Air Pollution Control
40 CFR 49.151 Federal Minor New Source Review In Indian Country
Technical Support Document
Proposed Permit #SMNSR-SU-000053-2013.001

Samson Resources Company
Spring Creek Compressor Station
Southern Ute Indian Reservation
La Plata County, Colorado

In accordance with the requirements of the Tribal Minor New Source Review (MNSR) Permit Program at 40 CFR Part 49, this Federal permit to construct is being issued under authority of the Clean Air Act (CAA). The EPA has prepared this technical support document describing the conditions of this MNSR permit and presents information that is germane to this permit action.

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I. Introduction

On December 24, 2013, the EPA received an application from Samson Resources Company (Samson) requesting a synthetic minor permit for the Spring Creek Compressor Station in accordance with the requirements of the MNSR Permit Program. On January 8, 2015, Samson submitted a revision to the requested permit via email to the EPA. This permit action applies to an existing facility operating on the Southern Ute Indian Reservation in Colorado.

Spring Creek Compressor Station currently operates nine (9) natural gas-fired reciprocating internal combustion engines (RICE) used for natural gas compression. The engines are operating under enforceable nitrogen oxide (NO_X) emission limits required by a May 1, 2014 Consent Agreement Final Order (CAFO) #CAA-08-2013-0015 between Samson and the EPA. These emission limits provide enforceable recognition of the air-to-fuel ratio (AFR) control systems installed on each of the engines nine (9) engines currently operating, plus a tenth engine contemplated for future installation and operation. The enforceable emission limits in the CAFO reduce the emissions of NO_X pollutants at the facility to synthetically minor levels.

This proposed MNSR permit would not authorize the construction of any new emission sources, or emission increases from existing units, nor does it otherwise authorize any other physical modifications to the facility or its operations. This permit is intended only to incorporate required and requested emission limits and provisions from the CAFO. The CAFO required NO_X emission limits of 2.3 grams per horsepower-hour (g/hp-hr) or 24.8 tons per year (tpy) for each of 10 natural gas-fired 4-stroke lean-burn (4SLB) RICE installed and operating, or proposed, at the facility. The CAFO requires the engines to be equipped with an AFR control system with either a NO_X sensor or an oxygen (O_2) sensor and a display for the NO_X or O_2 set point for the AFR controller. Additionally, the CAFO requires testing, monitoring, recordkeeping, and reporting requirements to verify compliance with the emission limitations.

This proposed MNSR permit reflects the incorporation of the requirements established in the CAFO. Samson requested these requirements in order to maintain the Spring Creek Compressor Station's status as a synthetic minor source of NO_X emissions with respect to the Prevention of Significant Deterioration (PSD) Permit Program at 40 CFR Part 52. 40 CFR 49.153(a)(3)(iv) of the MNSR rule provides the EPA with the authority to transfer such limits to a MNSR permit. The MNSR regulations at 40 CFR 49.158(c)(2)(ii) and (iii) also provide the EPA with the discretion to require any additional requirements, including control technology requirements, based on the specific circumstances of the source. Based on Samson's January 8, 2015 email, this proposed MNSR permit only seeks to establish limits for the nine (9) compressor engines currently operating at the facility. According to Samson, there is no intention to install and operate a tenth engine at the facility in the future.

Upon compliance with this MNSR permit, the legally and practically enforceable reductions in emissions can be used when determining the applicability of other CAA requirements, such as the PSD Permit Program at 40 CFR Part 52 and the Title V Operating Permit Program at 40 CFR Part 71 (Part 71).

II. Facility Description

The Spring Creek Compressor Station compresses and dehydrates inlet coal-bed methane gas. Gas entering the facility from the field is first fed to an inlet separator that removes water gravimetrically. Separator overhead gas is fed from a common suction header to one of nine (9) natural gas-fired 4SLB

RICE used to compress the gas. The compressors discharge gas to a common discharge header that feeds to scrubbers. Scrubbers separate and collect liquids that may have formed during compression. The compressed gas is then fed to a tri-ethylene glycol (TEG) dehydration system containing two 30 million standard cubic feet per day (MMscfd) contact towers and one 0.75 million British thermal units per hour (MMBtu/hr) reboiler burner to remove entrained water from the gas. TEG is circulated counter-currently and absorbs entrained water. Rich TEG is circulated to a reboiler, where moisture is driven to the atmosphere by heating the glycol. Dry gas exits the contactors and is directed to one of two sales lines, where it is metered and exits the facility. The maximum potential gas processing capacity of the facility is 60 MMscfd with all 10 compressor engines operating.

The emission units identified in Table 1 are currently installed (or planned to be installed) and operating (or planned to be operating) at the facility. The information provided in this table is for informational purposes only and is not intended to be viewed as enforceable restrictions or open for public comment. The units and/or control requirements identified here either existed prior to the promulgation of the MNSR permitting program or have been approved through the alternative methods as identified, below. Table 2 lists the facility-wide potential emissions of NSR-regulated pollutants accounting for all legally and practically enforceable control requirements that currently apply to the facility.

Table 1. Existing Emission Units

Unit/Emissions Description	Controls	Original Preconstruction Approval Date & Emission Control Mechanism
Nine (9) - Natural gas-fired, 4SLB compressor RICE, each with a maximum site rating of 1,092 hp	Oxidation Catalyst and AFR controller with either a NO_X sensor or O_2 sensor	No pre-construction NSR approval required for the installation of the engines. Installed and/or approved prior to the promulgation of the MNSR permitting program. NO_X control requirements established in the May 1, 2014 CAFO #CAA-08-2013-0015. Pre-construction approval and criteria and/or hazardous air pollutant (HAP) control requirements regulated under New Source Performance Standards for Spark Ignition Internal Combustion Engines at 40 CFR Part 60, Subpart JJJJ and/or National Emissions Standards for Hazardous Air Pollutants (NESHAP) for RICEs at 40 CFR Part 63, Subpart ZZZZ, as applicable.
TEG dehydration system with a maximum natural gas processing capacity of 60 MMscfd & 0.75 MMBtu/hr TEG reboiler	None	No pre-construction approval required for the installation of the TEG dehydration system. Installed prior to the promulgation of the MNSR permitting program.
Facility Fugitive Emissions	None	No pre-construction approval required for installation of emission units contributing to fugitive emissions. Installed prior to promulgation of the MNSR permitting program.
Nine (9) - Compressor Cylinder Rod Packing Vent, Blowdown, and Starter Emissions	None	No pre-construction approval required for the compressor cylinder rod packing and vent, blowdown, and starter emissions. Compressors installed and/or approved prior to promulgation of the MNSR permitting program.
39 - Miscellaneous organic liquid storage tanks	None	No pre-construction approval required for the installation of the organic liquid storage tanks. Installed prior to the promulgation of the MNSR permitting program.

Table 2. Facility-Wide Emissions

Pollutant	Controlled Potential Emissions (tons per year)
PM	0.0
PM_{10}	0.0
$PM_{2.5}$	0.0
SO_2	0.0
NO_X	190.2
CO	176.7
VOC	56.8
Greenhouse Gases	
CO_2 (mass basis)	38,211.5
CH_4 (mass basis)	558.9
N_2O (mass basis)	0.1
HFCs (mass basis)	NA
PFCs (mass basis)	NA
SF_6 (mass basis)	NA
GHG_{total} (mass basis)	38,770.5
CO_2e (Total)	49,979.4
Hazardous Air Pollutants (HAPs)	
Acetaldehyde	NA
Acrolein	NA
Benzene	NA
Ethyl-Benzene	NA
Toluene	NA
n-Hexane	NA
Xylene	NA
Formaldehyde	13.5
Total HAPs	**23.4***

PM – Particulate Matter
PM_{10} – Particulate Matter less than 10 microns in size
$PM_{2.5}$ – Particulate Matter less than 2.5 microns in size
SO_2 – Sulfur Dioxide
NO_X – Nitrogen Oxides
CO – Carbon Monoxide
VOC – Volatile Organic Compounds
CO_2 – Carbon dioxide
CH_4 – Methane
N_2O – Nitrous oxide
HFCs – Hydrofluorocarbons
PFCs – Perfluorocarbons
SF_6 – Sulfur hexafluoride
CO_2e – Equivalent CO_2. A measure used to compare the emissions from various greenhouse gases based upon their global warming potential (GWP)
NA – Not Available, not provided in application

HFCs, PFCs, and SF_6 emissions are not created during oil and gas production operations.

*Total represented is inclusive of, but not limited to the individual HAPs listed above.

III. Proposed Synthetic Minor MNSR Permit Action

A. Engine Controls

The natural gas industry uses engines to compress natural gas as it is processed and prior to further pipeline distribution. Samson currently uses, or plans to use, nine (9) natural gas-fired, 4SLB compressor engines. Lean-burn engines produce NO_X, carbon monoxide (CO), volatile organic compounds (VOCs) and HAP emissions. The HAP emissions consist primarily of formaldehyde.

The primary form of emission control for these types of engines is oxidation catalyst. The oxidation catalyst is effective for controlling CO, VOC (including HAPs that are VOCs), and formaldehyde emissions. These catalysts do not typically control NO_X emissions. However, lean-burn engines are designed to operate with more dilute natural gas streams (a higher AFR). Because they operate on more dilute natural gas streams, lean-burn engines also operate at lower combustion temperatures producing less NO_X emissions. NO_X emissions can further be reduced using AFR control systems to assist in regulating combustion and provide more efficient, complete combustion of the gas.

Consistent with the CAFO, we are proposing the use of an AFR control system with either a NO_X sensor or an O_2 sensor and a display for the NO_X or O_2 set point for the AFR controller on each of the nine (9) 4SLB compressor engines at the facility. We are also proposing NO_X emissions limits on each of the nine (9) 4SLB compressor engines of 2.3 g/hp-hr and 24.8 tpy. Additionally, based on the CAFO and MNSR Permit Program requirements we are proposing testing, monitoring, recordkeeping, and reporting requirements sufficient to provide enforceability of the emissions and operational limits.

IV. Air Quality Review

The MNSR Regulations at 40 CFR 49.154(d) require that an Air Quality Impact Assessment (AQIA) modeling analysis be performed if there is reason to be concerned that new construction would cause or contribute to a National Ambient Air Quality Standard (NAAQS) or PSD increment violation. If an AQIA reveals that the proposed construction could cause or contribute to a NAAQS or PSD increment violation, such impacts must be addressed before a pre-construction permit can be issued.

The emissions at this existing facility will not be increasing due to the MNSR permit action and the emissions will continue to be well controlled at all times. The proposed MNSR permit action does not authorize the construction of any new emission sources, or emission increases from existing units, nor does it otherwise authorize any other physical modifications to the facility or its operations and the substantive requirements of the CAFO (emission controls and reductions) have already been fulfilled at this facility. In short, this action will have no adverse air quality impacts; therefore, we have determined that an AQIA modeling analysis is not required for the proposed MNSR permit.

V. Tribal Consultations and Communications

We offer Tribal government leaders an opportunity to consult on each proposed MNSR permit action. The Tribal Government Leaders are asked to respond to the EPA's offer to consult within 30 days. The Chairman of the Southern Ute Indian Tribe (Tribe) was offered an opportunity to consult on this MNSR permit action via letter dated February 28, 2014. To date, we have not received a response to our offer to consult on this MNSR permit action.

All minor source applications (synthetic minor, modification to an existing facility, new true minor or general permit) are submitted to both the EPA and the Tribe per the application instructions (see http://www2.epa.gov/region8/tribal-minor-new-source-review-permitting). The Tribe has 10 business days from the receipt of the application to respond to us with questions and comments on the application. In the event an AQIA is triggered, a copy of that document is emailed to the Tribe within 5 business days from the date we receive it.

Additionally, the Tribe is notified of the public comment period for the proposed MNSR permit and provided copies of the notice of public comment opportunity to post in various locations of their choosing on the Reservation. The Tribe is also notified of the issuance of the final MNSR permit.

VI. Environmental Justice

On February 11, 1994, the President issued Executive Order 12898, entitled "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." The Executive Order calls on each federal agency to make environmental justice a part of its mission by "identifying and

addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority populations and low-income populations."

The EPA defines "Environmental Justice" to include meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and polices. The EPA's goal is to address the needs of overburdened populations or communities to participate in the permitting process. *Overburdened* is used to describe the minority, low-income, tribal and indigenous populations or communities in the United States that potentially experience disproportionate environmental harms and risks due to exposures or cumulative impacts or greater vulnerability to environmental hazards.

This discussion describes the EPA's efforts to identify potentially overburdened communities and assess potential effects in connection with issuing this proposed MNSR permit in La Plata County within the exterior boundaries of the Southern Ute Indian Reservation.

A. Environmental Impacts to Potentially Overburdened Communities

This MNSR permit action does not authorize the construction of any new air emission sources, or air emission increases from existing units, nor does it otherwise authorize any other physical modifications to the associated facility or its operations. The air emissions at the existing facility will not increase due to the permit action and the emissions will continue to be well controlled at all times. This permit action will have no adverse air quality impacts.

Furthermore, the permit contains a provision stating, "*The permitted source shall not cause or contribute to a National Ambient Air Quality Standard violation or a PSD increment violation.*" Noncompliance with this permit provision is a violation of the permit and is grounds for enforcement action and for permit termination or revocation. As a result, the EPA concludes that issuance of the permit will not have disproportionately high or adverse human health effects on communities in the vicinity of the Southern Ute Indian Reservation.

B. Enhanced Public Participation

Given the presence of potentially overburdened communities in the vicinity of the facility, we are providing an enhanced public participation process for this permit.

1. Interested parties can subscribe to an EPA listserve that notifies them of public comment opportunities on the Southern Ute Indian Reservation for proposed air pollution control permits via email at http://www2.epa.gov/region8/air-permit-public-comment-opportunities.

2. All minor source applications (synthetic minor, modification to an existing facility, new true minor or general permit) are submitted to both the Tribe and us per the application instructions (see http://www2.epa.gov/region8/tribal-minor-new-source-review-permitting).

3. The Tribe has 10 business days to respond to us with questions and comments on the application.

4. In the event an AQIA is triggered, we email a copy of that document to the Tribe within 5 business days from the date we receive it.

5. We notify the Tribe of the public comment period for the proposed permit and provide copies of the notice of public comment opportunity to post in various locations of their choosing on the Reservation. We also notify the Tribe of the issuance of the final permit.

6. We offer the Tribal Government Leaders an opportunity to consult on each proposed permit action. We ask the Tribal Government Leaders to respond to us within 30 days. We offered an opportunity to consult on this permit action to the Chairman of the Southern Ute Indian Tribe via letter dated February 28, 2014.

VII. Authority

Requirements under 40 CFR 49.151 to obtain a MNSR permit apply to new and modified minor stationary sources, and minor modifications at existing major stationary sources ("major" as defined in 40 CFR 52.21). In addition, the MNSR program provides a mechanism for an otherwise major stationary source to voluntarily accept restrictions on its potential to emit to become a synthetic minor source. The EPA is charged with direct implementation of these provisions where there is no approved Tribal implementation plan for implementation of the MNSR regulations. Pursuant to Section 301(d)(4) of the CAA (42 U.S.C. §7601(d)), the EPA is authorized to implement the MNSR regulations at 40 CFR 49.151 in Indian country. The Samson Spring Creek Compressor Station is located within the exterior boundaries of the Southern Ute Indian Reservation in the southwestern part of the State of Colorado. The exact location is Latitude 37.09241N, Longitude -107.57601W, in La Plata County, Colorado.

VIII. Public Notice and Comment, Hearing, and Appeals

A. Public Comment Period

In accordance with 40 CFR 49.157, we must provide public notice and a 30-day public comment period to ensure that the affected community and the general public have reasonable access to the application and proposed permit information. The application, the proposed permit, this technical support document, and all supporting materials for the proposed permit are available at:

Southern Ute Indian Tribe
Environmental Programs Division
Air Quality Program
71 Mike Frost Way
Ignacio, Colorado 81137
Attn: Brenda Jarrell, Air Quality Program Manager

and

U.S. EPA
Region 8 Air Program Office
1595 Wynkoop Street (8P-AR)
Denver, Colorado 80202-1129

All documents are available for review at our office Monday through Friday from 8:00 a.m. to 4:00 p.m. (excluding Federal holidays). Additionally, the proposed permit and technical support document can be reviewed on our website at http://www2.epa.gov/region8/air-permit-public-comment-opportunities.

Any person may submit written comments on the proposed permit and may request a public hearing during the public comment period. These comments must raise any reasonably ascertainable issue with supporting arguments by the close of the public comment period (including any public hearing). Comments may be sent to the EPA address above, or sent via an email to r8airpermitting@epa.gov, with the topic "Comments on MNSR Permit for Samson Spring Creek Compressor Station".

B. Public Hearing

A request for a public hearing must be in writing and must state the nature of the issues proposed to be raised at the hearing. The EPA will hold a hearing whenever there is, on the basis of requests, a significant degree of public interest in a draft MNSR permit. The EPA may also hold a public hearing at its discretion, whenever, for instance, such a hearing might clarify one or more issues involved in the MNSR permit decision.

C. Final MNSR Permit Action

In accordance with 40 CFR 49.159, a final permit becomes effective 30 days after permit issuance, unless: (1) a later effective date is specified in the permit; or (2) appeal of the final permit is made as detailed in the next section; or (3) we may make the permit effective immediately upon issuance if no comments resulted in a change in the proposed permit or a denial of the permit. We will send notice of the final permit action to any individual who commented on the proposed permit during the public comment period. In addition, we will add the source to a list of final NSR permit actions which is posted on our website at http://www2.epa.gov/region8/nsr-and-psd-permits-issued-region-8. Anyone may request a copy of the final MNSR permit at any time by contacting the Region 8 Tribal Air Permit Program at (800) 227-8917 or sending an email to r8airpermitting@epa.gov.

D. Appeals to the Environmental Appeals Board (EAB)

In accordance with 40 CFR 49.159, within 30 days after a final permit decision has been issued, any person who filed comments on the proposed permit or participated in the public hearing may petition the EAB to review any condition of the permit decision. The 30-day period within which a person may request review under this section begins when the Region has fulfilled the notice requirements for the final permit decision. Motions to reconsider a final order by the EAB must be filed within 10 days after service of the final order. A petition to the EAB is, under Section 307(b) of the Act, a prerequisite to seeking judicial review of the final agency action. For purposes of judicial review, final agency action occurs when we deny or issue a final permit and agency review procedures are exhausted.