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CONSTRUCTION PERMIT

Permit number: **22WE0328** Issuance: **1**

Date issued: **June 9, 2023** **464274**

Issued to: **Rockies Express Pipeline, LLC.**

Facility Name: **Hereford Ranch Compressor Station**
 Plant AIRS ID: **123-A190**
 Physical Location: **NESW Section 25 T12N R63W**
 County: **Weld County**
 Description: **Natural Gas Compressor Station in the Transmission and Storage Segment**

Equipment or activity subject to this permit:

Facility Equipment ID	AIRS Point	Equipment Description	Emissions Control Description
Unit 1	001	One (1) Caterpillar Model: G3516J Serial Number: TBD, Natural Gas-fired, turbocharged, 4-Stroke lean-burn reciprocating internal combustion engine, with a site rated horsepower of 1380 HP. Engine purpose: compression.	Exhaust stack emissions are sent to an oxidation catalyst. Crankcase emissions are not controlled.
Unit 2	002	One (1) Caterpillar Model: G3508J Serial Number: TBD, Natural Gas-fired, turbocharged, 4-Stroke lean burn reciprocating internal combustion engine, with a site rated horsepower of 690 HP. Engine purpose: compression.	Exhaust stack emissions are sent to an oxidation catalyst. Crankcase emissions are not controlled.
NA	004	Routine or predictable gas venting emissions including (see Attachment B for list of equipment covered for each activity): Activity 01: Gas venting from blowdowns of compressors, filter separator, and full compressor station. Activity 02: Gas venting from purging of compressors, filter separator, and full compressor station.	None



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		Activity 03: Gas venting from gas chromatograph analyzer.	
Unit 1 Compressor	005	Natural gas venting from reciprocating compressor rod packing (make: Ariel, model: JGJ/4, four (4) cylinders)	None
Unit 2 Compressor	006	Natural gas venting from reciprocating compressor rod packing (make: Ariel, model: KBT/4-1, four (4) cylinders)	None

Point 001: This engine may be replaced with another engine in accordance with the temporary engine replacement provision or with another Caterpillar, G3516J engine in accordance with the permanent replacement provision of the Alternate Operating Scenario (AOS), included in this permit as Attachment A.

Point 002: This engine may be replaced with another engine in accordance with the temporary engine replacement provision or with another Caterpillar, G3508J engine in accordance with the permanent replacement provision of the Alternate Operating Scenario (AOS), included in this permit as Attachment A.

This permit is granted subject to all rules and regulations of the Colorado Air Quality Control Commission and the Colorado Air Pollution Prevention and Control Act (C.R.S. 25-7-101 et seq), to this specific general terms and conditions included in this document and the following specific terms and conditions.

REQUIREMENTS TO SELF-CERTIFY FOR FINAL AUTHORIZATION

1. **YOU MUST notify the Air Pollution Control Division (Division) no later than fifteen days after commencement of operation under this permit by submitting a Notice of Startup (NOS) form to the Division.** The Notice of Startup (NOS) form may be downloaded online at <https://www.colorado.gov/pacific/cdphe/air/manage-permit>. Failure to notify the Division of startup of the permitted source is a violation of AQCC Regulation Number 3, Part B, III.G.1 and can result in the revocation of the permit.
2. Within one hundred and eighty days (180) of the latter of commencement of operation or issuance of this permit, compliance with the conditions contained in this permit must be demonstrated to the Division. It is the owner or operator's responsibility to self-certify compliance with the conditions. Failure to demonstrate compliance within 180 days may result in revocation of the permit. A self certification form and guidance on how to self-certify compliance as required by this permit may be obtained online at www.colorado.gov/cdphe/air-permit-self-certification. (Regulation Number 3, Part B, Section III.G.2.)
3. This permit must expire if the owner or operator of the source for which this permit was issued:
 - (i) does not commence construction/modification or operation of this source within 18 months after either, the date of issuance of this construction permit or the date on which such



construction or activity was scheduled to commence as set forth in the permit application associated with this permit; (ii) discontinues construction for a period of eighteen months or more; (iii) does not complete construction within a reasonable time of the estimated completion date. The Division may grant extensions of the deadline. (Regulation Number 3, Part B, Section III.F.4.)

4. **Points 001 and 002:** The following information shall be provided to the Division within fifteen (15) days of the latter of commencement of operation or issuance of this permit.
 - manufacture date
 - construction date
 - order date
 - date of relocation into Colorado
 - manufacturer
 - model number
 - serial number
 - exhaust stack diameter.

This information shall be included with the Notice of Startup submitted for the equipment. (Regulation Number 3, Part B, III.E.)

5. **Point 004:** Within one hundred and eighty days (180) of the latter of commencement of operation or issuance of this permit, the operator must complete an analysis of all equipment associated with this activity in order to update the list of equipment covered by this point, as included in Attachment B. For each activity, the owner or operator must indicate the following for each piece of equipment:
 - Equipment description
 - Equipment ID
 - Actual unique physical volume between isolation valves (i.e. internal physical volume)

The owner or operator must submit results of this analysis to the Division as part of the self-certification process and must use results to demonstrate compliance with the emission limits in this permit.

6. The operator must complete all initial compliance testing and sampling as required in this permit and submit the results to the Division as part of the self-certification process. (Regulation Number 3, Part B, Section III.E.)
7. The operator must retain the permit final authorization letter issued by the Division, after completion of self-certification, with the most current construction permit. This construction permit alone does not provide final authority for the operation of this source.

EMISSION LIMITATIONS AND RECORDS

8. Emissions of air pollutants must not exceed the following limitations. Annual records of the actual emission rates must be maintained by the owner or operator and made available to the Division for inspection upon request. (Regulation Number 3, Part B, Section II.A.4.)

Annual Limits:



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Facility Equipment ID	AIRS Point	Process/ Activity	Tons per Year				Emission Type
			PM2.5	NO _x	VOC	CO	
Unit 1	001	01	---	6.7	9.3	10.0	Point
		02	---	0.8	1.4	3.2	Point
Unit 2	002	01	---	3.3	4.7	5.0	Point
		02	---	0.4	0.8	2.1	Point
NA	004	01	---	---	3.7	---	Point
		02	---	---	2.2	---	Point
		03	---	---	0.02	---	Point
Unit 1 Compressor	005	---	---	---	9.6	---	Point
Unit 2 Compressor	006	---	---	---	9.6	---	Point

Note: See "Notes to Permit Holder" for information on emission factors and methods used to calculate limits.

For point 001, the following designations apply:

- Process 01: Stack exhaust controlled emissions.
- Process 02: Crankcase uncontrolled emissions.

For point 002, the following designations apply:

- Process 01: Stack exhaust controlled emissions.
- Process 02: Crankcase uncontrolled emissions.

For point 004, the following designations apply:

- Activity 01: Gas venting from blowdowns of compressors, filter separator, and full compressor station.
- Activity 02: Gas venting from purging of compressors, filter separator, and full compressor station.
- Activity 03: Gas venting from gas chromatograph.

- The owner or operator must use the emission calculation methods and emission factors found in "Notes to Permit Holder" to calculate emissions and show compliance with the limits in this permit. The owner or operator must submit an Air Pollutant Emission Notice (APEN) and receive a modified permit prior to the use of any other method of calculating emissions.
- The emission points in the table below must be operated and maintained with the emissions control equipment as listed in order to reduce emissions to less than or equal to the limits established in this permit. (Regulation Number 3, Part B, Section III.E.)

Facility Equipment ID	AIRS Point	Control Device	Pollutants Controlled
Unit 1	001	Stack exhaust emissions: Oxidation catalyst.	VOC, CO, and Formaldehyde.
Unit 2	002	Stack exhaust emissions: Oxidation catalyst.	VOC, CO, and Formaldehyde.

PROCESS LIMITATIONS AND RECORDS

- This source must be limited to the following maximum processing rates as listed below. Annual records of the actual processing rates must be maintained by the owner or operator and made



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available to the Division for inspection upon request. (Regulation Number 3, Part B, Section II.A.4.)

Process Limits

Facility Equipment ID	AIRS Point	Process/ Activity	Process Parameter	Annual Limit
Unit 1	001	---	Consumption of natural gas as a fuel	87.59 MMscf
Unit 2	002	---	Consumption of natural gas as a fuel	43.92 MMscf
NA	004	01	Natural gas vented from blowdowns of compressors, filter separator, and full compressor station.	1.65 MMscf
		02	Natural gas vented from purging of compressors, filter separator, and full compressor station.	0.99 MMscf
		03	Natural gas venting from gas chromatograph analyzer.	0.01 MMscf
Unit 1 Compressor	005	---	Natural gas vented.	4.20 MMscf
Unit 2 Compressor	006	---	Natural gas vented.	4.20 MMscf

For point 004, the following designations apply:

- Activity 01: Gas venting from blowdowns of compressors, filter separator, and full compressor station.
- Activity 02: Gas venting from purging of compressors, filter separator, and full compressor station.
- Activity 03: Gas venting from gas chromatograph.

12. **Points 001 and 002:** Fuel consumption must be measured and recorded using a continuous fuel flow meter at the inlet to the engine. The flow meter must be calibrated and maintained per the manufacturer’s specifications and schedule. The owner or operator must use annual throughput records to monitor compliance with the process limits contained in this permit and to calculate emissions as described in this permit.

13. **Point 004, Activities 01 and 02:** The owner or operator must calculate and record the volume of natural gas vented during each ROPE event associated with this activity using the equation(s) and monitored parameters listed in this condition. The owner or operator must monitor and record the following parameters (monitored data) during each ROPE event associated with these activities. By the end of each year, the total volume calculated for each ROPE event must be summed together to determine the total annual emitted volume. The owner or operator must use annual records to demonstrate compliance with the process limits and to calculate emissions as described in this permit. Records must be made available for Division review upon request.

Activity	Equations	Monitored Data
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<p>Activity 01</p>	$E_{s,n} = \sum_{p=1}^N \left[V_p \left(\frac{(459.67 + T_s)(P_{a,b,p} - P_{a,e,p})}{(459.67 + T_{a,p})P_s Z_a \times 10^6 \left(\frac{scf}{MMscf} \right)} \right) \right]$ <p>Where:</p> <p>$E_{s,n}$ = Annual volume of natural gas emissions at standard conditions that is blown down, in million cubic feet.</p> <p>p = Individual occurrence of blowdown.</p> <p>N = Number of occurrences of blowdowns in the calendar year.</p> <p>V_p = Unique physical volume between isolation valves, in cubic feet, for each blowdown “p.”</p> <p>T_s = Temperature at standard conditions (60 °F).</p> <p>$T_{a,p}$ = Temperature at actual conditions in the unique physical volume (°F) for each blowdown “p”.</p> <p>P_s = Absolute pressure at standard conditions (14.7 psia).</p> <p>$P_{a,b,p}$ = Absolute pressure at actual conditions in the unique physical volume (psia) at the beginning of the blowdown “p”.</p> <p>$P_{a,e,p}$ = Absolute pressure at actual conditions in the unique physical volume (psia) at the end of the blowdown “p”; 0 if blowdown volume is purged using non-GHG gases.</p> <p>Z_a = Compressibility factor at actual conditions for natural gas. You may use either a default compressibility factor of 1, or a site-specific compressibility factor based on actual temperature and pressure conditions.</p>	<p>V_p = Unique physical volume between isolation valves, in cubic feet, for each blowdown “p.”</p> <p>$T_{a,p}$ = Temperature at actual conditions in the unique physical volume (°F) for each blowdown “p”.</p> <p>$P_{a,e,p}$ = Absolute pressure at actual conditions in the unique physical volume (psia) at the end of the blowdown “p”; 0 if blowdown volume is purged using non-GHG gases.</p> <p>Z_a = Compressibility factor at actual conditions for natural gas. You may use either a default compressibility factor of 1, or a site-specific compressibility factor based on actual temperature and pressure conditions.</p>
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<p>Activity 02</p>	$E_{s,n} = \sum_{p=1}^N \left[\frac{399,096 \times D_p \times \sqrt{\frac{1}{(T_{a,p} + 459.67) + SG} \times (P_{a,p} + P_{atm})} \times t_p}{10^6 \left(\frac{scf}{MMscf}\right) \times 1,440 \left(\frac{min}{day}\right)} \right]$ <p>Where: $E_{s,n}$ = Annual volume of natural gas emissions at standard conditions that is purged, in million cubic feet. p = Individual occurrence of purges. N = Number of occurrences of purges. D_p = Unique diameter, in inches, for each purge “p.” $T_{a,p}$ = Temperature at actual conditions in the unique physical volume (°F) for each purge “p”. $P_{a,p}$ = Average pressure at actual conditions in the unique physical volume (psia) for each purge “p”. P_{atm} = Atmospheric pressure. t_p = duration of each purge, in minutes. SG = Specific gravity of purged gas.</p>	<p>D_p = Unique diameter, in inches, for each purge “p.” $T_{a,p}$ = Temperature at actual conditions in the unique physical volume (°F) for each purge “p”. $P_{a,p}$ = Average pressure at actual conditions in the unique physical volume (psia) for each purge “p”. t_p = duration of each purge in minutes. SG = specific gravity of purged gas.</p>
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14. **Point 004, Activity 03:** The owner or operator must continuously monitor and record the hours of operation of this equipment on an annual basis. The owner or operator must use annual throughput records to monitor compliance with the process limits contained in this permit and to calculate emissions as described in this permit. Records must be made available for Division review upon request. The actual annual process rate must be calculated using the following equation.

$$FC \left(\frac{MMSCF}{year} \right) = \frac{HO \times F_c}{10^6 \left(\frac{SCF}{MMSCF} \right)}$$

Where,

F_{atm} = Natural gas vented to atmosphere in MMscf/year,

HO = Hours of operation in hours/year,

F_c = Maximum chromatograph natural gas venting rate in scf/hr = **1.1 scf/hr**.

15. **Points 005 and 006:** The owner or operator must continuously monitor and record the hours of operation of this equipment on an annual basis. Rod packing must be considered operational if compressor is idle however pressurized. The owner or operator must use annual throughput records to monitor compliance with the process limits contained in this permit and to calculate emissions as described in this permit. Records must be made available for Division review upon request. The actual annual process rate must be calculated using the following equation.

$$F_{atm} = \frac{HO \times F_r}{10^6 (scf/MMscf)}$$

Where,

F_{atm} = Natural gas vented to atmosphere in MMscf/year,

HO = Hours of operation in hours/year,



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Fr = Most recent tested volumetric flow rate flow rate in scf/hr required by either Conditions 35 or 37.

STATE AND FEDERAL REGULATORY REQUIREMENTS

16. The permit number and ten digit AIRS ID number assigned by the Division (e.g. 123/4567/001) must be marked on the subject equipment for ease of identification. (Regulation Number 3, Part B, Section III.E.) (State only enforceable)
17. Visible emissions must not exceed twenty percent (20%) opacity during normal operation of the source. During periods of startup, process modification, or adjustment of control equipment, visible emissions shall not exceed 30% opacity for more than six minutes in any sixty consecutive minutes. (Regulation Number 1, Section II.A.1. & 4.)
18. This source is subject to the odor requirements of Regulation Number 2. (State only enforceable)
19. The owner or operator is subject to all applicable requirements, including reporting and recordkeeping requirements, from Regulation Number 7, Part D, Section IV.
20. These sources are located in the ozone non-attainment or attainment-maintenance area and are subject to the Reasonably Available Control Technology (RACT) requirements of Regulation Number 3, Part B, Section III.D.2.a. The following requirements were determined to be RACT for these sources:

Facility Equipment ID	AIRS Point	RACT	Pollutants
Unit 1	001	Natural gas combustion and oxidation catalyst.	VOC and NOx
Unit 2	002	Natural gas combustion and oxidation catalyst.	VOC and NOx
NA	004	Compliance with Best Management Practices included in this permit.	VOC
Unit 1 Compressor	005	Applicable requirements from 40 CFR 60.5360a through 60.5439a (NSPS Subpart 0000a).	VOC
Unit 2 Compressor	006		

21. **Points 001 and 002, Process 01:** This lean burn engine is subject to the requirements for natural gas-fired reciprocating internal combustion engines under Regulation Number 7, Part E, Section I.D.4 (State only enforceable). Any lean burn reciprocating internal combustion engine with a manufacturer's name plate design rate greater than 500 horsepower, constructed or modified before February 1, 2009 shall install and operate an oxidation catalyst by July 1, 2010.



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Please note that replacements of this engine in accordance with the AOS in Attachment A may be subject to this or other requirements in Regulation Number 7, Part E, Section I.D.

22. **Points 001 and 002, Process 01:** This engine is subject to the control requirements for natural gas-fired reciprocating internal combustion engines under Regulation Number 7, Part E, Section I.D.3 (State only enforceable). The owner or operator of any natural gas-fired reciprocating internal combustion engine that is either constructed or relocated to the state of Colorado from another state, on or after the date listed in Table 1 below shall operate and maintain each engine according to the manufacturer’s written instructions or procedures to the extent practicable and consistent with technological limitations and good engineering and maintenance practices over the entire life of the engine so that it achieves the emission standards required in Table 1, shown below.

Actual emissions from natural gas fired reciprocating internal combustion engines shall not exceed the emission performance standards in the table below as expressed in units of grams per horsepower-hour (G/hp-hr).

Table 1				
Maximum ¹ Engine HP	Construction or Relocation Date	Emission Standard in g/hp-hr		
		NOx	CO	VOC
<100HP	Any	N/A	N/A	N/A
≥100HP and <500HP	January 1, 2008	2.0	4.0	1.0
	January 1, 2011	1.0	2.0	0.7
≥500HP	July 1, 2007	2.0	4.0	1.0
	July 1, 2010	1.0	2.0	0.7

¹ Maximum engine horsepower is the nameplate rating of the engine and does not account for deration.

23. **Point 001, Process 01:** This engine is subject to the control requirements for stationary natural gas fired reciprocating internal combustion engines with a manufacturer’s design rate greater than or equal to 1,000 horsepower under Regulation Number 7, Part E, Section I.D.5. The owner or operator must comply with the performance testing (Section I.D.5.d.), monitoring (Section I.D.5.e.), recordkeeping (Section I.D.5.f.) and reporting (Section I.D.5.g.) requirements of Section I.D.5. (State only enforceable)

The owner or operator of any stationary natural gas fired reciprocating internal combustion engine that is placed in service, modified, or relocated after November 14, 2020, must comply with the emission standards in Table 2, shown below, upon placement in service, modification, or relocation. (Regulation Number 7, Part E, Section I.D.5.b.(i))

Table 2			
Engine Type	Emission Standards (g/hp-hr)		
	NOx	CO	VOC
4-Stroke Lean Burn engines in service on or before November 14, 2020, (unless subject to a more stringent emission standard under Section I.D.3.b, above)	1.2	2.0	0.7



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Rich Burn engines in service on or before November 14, 2020,	0.8	2.0	0.7
4-Stroke Lean Burn engines placed in service, modified, or relocated after November 14, 2020,	0.7	2.0	0.7
Rich Burn engines placed in service, modified, or relocated after November 14, 2020,	0.5	2.0	0.7
2-Stroke Lean Burn engines	3.0	2.0	0.7

- 24. **Point 004:** The owner or operator must use best management practices to minimize hydrocarbon emissions during, or to reduce the frequency of, routine or predictable gas venting emissions events. The owner and operator must develop and maintain a description of best management practices implemented to minimize hydrocarbon emissions during, or to reduce the frequency of, routine or predictable gas venting events covered by this permit. The description must also include how those best management practices are implemented and performed. The description must be made available for Division review upon request. (Regulation Number 3, Part B, Section III.D.2.)
- 25. **Point 004:** The owner or operator must perform routine or predictable gas venting emissions activities between October 1 and April 30, when practicable. (Regulation Number 3, Part B, Section III.D.2.)
- 26. **Point 004:** For equipment blowdowns, the owner or operator must avoid blowing down the equipment completely to ambient pressure, where practicable. (Regulation Number 3, Part B, Section III.D.2.)
- 27. **Points 005 and 006:** The volumetric flow rate must not exceed 2 standard cubic feet per minute (scfm) per cylinder. The owner or operator must conduct measurements of the volumetric flow rate in accordance with the schedule specified in this permit. (Regulation Number 3, Part B, Section III.E.)

OPERATING & MAINTENANCE REQUIREMENTS

- 28. This source is not required to follow a Division-approved operating and maintenance plan.

COMPLIANCE TESTING AND SAMPLING

Initial Testing Requirements

- 29. **Points 001 and 002, Process 01:** A source initial compliance test shall be conducted on this emissions point to measure the emission rate(s) for the pollutants listed below in order to demonstrate compliance with the emission limits in this permit. The test protocol must be in accordance with the requirements of the Air Pollution Control Division Compliance Test Manual and shall be submitted to the Division for review and approval at least thirty (30) days prior to testing. No compliance test shall be conducted without prior approval from the Division. Any compliance test conducted to show compliance with a monthly or annual emission limitation shall have the results projected up to the monthly or annual averaging time by multiplying the test results by the allowable number of operating hours for that averaging time (Regulation Number 3, Part B., Section III.G.3)

Oxides of Nitrogen using EPA approved methods.
 Carbon Monoxide using EPA approved methods.
 Volatile Organic Compounds using EPA approved methods.



Formaldehyde EPA approved methods.

30. **Points 001 and 002, Process 02:** A source initial compliance test shall be conducted on this emissions point to measure the emission rate(s) for the pollutants listed below in order to demonstrate compliance with the emission limits in this permit. The test protocol must be in accordance with the requirements of the Air Pollution Control Division Compliance Test Manual and shall be submitted to the Division for review and approval at least thirty (30) days prior to testing. No compliance test shall be conducted without prior approval from the Division. Any compliance test conducted to show compliance with a monthly or annual emission limitation shall have the results projected up to the monthly or annual averaging time by multiplying the test results by the allowable number of operating hours for that averaging time (Regulation Number 3, Part B., Section III.G.3)

Oxides of Nitrogen using EPA approved methods.

Carbon Monoxide using EPA approved methods.

Volatile Organic Compounds using EPA approved methods.

Formaldehyde EPA approved methods.

31. **Points 001 and 002:** The owner or operator must complete the initial sampling for higher (gross) heat content of the fuel used in the engine, using appropriate ASTM Methods or equivalent, as required by this permit and submit the results to the Division as part of the self-certification process to ensure compliance with emissions limits. Results of the heat content verification must be retained for a period of five years and made available to the Division upon request. (Regulation Number 3, Part B, Section III.E.)

The heat content indicated by the most recent analysis must be used to monitor compliance with the emission limits for each engine, as specified in the Notes to Permit Holder.

32. **Point 001, Process 01:** This engine is subject to the performance testing requirement specified under Regulation 7, Part E, Section I.D.5.d.

33. **Point 004:** The owner or operator must complete an initial site specific extended gas analysis ("Analysis") within one hundred and eighty days (180) after commencement of operation or issuance of this permit, whichever comes later, of the natural gas vented during blowdowns, purging, and chromatograph measurement events in order to verify the VOC and n-hexane (weight fraction) of this emission stream. The gas sample must be obtained directly from the compressor blowdown, purge, or chromatograph line. Results of the Analysis must be used to calculate site-specific emission factors for the pollutants referenced in this permit (in units of lb/MMSCF gas vented) using Division approved methods. Results of the Analysis must be submitted to the Division as part of the self-certification and must demonstrate the emissions factors established through the Analysis are less than or equal to, the emissions factors submitted with the permit application and established herein in the "Notes to Permit Holder" for this emissions point. If any site-specific emissions factor developed through this Analysis is greater than the emissions factors submitted with the permit application and established in the "Notes to Permit Holder" the operator must submit to the Division within 60 days, or in a timeframe as agreed to by the Division, a request for permit modification to address these inaccuracies.

34. **Point 005 and 006:** The owner or operator must complete an initial site specific extended gas analysis ("Analysis") within one hundred and eighty days (180) after commencement of operation or issuance of this permit, whichever comes later, of the natural gas vented from the rod



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packing in order to verify the VOC and n-hexane (weight fraction) of this emission stream. The gas sample must be obtained directly from the rod packing exhaust line or from a gas line whose gas has equivalent composition to rod packing emissions. Results of the Analysis must be used to calculate site-specific emission factors for the pollutants referenced in this permit (in units of lb/MMSCF gas vented) using Division approved methods. Results of the Analysis must be submitted to the Division as part of the self-certification and must demonstrate the emissions factors established through the Analysis are less than or equal to, the emissions factors submitted with the permit application and established herein in the “Notes to Permit Holder” for this emissions point. If any site-specific emissions factor developed through this Analysis is greater than the emissions factors submitted with the permit application and established in the “Notes to Permit Holder” the operator must submit to the Division within 60 days, or in a timeframe as agreed to by the Division, a request for permit modification to address these inaccuracies.

35. **Point 005 and 006:** The owner or operator must complete an initial compliance test to determine the volumetric flow rate from each reciprocating compressor’s rod packing. The owner or operator must use USEPA Test Method 2D, as promulgated in Appendix A-1 to 40 CFR Part 60, in order to determine the volumetric flow rate from the rod packing. Results of the Analysis must be submitted to the Division as part of the self-certification and it must demonstrate compliance with the volumetric flow rate limits from each reciprocating compressor’s rod packing established in this permit. Results of the volumetric flow rate must be retained for a period of five years and made available to the Division upon request. (Regulation Number 3, Part B, Section III.E.)

Periodic Testing Requirements

36. **Points 001 and 002:** Replacements of this unit completed as Alternative Operating Scenarios may be subject to additional testing requirements as specified in Attachment A.
37. **Points 005 and 006:** On an annual basis, the owner or operator must complete a periodic compliance test to determine the volumetric flow rate from each reciprocating compressor’s rod packing. The owner or operator must use USEPA Test Method 2D, as promulgated in Appendix A-1 to 40 CFR Part 60, in order to determine the volumetric flow rate from the rod packing. Results of the Analysis must be submitted to the Division as part of the self-certification and it must demonstrate compliance with the volumetric flow rate limits from each reciprocating compressor’s rod packing established in this permit. Volumetric flow testing must be conducted no later than one (1) year after the last test but not before 180 days since the last test. Results of the volumetric flow rate must be retained for a period of five years and made available to the Division upon request. (Regulation Number 3, Part B, Section III.E.)

ADDITIONAL REQUIREMENTS

38. A revised Air Pollutant Emission Notice (APEN) must be filed: (Regulation Number 3, Part A, II.C.)
- Annually by April 30th whenever a significant increase in emissions occurs as follows:
For any criteria pollutant:
For sources emitting **less than 100 tons per year**, a change in actual emissions of five (5) tons per year or more, above the level reported on the last APEN; or



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For volatile organic compounds (VOC) and nitrogen oxides sources (NO_x) in ozone nonattainment areas emitting **less than 100 tons of VOC or NO_x per year**, a change in annual actual emissions of one (1) ton per year or more or five percent, whichever is greater, above the level reported on the last APEN; or
 For sources emitting **100 tons per year or more**, a change in actual emissions of five percent or 50 tons per year or more, whichever is less, above the level reported on the last APEN submitted; or

For any non-criteria reportable pollutant:

If the emissions increase by 50% or five (5) tons per year, whichever is less, above the level reported on the last APEN submitted to the Division.

- Whenever there is a change in the owner or operator of any facility, process, or activity; or
- Whenever new control equipment is installed, or whenever a different type of control equipment replaces an existing type of control equipment; or
- Whenever a permit limitation must be modified; or
- No later than 30 days before the existing APEN expires.
- **Points 001 and 002:** Within 14 calendar days of commencing operation of a permanent replacement engine under the alternative operating scenario outlined in this permit as Attachment A. The APEN shall include the specific manufacturer, model and serial number and horsepower of the permanent replacement engine, the appropriate APEN filing fee and a cover letter explaining that the permittee is exercising an alternative-operating scenario and is installing a permanent replacement engine.

39. The exhaust stack(s) for the following emission point(s) must vent emissions at a point greater than or equal to the height specified in the table below:

Equipment ID	AIRS Point	Minimum stack height above ground level (m)	Maximum Stack Diameter (m)
Unit 1	001	8.4	0.32
Unit 2	002	8.4	0.22
EGEN	003	3.0	0.20

40. This facility must be completely enclosed by a fence line and posted with no trespassing signs that preclude public access to this site as described in the modeling analysis for this facility. This requirement is imposed as a result of the modeled ambient air NO_x impacts that result from the facility operations. (Regulation Number 3, Part B, Section III.B.5.)

GENERAL TERMS AND CONDITIONS

41. This permit and any attachments must be retained and made available for inspection upon request. The permit may be reissued to a new owner by the APCD as provided in AQCC Regulation Number 3, Part B, Section II.B. upon a request for transfer of ownership and the submittal of a revised APEN and the required fee.



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42. If this permit specifically states that final authorization has been granted, then the remainder of this condition is not applicable. Otherwise, the issuance of this construction permit does not provide "final" authority for this activity or operation of this source. Final authorization of the permit must be secured from the APCD in writing in accordance with the provisions of 25-7-114.5(12)(a) C.R.S. and AQCC Regulation Number 3, Part B, Section III.G. Final authorization cannot be granted until the operation or activity commences and has been verified by the APCD as conforming in all respects with the conditions of the permit. Once self-certification of all points has been reviewed and approved by the Division, it will provide written documentation of such final authorization. **Details for obtaining final authorization to operate are located in the Requirements to Self-Certify for Final Authorization section of this permit.**
43. This permit is issued in reliance upon the accuracy and completeness of information supplied by the owner or operator and is conditioned upon conduct of the activity, or construction, installation and operation of the source, in accordance with this information and with representations made by the owner or operator or owner or operator's agents. It is valid only for the equipment and operations or activity specifically identified on the permit.
44. Unless specifically stated otherwise, the general and specific conditions contained in this permit have been determined by the APCD to be necessary to assure compliance with the provisions of Section 25-7-114.5(7)(a), C.R.S.
45. Each and every condition of this permit is a material part hereof and is not severable. Any challenge to or appeal of a condition hereof must constitute a rejection of the entire permit and upon such occurrence, this permit must be deemed denied *ab initio*. This permit may be revoked at any time prior to self-certification and final authorization by the Air Pollution Control Division (APCD) on grounds set forth in the Colorado Air Quality Control Act and regulations of the Air Quality Control Commission (AQCC), including failure to meet any express term or condition of the permit. If the Division denies a permit, conditions imposed upon a permit are contested by the owner or operator, or the Division revokes a permit, the owner or operator of a source may request a hearing before the AQCC for review of the Division's action.
46. Section 25-7-114.7(2)(a), C.R.S. requires that all sources required to file an Air Pollution Emission Notice (APEN) must **pay an annual fee** to cover the costs of inspections and administration. If a source or activity is to be discontinued, the owner must notify the Division in writing requesting a cancellation of the permit. Upon notification, annual fee billing will terminate.
47. Violation of the terms of a permit or of the provisions of the Colorado Air Pollution Prevention and Control Act or the regulations of the AQCC may result in administrative, civil or criminal enforcement actions under Sections 25-7-115 (enforcement), -121 (injunctions), -122 (civil penalties), -122.1 (criminal penalties), C.R.S.

By:

Diego Chimendes
Permit Engineer



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Permit History

Issuance	Date	Description
Issuance 1	This Issuance	Issued to Rockies Express Pipeline, LLC.



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Notes to Permit Holder at the time of this permit issuance:

- 1) The permit holder is required to pay fees for the processing time for this permit. An invoice for these fees will be issued after the permit is issued. The permit holder must pay the invoice within 30 days of receipt of the invoice. Failure to pay the invoice will result in revocation of this permit. (Regulation Number 3, Part A, Section VI.B.)
- 2) The production or raw material processing limits and emission limits contained in this permit are based on the consumption rates requested in the permit application. These limits may be revised upon request of the owner or operator providing there is no exceedance of any specific emission control regulation or any ambient air quality standard. A revised air pollution emission notice (APEN) and complete application form must be submitted with a request for a permit revision.
- 3) This source is subject to the Common Provisions Regulation Part II, Subpart E, Affirmative Defense Provision for Excess Emissions During Malfunctions. The owner or operator must notify the Division of any malfunction condition which causes a violation of any emission limit or limits stated in this permit as soon as possible, but no later than noon of the next working day, followed by written notice to the Division addressing all of the criteria set forth in Part II.E.1 of the Common Provisions Regulation. See: <https://www.colorado.gov/pacific/cdphe/aqcc-regs>
- 4) The following emissions of non-criteria reportable air pollutants are estimated based upon the process limits as indicated in this permit. This information is listed to inform the operator of the Division's analysis of the specific compounds emitted if the sources operates at the permitted limitations.

Equipment ID	AIRS Point	Pollutant	CAS #	Uncontrolled Emissions (lb/yr)	Controlled Emissions (lb/yr)
Unit 1	001	Formaldehyde	50000	12,687	4,078
		Acetaldehyde	75070	926	926
		Acrolein	107028	569	569
		Benzene	71432	49	49
		Toluene	108883	45	45
		Ethylbenzene	100414	4	4
		Xylene	1330207	20	20
		n-Hexane	110543	123	123
		2,2,4-Trimethylpentane	540841	28	28
		Methanol	67561	277	277
Unit 2	002	Formaldehyde	50000	6,268	2,015
		Acetaldehyde	75070	464	464



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		Acrolein	107028	285	285
		Benzene	71432	24	24
		Toluene	108883	23	23
		Ethylbenzene	100414	2	2
		Xylene	1330207	10	10
		n-Hexane	110543	62	62
		2,2,4-Trimethylpentane	540841	14	14
		Methanol	67561	139	139
		1,3-Butadiene	106990	15	15
NA	004	n-Hexane	110543	58	58
Unit 1 Compressor	005	n-Hexane	110543	92	92
Unit 2 Compressor	006	n-Hexane	110543	92	92

Note: All non-criteria reportable pollutants in the table above with uncontrolled emission rates above 250 pounds per year (lb/yr) are reportable and may result in annual emission fees based on the most recent Air Pollution Emission Notice.

- 5) The emission levels contained in this permit are based on the following emission factors:

Point 001:

Process 01: Exhaust stack emissions:

CAS #	Pollutant	Uncontrolled Emission Factors		Controlled Emission Factors	
		lb/MMBTU	g/bhp-hr	lb/MMBTU	g/bhp-hr
	NOx	1.348×10^{-1}	0.500	1.348×10^{-1}	0.500
	CO	5.467×10^{-1}	2.028	2.021×10^{-1}	0.750
	VOC	2.291×10^{-1}	0.850	1.886×10^{-1}	0.700
50000	Formaldehyde	1.146×10^{-1}	4.250×10^{-1}	2.749×10^{-2}	1.020×10^{-1}
75070	Acetaldehyde	8.36×10^{-3}	3.10×10^{-2}	8.36×10^{-3}	3.10×10^{-2}
107028	Acrolein	5.14×10^{-3}	1.91×10^{-2}	5.14×10^{-3}	1.91×10^{-2}
67561	Methanol	2.50×10^{-3}	9.28×10^{-2}	2.50×10^{-3}	9.28×10^{-3}

Emission factors are based on a Brake-Specific Fuel Consumption Factor of 8180 Btu/hp-hr, a site-rated horsepower value of 1380, and a fuel gas heat content of 1129 Btu/scf.

CAS #	Pollutant	Uncontrolled EF Source	Controlled EF Source
	NOx	Manufacturer Spec Sheet	
	CO		
	VOC		
50000	Formaldehyde		



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75070	Acetaldehyde	AP-42 Table 3.2-2: 4-Stroke Lean-Burn Engines
107028	Acrolein	
67561	Methanol	

Annual emissions must be calculated using the emission factors in units of lb/MMBTU listed above, actual yearly fuel consumption, and the fuel gas heat content obtained from the most recent site-specific analysis using the following equation.

$$Emissions \left(\frac{ton}{year} \right) = \frac{Emission\ factor \left(\frac{lb}{MMBTU} \right) \times FC_{engine} \left(\frac{MMSCF}{year} \right) \times Fuel\ Gas\ Heat\ Content \left(\frac{BTU}{SCF} \right)}{Unit\ Conversion \left(\frac{2000lb}{ton} \right)}$$

FC = Fuel Consumption, MMSCF/year

Process 02: Crankcase emissions:

CAS #	Pollutant	Uncontrolled Emission Factors	
		lb/MMBTU	g/bhp-hr
	NOx	1.617 x 10 ⁻²	6.000 x 10 ⁻²
	CO	6.560 x 10 ⁻²	2.434 x 10 ⁻¹
	VOC	2.749 x 10 ⁻²	1.020 x 10 ⁻¹
50000	Formaldehyde	1.375 x 10 ⁻²	5.101 x 10 ⁻²
75070	Acetaldehyde	1.00 x 10 ⁻³	3.72 x 10 ⁻³
107028	Acrolein	6.17 x 10 ⁻⁴	2.29 x 10 ⁻³
67561	Methanol	3.00 x 10 ⁻⁴	1.11 x 10 ⁻³

Emission factors are based on a Brake-Specific Fuel Consumption Factor of 8180 Btu/hp-hr, a site-rated horsepower value of 1380, and a fuel gas heat content of 1129 Btu/scf.

CAS #	Pollutant	Uncontrolled EF Source
	NOx	Manufacturer Spec Sheet
	CO	
	VOC	
50000	Formaldehyde	AP-42 Table 3.2-2: 4-Stroke Lean-Burn Engines
75070	Acetaldehyde	
107028	Acrolein	
67561	Methanol	



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Annual emissions must be calculated using the emission factors in units of lb/MMBTU listed above, actual yearly fuel consumption, and the fuel gas heat content obtained from the most recent site-specific analysis using the following equation.

$$Emissions \left(\frac{ton}{year} \right) = \frac{Emission\ factor \left(\frac{lb}{MMBTU} \right) \times FC_{engine} \left(\frac{MMSCF}{year} \right) \times Fuel\ Gas\ Heat\ Content \left(\frac{BTU}{SCF} \right)}{Unit\ Conversion \left(\frac{2000lb}{ton} \right)}$$

FC = Fuel Consumption, MMSCF/year

Point 002:

Process 01: Exhaust stack emissions:

CAS #	Pollutant	Uncontrolled Emission Factors		Controlled Emission Factors	
		lb/MMBTU	g/bhp-hr	lb/MMBTU	g/bhp-hr
	NOx	1.344 x 10 ⁻¹	0.500	1.344 x 10 ⁻¹	0.500
	CO	6.914 x 10 ⁻¹	2.573	2.016 x 10 ⁻¹	0.750
	VOC	2.585 x 10 ⁻¹	0.962	1.881 x 10 ⁻¹	0.700
50000	Formaldehyde	1.129 x 10 ⁻²	0.420	2.709 x 10 ⁻²	0.101
75070	Acetaldehyde	8.36 x 10 ⁻³	3.11 x 10 ⁻²	8.36 x 10 ⁻³	3.11 x 10 ⁻²
107028	Acrolein	5.14 x 10 ⁻³	1.91 x 10 ⁻²	5.14 x 10 ⁻³	1.91 x 10 ⁻²

Emission factors are based on a Brake-Specific Fuel Consumption Factor of 8203 Btu/hp-hr, a site-rated horsepower value of 690, and a fuel gas heat content of 1129 Btu/scf.

CAS #	Pollutant	Uncontrolled EF Source	Controlled EF Source
	NOx	Manufacturer Spec Sheet	Manufacturer Spec Sheet
	CO		
	VOC		
50000	Formaldehyde	AP-42 Table 3.2-2: 4-Stroke Lean-Burn Engines	AP-42 Table 3.2-2: 4-Stroke Lean-Burn Engines
75070	Acetaldehyde		
107028	Acrolein		
67561	Methanol		



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Annual emissions must be calculated using the emission factors in units of lb/MMBTU listed above, actual yearly fuel consumption, and the fuel gas heat content obtained from the most recent site-specific analysis using the following equation.

$$Emissions \left(\frac{ton}{year} \right) = \frac{Emission\ factor \left(\frac{lb}{MMBTU} \right) \times FC_{engine} \left(\frac{MMSCF}{year} \right) \times Fuel\ Gas\ Heat\ Content \left(\frac{BTU}{SCF} \right)}{Unit\ Conversion \left(\frac{2000lb}{ton} \right)}$$

FC = Fuel Consumption, MMSCF/year

Process 02: Crankcase emissions:

CAS #	Pollutant	Uncontrolled Emission Factors	
		lb/MMBTU	g/bhp-hr
	NOx	1.613 x 10 ⁻²	6.000 x 10 ⁻²
	CO	8.297 x 10 ⁻²	3.087 x 10 ⁻¹
	VOC	3.102 x 10 ⁻²	1.154 x 10 ⁻¹
50000	Formaldehyde	1.355 x 10 ⁻²	5.040 x 10 ⁻²
75070	Acetaldehyde	1.00 x 10 ⁻³	3.73 x 10 ⁻³
107028	Acrolein	6.17 x 10 ⁻⁴	2.29 x 10 ⁻³

Emission factors are based on a Brake-Specific Fuel Consumption Factor of 8203 Btu/hp-hr, a site-rated horsepower value of 690, and a fuel gas heat content of 1129 Btu/scf.

CAS #	Pollutant	Uncontrolled EF Source
	NOx	Manufacturer Spec Sheet
	CO	
	VOC	
50000	Formaldehyde	AP-42 Table 3.2-2: 4-Stroke Lean-Burn Engines
75070	Acetaldehyde	
107028	Acrolein	



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Annual emissions must be calculated using the emission factors in units of lb/MMBTU listed above, actual yearly fuel consumption, and the fuel gas heat content obtained from the most recent site-specific analysis using the following equation.

$$Emissions \left(\frac{ton}{year} \right) = \frac{Emission\ factor \left(\frac{lb}{MMBTU} \right) \times FC_{engine} \left(\frac{MMSCF}{year} \right) \times Fuel\ Gas\ Heat\ Content \left(\frac{BTU}{SCF} \right)}{Unit\ Conversion \left(\frac{2000lb}{ton} \right)}$$

FC = Fuel Consumption, MMSCF/year

Point 004:

CAS #	Pollutant	Uncontrolled Emission Factors (lb/MMscf)	Source
	VOC	4546.00	Chromatographic Gas Analysis

Note: The site-specific VOC emission factor in the table above is based on a representative gas chromatograph analysis result and the methodology in EPA Emission Inventory Improvement Program Publication: Volume II, Chapter 10 - Displacement Equation (10.4-3). Actual emissions are calculated by multiplying the emission factors in the table above by total annual volume as calculated using the volumetric equations listed in the "Process Limitations and Records" section of this permit.

Points 005 and 006:

CAS #	Pollutant	Uncontrolled Emission Factors (lb/MMscf)	Source
	VOC	4546.00	Chromatographic Gas Analysis

Note: VOC emissions factor was developed using a representative sample and the methodology in in EPA Volume II: Chapter 10, Preferred and alternative methods for estimating air emissions.

Actual annual VOC emissions from venting of reciprocating compressor rod packing must be calculated based on the emission factor (EF) above and the most recent volumetric flow rate tested.

$$VOC \left(\frac{lb}{year} \right) = EF \times F_{atm} \left(\frac{scf}{year} \right)$$

F_{atm} = Natural gas vented to atmosphere in MMscf/year.

- 6) In accordance with C.R.S. 25-7-114.1, each Air Pollutant Emission Notice (APEN) associated with this permit is valid for a term of five years from the date it was received by the Division. A revised APEN must be submitted no later than 30 days before the five-year term expires. Please refer to the most recent annual fee invoice to determine the APEN expiration date for each emissions point associated with this permit. For any questions regarding a specific expiration date call the Division at (303)-692-3150.
- 7) **Point 001 and 002, Process 01:** This engine is subject to 40 CFR, Part 60, Subpart JJJJ—Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (See January 18, 2008 Federal Register posting - effective March 18, 2008). This rule has not yet been incorporated into



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Colorado Air Quality Control Commission’s Regulation Number 6. A copy of the complete subpart is available on the EPA website at: <https://www.federalregister.gov/documents/2008/01/18/E7-25394/standards-of-performance-for-stationary-spark-ignition-internal-combustion-engines-and-national>

- 8) **Point 001 and 002, Process 01:** This engine is subject to 40 CFR, Part 63, Subpart ZZZZ - **National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines.** (See January 18, 2008 Federal Register posting - effective March 18, 2008). The January 18, 2008 amendments to include requirements for area sources and engines ≤ 500 hp located at major sources have not yet been incorporated into Colorado Air Quality Control Commission’s Regulation Number 8. A copy of the complete subpart is available on the EPA website at:

<https://www.federalregister.gov/documents/2008/01/18/E7-25394/standards-of-performance-for-stationary-spark-ignition-internal-combustion-engines-and-national>

Additional information regarding area source standards can be found on the EPA website at: <https://www.epa.gov/stationary-engines/national-emission-standards-hazardous-air-pollutants-reciprocating-internal-0>

- 9) **Points 005 and 006:** This source is subject to 40 CFR, Part 60, Subpart OOOOa - Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification, or Reconstruction Commenced after September 18, 2015 (See June 3, 2016 Federal Register posting - effective August 2, 2016.) This rule has not yet been incorporated into Colorado Air Quality Control Commission’s Regulation No. 6. A copy of the complete subpart is available at the Office of the Federal Register website at: <https://www.federalregister.gov/documents/2016/06/03/2016-11971/oil-and-natural-gas-sector-emission-standards-for-new-reconstructed-and-modified-sources>

- 10) This facility is classified as follows:

Applicable Requirement	Status
Operating Permit	True Minor Source.
PSD	True Minor Source.
NANSR	True Minor Source.

- 11) Full text of the Title 40, Protection of Environment Electronic Code of Federal Regulations can be found at the following website: <http://www.ecfr.gov/>

Part 60: Standards of Performance for New Stationary Sources		
NSPS	60.1-End	Subpart A - Subpart UUUU
NSPS	Part 60, Appendixes	Appendix A - Appendix I
Part 63: National Emission Standards for Hazardous Air Pollutants for Source Categories		
MACT	63.1-63.599	Subpart A - Subpart Z



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MACT	63.600-63.1199	Subpart AA - Subpart DDD
MACT	63.1200-63.1439	Subpart EEE - Subpart PPP
MACT	63.1440-63.6175	Subpart QQQ - Subpart YYYYY
MACT	63.6580-63.8830	Subpart ZZZZ - Subpart MMMMM
MACT	63.8980-End	Subpart NNNNN - Subpart XXXXXX



ATTACHMENT A:
ALTERNATIVE OPERATING SCENARIOS
RECIPROCATING INTERNAL COMBUSTION ENGINES

October 12, 2012

2. Alternative Operating Scenarios

The following Alternative Operating Scenario (AOS) for the temporary and permanent replacement of natural gas fired reciprocating internal combustion engines has been reviewed in accordance with the requirements of Regulation Number 3., Part A, Section IV.A, Operational Flexibility-Alternative Operating Scenarios, Regulation Number 3, Part B, Construction Permits, and Regulation Number 3, Part D, Major Stationary Source New Source Review and Prevention of Significant Deterioration, and it has been found to meet all applicable substantive and procedural requirements. This permit incorporates and shall be considered a Construction Permit for any engine replacement performed in accordance with this AOS, and the owner or operator shall be allowed to perform such engine replacement without applying for a revision to this permit or obtaining a new Construction Permit.

2.1 Engine Replacement

The following AOS is incorporated into this permit in order to deal with an engine breakdown or periodic routine maintenance and repair of an existing onsite engine that requires the use of either a temporary or permanent replacement engine. “Temporary” is defined as in the same service for 90 operating days or less in any 12 month period. “Permanent” is defined as in the same service for more than 90 operating days in any 12 month period. The 90 days is the total number of days that the engine is in operation. If the engine operates only part of a day, that day shall count as a single day towards the 90 day total. The compliance demonstrations and any periodic monitoring required by this AOS are in addition to any compliance demonstrations or periodic monitoring required by this permit.

All replacement engines are subject to all federally applicable and state-only requirements set forth in this permit (including monitoring and record keeping).

The results of all tests and the associated calculations required by this AOS shall be submitted to the Division within 30 calendar days of the test or within 60 days of the test if such testing is required to demonstrate compliance with NSPS or MACT requirements.

Results of all tests shall be kept on site for five (5) years and made available to the Division upon request.

The owner or operator shall maintain a log on-site and contemporaneously record the start and stop date of any engine replacement, the manufacturer, date of manufacture, model number, horsepower, and serial number of the engine(s) that are replaced during the term of this permit, and the manufacturer, model number, horsepower, and serial number of the replacement engine. In addition to the log, the owner or operator shall maintain a copy of all Applicability Reports required under section 2.1.2 and make them available to the Division upon request.



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2.1.1 The owner or operator may **temporarily** replace an existing engine that is subject to the emission limits set forth in this permit with an engine that is of the same manufacturer, model, and horsepower or a different manufacturer, model, or horsepower as the existing engine without modifying this permit, so long as the temporary replacement engine complies with all permit limitations and other requirements applicable to the existing engine. Measurement of emissions from the temporary replacement engine shall be made as set forth in section 2.2.

2.1.2 The owner or operator may **permanently** replace the existing engine with another engine with the same manufacturer, model, and horsepower engines without modifying this permit so long as the permanent replacement engine complies with all permit limitations and other requirements applicable to the existing engine as well as any new applicable requirements for the replacement engine. Measurement of emissions from the permanent replacement engine and compliance with the applicable emission limitations shall be made as set forth in section 2.2.

An Air Pollutant Emissions Notice (APEN) that includes the specific manufacturer, model and serial number and horsepower of the permanent replacement engine shall be filed with the Division for the permanent replacement engine within 14 calendar days of commencing operation of the replacement engine. The APEN shall be accompanied by the appropriate APEN filing fee, a cover letter explaining that the owner or operator is exercising an alternative operating scenario and is installing a permanent replacement engine, and a copy of the relevant Applicability Reports for the replacement engine. Example Applicability Reports can be found at www.colorado.gov/cdphe/air/AOS. This submittal shall be accompanied by a certification from the Responsible Official indicating that “based on the information and belief formed after reasonable inquiry, the statements and information included in the submittal are true, accurate and complete”.

This AOS cannot be used for permanent engine replacement of a grandfathered or permit exempt engine or an engine that is not subject to emission limits.

The owner or operator shall agree to pay fees based on the normal permit processing rate for review of information submitted to the Division in regard to any permanent engine replacement.

2.2 Portable Analyzer Testing

Note: In some cases there may be conflicting and/or duplicative testing requirements due to overlapping Applicable Requirements. In those instances, please contact the Division Field Services Unit to discuss streamlining the testing requirements.

Note that the testing required by this Condition may be used to satisfy the periodic testing requirements specified by the permit for the relevant time period (i.e. if the permit requires quarterly portable analyzer testing, this test conducted under the AOS will serve as the quarterly test and an additional portable analyzer test is not required for another three months).

The owner or operator may conduct a reference method test, in lieu of the portable analyzer test required by this Condition, if approved in advance by the Division.



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The owner or operator shall measure nitrogen oxide (NOX) and carbon monoxide (CO) emissions in the exhaust from the replacement engine using a portable flue gas analyzer *within seven (7) calendar days of commencing operation of the replacement engine.*

All portable analyzer testing required by this permit shall be conducted using the Division's Portable Analyzer Monitoring Protocol (ver March 2006 or newer) as found on the Division's web site at: www.colorado.gov/cdphe/portable-analyzer-monitoring-protocol
Results of the portable analyzer tests shall be used to monitor the compliance status of this unit.

For comparison with an annual (tons/year) or short term (lbs/unit of time) emission limit, the results of the tests shall be converted to a lb/hr basis and multiplied by the allowable operating hours in the month or year (whichever applies) in order to monitor compliance. If a source is not limited in its hours of operation the test results will be multiplied by the maximum number of hours in the month or year (8760), whichever applies.

For comparison with a short-term limit that is either input based (lb/mmBtu), output based (g/hp-hr) or concentration based (ppmvd @ 15% O₂) that the existing unit is currently subject to or the replacement engine will be subject to, the results of the test shall be converted to the appropriate units as described in the above-mentioned Portable Analyzer Monitoring Protocol document.

If the portable analyzer results indicate compliance with both the NOX and CO emission limitations, in the absence of credible evidence to the contrary, the source may certify that the engine is in compliance with both the NOX and CO emission limitations for the relevant time period.

Subject to the provisions of C.R.S. 25-7-123.1 and in the absence of credible evidence to the contrary, if the portable analyzer results fail to demonstrate compliance with either the NOX or CO emission limitations, the engine will be considered to be out of compliance from the date of the portable analyzer test until a portable analyzer test indicates compliance with both the NOX and CO emission limitations or until the engine is taken offline.

2.3 Applicable Regulations for Permanent Engine Replacements

2.3.1 Reasonably Available Control Technology (RACT): Reg 3, Part B § II.D.2

All permanent replacement engines that are located in an area that is classified as attainment/maintenance or nonattainment must apply Reasonably Available Control Technology (RACT) for the pollutants for which the area is attainment/maintenance or nonattainment. Note that both VOC and NOX are precursors for ozone. RACT shall be applied for any level of emissions of the pollutant for which the area is in attainment/maintenance or nonattainment, except as follows:

In the Denver Metropolitan PM₁₀ attainment/maintenance area, RACT applies to PM₁₀ at any level of emissions and to NOX and SO₂, as precursors to PM₁₀, if the potential to emit of NOX or SO₂ exceeds 40 tons/yr.

For purposes of this AOS, the following shall be considered RACT for natural gas fired reciprocating internal combustion engines:



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VOC: The emission limitations in NSPS JJJJ
 CO: The emission limitations in NSPS JJJJ
 NOX: The emission limitations in NSPS JJJJ
 SO2: Use of natural gas as fuel
 PM10: Use of natural gas as fuel

As defined in 40 CFR Part 60 Subparts GG (§ 60.331) and 40 CFR Part 72 (§ 72.2), natural gas contains 20.0 grains or less of total sulfur per 100 standard cubic feet.

2.3.2 Control Requirements and Emission Standards: Regulation Number 7, Part E, Sections I.A and B and Section I.D.3 (State-Only conditions).

Control Requirements: Section I.A and B

Any permanent replacement engine located within the boundaries of an ozone nonattainment area is subject to the applicable control requirements specified in Regulation Number 7, Part E, Section I.B, as specified below:

Rich burn engines with a manufacturer’s design rate greater than 500 hp shall use a non-selective catalyst and air fuel controller to reduce emission.

Lean burn engines with a manufacturer’s design rate greater than 500 hp shall use an oxidation catalyst to reduce emissions.

The above emission control equipment shall be appropriately sized for the engine and shall be operated and maintained according to manufacturer specifications.

The source shall submit copies of the relevant Applicability Reports required under Condition 2.1.2.

Emission Standards: Section I.D.3 - State-only requirements

Any permanent engine that is either constructed or relocated to the state of Colorado from another state, after the date listed in the table below shall operate and maintain each engine according to the manufacturer’s written instructions or procedures to the extent practicable and consistent with technological limitations and good engineering and maintenance practices over the entire life of the engine so that it achieves the emission standards required in the table below:

Max Engine HP	Construction or Relocation Date	Emission Standards in g/hp-hr		
		NO _x	CO	VOC
100<Hp<500	January 1, 2008	2.0	4.0	1.0
	January 1, 2011	1.0	2.0	0.7
500≤Hp	July 1, 2007	2.0	4.0	1.0
	July 1, 2010	1.0	2.0	0.7

The source shall submit copies of the relevant Applicability Reports required under Condition 2.1.2.



2.3.3 NSPS for stationary spark ignition internal combustion engines: 40 CFR Part 60, Subpart JJJJ

A permanent replacement engine that is manufactured on or after 7/1/09 for emergency engines greater than 25 hp, 7/1/2008 for engines less than 500 hp, 7/1/2007 for engines greater than or equal to 500 hp except for lean burn engines greater than or equal to 500 hp and less than 1,350 hp, and 1/1/2008 for lean burn engines greater than or equal to 500 hp and less than 1,350 hp are subject to the requirements of 40 CFR Part 60, Subpart JJJJ. An analysis of applicable monitoring, recordkeeping, and reporting requirements for the permanent engine replacement shall be included in the Applicability Reports required under Condition 2.1.2. Any testing required by the NSPS is in addition to that required by this AOS. Note that the initial test required by NSPS Subpart JJJJ can serve as the testing required by this AOS under Condition 2.2, if approved in advance by the Division, provided that such test is conducted within the time frame specified in Condition 2.2.

Note that under the provisions of Regulation Number 6, Part B, section I.B. that Relocation of a source from outside of the State of Colorado into the State of Colorado is considered to be a new source, subject to the requirements of Regulation Number 6 (i.e., the date that the source is first relocated to Colorado becomes equivalent to the manufacture date for purposes of determining the applicability of NSPS JJJJ requirements).

However, as of October 1, 2011 the Division has not yet adopted NSPS JJJJ. Until such time as it does, any engine subject to NSPS will be subject only under Federal law. Once the Division adopts NSPS JJJJ, there will be an additional step added to the determination of the NSPS. Under the provisions of Regulation Number 6, Part B, § I.B (which is referenced in Part A), any engine relocated from outside of the State of Colorado into the State of Colorado is considered to be a new source, subject to the requirements of NSPS JJJJ.

2.3.4 Reciprocating internal combustion engine (RICE) MACT: 40 CFR Part 63, Subpart ZZZZ

A permanent replacement engine located at either an area or major source is subject to the requirements in 40 CFR Part 63, Subpart ZZZZ. An analysis of the applicable monitoring, recordkeeping, and reporting requirements for the permanent engine replacement shall be included in the Applicability Reports required under Condition 2.1.2. Any testing required by the MACT is in addition to that required by this AOS. Note that the initial test required by the MACT can serve as the testing required by this AOS under Condition 2.2, if approved in advance by the Division, provided that such test is conducted within the time frame specified in Condition 2.2.

2.4 Additional Sources

The replacement of an existing engine with a new engine is viewed by the Division as the installation of a new emissions unit, not “routine replacement” of an existing unit. The AOS is therefore essentially an advanced construction permit review. The AOS cannot be used for additional new emission points for any site; an engine that is being installed as an entirely new emission point and not as part of an AOS-approved replacement of an existing onsite engine has to go through the appropriate Construction/Operating permitting process prior to installation.



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ATTACHMENT B:

Equipment Covered by Point 004.

Activity 01: Gas venting from blowdowns of compressors, filter separator, and full compressor station¹.

Equipment Description	Equipment ID	Internal Physical Volume ¹ (acf)
Compressor	G3516 Unit 1	200
Compressor	G3508 Unit 2	73
Total Station Blowdown	NA	636
Filter Separator	NA	150

¹Information in the table above does not represent final values. The owner or operator must provide a final list to the Division as part of the self-certification process, in accordance with Condition 5.

Activity 02: Gas venting from purging of compressors, filter separator, and full compressor station¹.

Equipment Description	Equipment ID	Internal Physical Volume ¹ (acf)
Compressor	G3516 Unit 1	200
Compressor	G3508 Unit 2	73
Total Station Blowdown	NA	636
Filter Separator	NA	150

¹Information in the table above does not represent final values. The owner or operator must provide a final list to the Division as part of the self-certification process, in accordance with Condition 5.