TECHNICAL REVIEW DOCUMENT
For
OPERATING PERMIT 07OPLA294

Pioneer Natural Resources USA, Inc.
Rita Canyon Compressor Station
Las Animas County
Source ID 0710078

July - August 2012
Updated January 2013 to address final signing of amendments to Boiler and Engine Rules

Operating Permit Engineer:	Blue Parish
Operating Permit Supervisor review:	Matt Burgett
Field Services Unit review:	Tim Taylor

I. Purpose

This document establishes the basis for decisions made regarding the applicable requirements, emission factors, monitoring plan and compliance status of emission units covered by the Operating Permit for the Rita Canyon Compressor Station.

This document is designed for reference during the review of the proposed permit by the EPA, the public, and other interested parties. The conclusions made in this report are based on information provided in the original application submitted on August 21, 2007, additional information submitted on September 10 & 28, 2009, October 2, 2009, March 22, 2011, April 27, 2011, previous inspection reports and various e-mail correspondence, as well as telephone conversations with the applicant and review of Division Files. Please note that copies of the Technical Review Document for the original permit and any Technical Review Documents associated with subsequent modifications of the original Operating Permit may be found in the Division files as well as on the Division website at http://www.cdphe.state.co.us/ap/Titlev.html. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised construction permit.

II. Description of Source

This facility is a natural gas compressor station defined under Standard Industrial Classification 1311. The source uses six (6) 1,085 horsepower internal combustion

engine driven gas compressors to deliver compressed coal-bed methane gas into a pipeline for sales distribution. One triethylene glycol dehydrator is used to dry the methane gas before entering the pipeline.

The facility is located approximately 14 miles west of Trinidad, Las Animas County, Colorado. The area in which the facility operates is designated as attainment for all criteria pollutants. New Mexico is an affected state within 50 miles of the plant. The Great Sand Dunes Wilderness Area and Wheeler Peak Wilderness Area are Federal Class I designated areas within 100 kilometers of the plant.

Based on the information provided by the applicant, this source is categorized as a minor stationary source for PSD as of the issue date of this permit. Any future modification which is major by itself (Potential to Emit of ≥ 250 TPY) for any pollutant listed in Regulation No. 3, Part D, Section II.A.42 for which the area is in attainment or attainment/maintenance may result in the application of the PSD review requirements.

The engines currently located at the facility are:

Engine	**Colorado Construction Permit Number**	**Construction Permit Version (October 17, 2007 issuance)**	**Date of Manufacture**	**Operation at Rita Began on:**	**Serial Number**
C1	98LA0772	Final Approval, Modification 4	12/2/1997	1/29/2009	4EK01683
C2	98LA0773	Final Approval, Modification 4	4/16/1998	12/15/2008	4EK01959
C3	98LA0774	Final Approval, Modification 4	11/27/1995	9/15/2010	4EK00735
C4	98LA0775	Final Approval, Modification 4	4/4/1997	1/12/2009	4EK01296
C5	99LA0692	Final Approval, Modification 3	4/3/2007	11/1/2008	WPW00843
C6	99LA0693	Final Approval, Modification 3	8/9/2007	11/1/2008	WPW01562

Emissions (in tons/yr) at the facility are as follows:

Pollutant	**Potential to Emit (tons per year)**
NOx	139.8
VOC	5.0
CO	18.9
Highest HAP (Formaldehyde)	2.5
Total HAP	5.7

Potential to Emit (PTE) for criteria pollutants is based on permitted emission levels which include controls. PTE for HAPs is based on AP-42 emission factors (including control for formaldehyde) and maximum permitted fuel use rates. Actual emissions have not been reported as different from permitted (PTE) values. Emission details are included in Section IX at the end of this document.

III. Applicable Requirements

Accidental Release Program – 112(r)

Section 112(r) of the Clean Air Act mandates a new federal focus on the prevention of chemical accidents. Sources subject to these provisions must develop and implement risk management programs that include hazard assessment, a prevention program, and an emergency response program. They must prepare and implement a Risk Management Plan (RMP) as specified in the Rule.

Based on the information provided by the applicant, this facility is not subject to the provisions of the Accidental Release Prevention Program (Section 112(r) of the Federal Clean Air Act).

Compliance Assurance Monitoring (CAM)

The following emission points at this facility use a control device to achieve compliance with an emission limitation or standard to which they are subject and have pre-control emissions that exceed or are equivalent to the major source threshold. They are therefore subject to the provisions of the CAM program as set forth in 40 CFR Part 64 as adopted by reference into Colorado Regulation No. 3, Part C, Section XIV:

None – no emission points have pre-control emissions that exceed or are equivalent to the major source threshold.

Hazardous Air Pollutants (HAPs)

Uncontrolled emissions of formaldehyde are greater than 10 tons per year (facility-wide). Therefore, the facility is synthetic minor with respect to HAPs for the purposes of Title V Operating Permit applicability.

The facility is an area source of HAPs for the purpose of 40 CFR Part 63 Subparts ZZZZ and HH (see discussions below for further details).

Greenhouse Gases

The potential-to-emit of greenhouse gas (GHG) emissions from this facility is less than 100,000 TPY CO2e. Future modifications greater than 100,000 TPY CO2e may be subject to regulation (Regulation No. 3, Part A, I.B.44).

Colorado Regulation No. 7, Section XVII Requirements for Dehydrators

Section XVII.D control requirements apply to dehydrators or groups of dehydrators with uncontrolled actual VOC emissions of 15 tons per year or more on a rolling basis. Rita Canyon Compressor Station compresses coal bed methane gas from the Raton Basin. This gas is almost pure methane and contains no measurable amounts of BTEX (Benzene, Toluene, Ethylbenzene and Xylenes). VOC emissions are estimated to be less than 100 pounds per year based on a GRI GLYCalc 4.0 run submitted with an APEN received September 30, 2009. Section XVII.D does not apply.

40 CFR 63 Subpart HH – National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities

This section addresses the final version of Subpart HH published in the Federal Register on August 16, 2012.

Under the provisions of 40 CFR Part 63 Subpart HH, “National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities,” only HAP emissions from glycol dehydrators and storage vessels need to be aggregated to determine whether the facility is a major source for HAPs for production field facilities. The Rita Canyon Compressor Station meets the definition of a production field facility, and includes one glycol dehydrator, and the following tanks that qualify as storage vessels under Subpart HH: two produced water tanks and one oil/water separator tank. These tanks are insignificant activities with emissions below APEN reportable thresholds; the produced water tanks have calculated emissions of less than 10 pounds per year VOC (see Section VIII for details). As described above in the Regulation No. 7 Section XVII discussion, the gas processed by the dehydrator has no measureable emissions of BTEX. Therefore, the facility is not subject to the Subpart HH requirements that apply at major HAP sources.

Subpart HH includes requirements for triethylene glycol (TEG) dehydrators at area sources of HAPs, but exempts TEG dehydrators with actual average benzene emissions of less than 0.9 megagrams per year from control requirements and/or operating limitations. Benzene emissions from the dehydrator (not including the negligible amount from the combustion of natural gas in the reboiler burner) are zero; therefore the only applicable Subpart HH requirements are to establish the exemption and maintain records (§§ 63.764 (e)(1) and (d)(1)), and to operate and maintain equipment in accordance with good air pollution control practices for minimizing emissions (§§ 63.764(j) & 63.774(g)).

Note that the dehydrator at the facility is not exempt from APEN filing requirements (Regulation No. 3, Part A, II.D.1), and is not exempt from construction permitting requirements (Regulation No. 3, Part B, II.D) because the area source requirements of Subpart HH have been adopted and promulgated into Colorado Regulation No. 8 at this time.

40 CFR 60 Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

Subpart JJJJ includes requirements for spark ignition internal combustion engines that commenced construction (i.e., ordered by the owner or operator) after June 12, 2006 (40 CFR §60.4230(4)) or commenced modification or reconstruction after June 12, 2006 (40 CFR §60.4230(5)).

Subpart JJJJ requirements for lean burn engines with horsepower greater than or equal to 500 and less than 1,350 apply to engines that were manufactured on or after January 1, 2008 (40 CFR 60.4230(a)(4)(ii)). Engines C1-C6 were manufactured prior to January 1, 2008 (see engine details listed in Section II). Subpart JJJJ requirements do not apply.

40 CFR 63 Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

Under Subpart ZZZZ, for production field facilities, only emissions from glycol dehydrators, storage vessels with the potential for flash emissions, reciprocating internal combustion engines and combustion turbines need to be aggregated to determine if the facility is a major source for HAPS. Total HAP emissions, based on permitted production, were calculated to be less than major source levels (see Section IX. Subpart ZZZZ requirements for engines at major sources of HAPs therefore do not apply.

Engines C-5 & C-6: Subpart ZZZZ includes requirements for engines located at area sources of HAPs. New (commenced construction on or after June 6, 2006) spark ignition engines located at area sources of HAPs must meet the requirements of NSPS Subpart JJJJ; no further requirements apply under Subpart ZZZZ (40 CFR 63.6590(c)). Engines C-5 and C-6 qualify as new engines: they were manufactured in 2007 and therefore initially commenced construction after June 6, 2006. NSPS Subpart JJJJ does not include any requirements for these two engines as described above.

Engines C-1, C-2, C-3 and C-4 are considered to be existing (constructed prior to June 6, 2006) engines under Subpart ZZZZ. Note that the definition of construction under §63.2 states that "Construction does not include the removal of all equipment comprising an affected source from an existing location and the reinstallation of such equipment at a new location…" These engines may have been placed at the Rita Canyon Compressor Station after June 6, 2006, but each unit is likely to have commenced construction at a previous location prior to June 6, 2006 (these engines were manufactured between 1995 and 1998). Subpart ZZZZ includes specific CO standards for non-emergency, non-black start 4SLB engines greater than 500 horsepower at area sources of HAP (Table 2d, Item #8). Subpart ZZZZ also includes

operational requirements (catalyst pressure drop and inlet temperature – Table 2c, Item #1) and requirements for initial and subsequent performance testing, monitoring, notification, recordkeeping and reporting. The compliance date for these engines is October 19, 2013. Note that the area source portions of Subpart ZZZZ have not yet been adopted into Colorado Regulation No. 8, therefore these requirements are currently federal-only enforceable.

EPA proposed changes to Subpart ZZZZ on June 7, 2012 which include reduced requirements (work practice standards instead of CO standards) for existing 4SLB engines greater than 500 hp at area sources of HAP if those engines meet the definition of "Remote Stationary RICE." The compliance date for these reduced requirements is also October 19, 2013. **UPDATE:** The amended rule was signed on January 14, 2013, but has not yet become effective and has not been published in the federal register at the time that the Division finalized this permit (finalized on January 28, 2013; issuance date of February 1, 2013). The Division is including the requirements from the current rule (i.e., CO standards and control requirements) for these units in this permit with the following statement:

> Note: EPA proposed changes to Subpart ZZZZ on June 7, 2012 which may allow for alternative standards and/or compliance options. The owner or operator may comply with any and all applicable alternative options of the amended rule once it becomes effective, instead of the requirements of this Condition 1.11. The owner or operator shall submit an application to amend this permit to include any applicable requirements of the new federal rule if required by Colorado Regulation No. 3, Part C, Section XIII.A.1.

Section XII.A.1 addresses reopening the permit if additional requirements become applicable while the operating permit has a remaining term of three or more years. If the source can show that the engines C-1, C-2, C-3 and C-4 qualify as remote engines under the rule, they may submit a request to modify the permit to include the reduced requirements. Note that the proposed rule requires the engines to be re-evaluated annually to confirm that the reduced requirements continue to apply. Note also that if the engines comply with work practices for remote engines instead of the CO standards, they will be subject to Colorado Regulation No. 7, Section XVII requirements (see discussion below).

<u>Colorado Regulation No. 7, Section XVII Requirements for Engines</u>

As per Section XVII.B.4., engines that are subject to a control requirement under 40 CFR 63 are not subject to Section XVII. Engines C-1, C-2, C-3 and C-4 will be subject to a control standard under Subpart ZZZZ beginning October 19, 2013, as per the current version of 40 CFR 63 Subpart ZZZZ. The requirements under Section XVII will not apply to these four engines beginning October 19, 2013.

Section XVII.E.2 applies to new, modified and relocated engines. Note that the applicability date for Reg 7 is the date the engine was first constructed in Colorado. There are two sets of standards for engines with maximum horsepower greater than or equal to 500; one set applies to units constructed or relocated on or after July 1, 2007 but before July 1, 2010, and the second set applies to units constructed on or

after July 1, 2010. The APENs submitted for all of the engines except C-3 list "unknown" or "N/A" for the dates on which the units were first constructed in or relocated to Colorado. Therefore, the dates the units were placed at Rita will be used to establish Section XVII.E.2 applicability (standards for units constructed on or after July 1, 2007 but before July 1, 2010 apply). The current C-3 engine was confirmed in the August 25, 2011 inspection report as being originally constructed at the Primero facility (AIRS ID 071-0073) on June 25, 2008, therefore this engine is subject to the same standards as the other units at Rita.

Section XVII.E.3 applies to existing engines (constructed before February 9, 2009) and requires an oxidation catalyst on lean burn engines by July 1, 2010.

Regulation No. 7, Section XVII Applicable Requirements:

Section XVII.E.2	**Engines Constructed or Relocated On or After July 1, 2007** C-5 & C-6 C-1, C-2, C-3 & C-4 (applies until October 19, 2013)	**Standards/Requirements** NO_x: 2.0 g/hp-hr CO: 4.0 g/hp-hr VOC: 1.0 g/hp-hr
Section XVII.E.3	**Engines Constructed before February 9, 2009** C-5 & C-6 C-1, C-2, C-3 & C-4 (applies until October 19, 2013)	**Standards/Requirements** Install and Operate an Oxidation Catalyst by July 1, 2010

Note that the NO_x emission factor for these engines is 2.0 g/hp-hr. Future replacements to existing engines made in accordance with the provisions of the Alternative Operating Scenario (AOS) allowed by the permit will be subject to a 1.0 g/hp-hr NO_x standard if they are constructed or relocated on or after July 1, 2010. Because the compliance emission factors in the permit are based on a 2.0 g/hp-hr NO_x value, these replacements would not be able to meet the newer Regulation No. 7 Standards. However, if these replacement engines are subject to control requirements under federal MACT, NSPS or BACT requirements, the Regulation No. 7 standards would not apply. The AOS includes requirements to determine and report to the Division all applicable standards for replacements (see the applicability reports included as Appendix G of the Permit). These reports would identify any Reg 7 issues; however, additional language has been added to the Reg 7 condition in the permit to highlight the issue.

<u>40 CFR Part 63 Subparts DDDDD and JJJJJJ – the Boiler MACTs</u>

Subpart DDDDD applies to industrial, commercial or institutional boilers and process heaters at major sources of HAP. The facility is not a major source of HAP (see Section IX at the end of this document for emission calculations).

Subpart JJJJJJ to Part 63 includes standards for industrial, commercial and institutional boilers at area sources. EPA published Subpart JJJJJJ as a final rule on March 21, 2011 (76 FR 15554). On the same day, EPA also published a proposed

notice of reconsideration of Subpart JJJJJJ (76 FR 15249). The reconsideration of the final rule was published on December 23, 2011 (76 FR 80532).

The March 2011 version of the rule does not include requirements for process heaters. The December 23, 2011 version of the rule included additional language in order to be more explicit about excluding process heaters from the definition of boilers. Rita Canyon includes one process heater (the reboiler burner associated with the dehydrator) and no boilers; therefore, neither the March 2011 nor the December 2011 versions of Subpart JJJJJJ apply. **UPDATE:** EPA signed the final rule again on December 20, 2012. None of the changes in the final rule change the applicability determinations described.

<u>40 CFR Part 63 Subpart OOOO – Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution</u>

EPA published the final Subpart OOOO rule in the Federal Register on August 16, 2012.

At production field facilities, Subpart OOOO applies to reciprocating and centrifugal compressors, pneumatic controllers and storage vessels that were constructed, modified or reconstructed after August 23, 2011. All of the compressors and tanks at Rita Canyon were constructed prior to this date.

The Division believes that installations and/or replacements of pneumatic controllers may occur much more frequently than the replacement of entire process units such as tanks or compressors at oil and gas facilities. Emissions from these units are typically below APEN reportable thresholds both individually and on a cumulative facility-wide basis. Because Subpart OOOO is not yet adopted into Colorado's Regulation No. 6 and emissions are below reportable thresholds, the addition or modification/reconstruction of pneumatic controllers will not likely trigger a permitting action under the requirements of Colorado Regulation No. 6, Part B.

Therefore, the Division is including the pneumatic controller requirements of Subpart OOOO in the permit, even though they will not apply unless and until a controller is installed, modified or reconstructed on or after October 15, 2013. The permit will require the facility to keep a log of all pneumatic controllers at the facility and will note whether each controller is subject to Subpart OOOO in order to monitor which (if any) controllers are subject to the NSPS requirements.

<u>Source Determination</u>

With this permit action, the Division revisited the source determination in regards to the natural gas operations in the area surrounding the Rita Canyon facility to verify that the proper pollutant emitting activities are included in this permit as part of the Rita Canyon Compressor Station. Pioneer did not identify any other pollutant emitting activities in the vicinity of the Rita Canyon Compressor Station that are dependent upon the Rita Canyon Compressor Station to maintain operations. The Division considers the current determination for this facility to be accurate, and the proper pollutant emitting activities are included in this permit.

IV. Emission Sources

A. <u>Units C1 through C6:</u> Six Caterpillar 3516, 4-Cycle Lean Burn, Low NOx design, Spark-ignition Natural Gas Fired Internal Combustion Engines, site rated at 1,085 horsepower each.

1. Applicable Requirements

These units were issued individual Colorado Construction Permits (see table in Section II) which were last modified on October 17, 2007. The modification increased the emission and fuel consumption limits over the previously permitted values in order to reflect the manufacturer's maximum horsepower for the engines in the permits and to base the emission estimates on the manufacturer's emission factors. Since the issuance of the construction permits, all of the engines have been replaced with like-kind (same make and model) units under the permanent engine replacement provisions of the Alternative Operating Scenarios (AOS) included in the construction permits. The operator submitted APENs reflecting the replacements in accordance with the requirements of the permits.

The following applicable requirements of the final approval construction permits have been incorporated into the Operating Permit (note that limits are applicable to each individual engine):

- Except as provided for below, no owner or operator of a source shall allow or cause the emission into the atmosphere of any air pollutant which is in excess of 20% opacity. EPA Method 9 shall be used to measure opacity.

  No owner or operator of a source shall allow or cause to be emitted into the atmosphere any air pollutant resulting from the building of a new fire, cleaning of fire boxes, soot blowing, start-up, process modifications or adjustment or occasional cleaning of control equipment which is in excess of 30% opacity for a period or periods aggregating more than six (6) minutes in any sixty (60) consecutive minutes.

  Compliance with the opacity standards can be presumed since only natural gas is permitted to be used as fuel in this engine. Therefore, the Method 9 language has been replaced with the permitted fuel use language.

- Consumption of natural gas as a fuel shall not exceed 87.4 MMscf/year. Monthly records of the actual consumption rate shall be maintained by the applicant and made available to the Division for inspection upon request. Compliance with the annual consumption limits shall be determined on a rolling twelve (12) month total.

- Emissions from each engine shall not exceed the following limits:

  - Nitrogen Oxides 23.3 tons/yr
  - Carbon Monoxide 3.15 tons/yr

Monthly emissions shall be calculated by the end of each month, using the emission factors indicated in the permit notes, the monthly fuel consumption and the heat content of the natural gas. Monthly emissions shall be used in a twelve month rolling total to monitor compliance with the annual emission limitation. Each month, a new twelve month total shall be calculated using the previous twelve months data.

The construction permits did not include limits on VOC. Current policy is to include limits for all criteria pollutants where the uncontrolled actual value exceeds APEN thresholds. APENs submitted for engines C1 – C6 do not include actual values, but the uncontrolled requested value is 5.8 tons per year. Therefore a VOC limit of 0.8 tons per year (controlled) will be included in the operating permit.

- Facility-wide emissions shall not exceed 8 tons per year of any single HAP or 20 tons per year of combined HAPs.

  Compliance with the facility HAP limit shall be monitored by calculating individual HAP emissions from each emissions unit subject to APEN reporting requirements, using the emission factors indicated in the permit notes, the monthly fuel consumption and the heat content of the natural gas. Monthly emissions of individual HAPS from each emission unit shall be summed to determine monthly emissions of combined HAPS.

  Monthly emissions of each individual HAP shall be summed with the monthly individual HAP emissions from the other emission units and a twelve-month rolling total of facility wide individual HAP emissions will be maintained to monitor compliance with the annual individual HAP emission limit. Each month, a new twelve month total shall be calculated using the previous twelve months data.

  Monthly emissions of combined HAPs shall be summed with the monthly combined HAPS emissions from the other emission units and a twelve-month rolling total of facility wide combined HAPS emissions will be maintained to monitor compliance with the annual individual HAP emission limit. Each month, a new twelve month total shall be calculated using the previous twelve months data.

  This condition was included in the permits to establish HAP limits for the facility below major source thresholds. This condition has been added as a separate condition (3.1) in the Operating permit. The construction permits include emission factors from both AP-42 Section 3.2 (August, 2000) and GRI HAPCalc version 3.01. The higher emission factor for each pollutant was listed (HAPCalc emission factors in g/hp-hr were converted to a basis of lb/MMbtu based on an engine heat rate of 7,450 btu/hp-hr). The Operating Permit application lists HAP emissions from all engines based on the AP-42 values; the condition will therefore be rewritten to require the use of AP-42 factors. The construction permit lists the formaldehyde emission factor with an 80% control efficiency; the

Operating Permit will use the uncontrolled emission factor and require the calculation to use the control efficiency for CO established by the most recent monitoring event.

- The Btu content of the natural gas used as fuel shall be verified annually using the appropriate ASTM Methods, or equivalent if approved in advance by the Division. The Btu content of the natural gas shall be based on the lower heating value of the fuel. Calculations of monthly emissions (Conditions 6 and 7) shall be made using the heat content derived from the most recent required analysis.

  In accordance with Division policy, this requirement will be included with a semi-annual frequency in the Operating Permit.

- The stack height of each engine shall be a minimum of 20 feet.

  The operator has noted on APENs submitted for the engines currently in place that the stack heights are 20 feet. Because permanent replacements are allowed under the AOS, the Division has modified the language to address any future permanent replacement units.

- The applicant shall follow the most current operating and maintenance plan and record keeping format approved by the Division in order to demonstrate compliance on an ongoing basis with the requirements of this permit.

  The operating permit includes appropriate periodic monitoring to insure compliance with the emissions limitations. See the Monitoring Plan section of below for details.

- MACT Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines requirements for major sources shall apply to this source at any such time that this source becomes major solely by virtue of a relaxation in any permit limitation and shall be subject to all appropriate applicable requirements of that Subpart on the date as stated in the rule as published in the Federal Register.

  Facility wide emissions for HAPs are limited to less than major stationary source thresholds. Since no actual requirements for major sources apply unless certain modifications to the permit conditions for this engine are made, this condition has not been included in the operating permit.

- The catalyst inlet and outlet CO concentration shall be determined annually using a portable analyzer to determine the percent emission reduction of the catalyst. Results of the annual test shall be compared to the percent reduction used to estimate formaldehyde emissions (80%) from this 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 website.

The Division noted in the Preliminary Analysis for the Construction Permits for engines C1 – C6 that performance testing was never required for these engines at the time that they were modified to install oxidation catalysts. In lieu of a performance test, the Division allowed annual portable monitoring to determine the inlet and outlet CO concentrations. The preamble for the proposed RICE MACT states that "when CO emission are reduced, HAP emissions are reduced in a relatively proportional manner" (December 19, 2002 FR 77839).

For the Operating Permit, the Division has increased the frequency to semi-annual to correspond with the semi-annual monitoring periods that are now required by the Title V permit.

- Revised Air Pollutant Emission Notices (APENs) shall be filed in accordance with the requirements of Reg.3, Part A,II.C.

  The APEN reporting requirements will not be identified in the permit as a specific condition but are included in Section IV (General Conditions) of the permit, condition 22.e.

In addition to the conditions of the construction permits noted above, the following applicable requirements are being incorporated:

- The individual hours of operation of each engine are to be measured and recorded for each calendar month in order to allocate fuel use from the common fuel meter to the individual units, and to determine if portable monitoring is required (for engines operating 100 hours or more per quarter). Appendix G is included in the permit to provide details on how to calculate fuel allocation.

- Regulation No 7 requirements (as described above) are applicable to engines C1-C6 and have been included in the Operating Permit. Note that the compliance emission factors approved for the engine were based on manufacturer's values (in g/hp-hr, converted to lb/MMBtu based on a BSCF of 7,450 Btu/hp-hr). These values are lower than the Reg 7 standards, and so compliance with the Reg 7 standards may be presumed based on compliance with the permitted emission limits and periodic monitoring requirements.

- 40 CFR 63, Subpart ZZZZ requirements for existing 4SLB engines greater than 500 horsepower at area sources of HAP apply to engines C-1, C-2, C-3 and C-4 as described above in Section III.

2. Emission Factors

Emissions from these reciprocating engines are produced during the combustion process, and are dependent upon the air to fuel ratio adjustment, specific properties of the natural gas burned, and engine design specifications. The pollutants of concern are Nitrogen Oxides (NOX), Carbon Monoxide (CO) and Volatile Organic Compounds (VOC). Small quantities of Hazardous Air Pollutants

(HAPs) are also emitted when combustion is incomplete. Approval of emission factors is necessary to monitor compliance with the emission limitations.

Emission factors for engines C1 – C6 were included in the Construction Permits in units of lb/MMBtu, and include reductions from the oxidation catalyst (for formaldehyde, CO and VOC). The Operating Permit will include the uncontrolled emission factor for formaldehyde and will require formaldehyde emissions to be calculated using an actual control efficiency determined during the most recent monitoring event..

3. Monitoring Plan

To ensure proper operation of the control equipment, catalyst inlet temperature and catalyst differential pressure are required to be monitored monthly and maintained within the manufacturer's recommended ranges. Note that beginning October 19, 2013, the specific Subpart ZZZZ monitoring requirements will apply to Engines C-1, C-2, C-3 and C-4.

Since the emission factors for these engines have been converted to units of lbs/MMBtu, semi-annual sampling and analysis of the natural gas burned shall be required to determine the heat content of the gas. Also, the Division presumes the engine is in compliance with the opacity requirements, in the absence of credible evidence to the contrary, since only when natural gas is used as fuel.

Note also that CO monitoring (pre and post catalyst) using a portable analyzer is required semiannually in lieu of formaldehyde performance testing, as described previously.

4. Compliance Status

The source certified in the Title V application that the facility is in compliance with applicable requirements. The Division conducted a full compliance inspection at the facility on August 25, 2011, and noted that the facility was in compliance with the requirements of the construction permits with one exception: failure to complete a portable test on engine C-1 during the second quarter of 2011, even though the engine operated 403 hours during that quarter. All other portable tests events during the compliance period (third quarter of 2009 through the second quarter of 2011) showed C-1 to be in compliance with NO_x and CO limits. The draft Operating Permit includes appropriate and specific requirements for portable analyzer testing; therefore no additional permitting requirements are necessary to address this issue.

B. <u>DEHY1</u> : One PESCO/NATCO Triethylene Glycol Dehydrator (50 MMscfd)

1. Applicable Requirements

Emissions from the dehydrator are below APEN reportable thresholds, but the dehydrator is an affected source under Subpart HH area source requirements. As described above, this dehydrator is exempt from all Subpart HH requirements except for recordkeeping because actual benzene emissions are zero. Because VOC emissions are less than APEN reporting thresholds, emission limits and

throughput limits will not be included in the permit. The Subpart HH requirements related to demonstration of the benzene exemption are included as conditions in the permit.

Note that the serial number listed in the permit is the one identified during the August 25, 2011 inspection.

2. Emission Factors

NA – all emissions are below APEN reportable thresholds. Emissions for this unit were calculated using GRI GLYCalc version 4.0 and an extended gas analysis from a sample taken on August 15, 2008.

3. Monitoring Plan

The Division has included a requirement to conduct an annual extended gas analysis, which will be used to demonstrate that benzene emissions remain below Subpart HH thresholds. Note that when the analysis shows that benzene content is zero, benzene emissions may be presumed to be zero without a GlyCalc analysis.

4. Compliance Status

The source submitted an APEN for the dehydrator on September 30, 2009. The Division conducted a full compliance inspection on August 25, 2011 and noted no compliance issues with respect to the dehydrator.

C. Facility-Wide HAP Limits

1. Applicable Requirements

The construction permits for engines C1 – C6 include facility-wide HAP limits because the facility is a synthetic minor source with respect to HAP emissions, as described above. The construction permits require that monthly HAP emissions be calculated from each unit subject to APEN reporting requirements, and to aggregate individual unit HAP emissions into facility-wide emissions, and also to calculate rolling 12-month totals.

The facility-wide HAP limiting requirements are included as a separate Condition (3.1) of Section II in the operating permit. The construction permits required that the calculations be based on the monthly fuel use measurements and the fuel heat value measurements required by the permit. The construction permits also referenced emission factors to be used in the notes to permit holder; these values were based on the higher values of AP-42 Section 3.2 or GRI-HAPCalc 3.01 for four-cycle lean or clean burn engines. The Operating Permit will reference only AP-42 factors as these are included in the calculations and documentation included in the Operating Permit application.

The AP-42 emission factors (Table 3.2-2, July 2000) for HAPs emitted above APEN reportable thresholds at the maximum permitted natural gas consumption rate are included in the operating permit. Formaldehyde emission calculations will be reduced by the control efficiency for CO determined during the most

recent monitoring event. Note that the dehydrators are subject to APEN reporting requirements because they are affected units under 40 CFR 63 Subpart HH, as described above. However, the Division recognized that dehydrators associated with coal seam gas do not emit HAPs over negligible levels, and therefore the operating permit will not require the operator to calculate HAP emissions for the purposes of compliance with the facility-wide HAP limit.

2. Emission Factors

See Applicable Requirements discussion above.

3. Monitoring Plan

See Applicable Requirements discussion above.

4. Compliance Status

The source certified in the Title V application that the facility is in compliance with applicable requirements. The Division conducted a full compliance inspection on August 25, 2011 and determined that the facility was operating in compliance with the construction permits with respect to the HAP limits.

V. Alternative Operating Scenario (AOS)

The current construction permits for the compression engines include alternative operating scenarios for temporary and permanent engine replacement. The Division is including the current version of the engine AOS in the Operating Permit, including an example regulatory applicability report in Appendix G.

VI. Permit Shield

The applicant identified major source Subpart HH requirements as non-applicable to the dehydrators because the facility is not a major source of HAPs and there is no detectable benzene in the field gas. The Division included two entries in the permit shield table for clarification between major source HH requirements (which are non-applicable because the facility is not a major source) and area source HH requirements (which are non-applicable because benzene emissions from the dehydrators are below the levels at which standards apply). Note that some recordkeeping requirements of area source Subpart HH requirements still apply, and are detailed in Section II of the permit.

The applicant submitted comments on April 26, 2011requesting the following additional requirements to be added to the permit shield:

- Clean Air Act Title IV provisions – Acid Rain
- Accidental Release Prevention Program – 40 CFR Part 68 (note that this is already identified specifically as a non-applicable requirement in Section I, Condition 4 of the permit).

VII. Streamlining of Applicable Requirements

No applicable requirements were streamlined out of the permit.

VIII. Insignificant Activities

The following list of insignificant activities is based on information in the operating permit application and subsequent corrections received from the applicant on April 26, 2011:

- One (1) 210 bbl tank: HDAX (engine oil)
- One (1) 210 bbl tank: AW 150 (compressor oil)
- One (1) 100 bbl gunbarrel (oil/water separator), contents: oil and water
- One (1) 210 bbl produced water tank containing < 1% crude oil
- One (1) 100 bbl waste water (skid drain) tank
- One (1) 240 gal produced water tank containing <1% crude oil

Pioneer provided an analysis of VOC emissions from produced water tanks at Rita Canyon Compressor Station. The analysis used EPA's Tanks 4 program (version 4.0.9d) with the Multi-Component Liquid – Full Speciation Option and an assumption that the produced water is completely saturated in each of the C3+ VOC components found in the field gas. Based on a water extraction rate of 150 gallons per MMScf and a gas processing rate of 12 MMScf per year, emissions from the 210 bbl produced water tank are calculated to be less than 10 pounds per year.

The applicant's consultant stated in a telephone conversation on 6/24/2009 that emissions from fugitive components are below the APEN reporting threshold of 2 tons per year; therefore "Fugitive Emissions from Components" was added as an insignificant activity.

IX. Facility Emissions

		Permitted Emissions (PTE) - tpy				Uncontrolled Emissions - tpy			
Unit ID	**AIRS ID**	**NOx**	**VOC**	**HAPs**	**CO**	**NOx**	**VOC**	**CO**	**HAPs**
C1	001	23.3	0.8	0.9	3.15	23.3	5.6	21.0	2.6
C2	002	23.3	0.8	0.9	3.15	23.3	5.6	21.0	2.6
C3	003	23.3	0.8	0.9	3.15	23.3	5.6	21.0	2.6
C4	004	23.3	0.8	0.9	3.15	23.3	5.6	21.0	2.6
C5	005	23.3	0.8	0.9	3.15	23.3	5.6	21.0	2.6
C6	006	23.3	0.8	0.9	3.15	23.3	5.6	21.0	2.6
TOTAL		**139.8**	**5.0**	**5.7**	**18.9**	**139.8**	**33.6**	**125.8**	**15.7**

HAP Emissions (including controls) - lb/yr

Unit ID	AIRS ID	Formal dehyde	Acet aldehyde	Benzene	Acrolein	Toluene	Ethyl benzene	Xylenes	n-Hexane	Methanol	1,3-butadiene	TOTAL (tpy)	TOTAL REPORTABLE (tpy)
C1	001	835	658	*35*	405	*32*	*3*	*14*	*87*	*197*	*21*	1.14	0.95
C2	002	835	658	*35*	405	*32*	*3*	*14*	*87*	*197*	*21*	1.14	0.95
C3	003	835	658	*35*	405	*32*	*3*	*14*	*87*	*197*	*21*	1.14	0.95
C4	004	835	658	*35*	405	*32*	*3*	*14*	*87*	*197*	*21*	1.14	0.95
C5	005	835	658	*35*	405	*32*	*3*	*14*	*87*	*197*	*21*	1.14	0.95
C6	006	835	658	*35*	405	*32*	*3*	*14*	*87*	*197*	*21*	1.14	0.95
TOTAL (tpy)		**2.5**	**2.0**	**0.1**	**1.2**	**0.1**	**0.0**	**0.0**	**0.3**	**0.6**	**0.1**	**6.9**	**5.7**

HAP Emissions (not including controls) - lb/yr

Unit ID	AIRS ID	Formal dehyde	Acet aldehyde	Benzene	Acrolein	Toluene	Ethyl benzene	Xylenes	n-Hexane	Methanol	1,3-butadiene	TOTAL (tpy)	TOTAL REPORTABLE (tpy)
C1	001	4174	658	*35*	405	*32*	*3*	*14*	*87*	*197*	*21*	2.81	2.62
C2	002	4174	658	*35*	405	*32*	*3*	*14*	*87*	*197*	*21*	2.81	2.62
C3	003	4174	658	*35*	405	*32*	*3*	*14*	*87*	*197*	*21*	2.81	2.62
C4	004	4174	658	*35*	405	*32*	*3*	*14*	*87*	*197*	*21*	2.81	2.62
C5	005	4174	658	*35*	405	*32*	*3*	*14*	*87*	*197*	*21*	2.81	2.62
C6	006	4174	658	*35*	405	*32*	*3*	*14*	*87*	*197*	*21*	2.81	2.62
TOTAL (tpy)		**12.5**	**2.0**	**0.1**	**1.2**	**0.1**	**0.0**	**0.0**	**0.3**	**0.6**	**0.1**	**16.9**	**15.7**