP-hr		9208	9208	9657	9891
FUEL FLOW	SCFM	<i>based on fuel analysis LHV</i>	183	183	144	104

HEAT REJECTION						
JACKET WATER (JW)	BTU/hr x 1000		3974	3974	3289	2505
LUBE OIL (OC)	BTU/hr x 1000		560	560	509	428
INTERCOOLER (IC)	BTU/hr x 1000		257	257	176	92
EXHAUST	BTU/hr x 1000		3976	3976	2985	1958
RADIATION	BTU/hr x 1000		699	699	644	552

EMISSIONS (ENGINE OUT):						
NOx (NO + NO2)	g/bhp-hr		14.1	14.1	15.1	16.3
CO	g/bhp-hr		12.7	12.7	12.6	11.5
THC	g/bhp-hr		2.2	2.2	2.2	2.2
NMHC	g/bhp-hr		1.19	1.19	1.14	0.97
NM,NEHC (VOC)	g/bhp-hr		0.59	0.59	0.57	0.48
CO2	g/bhp-hr		543	543	569	583
CO2e	g/bhp-hr		569	569	594	604
CH2O	g/bhp-hr		0.050	0.050	0.050	0.050
CH4	g/bhp-hr		1.05	1.05	1.00	0.85

AIR INTAKE / EXHAUST GAS						
INDUCTION AIR FLOW	SCFM		2429	2429	1913	1380
EXHAUST GAS MASS FLOW	lb/hr		11294	11294	8894	6416
EXHAUST GAS FLOW	ACFM	<i>at exhaust temp, 14.5 psia</i>	8423	8423	6451	4406
EXHAUST TEMPERATURE	°F		1218	1218	1172	1085

HEAT EXCHANGER SIZING ¹²			
TOTAL JACKET WATER CIRCUIT (JW)	BTU/hr x 1000		4507
TOTAL AUXILIARY WATER CIRCUIT (IC + OC)	BTU/hr x 1000		926

COOLING SYSTEM WITH ENGINE MOUNTED WATER PUMPS		
JACKET WATER PUMP MIN. DESIGN FLOW	GPM	450
JACKET WATER PUMP MAX. EXTERNAL RESTRICTION	psig	16
AUX WATER PUMP MIN. DESIGN FLOW	GPM	79
AUX WATER PUMP MAX. EXTERNAL RESTRICTION	psig	44



Kinder Morgan - 4 Runner - ND

Archrock Tom

VHP - L7044GSI

Gas Compression

FUEL COMPOSITION

HYDROCARBONS:			Mole or Volume %	FUEL:	Natural Gas
Methane	CH4		64.13	FUEL PRESSURE RANGE (psig):	30 - 60
Ethane	C2H6		19.56	FUEL WKI:	56.1
Propane	C3H8		8.9		
Iso-Butane	I-C4H10		0.69	FUEL SLHV (BTU/ft3):	1186.93
Normal Butane	N-C4H10		1.87	FUEL SLHV (MJ/Nm3):	46.67
Iso-Pentane	I-C5H12		0.17		
Normal Pentane	N-C5H12		0.19	FUEL LHV (BTU/ft3):	1207.95
Hexane	C6H14		0.15	FUEL LHV (MJ/Nm3):	47.50
Heptane	C7H16		0		
Ethene	C2H4		0	FUEL HHV (BTU/ft3):	1336.23
Propene	C3H6		0	FUEL HHV (MJ/Nm3):	52.55
	SUM HYDROCARBONS		95.66	FUEL DENSITY (SG):	0.81
NON-HYDROCARBONS:				<p>Standard Conditions per ASTM D3588-91 [60°F and 14.696psia] and ISO 6976:1996-02-01[25, V(0;101.325)].</p> <p>Based on the fuel composition, supply pressure and temperature, liquid hydrocarbons may be present in the fuel. No liquid hydrocarbons are allowed in the fuel. The fuel must not contain any liquid water. Waukesha recommends both of the following:</p> <p>1) Dew point of the fuel gas to be at least 20°F (11°C) below the measured temperature of the gas at the inlet of the engine fuel regulator.</p> <p>2) A fuel filter separator to be used on all fuels except commercial quality natural gas.</p> <p>Refer to the 'Fuel and Lubrication' section of 'Technical Data' or contact the Waukesha Application Engineering Department for additional information on fuels, or LHV and WKI* calculations.</p> <p>* Trademark of General Electric Company</p>	
Nitrogen	N2		3.39		
Oxygen	O2		0		
Helium	He		0		
Carbon Dioxide	CO2		0.97		
Carbon Monoxide	CO		0		
Hydrogen	H2		0		
Water Vapor	H2O		0		
	TOTAL FUEL		100.02		

FUEL CONTAMINANTS

Total Sulfur Compounds	0	% volume	Total Sulfur Compounds	0	µg/BTU
Total Halogen as Chloride	0	% volume	Total Halogen as Chloride	0	µg/BTU
Total Ammonia	0	% volume	Total Ammonia	0	µg/BTU
<u>Siloxanes</u>			Total Siloxanes (as Si)	0	µg/BTU
Tetramethyl silane	0	% volume	<p>Calculated fuel contaminant analysis will depend on the entered fuel composition and selected engine model.</p>		
Trimethyl silanol	0	% volume			
Hexamethyldisiloxane (L2)	0	% volume			
Hexamethylcyclotrisiloxane (D3)	0	% volume			
Octamethyltrisiloxane (L3)	0	% volume			
Octamethylcyclotetrasiloxane (D4)	0	% volume			
Decamethyltetrasiloxane (L4)	0	% volume			
Decamethylcyclopentasiloxane (D5)	0	% volume			
Dodecamethylpentasiloxane (L5)	0	% volume			
Dodecamethylcyclohexasiloxane (D6)	0	% volume			
Others	0	% volume			

No water or hydrocarbon condensates are allowed in the engine. Requires liquids removal.

Kinder Morgan - 4 Runner - ND

Archrock Tom

VHP - L7044GSI

Gas Compression

NOTES

1. All data is based on engines with standard configurations unless noted otherwise.
2. Power rating is adjusted for fuel, site altitude, and site air inlet temperature, in accordance with ISO 3046/1 with tolerance of $\pm 3\%$.
3. Fuel consumption is presented in accordance with ISO 3046/1 with a tolerance of $-0 / +5\%$ at maximum rating. Fuel flow calculation based on fuel LHV and fuel consumption with a tolerance of $-0/+5\%$. For sizing piping and fuel equipment, it is recommended to include the 5% tolerance.
4. Heat rejection tolerances are $\pm 30\%$ for radiation, and $\pm 8\%$ for jacket water, lube oil, intercooler, and exhaust energy.
5. Emission levels for engines with GE supplied 3-way catalyst are given at catalyst outlet flange. For all other engine models, emission levels are given at engine exhaust outlet flange prior to any after treatment. Values are based on a new engine operating at indicated site conditions, and adjusted to the specified timing and air/fuel ratio at rated load. Catalyst out emission levels represent emission levels the catalyst is sized to achieve. Manual adjustment may be necessary to achieve compliance as catalyst/engine age. Catalyst-out emission levels are valid for the duration of the engine warranty. Emissions are at an absolute humidity of 75 grains H₂O/lb (10.71 g H₂O/kg) of dry air. Emission levels may vary subject to instrumentation, measurement, ambient conditions, fuel quality, and engine variation. Engine may require adjustment on-site to meet emission values, which may affect engine performance and heat output. NO_x, CO, THC, and NMHC emission levels are listed as a not to exceed limit, all other emission levels are estimated. CO₂ emissions based on EPA Federal Register/Vol. 74, No. 209/Friday, October 30, 2009 Rules and Regulations 56398, 56399 (3) Tier 3 Calculation Methodology, Equation C-5.
6. Air flow is based on undried air with a tolerance of $\pm 7\%$.
7. Exhaust temperature given at engine exhaust outlet flange with a tolerance of $\pm 50^{\circ}\text{F}$ (28°C).
8. Exhaust gas mass flow value is based on a "wet basis" with a tolerance of $\pm 7\%$.
9. Inlet air restrictions based on full rated engine load. Exhaust backpressure based on 158 PSI BMEP and 1200 RPM. Refer to the engine specification section of Waukesha's standard technical data for more information.
10. Cooling circuit capacity, lube oil capacity, and engine dry weight values are typical.
11. Fuel must conform to Waukesha's "Gaseous Fuel Specification" S7884-7 or most current version. Fuel may require treatment to meet current fuel specification.
12. Heat exchanger sizing values given as the maximum heat rejection of the circuit, with applied tolerances and an additional 5% reserve factor.
13. Fuel volume flow calculation in english units is based on 100% relative humidity of the fuel gas at standard conditions of 60°F and 14.696 psia (29.92 inches of mercury; 101.325 kPa).
14. Fuel volume flow calculation in metric units is based on 100% relative humidity of the fuel gas at a combustion temperature of 25°C and metering conditions of 0°C and 101.325 kPa (14.696 psia; 29.92 inches of mercury). This is expressed as $[25, V(0;101.325)]$.
15. Engine sound data taken with the microphone at 1 m (3.3 ft) from the side of the engine at the approximate front-to-back centerline. Microphone height was at intake manifold level. Engine sound pressure data may be different at front, back and opposite side locations. Exhaust sound data taken with microphone 1 meter (3.3 ft) away and 1 meter (3.3 ft) to the side of the exhaust outlet.
16. Due to variation between test conditions and final site conditions, such as exhaust configuration and background sound level, sound pressure levels under site conditions may be different than those tabulated above.
17. Cooling system design flow is based on minimum allowable cooling system flow. Cooling system maximum external restriction is defined as the allowable restriction at the minimum cooling system flow.
18. Continuous Power Rating: The highest load and speed that can be applied 24 hours per day, seven days per week, 365 days per year except for normal maintenance at indicated ambient reference conditions and fuel. No engine overload power rating is available.
19. emPact emission compliance available for entire range of operable fuels; however, fuel system and/or O₂ set point may need to be adjusted in order to maintain compliance.
20. In cold ambient temperatures, heating of the engine jacket water, lube oil and combustion air may be required. See Waukesha Technical Data.
21. Available Turndown Speed Range refers to the constant torque speed range available. Reduced power may be available at speeds outside of this range. Contact application engineering.

SPECIAL REQUIREMENTS



VHP - L7044GSI

Gas Compression

ENGINE SPEED (rpm):	1200	NOx SELECTION (g/bhp-hr):	0.15
DISPLACEMENT (in3):	7040	COOLING SYSTEM:	JW, IC + OC
COMPRESSION RATIO:	8:1	INTERCOOLER WATER INLET (°F):	130
IGNITION SYSTEM:	ESM2	JACKET WATER OUTLET (°F):	180
EXHAUST MANIFOLD:	Water Cooled	JACKET WATER CAPACITY (gal):	100
COMBUSTION:	Rich Burn, Turbocharged	AUXILIARY WATER CAPACITY (gal):	11
ENGINE DRY WEIGHT (lbs):	24250	LUBE OIL CAPACITY (gal):	190
AIR/FUEL RATIO SETTING:	0.38% CO	MAX. EXHAUST BACKPRESSURE (in. H2O):	18
ENGINE SOUND LEVEL (dBA)	104	MAX. AIR INLET RESTRICTION (in. H2O):	15
IGNITION TIMING:	ESM2 Controlled	EXHAUST SOUND LEVEL (dBA)	111

SITE CONDITIONS:

FUEL:	Natural Gas	ALTITUDE (ft):	2000
FUEL PRESSURE RANGE (psig):	30 - 60	MAXIMUM INLET AIR TEMPERATURE (°F):	100
FUEL HHV (BTU/ft3):	1,336.2	FUEL WKI:	56.1
FUEL LHV (BTU/ft3):	1,208.0		

SITE SPECIFIC TECHNICAL DATA

POWER RATING	UNITS		MAX RATING AT 100 °F AIR TEMP	SITE RATING AT MAXIMUM INLET AIR TEMPERATURE OF 100 °F		
				100%	85%	79%
CONTINUOUS ENGINE POWER	BHP		1593	1593	1356	1260
OVERLOAD	% 2/24 hr		0	0	-	-
MECHANICAL EFFICIENCY (LHV)	%		30.6	30.6	29.5	29.1
CONTINUOUS POWER AT FLYWHEEL	BHP		1593	1593	1356	1260
<i>based on no auxiliary engine driven equipment</i>						

AVAILABLE TURNDOWN SPEED RANGE	RPM	700 - 1200
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FUEL CONSUMPTION						
FUEL CONSUMPTION (LHV)	BTU/BHP-hr		8324	8324	8627	8752
FUEL CONSUMPTION (HHV)	BTU/BHP-hr		9208	9208	9544	9681
FUEL FLOW	SCFM	<i>based on fuel analysis LHV</i>	183	183	161	152

HEAT REJECTION						
JACKET WATER (JW)	BTU/hr x 1000		3974	3974	3612	3452
LUBE OIL (OC)	BTU/hr x 1000		560	560	535	522
INTERCOOLER (IC)	BTU/hr x 1000		257	257	211	192
EXHAUST	BTU/hr x 1000		3976	3976	3441	3204
RADIATION	BTU/hr x 1000		699	699	676	663

EMISSIONS (CATALYST OUT):						
NOx (NO + NO2)	g/bhp-hr		0.15	0.15	0.15	0.15
CO	g/bhp-hr		0.3	0.3	0.3	0.3
THC	g/bhp-hr		1.70	1.70	1.70	1.70
NMHC	g/bhp-hr		0.90	0.90	0.90	0.90
NM,NEHC (VOC)	g/bhp-hr		0.45	0.45	0.45	0.45
CO2	g/bhp-hr		562	562	582	590
CO2e	g/bhp-hr		582	582	602	610
CH2O	g/bhp-hr		0.001	0.001	0.001	0.001
CH4	g/bhp-hr		0.80	0.80	0.80	0.80

AIR INTAKE / EXHAUST GAS						
INDUCTION AIR FLOW	SCFM		2429	2429	2142	2019
EXHAUST GAS MASS FLOW	lb/hr		11294	11294	9963	9389
EXHAUST GAS FLOW	ACFM	<i>at exhaust temp, 14.5 psia</i>	8423	8423	7346	6877
EXHAUST TEMPERATURE	°F		1218	1218	1199	1188

HEAT EXCHANGER SIZING ¹²			
TOTAL JACKET WATER CIRCUIT (JW)	BTU/hr x 1000		4507
TOTAL AUXILIARY WATER CIRCUIT (IC + OC)	BTU/hr x 1000		926

COOLING SYSTEM WITH ENGINE MOUNTED WATER PUMPS		
JACKET WATER PUMP MIN. DESIGN FLOW	GPM	450
JACKET WATER PUMP MAX. EXTERNAL RESTRICTION	psig	16
AUX WATER PUMP MIN. DESIGN FLOW	GPM	79
AUX WATER PUMP MAX. EXTERNAL RESTRICTION	psig	44

FUEL COMPOSITION

<u>HYDROCARBONS:</u>			<u>Mole or Volume %</u>	FUEL:	Natural Gas
Methane	CH4		64.13	FUEL PRESSURE RANGE (psig):	30 - 60
Ethane	C2H6		19.56	FUEL WKI:	56.1
Propane	C3H8		8.9		
Iso-Butane	I-C4H10		0.69	FUEL SLHV (BTU/ft3):	1186.93
Normal Butane	N-C4H10		1.87	FUEL SLHV (MJ/Nm3):	46.67
Iso-Pentane	I-C5H12		0.17		
Normal Pentane	N-C5H12		0.19	FUEL LHV (BTU/ft3):	1207.95
Hexane	C6H14		0.15	FUEL LHV (MJ/Nm3):	47.50
Heptane	C7H16		0		
Ethene	C2H4		0	FUEL HHV (BTU/ft3):	1336.23
Propene	C3H6		0	FUEL HHV (MJ/Nm3):	52.55
	SUM HYDROCARBONS		95.66	FUEL DENSITY (SG):	0.81
<u>NON-HYDROCARBONS:</u>				<p>Standard Conditions per ASTM D3588-91 [60°F and 14.696psia] and ISO 6976:1996-02-01[25, V(0;101.325)].</p> <p>Based on the fuel composition, supply pressure and temperature, liquid hydrocarbons may be present in the fuel. No liquid hydrocarbons are allowed in the fuel. The fuel must not contain any liquid water. Waukesha recommends both of the following:</p> <p>1) Dew point of the fuel gas to be at least 20°F (11°C) below the measured temperature of the gas at the inlet of the engine fuel regulator.</p> <p>2) A fuel filter separator to be used on all fuels except commercial quality natural gas.</p> <p>Refer to the 'Fuel and Lubrication' section of 'Technical Data' or contact the Waukesha Application Engineering Department for additional information on fuels, or LHV and WKI* calculations.</p> <p>* Trademark of INNIO Waukesha Gas Engines Inc.</p>	
Nitrogen	N2		3.39		
Oxygen	O2		0		
Helium	He		0		
Carbon Dioxide	CO2		0.97		
Carbon Monoxide	CO		0		
Hydrogen	H2		0		
Water Vapor	H2O		0		
	TOTAL FUEL		100.02		

FUEL CONTAMINANTS

Total Sulfur Compounds	0	% volume	Total Sulfur Compounds	0	µg/BTU
Total Halogen as Chloride	0	% volume	Total Halogen as Chloride	0	µg/BTU
Total Ammonia	0	% volume	Total Ammonia	0	µg/BTU
<u>Siloxanes</u>			Total Siloxanes (as Si)	0	µg/BTU
Tetramethyl silane	0	% volume			
Trimethyl silanol	0	% volume			
Hexamethyldisiloxane (L2)	0	% volume			
Hexamethylcyclotrisiloxane (D3)	0	% volume			
Octamethyltrisiloxane (L3)	0	% volume			
Octamethylcyclotetrasiloxane (D4)	0	% volume			
Decamethyltetrasiloxane (L4)	0	% volume			
Decamethylcyclopentasiloxane (D5)	0	% volume			
Dodecamethylpentasiloxane (L5)	0	% volume			
Dodecamethylcyclohexasiloxane (D6)	0	% volume			
Others	0	% volume			

Calculated fuel contaminant analysis will depend on the entered fuel composition and selected engine model.

No water or hydrocarbon condensates are allowed in the engine. Requires liquids removal.

NOTES

1. All data is based on engines with standard configurations unless noted otherwise.
2. Power rating is adjusted for fuel, site altitude, and site air inlet temperature, in accordance with ISO 3046/1 with tolerance of $\pm 3\%$.
3. Fuel consumption is presented in accordance with ISO 3046/1 with a tolerance of $-0 / +5\%$ at maximum rating. Fuel flow calculation based on fuel LHV and fuel consumption with a tolerance of $-0/+5\%$. For sizing piping and fuel equipment, it is recommended to include the 5% tolerance.
4. Heat rejection tolerances are $\pm 30\%$ for radiation, and $\pm 8\%$ for jacket water, lube oil, intercooler, and exhaust energy.
5. Emission levels for engines with Waukesha supplied 3-way catalyst are given at catalyst outlet flange. For all other engine models, emission levels are given at engine exhaust outlet flange prior to any after treatment. Values are based on a new engine operating at indicated site conditions, and adjusted to the specified timing and air/fuel ratio at rated load. Catalyst out emission levels represent emission levels the catalyst is sized to achieve. Manual adjustment may be necessary to achieve compliance as catalyst/engine age. Catalyst-out emission levels are valid for the duration of the engine warranty. Emissions are at an absolute humidity of 75 grains H₂O/lb (10.71 g H₂O/kg) of dry air. Emission levels may vary subject to instrumentation, measurement, ambient conditions, fuel quality, and engine variation. Engine may require adjustment on-site to meet emission values, which may affect engine performance and heat output. NO_x, CO, THC, and NMHC emission levels are listed as a not to exceed limit, all other emission levels are estimated. CO₂ emissions based on EPA Federal Register/Vol. 74, No. 209/Friday, October 30, 2009 Rules and Regulations 56398, 56399 (3) Tier 3 Calculation Methodology, Equation C-5.
6. Air flow is based on undried air with a tolerance of $\pm 7\%$.
7. Exhaust temperature given at engine exhaust outlet flange with a tolerance of $\pm 50^{\circ}\text{F}$ (28°C).
8. Exhaust gas mass flow value is based on a "wet basis" with a tolerance of $\pm 7\%$.
9. Inlet air restrictions based on full rated engine load. Exhaust backpressure based on 158 PSI BMEP and 1200 RPM. Refer to the engine specification section of Waukesha's standard technical data for more information.
10. Cooling circuit capacity, lube oil capacity, and engine dry weight values are typical.
11. Fuel must conform to Waukesha's "Gaseous Fuel Specification" S7884-7 or most current version. Fuel may require treatment to meet current fuel specification.
12. Heat exchanger sizing values given as the maximum heat rejection of the circuit, with applied tolerances and an additional 5% reserve factor.
13. Fuel volume flow calculation in english units is based on 100% relative humidity of the fuel gas at standard conditions of 60°F and 14.696 psia (29.92 inches of mercury; 101.325 kPa).
14. Fuel volume flow calculation in metric units is based on 100% relative humidity of the fuel gas at a combustion temperature of 25°C and metering conditions of 0°C and 101.325 kPa (14.696 psia; 29.92 inches of mercury). This is expressed as $[25, V(0;101.325)]$.
15. Engine sound data taken with the microphone at 1 m (3.3 ft) from the side of the engine at the approximate front-to-back centerline. Microphone height was at intake manifold level. Engine sound pressure data may be different at front, back and opposite side locations. Exhaust sound data taken with microphone 1 meter (3.3 ft) away and 1 meter (3.3 ft) to the side of the exhaust outlet.
16. Due to variation between test conditions and final site conditions, such as exhaust configuration and background sound level, sound pressure levels under site conditions may be different than those tabulated above.
17. Cooling system design flow is based on minimum allowable cooling system flow. Cooling system maximum external restriction is defined as the allowable restriction at the minimum cooling system flow.
18. Continuous Power Rating: The highest load and speed that can be applied 24 hours per day, seven days per week, 365 days per year except for normal maintenance at indicated ambient reference conditions and fuel. No engine overload power rating is available.
19. emPact emission compliance available for entire range of operable fuels; however, fuel system and/or O₂ set point may need to be adjusted in order to maintain compliance.
20. In cold ambient temperatures, heating of the engine jacket water, lube oil and combustion air may be required. See Waukesha Technical Data.
21. Available Turndown Speed Range refers to the constant torque speed range available. Reduced power may be available at speeds outside of this range. Contact application engineering.

SPECIAL REQUIREMENTS

Requires option code 1005 for 0.15g/bhp-hr catalyst.

DRAFT PERMIT

AIR POLLUTION CONTROL PERMIT TO CONSTRUCT

Pursuant to Chapter 23.1-06 of the North Dakota Century Code, and the Air Pollution Control Rules of the State of North Dakota (Article 33.1-15 of the North Dakota Administrative Code), and in reliance on statements and representations heretofore made by the owner designated below, a Permit to Construct is hereby issued authorizing such owner to construct and initially operate the source unit(s) at the location designated below. This Permit to Construct is subject to all applicable rules and orders now or hereafter in effect of the North Dakota Department of Environmental Quality (Department) and to any conditions specified below:

I. General Information:

A. **Permit to Construct Number:** ACP-18145 v2.0

B. **Source:**

1. **Name:** Hiland Partners Holdings LLC
2. **Location:** 4Runner Compressor Station
48.056636, -103.393164
SE Sec. 22, T153N, R99W
Williams County, North Dakota
3. **Source Type:** Compressor Station
4. **Equipment to be installed at the Facility:**

Table 1 - New Equipment List

Emission Unit Description	Emission Unit (EU)	Emission Point (EP)	Air Pollution Control Equipment
Waukesha L7044GSI Series 5 (4SRB) natural gas-fired compressor engine rated at 1,900 bhp (NSPS JJJJ) (NSPS OOOOa) (MACT ZZZZ)	C-1	C-1	Non-Selective Catalytic Reduction (NSCR)
Waukesha L7044GSI Series 4 (4SRB) natural gas-fired compressor engine rated at 1,680 bhp (NSPS JJJJ) (NSPS OOOOa) (MACT ZZZZ)	C-2	C-2	NSCR
Waukesha L7044GSI Series 4 (4SRB) natural gas-fired compressor engine rated at 1,680 bhp (NSPS JJJJ) (NSPS OOOOa) (MACT ZZZZ)	C-3	C-3	NSCR
Caterpillar G3606 (4SLB) natural gas-fired compressor engine rated at 1,875 bhp (NSPS JJJJ) (NSPS OOOOa) (MACT ZZZZ)	C-4	C-4	Catalytic Oxidation
Caterpillar G3606 (4SLB) natural gas-fired compressor engine rated at 1,875 bhp (NSPS JJJJ) (NSPS OOOOa) (MACT ZZZZ)	C-5	C-5	Catalytic Oxidation
Waukesha L7044GSI Series 5 (4SRB) natural gas-fired compressor engine rated at 1,900 bhp (NSPS JJJJ) (NSPS OOOOa) (MACT ZZZZ)	C-6	C-6	NSCR
TEG regenerator reboiler rated at 1.5×10^6 Btu/hr	7 ^A	7, 9, and 10 ^B	BTEX Condenser and TEG Reboiler
Triethylene glycol (TEG) Dehydration Unit rated at 60×10^6 scfd (MACT HH)	8		
400-bbl produced water tank (atmospheric)	9	9	Submerged Fill Pipe (SFP)
400-bbl produced water tank (atmospheric)	10	10	SFP
Truck loading – produced water	PW-TL ^D	PW-TL	None
Compressor engine and equipment blowdowns	BD ^C	BD	None
Pipeline pigging	PIG ^D	PIG	None
Fugitive emissions	FUG	FUG	Leak Detection and Repair (LDAR)

^A The reboiler may use both pipeline quality natural gas, field gas, and/or non-condensables from the TEG regeneration system.

^B Emissions from the TEG dehydration unit flash tank are recycled back into the process. Emissions from the TEG reboiler still column are controlled by a BTEX condenser, with

- C non-condensable vapors exiting the condenser combusted in the TEG reboiler firebox and
condensed liquids routed to the produced water tanks (EU9 and EU10).
D Blowdown emissions are based on 1.39×10^6 SCF of gas vented annually.
Insignificant source of emissions.

C. Owner/Operator (Permit Applicant):

1. Name: Hiland Partners Holdings LLC
2. Address: 1001 Louisiana Street, Suite 1000
Houston, TX 77002
3. Application Date: December 15, 2021 (updated on February 22 and
March 14, 2022 and August 11, 2022)

II. **Conditions:** This Permit to Construct allows operation of the above-mentioned new and modified equipment at the source. The source may be operated under this Permit to Construct until a Permit to Operate is issued unless this permit is suspended or revoked. The source is subject to all applicable rules, regulations, and orders now or hereafter in effect of the North Dakota Department of Environmental Quality and to the conditions specified below.

A. **Emission Limits:** Emission limits from the operation of the source unit(s) identified in Item I.B of this Permit to Construct (hereafter referred to as "permit") are as follows. Source units not listed are subject to the applicable emission limits specified in the North Dakota Air Pollution Control Rules.

Emission Unit Description	EU	EP	Pollutant / Parameter	Emission Limit ^A
Two Waukesha L7044GSI Series 5 (4SRB) natural gas-fired compressor engines	C-1 and C-6	C-1 and C-6	NO _x	3.52 lb/hr and 0.84 g/hp-hr or 82 ppmvd @ 15% O ₂ ^B
			CO	3.52 lb/hr and 0.84 g/hp-hr or 270 ppmvd @ 15% O ₂ ^B
			VOC	2.31 lb/hr and 0.55 g/hp-hr or 60 ppmvd @ 15% O ₂ ^B
			Opacity	20% ^C

Emission Unit Description	EU	EP	Pollutant / Parameter	Emission Limit ^A
Two Waukesha L7044GSI Series 4 (4SRB) natural gas-fired compressor engines	C-2 and C-3	C-2 and C-3	NO _x	3.52 lb/hr and 0.95 g/hp-hr or 82 ppmvd @ 15% O ₂ ^B
			CO	3.52 lb/hr and 0.95 g/hp-hr or 270 ppmvd @ 15% O ₂ ^B
			VOC	2.30 lb/hr and 0.64 g/hp-hr or 60 ppmvd @ 15% O ₂ ^B
			Opacity	20% ^C
Two Caterpillar G3606 (4SLB) natural gas-fired compressor engines	C-4 and C-5	C-4 and C-5	NO _x	4.13 lb/hr and 1.00 g/hp-hr or 82 ppmvd @ 15% O ₂ ^B
			CO	4.13 lb/hr and 1.00 g/hp-hr or 270 ppmvd @ 15% O ₂ ^B
			VOC	3.10 lb/hr and 0.70 g/hp-hr or 60 ppmvd @ 15% O ₂ ^B
			Opacity	20% ^C
TEG regenerator reboiler	7	7	Opacity	20% ^C

^A Emission limits apply to each individual emission point.

^B The emission limits in ppmvd at 15% O₂ are from 40 CFR 60, Subpart JJJJ.

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

B. Emissions Testing:

1. Initial Testing of Compressor Engines: Within 180 days after initial startup of new compressor engines (EUs C-1 through C-6), the permittee shall conduct emissions tests at the emission units listed below using an independent testing firm, to determine the compliance status of the facility with respect to the emission limits specified in Condition II.A. Emissions testing shall be conducted for the pollutant(s) listed below in accordance with EPA Reference Methods listed in 40 CFR 60, Appendix A. Test

methods other than those listed below may be used upon approval by the Department.

Emission Unit Description	EP	Pollutant/Parameter	Number of Runs	Length of Runs	EPA Ref. Method(s)
Two Waukesha L7044GSI Series 5 (4SRB) natural gas-fired compressor engines	C-1 and C-6	NO _x CO VOC	3	60 minutes	7E, 10, and 25, or 320
Two Waukesha L7044GSI Series 4 (4SRB) natural gas-fired compressor engines	C-2 and C-3	NO _x CO VOC	3	60 minutes	7E, 10, and 25, or 320
Two Caterpillar G3606 (4SLB) natural gas-fired compressor engines	C-4 and C-5	NO _x CO VOC	3	60 minutes	7E, 10, and 25, or 320

A signed copy of the test results shall be furnished to the Department within 60 days of the test date. The basis for this condition is NDAC 33.1-15-01-12 which is hereby incorporated into this permit by reference. To facilitate preparing for and conducting such tests, and to facilitate reporting the test results to the Department, the permittee shall follow the procedures and formats in the Department's Emission Testing Guideline.

2. Notification: The permittee shall notify the Department using the form in the Emission Testing Guideline, or its equivalent, at least 30 calendar days in advance of any tests of emissions of air contaminants required by the Department. If the permittee is unable to conduct the performance test on the scheduled date, the permittee shall notify the Department at least five

days prior to the scheduled test date and coordinate a new test date with the Department.

3. Sampling Ports/Access: Sampling ports shall be provided downstream of all emission control devices and in a flue, conduit, duct, stack or chimney arranged to conduct emissions to the ambient air.

The ports shall be located to allow for reliable sampling and shall be adequate for test methods applicable to the facility. Safe sampling platforms and safe access to the platforms shall be provided. Plans and specifications showing the size and location of the ports, platform and utilities shall be submitted to the Department for review and approval.

4. Other Testing:

- a) The Department may require the permittee to have tests conducted to determine the emission of air contaminants from any source, whenever the Department has reason to believe that an emission of a contaminant not addressed by the permit applicant is occurring, or the emission of a contaminant in excess of that allowed by this permit is occurring. The Department may specify testing methods to be used in accordance with good professional practice. The Department may observe the testing. All tests shall be conducted by reputable, qualified personnel. A signed copy of the test results shall be furnished to the Department within 60 days of the test date.

All tests shall be completed and the results calculated in accordance with test procedures approved by the Department. All tests shall be made under the direction of persons qualified by training or experience in the field of air pollution control as approved by the Department.

- b) The Department may conduct tests of emissions of air contaminants from any source. Upon request of the Department, the permittee shall provide necessary holes in stacks or ducts and such other safe and proper sampling and testing facilities, exclusive of instruments and sensing devices, as may be necessary for proper determination of the emission of air contaminants.

C. Fuel Restriction:

1. The compressor engines (EUs C-1 through C-6) are restricted to combusting only field gas or natural gas containing no more than 2 grains of sulfur per 100 standard cubic feet.
2. The TEG regenerator reboiler (EU 7) is restricted to combusting field gas,

natural gas, or non-condensed hydrocarbons from the TEG regeneration process containing no more than 2 grains of sulfur per 100 standard cubic feet.

- D. **New Source Performance Standards (NSPS):** The owner/operator shall comply with all applicable requirements of the following NSPS subparts as referenced in Chapter 33.1-15-12 of the North Dakota Air Pollution Control Rules and 40 CFR 60:
1. **40 CFR 60, Subpart JJJJ** - The owner/operator shall comply with all applicable requirements of 40 CFR 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (EUs C-1 through C-6).
 2. **40 CFR 60, Subpart OOOO and OOOOa** - 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, and Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015 (EUs C-1 through C-6 and FUG).
- E. **Maximum Achievable Control Technology Standards (MACT):** The permittee shall comply with all applicable requirements of the following MACT subparts as referenced in Chapter 33.1-15-22 of the North Dakota Air Pollution Control Rules and 40 CFR 63.
1. **40 CFR 63, Subpart ZZZZ** - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (EUs C-1 through C-6). The North Dakota Department of Environmental Quality has not adopted the area source provisions of this subpart. Please send all documentation to EPA at the address below.

U.S. EPA Region 8
1595 Wynkoop Street
Mail Code 8ENF – AT
Denver, CO 80202-1129
 2. **40 CFR 63, Subpart HH** - National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities (EU 8). The North Dakota Department of Environmental Quality has not adopted the area source provisions of this subpart. Please send all documentation to EPA at the address above.
- F. **Construction:** Construction of the above-described facility shall be in accordance with information provided in the permit application as well as any plans, specifications and supporting data submitted to the Department. The Department

shall be notified ten days in advance of any significant deviations from the specifications furnished. The issuance of this Permit to Construct may be suspended or revoked if the Department determines that a significant deviation from the plans and specifications furnished has been or is to be made.

Any violation of a condition issued as part of this permit to construct as well as any construction which proceeds in variance with any information submitted in the application, is regarded as a violation of construction authority and is subject to enforcement action.

- G. **Startup Notice:** A notification of the actual date of initial startup shall be submitted to the Department within 15 days after the date of initial startup.
- H. **Like-Kind Engine Replacement:** This permit allows the permittee to replace an existing compressor engine with a like-kind engine. Replacement is subject to the following conditions:
 - 1. The Department must be notified within 10 days after change-out of the engine.
 - 2. The replacement engine shall operate in the same manner, provide no increase in throughput and have equal or less emissions than the engine it is replacing.
 - 3. The date of manufacture of the replacement engine must be included in the notification. The facility must comply with any applicable federal standards (e.g. NSPS, MACT) triggered by the replacement.
 - 4. The replacement engine is subject to the same state emission limits as the existing engine in addition to any NSPS or MACT emission limit that is applicable. Testing shall be conducted to confirm compliance with the emission limits within 180 days after start-up of the engine.
- I. **Stack Heights:** The stack height of each engine shall be at least 1.5 times the nearby building height. A nearby building is any building located a distance of less than five times the building height from the stack.
- J. **Storage Tanks:** All stationary volatile organic compounds storage tanks shall be equipped with a submerged fill pipe in accordance with NDAC 33.1-15-07-01.3.
- K. **Organic Compounds Emissions:** The permittee shall comply with all applicable requirements of NDAC 33.1-15-07 – Control of Organic Compounds Emissions.
- L. **Permit Invalidation:** This permit shall become invalid if construction is not commenced within eighteen months after issuance of such permit, if construction

is discontinued for a period of eighteen months or more; or if construction is not completed within a reasonable time.

- M. **Fugitive Emissions:** The release of fugitive emissions shall comply with the applicable requirements in NDAC 33.1-15-17.
- N. **Annual Emission Inventory/Annual Production Reports:** The owner/operator shall submit an annual emission inventory report and/or an annual production report upon Department request, on forms supplied or approved by the Department.
- O. **Source Operations:** Operations at the installation shall be in accordance with statements, representations, procedures and supporting data contained in the initial application, and any supplemental information or application(s) submitted thereafter. Any operations not listed in this permit are subject to all applicable North Dakota Air Pollution Control Rules.
- P. **Alterations, Modifications or Changes:** Any alteration, repairing, expansion, or change in the method of operation of the source which results in the emission of an additional type or greater amount of air contaminants or which results in an increase in the ambient concentration of any air contaminant, must be reviewed and approved by the Department prior to the start of such alteration, repairing, expansion or change in the method of operation.
- Q. **Air Pollution from Internal Combustion Engines:** The permittee shall comply with all applicable requirements of NDAC 33.1-15-08-01 – Internal Combustion Engine Emissions Restricted.
- R. **Recordkeeping:** The owner/operator shall maintain any compliance monitoring records required by this permit or applicable requirements. The owner/operator shall retain records of all required monitoring data and support information for a period of at least five years from the date of the monitoring sample, measurement, report or application. Support information may include all calibration and maintenance records and all original strip-chart recordings/computer printouts for continuous monitoring instrumentation, and copies of all reports required by the permit.
- S. **Nuisance or Danger:** This permit shall in no way authorize the maintenance of a nuisance or a danger to public health or safety.
- T. **Malfunction Notification:** The owner/operator shall notify the Department of any malfunction which can be expected to last longer than twenty-four hours and can cause the emission of air contaminants in violation of applicable rules and regulations.

- U. **Operation of Air Pollution Control Equipment:** The owner/operator shall maintain and operate all air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions.
- V. **Transfer of Permit to Construct:** The holder of a permit to construct may not transfer such permit without prior approval from the Department.
- W. **Right of Entry:** Any duly authorized officer, employee or agent of the North Dakota Department of Environmental Quality may enter and inspect any property, premise or place at which the source listed in Item I.B of this permit is located at any time for the purpose of ascertaining the state of compliance with the North Dakota Air Pollution Control Rules. The Department may conduct tests and take samples of air contaminants, fuel, processing material, and other materials which affect or may affect emissions of air contaminants from any source. The Department shall have the right to access and copy any records required by the Department's rules and to inspect monitoring equipment located on the premises.
- X. **Other Regulations:** The owner/operator of the source unit(s) described in Item I.B of this permit shall comply with all State and Federal environmental laws and rules. In addition, the owner/operator shall comply with all local burning, fire, zoning, and other applicable ordinances, codes, rules and regulations.
- Y. **Permit Issuance:** This permit is issued in reliance upon the accuracy and completeness of the information set forth in the application. Notwithstanding the tentative nature of this information, the conditions of this permit herein become, upon the effective date of this permit, enforceable by the Department pursuant to any remedies it now has, or may in the future have, under the North Dakota Air Pollution Control Law, NDCC Chapter 23.1-06.
- Z. **Odor Restrictions:** The owner/operator shall not discharge into the ambient air any objectionable odorous air contaminant which is in excess of the limits established in NDAC 33.1-15-16.

The owner/operator shall not discharge into the ambient air hydrogen sulfide (H₂S) in concentrations that would be objectionable on land owned or leased by the complainant or in areas normally accessed by the general public. For the purpose of complaint resolution, two samples with concentrations greater than 0.05 parts per million (50 parts per billion) sampled at least 15 minutes apart within a two-hour period and measured in accordance with Section 33.1-15-16-04 constitute a violation.

- AA. **Sampling and Testing:** The Department may require the owner/operator to conduct tests to determine the emission rate of air contaminants from the source. The Department may observe the testing and may specify testing methods to be used. A signed copy of the test results shall be furnished to the Department within 60 days of the test date. The basis for this condition is NDAC 33.1-15-01-12

which is hereby incorporated into this permit by reference. To facilitate preparing for and conducting such tests, and to facilitate reporting the test results to the Department, the owner/operator shall follow the procedures and formats in the Department's Emission Testing Guideline.

FOR THE NORTH DAKOTA DEPARTMENT
OF ENVIRONMENTAL QUALITY

Date _____

By _____
James L. Semerad
Director
Division of Air Quality