

Smith, Claudia

From: Smith, Claudia
Sent: Tuesday, September 12, 2017 10:08 AM
To: Danny Powers; Mark Hutson (mhutson@southernute-nsn.gov)
Subject: Final MNSR Permit for Ignacio Gas Treating Plant (with attachment)
Attachments: Catamount IgnacioGTP RTC-Permit SMNSR-SU-000052-2016 001.pdf

Mr. Reid,

I have attached the final requested permit and the accompanying response to comments document for the Catamount Energy Partners Ignacio Gas Treating Plant, issued pursuant to the Tribal Minor New Source Review (MNSR) Program at 40 CFR Part 49. We will also be posting the final MNSR permit, response to comments and administrative permit record in PDF format on our website at: <http://www.epa.gov/caa-permitting/caa-permits-issued-epa-region-8>.

In accordance with the regulations at §49.159(a), the permit will be effective 30 days after the date of this notice, on **October 12, 2017**. 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 Environmental Appeals Board (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 we have 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 CAA, a prerequisite to seeking judicial review of the final agency action. For purposes of judicial review, final agency action occurs when we issue or deny a final permit and agency review procedures are exhausted.

If you have any questions or concerns regarding this final permit action, or would like a paper copy, please contact me.

Thank you,

Claudia Young Smith

Environmental Scientist

Air Program

U.S. Environmental Protection Agency, Region 8

Tel: (303) 312-6520

Email: smith.claudia@epa.gov

Web: <http://www.epa.gov/caa-permitting/caa-permitting-epas-mountains-and-plains-region>

Mail: 1595 Wynkoop Street, Mail Code 8P-AR, Denver, Colorado 80202

Smith, Claudia

From: Smith, Claudia
Sent: Tuesday, September 12, 2017 10:02 AM
To: Minnie Grant; Bruce Pargeets
Cc: Fallon, Gail
Subject: PLEASE DISREGARD RE: Final MNSR Permit for Ignacio Gas Treating Plant

Minnie and Bruce,

Please disregard the email below, it was for a permit on the Southern Ute Indian Reservation and was sent to you in error.

Thanks,

Claudia

From: Smith, Claudia
Sent: Tuesday, September 12, 2017 9:56 AM
To: creid@catamountep.com
Cc: Minnie Grant <minnieg@utetribe.com>; Bruce Pargeets <bpargeets@utetribe.com>; Fallon, Gail <fallon.gail@epa.gov>; 'Russell Hamm' <rhammenviro@gmail.com>; <alanjkane@comcast.net> <alanjkane@comcast.net>
Subject: Final MNSR Permit for Ignacio Gas Treating Plant

Mr. Reid,

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If you have any questions or concerns regarding this final permit action, or would like a paper copy, please contact me.

Thank you,

Claudia Young Smith
Environmental Scientist
Air Program

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Email: smith.claudia@epa.gov

Web: <http://www.epa.gov/caa-permitting/caa-permitting-epas-mountains-and-plains-region>

Mail: 1595 Wynkoop Street, Mail Code 8P-AR, Denver, Colorado 80202

Smith, Claudia

From: Smith, Claudia
Sent: Tuesday, September 12, 2017 9:59 AM
Subject: Notice of Issuance of Permit to Construct on the Southern Ute Indian Reservation

This is to notify you that the EPA has issued a final Clean Air Act (CAA) minor source permit to construct for the existing Catamount Energy Partners Ignacio Gas Treating Plant pursuant to the Tribal Minor New Source Review (MNSR) Permit Program at 40 CFR Part 49. The final MNSR permit, response to comments and administrative permit record will be available in PDF format on our website at: <http://www.epa.gov/caa-permitting/caa-permits-issued-epa-region-8>.

In accordance with the regulations at §49.159(a), the permit will be effective 30 days after the date of this notice, on October 12, 2017. 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 Environmental Appeals Board (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 we have 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 CAA, a prerequisite to seeking judicial review of the final agency action. For purposes of judicial review, final agency action occurs when we issue or deny a final permit and agency review procedures are exhausted.

Thank you,

Claudia Young Smith
Environmental Scientist
Air Program
U.S. Environmental Protection Agency, Region 8
Tel: (303) 312-6520
Email: smith.claudia@epa.gov
Web: <http://www.epa.gov/caa-permitting/caa-permitting-epas-mountains-and-plains-region>
Mail: 1595 Wynkoop Street, Mail Code 8P-AR, Denver, Colorado 80202

Smith, Claudia

From: Smith, Claudia
Sent: Tuesday, September 12, 2017 9:56 AM
To: creid@catamountep.com
Cc: Minnie Grant; Bruce Pargeets; Fallon, Gail; 'Russell Hamm'; <alanjkane@comcast.net>
Subject: Final MNSR Permit for Ignacio Gas Treating Plant
Attachments: Catamount IgnacioGTP RTC-Permit SMNSR-SU-000052-2016 001.pdf

Mr. Reid,

I have attached the final requested permit and the accompanying response to comments document for the Catamount Energy Partners Ignacio Gas Treating Plant, issued pursuant to the Tribal Minor New Source Review (MNSR) Program at 40 CFR Part 49. We will also be posting the final MNSR permit, response to comments and administrative permit record in PDF format on our website at: <http://www.epa.gov/caa-permitting/caa-permits-issued-epa-region-8>.

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If you have any questions or concerns regarding this final permit action, or would like a paper copy, please contact me.

Thank you,

Claudia Young Smith

Environmental Scientist

Air Program

U.S. Environmental Protection Agency, Region 8

Tel: (303) 312-6520

Email: smith.claudia@epa.gov

Web: <http://www.epa.gov/caa-permitting/caa-permitting-epas-mountains-and-plains-region>

Mail: 1595 Wynkoop Street, Mail Code 8P-AR, Denver, Colorado 80202

Smith, Claudia

From: Russell Hamm <rhammenviro@gmail.com>
Sent: Friday, August 18, 2017 12:26 PM
To: Smith, Claudia
Cc: <alanjkane@comcast.net>; Hari Krishna Bharadwaj; Powers, Daniel; Debbie Stratton
Subject: Re: Proposed Synthetic Minor NSR Permit for Catamount Ignacio Gas Treating Plant
Attachments: Final(delivery Confirmation)-8-2017 Requested Dehy Application Documents to EPA.pdf

Ms. Smith,

Please find an electronic copy of the the items you requested updates for attached. Hard copies went out today and should be received soon.

If there are any remaining questions, please let us know.

Best Regards,

On Wed, Aug 16, 2017 at 11:45 AM, Smith, Claudia <Smith.Claudia@epa.gov> wrote:

Alan,

Will it be possible to get updated process description, process flow diagram, and form SYNMIN attachments to reflect these details? This would strengthen the permit record.

Thanks,

Claudia

From: Alan Kane [mailto:alanjkane@comcast.net]
Sent: Wednesday, August 09, 2017 12:46 PM
To: Smith, Claudia <Smith.Claudia@epa.gov>
Cc: Powers, Daniel <dpowers@southernute-nsn.gov>; Hari Krishna Bharadwaj <HBharadwaj@trinityconsultants.com>; Hamm, Russell <rhammenviro@gmail.com>

Subject: Re: Proposed Synthetic Minor NSR Permit for Catamount Ignacio Gas Treating Plant

Claudia, I have confirmed that the flash gas from both of the glycol dehydrators will be used for burner fuel and or routed to the compressors for recycle/recompression. There will be no by pass and the stream will not be released to the atmosphere. I am available to discuss this further if needed.

Thanks,

Alan Kane

From: "Claudia Smith" <Smith.Claudia@epa.gov>
To: "<alanjkane@comcast.net>" <alanjkane@comcast.net>
Cc: "Danny Powers" <dpowers@southernute-nsn.gov>, "Hari Krishna Bharadwaj" <HBharadwaj@trinityconsultants.com>, "Russell Hamm" <rhammenviro@gmail.com>
Sent: Tuesday, August 1, 2017 12:57:19 PM
Subject: RE: Proposed Synthetic Minor NSR Permit for Catamount Ignacio Gas Treating Plant

Mr. Kane,

Catamount's first comment on the proposed permit requests a revision to the dehydration unit flash gas requirements to reflect the use of the flash gas as burner and driver fuel facility-wide.

The process description and process flow diagram in the original permit application from Elm Ridge do not mention the use of flash gas as burner and driver fuel facility-wide. They describe that the flash gas streams are sent via pipeline from the high-pressure unit to the treated market and from the low-pressure unit to the untreated market. However, the attachments to the synthetic minor permit application form (SYNMIN) that appear later in the application submittal state that the gas from the flash tank is either used as fuel gas at the plant or vented to the atmosphere. Is flash gas ever vented to the atmosphere, or is it truly accurate that it is either routed to the sales pipeline or used as burner and driver fuel facility-wide?

Due to the discrepancy between the process description/process flow diagram and the SYNMIN application form attachments, for the permit record, please submit an updated process description and process flow diagram, as well as any necessary updates to the form SYNMIN attachments, for consistency and to reflect accurate operations at the source.

Thank you,

Claudia

Claudia Young Smith

Environmental Scientist

Air Program, Mail Code 8P-AR

US Environmental Protection Agency Region 8

1595 Wynkoop Street

Denver, Colorado 80202

Phone: [\(303\) 312-6520](tel:3033126520)

Fax: [\(303\) 312-6064](tel:3033126064)

<http://www.epa.gov/caa-permitting/caa-permitting-epas-mountains-and-plains-region>

From: Russell Hamm [<mailto:rhammenviro@gmail.com>]

Sent: Friday, July 14, 2017 1:12 PM

To: Smith, Claudia <Smith.Claudia@epa.gov>

Cc: creid@catamountep.com; <alanjkane@comcast.net> <alanjkane@comcast.net>; Fallon, Gail <fallon.gail@epa.gov>; Danny Powers <dpowers@southernute-nsn.gov>; mhutson@southernute-nsn.gov; Hari Krishna Bharadwaj <HBharadwaj@trinityconsultants.com>

Subject: Re: Proposed Synthetic Minor NSR Permit for Catamount Ignacio Gas Treating Plant

Ms. Smith,

Please find a letter with our commentary concerns and requested changes attached. If any additional information is required, please let me know.

Thank you,

On Fri, Jun 23, 2017 at 5:01 PM, Smith, Claudia <Smith.Claudia@epa.gov> wrote:

I have attached the requested proposed permit, the accompanying technical support document, and the bulletin board notice for the proposed synthetic minor NSR permit for the Ignacio Gas Treating Plant. We will also be posting the proposed permit, technical support document, application and other supporting permit information in PDF format on our website at <http://www.epa.gov/caa-permitting/caa-permit-public-comment-opportunities-region-8> by the start of the public comment period.

In accordance with the regulations at 40 CFR 49.157 and 49.158, we are providing at least a 30-day period from June 26, 2017 to July 27, 2017 for public comment on this proposed permit (extended by one day to account for the July 4th holiday). Comments must be received by 5:00pm MT July 27, 2017, to be considered in the issuance of the final permit.

Please submit any written comments you may have concerning the terms and conditions of this permit. You can send them directly to me at smith.claudia@epa.gov, or to r8airpermitting@epa.gov. Should the EPA not accept any or all of these comments, you will be notified in writing and will be provided with the reasons for not accepting them.

Thank you,

Claudia Young Smith

Environmental Scientist

Air Program, Mail Code 8P-AR

US Environmental Protection Agency Region 8

1595 Wynkoop Street

Denver, Colorado 80202

Phone: [\(303\) 312-6520](tel:(303)312-6520)

Fax: [\(303\) 312-6064](tel:(303)312-6064)

<http://www.epa.gov/caa-permitting/caa-permitting-epas-mountains-and-plains-region>

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Russell Hamm
Environmental Specialist
Cell: [\(918\) 693-4833](tel:9186934833)

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Russell Hamm
Environmental Specialist
Cell: (918) 693-4833



August 17, 2017

Attn: Ms. Claudia Smith
Federal Minor NSR Permit Coordinator
Tribal NSR Permits Lead
U.S Environmental Protection Agency, Region 8
1595 Wynkoop Street, 8P-AR
Denver, CO 80202-1129

RE: Process Flow Update-TMNSR, SMNSR-SU-000052-2016.001. Proposed Synthetic Minor
New Source Review Permit
Catamount Energy Partners
Ignacio Gas Treating Plant
UPS Tracking Number – 1Z 16A 683 03 9875 0592

Ms. Smith,

Catamount Energy Partners (Catamount), owns and operates a gas treating plant in La Plata County, Colorado (Ignacio plant). The Ignacio plant is a permitted major source facility with respect to the Title V Major Source Operating Permit as administered by the Southern Ute Indian Tribe Environmental Programs Division (EPD), Air Quality Program.

Catamount is submitting this updated process flow and revised Application Form For Synthetic Minor Limit (SYNMIN) for the Tribal Minor New Source Review (TMNSR) permit application to EPA Region 8 to complete the above referenced TMNSR permit under 40 CFR 49.151. Once complete the authorization will establishing legally and practically enforceable requirements and emission limits for the dehydrators and associated reboilers per Condition III.B.6 of the Settlement Agreement. This update contains requested relevant components including the updated process description, process flow diagram and SYNMIN Form.

Please do not hesitate to contact me at (281) 639- 9590 or email alanjkane@comcast.net, or Russell Hamm at (918) 693-4833 or email rhammenviro@gmail.com, if you have any questions concerns or require further information regarding this matter.

Sincerely,

A handwritten signature in black ink that reads "Alan Kane".

Alan J. Kane, P.E.
Kane Environmental Engineering, Inc.

cc: Per Civil Action No. 12.cv.02584.REB.KLM Section XIV 79.:
United States, Chief, Environmental Enforcement Section-US Department of Justice
United States, Environmental Protection Agency, Enforcement Compliance and Justice - Region 8

Section 2.1 Revised

Ignacio Gas Treatment Plant Process Description

2.1 Revised Plant Process Description (GAS TREATING OPERATIONS)

Ignacio Gas Treatment Plant Process Description

The Ignacio plant dehydrates and then compresses natural gas for transmission. The Ignacio plant began initial operation in 1999 and can process up to 25 MMscf/day of natural gas with the assistance of eight (8) natural gas-fired compressor engines.

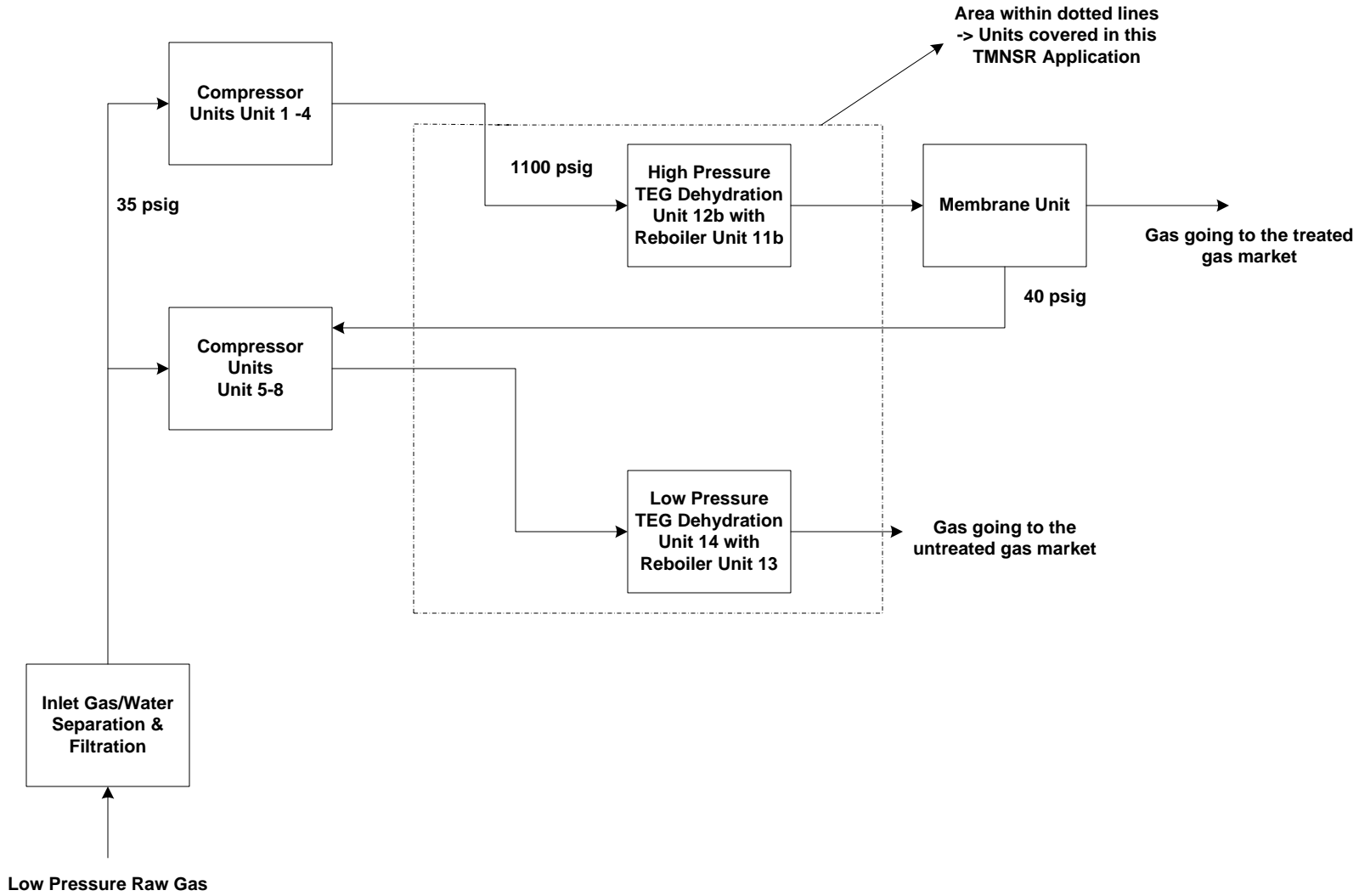
The plant has two (2) TEG dehydrators with flash tanks. Units 12b and 14 are TEG dehydration units used to remove water from natural gas. Wet gas contacts “lean” (water free) glycol in the contactor/absorber column, where the glycol absorbs water from the gas stream. The dehydrated gas leaves the top of the contactor. The “rich” glycol (heavy with water) sinks to the bottom of the contactor where it is removed and sent to a flash tank where hydrocarbon vapors are removed and routed to compression for recycling/recompression or routed to the burner for fuel. The rich glycol is passed through a heat exchanger and fed to the stripping column. The stripping column consists of a still column and reboiler (Unit 11b and 13 respectively) designed to vaporize the water from the solution and regenerate the glycol. The glycol is recycled/reused in the contactor. Details on the emissions units are provided in the table below:

Emissions Unit ID	Equipment Description	Control Equipment
12b-Dehydrator	One (1) High pressure TEG dehydration unit (Tejas Production Service Contactor, SN 4501) with a flash tank, Max capacity of 25 MMscfd, and 3.5gpm circulation rate provided by 1 of 2 Kimray 21020PV Series Circulation Pumps with single pump operated at any time.	Flash Tank
14-Dehydrator	One (1) Low pressure TEG dehydration unit (Valerus Contactor, SN S07-171) with a flash tank, Max capacity of 12 MMscfd, and 3.5gpm max circulation rate provided by 1 Kimray 21020PV and 1 Kimray 9020PV (1.5gpm) Series Circulation Pumps with single pump operated at any time.	Flash Tank
11b-Reboiler	One (1) High Pressure Dehydrator Reboiler, rated at 0.5 MMBtu/hr (Tejas Production Service, SN 4758)	--
13-Reboiler	One (1) Low Pressure Dehydrator Reboiler, rated at 1 MMBtu/hr (Valerus, SN P2162)	--

Dehydrated gas is routed to a membrane unit. The membrane unit separates carbon dioxide gas from the natural gas stream with no emissions of pollutants from the membrane unit.

Two streams exit the membrane unit: a residue gas stream with a low concentration of carbon dioxide and a permeate gas stream that contains methane and the recovered carbon dioxide. The permeate gas is sent to market via pipeline for downstream processing and treating.

PROCESS FLOW DIAGRAM – IGNACIO GAS TREATING PLANT



EPA Form SYNMIN &
Attachment 1-5 Responses/Documentation



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
FEDERAL MINOR NEW SOURCE REVIEW PROGRAM IN INDIAN COUNTRY
40 CFR 49.151**

**Application for Synthetic Minor Limit
(Form SYNMIN)**

Use of this information request form is voluntary and not approved by the Office of Management and Budget. The following is a check list of the type of information that Region 8 will use to process information on your proposed project. While submittal of this form is not required, it does offer details on the information we will use to complete your requested approval and providing the information requested may help expedite the process. An application form approved by the Office of Management and Budget can be found online at https://www.epa.gov/sites/production/files/2015-12/documents/synthetic_minor_limit_application_rev2017_0.pdf.

Please submit information to following two entities:

Federal Minor NSR Permit Coordinator
U.S. EPA, Region 8
1595 Wynkoop Street, 8P-AR
Denver, CO 80202-1129
R8airpermitting@epa.gov

For more information, visit:
<http://www.epa.gov/caa-permitting/tribal-nsr-permitting-region-8>

The Tribal Environmental Contact for the specific reservation:

If you need assistance in identifying the appropriate Tribal Environmental Contact and address, please contact:

R8airpermitting@epa.gov

A. GENERAL INFORMATION

Company Name: (Who owns this facility?) Catamount Energy Partners	Facility Name: Ignacio Gas Treating Plant
Company Contact (Who is the <u>primary</u> contact for the company that owns this facility?) Craig Reid	Title: President
Mailing Address: 1801 Broadway, Suit 1000	
Email Address: creid@catamountep.com	
Telephone Number: (720) 484 2350	Facsimile Number

B. ATTACHMENTS

For each criteria air pollutant, hazardous air pollutant and for all emission units and air pollutant-generating activities to be covered by a limitation, include the following:

- Item 1** - The proposed limitation and a description of its effect on current actual, allowable and the potential to emit.
- Item 2** - The proposed testing, monitoring, recordkeeping, and reporting requirements to be used to demonstrate and assure compliance with the proposed limitation.
- Item 3** - A description of estimated efficiency of air pollution control equipment under present or anticipated operating conditions, including documentation of the manufacturer specifications and guarantees.
- Item 4** - Estimates of the Post-Change Allowable Emissions that would result from compliance with the proposed limitation, including all calculations for the estimates.
- Item 5** - Estimates of the potential emissions of Greenhouse Gas (GHG) pollutants.

Section B. ATTACHMENTS

This section lists the information that must be attached to the application form for each requested limitation. The requested limitation(s) must be described for each affected emissions unit (or pollutant-generating activity) and pollutant and must be accompanied by the supporting information listed on the form and described below. Note that applicability of many federal Clean Air Act requirements (such as Title V, PSD and MACT) is often based on source-wide emission levels of specific pollutants. In that case, all emissions units at a source and all pollutants regulated by that given rule or regulation must be addressed by this section of the application form.

Item 1 – The requested limitation and its effect on actual emissions or potential to emit must be presented in enough detail to document how the limitation will limit the source’s actual or potential emissions as a legal and practical matter and, if applicable, will allow the source to avoid an otherwise applicable requirement. The information presented must clearly explain how the limitation affects each emission unit and each air pollutant from that emission unit. Use the information provided in response to Item 4 below to explain how the limitation affects emissions before and after the limitation is in effect.

Item 2 – For each requested limitation, the application must include proposed testing, monitoring, recordkeeping and reporting that will be used to demonstrate and assure compliance with the limitation. Testing approaches should incorporate and reference appropriate EPA reference methods where applicable. Monitoring should describe the emission, control or process parameters that will be relied on and should address frequency, methods, and quality assurance.

Response to Item 1 and Item 2: The dehydrators (Units 12b and 14) at the Ignacio Plant are subject to 40 CFR 63, Subpart HH. The dehydrators are seeking an exemption from MACT HH requirements specified under 40 CFR 63.764(d). 40 CFR 63.764(d) deals with control, monitoring and recordkeeping/reporting requirements for dehydrators at an area source of HAP.

This exemption is provided under 40 CFR 63.764(e)(2) which states that “The owner or operator is exempt from the requirements of 40 CFR 63.764(d) if the actual average emissions of benzene from the glycol dehydration unit process vents to the atmosphere are less than 0.90 megagram per year, as determined by the procedures specified under 40 CFR 63.772(b)(2)”.

Per 40 CFR 63.772(b)(2)(i), the determination of actual average benzene of BTEX emissions from a glycol dehydration unit can be made using GRI-GLYCalc and that the inputs to the model will be representative of actual operating conditions.

The wet gas samples used for this determination was collected upstream of the absorber/contacter for both dehydrators, as specified in the settlement agreement (Condition III.B.5). The actual throughputs of gas through dehydrators 12b and 14 in the calendar year 2015 were used to estimate actual and maximum emissions of benzene. The results provided in **Item 2 Table** below show that the emissions of benzene (actual and potential) are less than 0.90 Mg/yr (1 tpy) limit, thereby exempting both these dehydrators from MACT HH requirements specified under 40 CFR 63.764(d).

Item 2 Table-Annual Benzene Emissions from Units 12b and 14 Emission Unit (updated based on revised circulation pump rates and operation of flash tank control)

Emissions Unit ID	Potential Throughput (MMscfd)	Potential Emissions (typ)(uncontrolled)	Actual 2015 Throughput (MMscfd)	Actual Benzene emissions in 2015 (typ)
12b-Dehydrator	25	0.39	5.08	0
14-Dehydrator	12	0	10.2	0

Per the settlement agreement, legally and practically enforceable requirements and limits are requested for the following parameters:

1) Establishment of an optimum glycol recirculation rate and maintaining records per 40 CFR 63.764(d)(2): The facility has determined the LOPT (Optimum glycol circulation rate) to be 3.35 gal/min for Unit 12b and 2.44 gal /min for Unit 14.

- Catamount has revised the proposed circulation pumps and will operate near the optimum glycol circulation rates.
- 12b- Will operate at a maximum 3.5gpm circulation rate provided by 1 of 2 Kimray 21020PV Series Circulation Pumps with single pump operated at any time.
- 14-Will operate at a maximum 3.5gpm circulation rate and near the average of 2.44gpm based on the use of 1-Kimray 21020PV (3.5gpm) and 1-Kimray 9020PV (1.5gpm) Series Circulation Pumps with single pump operated at any time.

LOPT Calculation for Dehydrators 12b and 14

Per 63.764d (2): Each owner or operator of an area source not located in a UA plus offset and UC boundary (as defined in §63.761) shall comply with paragraphs (d)(2)(i) through (iii) of this section.

(i) Determine the optimum glycol circulation rate using the following equation:

$$L_{OPT} = 1.15 * 3.0 \frac{\text{gal TEG}}{\text{lb H}_2\text{O}} * \left(\frac{F * (I - O)}{24 \text{ hr/day}} \right)$$

Where:

LOPT = Optimal circulation rate, gal/hr.

F = Gas flowrate (MMSCF/D).

I = Inlet water content (lb/MMSCF).

O = Outlet water content (lb/MMSCF).

3.0 = The industry accepted rule of thumb for a TEG-to water ratio (gal TEG/lb H₂O).

1.15 = Adjustment factor included for a margin of safety.

Emissions Unit ID	“F” Gas Flowrate (MMSCF/Day)	“I” Inlet Water Content (lb/MMSCF)	“O” Outlet Water Content (lb/MMSCF)	LOPT (gal/hr)	LOPT (gal/min)
12b-Dehydrator	25	62.96	7	201	3.35
14-Dehydrator	12	47.68	7	146.19	2.44

2) Establishment of a maximum operating temperature for the regenerator still vent and proposing a monitoring and recordkeeping methodology to ensure the temperature does not exceed the maximum operating temperature

- 400 °F is proposed as the maximum operating temperature of the regenerator.
- Manual readings will be taken twice daily to ensure compliance with the maximum established temperature.

3) Installation of an elevated dispersion stack on the reboiler for Unit 12b.

- A vent stack riser was installed on the Unit 11b (Reboiler for Unit 12b) on June 28, 2016.

4) Emissions from Unit 12b and 14 to not exceed 0.9 Mg/yr in any consecutive 12-month period.

- Catamount will ensure that the actual average benzene emission rates for units 12b and 14 will not exceed 0.9 Mg/yr, calculated on a rolling 12-month basis.
- To ensure compliance with this requirement, Catamount proposes the following requirements:
 - Monthly emissions from units 12b and 14 will be estimated using GRI-GLYCalc and these results will be entered in a spreadsheet which will calculate a rolling 12-month benzene emission rate.
 - The parameters used in the GRI-GLYCalc will be based on total monthly throughput and annual wet gas analysis.

Item 3 – The application must include a description and estimated efficiency of air pollution control equipment under present or anticipated operating conditions. For control equipment that is not proposed to be modified to meet the requested limit, simply note that fact; however, for equipment that is proposed to be modified (e.g. improved efficiency) or newly installed to meet the proposed limit, address both current and future descriptions and efficiencies. Include manufacturer specifications and guarantees for each control device.

Response to Item 3: Both TEG dehydrators (12b and 14) are equipped with flash tank air pollution control equipment. In a flash tank separator, the gas and liquid are separated at a pressure ranging between 40 to 100 psig. At this low pressure, the gas is rich in methane and lighter VOCs, but the water remains in the liquid. Post the flash tank, the wet TEG (minus methane and lighter VOCs) is heated to remove the water and remaining methane and VOCs. The gas from the flash tank is rich in methane and is either used as a fuel gas at the plant or routed to compression to be recycled/recompressed. The operating conditions of the flash tank for units 12b and 14 are provided in **Item 3 Table** below. Flash gas is recycled/recompressed thereby virtually eliminating emissions.

Item 3 Table-Flash Tank Operating Parameters

Emissions Unit ID	Flash Tank Temperature (°F)	Flash Tank Pressure (psig)
12b-Dehydrator	125	25
14-Dehydrator	125	80

Items 4 – Any emission estimates submitted to the Reviewing Authority must be verifiable using currently accepted engineering criteria. The following procedures are generally acceptable for estimating emissions from air pollution sources:

- (i) Source-specific emission tests;
- (ii) Mass balance calculations;
- (iii) Published, verifiable emission factors that are applicable to the source. (i.e., manufacturer specifications).
- (iv) Other engineering calculations; or
- (v) Other procedures to estimate emissions specifically approved by the Reviewing Authority.

Post-Change Allowable Emissions: A source's allowable emissions for a pollutant is expressed in tpy and generally is calculated by multiplying the allowed hourly emissions rate in pounds per hour (lbs/hr) times allowed hours (which is the number of hours in a year) and dividing by 2,000 (which is the number of pounds in a ton).

Response to Item 4: The actual and potential emissions of benzene have been provided under **Item 2 Table**. Emission calculations (Glycane Runs) have been provided at the end of this section.

Item 5 - New construction projects that have the potential to emit GHG emissions of at least 100,000 tpy CO₂e and 100 or 250 tpy on a mass basis, modifications at existing PSD facilities that increase GHG emissions by at least 75,000 tpy CO₂e and minor sources that increase GHG emissions by at least 100,000 tpy CO₂e and 100 or 250 tpy on a mass basis are subject to PSD permitting requirements, even if they do not significantly increase emissions of any other pollutant. As such, any requested limits to avoid PSD must take into account greenhouse gases.

Therefore, please include in your permit application estimates of the potential emissions of the following pollutants. More information about GHG permitting and how to calculate CO₂ equivalents (CO₂e), the mass emissions of each individual GHG adjusted for its Global Warming Potential (GWP) can be found at: <http://epa.gov/nsr/ghgdocs/ghgpermittingguidance.pdf>

1. Carbon dioxide (CO₂)
2. Methane (CH₄) and its CO₂e
3. Nitrous oxide (N₂O) and its CO₂e
4. Hydrofluorocarbons (HFCs) and its CO₂e
5. Perfluorocarbons (PFCs) and its CO₂e
6. Sulfur hexafluoride (SF₆) and its CO₂e

Response to Item 5: The potential emissions for GHG pollutants from the dehydrators and reboilers has been provided in Section 3 of the original application (Emission Calculations).

Revised GRI GLY-Calc Emissions Simulations

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Ignacio Compressor Station

File Name: C:\Program Files (x86)\GRI-GLYCalc4\Catamount-Ignacio Dehy-12b.ddf

Date: August 17, 2017

DESCRIPTION:

Description: Dehy-12b, 25 MMCFD-Using 5/11/2016 Analysis

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.1970	4.728	0.8629
Ethane	0.0131	0.313	0.0572
Propane	0.0203	0.486	0.0887
Isobutane	0.0208	0.499	0.0911
n-Butane	0.0465	1.116	0.2037
Isopentane	0.0136	0.325	0.0594
n-Pentane	0.0119	0.286	0.0523
n-Hexane	0.0097	0.234	0.0426
Other Hexanes	0.0002	0.005	0.0009
Heptanes	0.0078	0.186	0.0340
Methylcyclohexane	0.0144	0.346	0.0632
Benzene	0.0893	2.142	0.3910
C8+ Heavies	0.0055	0.132	0.0242
Total Emissions	0.4500	10.801	1.9712
Total Hydrocarbon Emissions	0.4500	10.801	1.9712
Total VOC Emissions	0.2400	5.759	1.0511
Total HAP Emissions	0.0990	2.376	0.4336
Total BTEX Emissions	0.0893	2.142	0.3910

FLASH GAS EMISSIONS

Note: Flash Gas Emissions are zero with the
Recycle/recompression control option.

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	6.4322	154.374	28.1732
Ethane	0.1223	2.935	0.5356
Propane	0.0823	1.974	0.3603
Isobutane	0.0555	1.332	0.2431
n-Butane	0.0942	2.262	0.4128
Isopentane	0.0240	0.575	0.1050
n-Pentane	0.0168	0.402	0.0734
n-Hexane	0.0075	0.180	0.0329
Other Hexanes	0.0002	0.005	0.0009

Heptanes	0.0029	0.070	0.0127
Methylcyclohexane	0.0022	0.053	0.0097
Benzene	0.0023	0.056	0.0102
C8+ Heavies	0.0002	0.004	0.0008

Total Emissions	6.8426	164.223	29.9707
Total Hydrocarbon Emissions	6.8426	164.223	29.9707
Total VOC Emissions	0.2881	6.915	1.2619
Total HAP Emissions	0.0098	0.236	0.0431
Total BTEX Emissions	0.0023	0.056	0.0102

EQUIPMENT REPORTS:

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages: 1.25
 Calculated Dry Gas Dew Point: 4.28 lbs. H2O/MMSCF

Temperature: 105.0 deg. F
 Pressure: 1100.0 psig
 Dry Gas Flow Rate: 25.0000 MMSCF/day
 Glycol Losses with Dry Gas: 0.5045 lb/hr
 Wet Gas Water Content: Saturated
 Calculated Wet Gas Water Content: 62.96 lbs. H2O/MMSCF
 Calculated Lean Glycol Recirc. Ratio: 3.44 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	6.79%	93.21%
Carbon Dioxide	99.80%	0.20%
Nitrogen	99.98%	0.02%
Methane	99.98%	0.02%
Ethane	99.95%	0.05%
Propane	99.93%	0.07%
Isobutane	99.91%	0.09%
n-Butane	99.88%	0.12%
Isopentane	99.89%	0.11%
n-Pentane	99.85%	0.15%
n-Hexane	99.77%	0.23%
Other Hexanes	99.82%	0.18%
Heptanes	99.61%	0.39%
Methylcyclohexane	98.97%	1.03%
Benzene	91.46%	8.54%
C8+ Heavies	98.78%	1.22%

FLASH TANK

Flash Control: Recycle/recompression
 Flash Temperature: 125.0 deg. F

Flash Pressure: 25.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.94%	0.06%
Carbon Dioxide	27.46%	72.54%
Nitrogen	2.82%	97.18%
Methane	2.97%	97.03%
Ethane	9.65%	90.35%
Propane	19.76%	80.24%
Isobutane	27.27%	72.73%
n-Butane	33.04%	66.96%
Isopentane	36.43%	63.57%
n-Pentane	41.87%	58.13%
n-Hexane	56.65%	43.35%
Other Hexanes	49.85%	50.15%
Heptanes	72.86%	27.14%
Methylcyclohexane	87.20%	12.80%
Benzene	97.58%	2.42%
C8+ Heavies	97.13%	2.87%

 REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	32.58%	67.42%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	1.37%	98.63%
n-Pentane	1.19%	98.81%
n-Hexane	0.88%	99.12%
Other Hexanes	2.01%	97.99%
Heptanes	0.69%	99.31%
Methylcyclohexane	4.59%	95.41%
Benzene	5.12%	94.88%
C8+ Heavies	12.38%	87.62%

 STREAM REPORTS:

 WET GAS STREAM

Temperature: 105.00 deg. F
 Pressure: 1114.70 psia
 Flow Rate: 1.04e+006 scfh

Component	Conc.	Loading
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	(vol%)	(lb/hr)

Water	1.33e-001	6.57e+001
Carbon Dioxide	3.60e+000	4.36e+003
Nitrogen	1.68e-001	1.30e+002
Methane	9.55e+001	4.21e+004
Ethane	3.48e-001	2.88e+002
Propane	1.19e-001	1.45e+002
Isobutane	5.11e-002	8.17e+001
n-Butane	7.31e-002	1.17e+002
Isopentane	1.67e-002	3.31e+001
n-Pentane	9.89e-003	1.96e+001
n-Hexane	3.20e-003	7.57e+000
Other Hexanes	9.99e-005	2.37e-001
Heptanes	9.99e-004	2.75e+000
Methylcyclohexane	5.99e-004	1.62e+000
Benzene	4.99e-004	1.07e+000
C8+ Heavies	9.99e-005	4.68e-001

Total Components	100.00	4.74e+004

DRY GAS STREAM

 Temperature: 105.00 deg. F
 Pressure: 1114.70 psia
 Flow Rate: 1.04e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)

Water	9.02e-003	4.46e+000
Carbon Dioxide	3.60e+000	4.35e+003
Nitrogen	1.69e-001	1.30e+002
Methane	9.56e+001	4.21e+004
Ethane	3.48e-001	2.88e+002
Propane	1.19e-001	1.45e+002
Isobutane	5.12e-002	8.16e+001
n-Butane	7.31e-002	1.17e+002
Isopentane	1.67e-002	3.31e+001
n-Pentane	9.89e-003	1.96e+001
n-Hexane	3.19e-003	7.56e+000
Other Hexanes	9.98e-005	2.36e-001
Heptanes	9.96e-004	2.74e+000
Methylcyclohexane	5.94e-004	1.60e+000
Benzene	4.57e-004	9.81e-001
C8+ Heavies	9.88e-005	4.62e-001

Total Components	100.00	4.73e+004

LEAN GLYCOL STREAM

 Temperature: 105.00 deg. F
 Flow Rate: 3.50e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)

TEG	9.85e+001	1.94e+003
Water	1.50e+000	2.96e+001
Carbon Dioxide	4.45e-011	8.76e-010

Nitrogen	1.17e-013	2.31e-012
Methane	1.13e-017	2.23e-016
Ethane	3.24e-009	6.39e-008
Propane	2.12e-010	4.17e-009
Isobutane	1.16e-010	2.29e-009
n-Butane	1.77e-010	3.49e-009
Isopentane	9.57e-006	1.89e-004
n-Pentane	7.32e-006	1.44e-004
n-Hexane	4.40e-006	8.67e-005
Other Hexanes	2.14e-007	4.23e-006
Heptanes	2.72e-006	5.36e-005
Methylcyclohexane	3.52e-005	6.94e-004
Benzene	2.45e-004	4.82e-003
C8+ Heavies	3.96e-005	7.80e-004

Total Components	100.00	1.97e+003

RICH GLYCOL STREAM

Temperature: 105.00 deg. F
 Pressure: 1114.70 psia
 Flow Rate: 3.66e+000 gpm
 NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)

TEG	9.48e+001	1.94e+003
Water	4.43e+000	9.08e+001
Carbon Dioxide	4.28e-001	8.76e+000
Nitrogen	1.13e-003	2.31e-002
Methane	3.24e-001	6.63e+000
Ethane	6.61e-003	1.35e-001
Propane	5.01e-003	1.03e-001
Isobutane	3.73e-003	7.63e-002
n-Butane	6.87e-003	1.41e-001
Isopentane	1.84e-003	3.77e-002
n-Pentane	1.41e-003	2.88e-002
n-Hexane	8.47e-004	1.73e-002
Other Hexanes	2.06e-005	4.23e-004
Heptanes	5.24e-004	1.07e-002
Methylcyclohexane	8.47e-004	1.73e-002
Benzene	4.71e-003	9.64e-002
C8+ Heavies	3.17e-004	6.49e-003

Total Components	100.00	2.05e+003

FLASH TANK OFF GAS STREAM

Temperature: 125.00 deg. F
 Pressure: 39.70 psia
 Flow Rate: 2.12e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)

Water	5.26e-001	5.29e-002
Carbon Dioxide	2.59e+001	6.36e+000
Nitrogen	1.44e-001	2.24e-002
Methane	7.18e+001	6.43e+000

Ethane	7.28e-001	1.22e-001
Propane	3.34e-001	8.23e-002
Isobutane	1.71e-001	5.55e-002
n-Butane	2.90e-001	9.42e-002
Isopentane	5.95e-002	2.40e-002
n-Pentane	4.16e-002	1.68e-002
n-Hexane	1.56e-002	7.52e-003
Other Hexanes	4.40e-004	2.12e-004
Heptanes	5.20e-003	2.91e-003
Methylcyclohexane	4.05e-003	2.22e-003
Benzene	5.35e-003	2.33e-003
C8+ Heavies	1.96e-004	1.86e-004

Total Components	100.00	1.33e+001

FLASH TANK GLYCOL STREAM

Temperature: 125.00 deg. F
Flow Rate: 3.63e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.54e+001	1.94e+003
Water	4.46e+000	9.07e+001
Carbon Dioxide	1.18e-001	2.41e+000
Nitrogen	3.21e-005	6.52e-004
Methane	9.69e-003	1.97e-001
Ethane	6.42e-004	1.31e-002
Propane	9.96e-004	2.03e-002
Isobutane	1.02e-003	2.08e-002
n-Butane	2.29e-003	4.65e-002
Isopentane	6.76e-004	1.37e-002
n-Pentane	5.94e-004	1.21e-002
n-Hexane	4.83e-004	9.82e-003
Other Hexanes	1.04e-005	2.11e-004
Heptanes	3.84e-004	7.81e-003
Methylcyclohexane	7.44e-004	1.51e-002
Benzene	4.63e-003	9.41e-002
C8+ Heavies	3.10e-004	6.30e-003

Total Components	100.00	2.03e+003

FLASH GAS EMISSIONS

Control Method: Recycle/recompression
Control Efficiency: 100.00

Note: Flash Gas Emissions are zero with the
Recycle/recompression control option.

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 1.32e+003 scfh

Component	Conc.	Loading
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	(vol%)	(lb/hr)
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Water	9.80e+001	6.12e+001
Carbon Dioxide	1.58e+000	2.41e+000
Nitrogen	6.72e-004	6.52e-004
Methane	3.54e-001	1.97e-001
Ethane	1.25e-002	1.31e-002
Propane	1.32e-002	2.03e-002
Isobutane	1.03e-002	2.08e-002
n-Butane	2.31e-002	4.65e-002
Isopentane	5.42e-003	1.36e-002
n-Pentane	4.77e-003	1.19e-002
n-Hexane	3.26e-003	9.73e-003
Other Hexanes	6.91e-005	2.06e-004
Heptanes	2.23e-003	7.76e-003
Methylcyclohexane	4.24e-003	1.44e-002
Benzene	3.30e-002	8.93e-002
C8+ Heavies	9.35e-004	5.52e-003
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Total Components	100.00	6.40e+001

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: Ignacio Compressor Station
 File Name: C:\Program Files (x86)\GRI-GLYCalc4\Catamount-Ignacio Dehy-12b.ddf
 Date: August 17, 2017

DESCRIPTION:

Description: Dehy-12b, 25 MMCFD-Using 5/11/2016 Analysis
 Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 105.00 deg. F
 Pressure: 1100.00 psig
 Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	3.6049
Nitrogen	0.1687
Methane	95.5934
Ethane	0.3485
Propane	0.1195
Isobutane	0.0512
n-Butane	0.0732
Isopentane	0.0167
n-Pentane	0.0099
n-Hexane	0.0032
Other Hexanes	0.0001
Heptanes	0.0010
Methylcyclohexane	0.0006
Benzene	0.0005
C8+ Heavies	0.0001

DRY GAS:

Flow Rate: 25.0 MMSCF/day
 Water Content: 7.0 lbs. H2O/MMSCF

LEAN GLYCOL:

Glycol Type: TEG
 Water Content: 1.5 wt% H2O
 Flow Rate: 3.5 gpm

PUMP:

Glycol Pump Type: Electric/Pneumatic

FLASH TANK:

Flash Control: Recycle/recompression
Temperature: 125.0 deg. F
Pressure: 25.0 psig

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Ignacio Compressor Station

File Name: C:\Program Files (x86)\GRI-GLYCalc4\Catamount-Ignacio Dehy-12b.ddf

Date: August 17, 2017

DESCRIPTION:

Description: Dehy-12b, 2015 Acutal Emissions-Using
5/11/2016 Analysis

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.2106	5.053	0.9222
Ethane	0.0149	0.357	0.0652
Propane	0.0204	0.489	0.0892
Isobutane	0.0214	0.514	0.0939
n-Butane	0.0478	1.147	0.2094
Isopentane	0.0142	0.340	0.0621
n-Pentane	0.0125	0.300	0.0547
n-Hexane	0.0104	0.248	0.0453
Other Hexanes	0.0002	0.005	0.0010
Heptanes	0.0084	0.201	0.0367
Methylcyclohexane	0.0155	0.373	0.0680
Benzene	0.0728	1.746	0.3187
C8+ Heavies	0.0059	0.142	0.0259
Total Emissions	0.4548	10.916	1.9922
Total Hydrocarbon Emissions	0.4548	10.916	1.9922
Total VOC Emissions	0.2294	5.505	1.0048
Total HAP Emissions	0.0831	1.995	0.3640
Total BTEX Emissions	0.0728	1.746	0.3187

FLASH GAS EMISSIONS

Note: Flash Gas Emissions are zero with the
Recycle/recompression control option.

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	6.7686	162.446	29.6463
Ethane	0.1295	3.107	0.5671
Propane	0.0842	2.020	0.3687
Isobutane	0.0571	1.370	0.2500
n-Butane	0.0968	2.322	0.4238
Isopentane	0.0247	0.592	0.1081
n-Pentane	0.0172	0.413	0.0754
n-Hexane	0.0077	0.184	0.0336

Other Hexanes	0.0002	0.005	0.0010
Heptanes	0.0029	0.070	0.0128
Methylcyclohexane	0.0021	0.051	0.0093
Benzene	0.0019	0.045	0.0082
C8+ Heavies	0.0002	0.004	0.0007

Total Emissions	7.1929	172.629	31.5048
Total Hydrocarbon Emissions	7.1929	172.629	31.5048
Total VOC Emissions	0.2949	7.077	1.2915
Total HAP Emissions	0.0095	0.229	0.0418
Total BTEX Emissions	0.0019	0.045	0.0082

EQUIPMENT REPORTS:

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages: 1.25
 Calculated Dry Gas Dew Point: 2.40 lbs. H2O/MMSCF

Temperature: 105.0 deg. F
 Pressure: 1100.0 psig
 Dry Gas Flow Rate: 5.1000 MMSCF/day
 Glycol Losses with Dry Gas: 0.1028 lb/hr
 Wet Gas Water Content: Saturated
 Calculated Wet Gas Water Content: 62.96 lbs. H2O/MMSCF
 Calculated Lean Glycol Recirc. Ratio: 16.32 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	3.80%	96.20%
Carbon Dioxide	99.00%	1.00%
Nitrogen	99.91%	0.09%
Methane	99.92%	0.08%
Ethane	99.75%	0.25%
Propane	99.65%	0.35%
Isobutane	99.53%	0.47%
n-Butane	99.39%	0.61%
Isopentane	99.42%	0.58%
n-Pentane	99.26%	0.74%
n-Hexane	98.83%	1.17%
Other Hexanes	99.09%	0.91%
Heptanes	97.99%	2.01%
Methylcyclohexane	94.66%	5.34%
Benzene	65.92%	34.08%
C8+ Heavies	93.64%	6.36%

FLASH TANK

Flash Control: Recycle/recompression

Flash Temperature: 125.0 deg. F
Flash Pressure: 25.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.94%	0.06%
Carbon Dioxide	27.33%	72.67%
Nitrogen	2.95%	97.05%
Methane	3.02%	96.98%
Ethane	10.31%	89.69%
Propane	19.48%	80.52%
Isobutane	27.30%	72.70%
n-Butane	33.07%	66.93%
Isopentane	36.82%	63.18%
n-Pentane	42.31%	57.69%
n-Hexane	57.67%	42.33%
Other Hexanes	50.90%	49.10%
Heptanes	74.32%	25.68%
Methylcyclohexane	88.45%	11.55%
Benzene	97.62%	2.38%
C8+ Heavies	97.53%	2.47%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	69.66%	30.34%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	1.36%	98.64%
n-Pentane	1.18%	98.82%
n-Hexane	0.87%	99.13%
Other Hexanes	1.96%	98.04%
Heptanes	0.67%	99.33%
Methylcyclohexane	4.52%	95.48%
Benzene	5.12%	94.88%
C8+ Heavies	12.31%	87.69%

STREAM REPORTS:

WET GAS STREAM

Temperature: 105.00 deg. F
Pressure: 1114.70 psia
Flow Rate: 2.13e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.33e-001	1.34e+001
Carbon Dioxide	3.60e+000	8.90e+002
Nitrogen	1.68e-001	2.65e+001
Methane	9.55e+001	8.60e+003
Ethane	3.48e-001	5.88e+001
Propane	1.19e-001	2.96e+001
Isobutane	5.11e-002	1.67e+001
n-Butane	7.31e-002	2.39e+001
Isopentane	1.67e-002	6.76e+000
n-Pentane	9.89e-003	4.01e+000
n-Hexane	3.20e-003	1.55e+000
Other Hexanes	9.99e-005	4.83e-002
Heptanes	9.99e-004	5.62e-001
Methylcyclohexane	5.99e-004	3.30e-001
Benzene	4.99e-004	2.19e-001
C8+ Heavies	9.99e-005	9.55e-002
Total Components	100.00	9.67e+003

 DRY GAS STREAM

Temperature: 105.00 deg. F
 Pressure: 1114.70 psia
 Flow Rate: 2.13e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	5.06e-003	5.10e-001
Carbon Dioxide	3.57e+000	8.81e+002
Nitrogen	1.69e-001	2.65e+001
Methane	9.56e+001	8.59e+003
Ethane	3.48e-001	5.86e+001
Propane	1.19e-001	2.94e+001
Isobutane	5.10e-002	1.66e+001
n-Butane	7.28e-002	2.37e+001
Isopentane	1.66e-002	6.72e+000
n-Pentane	9.84e-003	3.98e+000
n-Hexane	3.17e-003	1.53e+000
Other Hexanes	9.92e-005	4.79e-002
Heptanes	9.81e-004	5.51e-001
Methylcyclohexane	5.69e-004	3.13e-001
Benzene	3.30e-004	1.44e-001
C8+ Heavies	9.38e-005	8.94e-002
Total Components	100.00	9.64e+003

 LEAN GLYCOL STREAM

Temperature: 105.00 deg. F
 Flow Rate: 3.50e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.85e+001	1.94e+003
Water	1.50e+000	2.96e+001

Carbon Dioxide	4.52e-011	8.90e-010
Nitrogen	1.25e-013	2.47e-012
Methane	1.19e-017	2.34e-016
Ethane	3.46e-009	6.81e-008
Propane	2.16e-010	4.26e-009
Isobutane	1.20e-010	2.35e-009
n-Butane	1.82e-010	3.59e-009
Isopentane	9.91e-006	1.95e-004
n-Pentane	7.57e-006	1.49e-004
n-Hexane	4.60e-006	9.06e-005
Other Hexanes	2.24e-007	4.42e-006
Heptanes	2.88e-006	5.67e-005
Methylcyclohexane	3.73e-005	7.35e-004
Benzene	1.99e-004	3.93e-003
C8+ Heavies	4.21e-005	8.29e-004

Total Components	100.00	1.97e+003

RICH GLYCOL STREAM

Temperature: 105.00 deg. F
 Pressure: 1114.70 psia
 Flow Rate: 3.56e+000 gpm
 NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.70e+001	1.94e+003
Water	2.12e+000	4.25e+001
Carbon Dioxide	4.45e-001	8.90e+000
Nitrogen	1.23e-003	2.46e-002
Methane	3.49e-001	6.98e+000
Ethane	7.22e-003	1.44e-001
Propane	5.23e-003	1.05e-001
Isobutane	3.92e-003	7.85e-002
n-Butane	7.23e-003	1.45e-001
Isopentane	1.95e-003	3.91e-002
n-Pentane	1.49e-003	2.98e-002
n-Hexane	9.05e-004	1.81e-002
Other Hexanes	2.21e-005	4.42e-004
Heptanes	5.67e-004	1.13e-002
Methylcyclohexane	9.19e-004	1.84e-002
Benzene	3.93e-003	7.86e-002
C8+ Heavies	3.45e-004	6.90e-003

Total Components	100.00	2.00e+003

FLASH TANK OFF GAS STREAM

Temperature: 125.00 deg. F
 Pressure: 39.70 psia
 Flow Rate: 2.20e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	2.44e-001	2.55e-002
Carbon Dioxide	2.53e+001	6.47e+000
Nitrogen	1.47e-001	2.39e-002

Methane	7.26e+001	6.77e+000
Ethane	7.41e-001	1.29e-001
Propane	3.29e-001	8.42e-002
Isobutane	1.69e-001	5.71e-002
n-Butane	2.87e-001	9.68e-002
Isopentane	5.89e-002	2.47e-002
n-Pentane	4.11e-002	1.72e-002
n-Hexane	1.53e-002	7.67e-003
Other Hexanes	4.33e-004	2.17e-004
Heptanes	5.00e-003	2.91e-003
Methylcyclohexane	3.72e-003	2.12e-003
Benzene	4.12e-003	1.87e-003
C8+ Heavies	1.72e-004	1.71e-004

Total Components	100.00	1.37e+001

FLASH TANK GLYCOL STREAM

Temperature: 125.00 deg. F
Flow Rate: 3.53e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.77e+001	1.94e+003
Water	2.14e+000	4.24e+001
Carbon Dioxide	1.23e-001	2.43e+000
Nitrogen	3.66e-005	7.27e-004
Methane	1.06e-002	2.11e-001
Ethane	7.49e-004	1.49e-002
Propane	1.03e-003	2.04e-002
Isobutane	1.08e-003	2.14e-002
n-Butane	2.41e-003	4.78e-002
Isopentane	7.24e-004	1.44e-002
n-Pentane	6.36e-004	1.26e-002
n-Hexane	5.26e-004	1.04e-002
Other Hexanes	1.13e-005	2.25e-004
Heptanes	4.24e-004	8.43e-003
Methylcyclohexane	8.19e-004	1.63e-002
Benzene	3.86e-003	7.67e-002
C8+ Heavies	3.39e-004	6.73e-003

Total Components	100.00	1.99e+003

FLASH GAS EMISSIONS

Control Method: Recycle/recompression
Control Efficiency: 100.00

Note: Flash Gas Emissions are zero with the
Recycle/recompression control option.

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 2.99e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)

Water	9.08e+001	1.29e+001
Carbon Dioxide	7.02e+000	2.43e+000
Nitrogen	3.30e-003	7.27e-004
Methane	1.67e+000	2.11e-001
Ethane	6.29e-002	1.49e-002
Propane	5.87e-002	2.04e-002
Isobutane	4.68e-002	2.14e-002
n-Butane	1.04e-001	4.78e-002
Isopentane	2.50e-002	1.42e-002
n-Pentane	2.20e-002	1.25e-002
n-Hexane	1.53e-002	1.04e-002
Other Hexanes	3.25e-004	2.20e-004
Heptanes	1.06e-002	8.37e-003
Methylcyclohexane	2.01e-002	1.55e-002
Benzene	1.18e-001	7.28e-002
C8+ Heavies	4.40e-003	5.90e-003

Total Components	100.00	1.58e+001

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: Ignacio Compressor Station
File Name: C:\Program Files (x86)\GRI-GLYCalc4\Catamount-Ignacio Dehy-12b.ddf
Date: August 17, 2017

DESCRIPTION:

Description: Dehy-12b, 2015 Acutal Emissions-Using
5/11/2016 Analysis

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 105.00 deg. F
Pressure: 1100.00 psig
Wet Gas Water Content: Saturated

Table with 2 columns: Component, Conc. (vol %). Lists various hydrocarbons and their concentrations, such as Carbon Dioxide (3.6049%), Nitrogen (0.1687%), Methane (95.5934%), etc.

DRY GAS:

Flow Rate: 5.1 MMSCF/day
Water Content: 7.0 lbs. H2O/MMSCF

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.5 wt% H2O
Flow Rate: 3.5 gpm

PUMP:

Glycol Pump Type: Electric/Pneumatic

FLASH TANK:

Flash Control: Recycle/recompression
Temperature: 125.0 deg. F
Pressure: 25.0 psig

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Ignacio Compressor Station

File Name: C:\Program Files (x86)\GRI-GLYCalc4\Catamount-Ignacio Dehy-14.ddf

Date: August 17, 2017

DESCRIPTION:

Description: Dehy-14, -Using 5/19/2016 Analysis

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.3241	7.779	1.4197
Ethane	0.0168	0.403	0.0736
Propane	0.0251	0.603	0.1101
Isobutane	0.0141	0.337	0.0616
n-Butane	0.0303	0.728	0.1329
Isopentane	0.0028	0.066	0.0121
n-Pentane	0.0042	0.101	0.0185
n-Hexane	0.0029	0.070	0.0127
Other Hexanes	0.0200	0.480	0.0876
Heptanes	0.0038	0.090	0.0164
Methylcyclohexane	0.0065	0.155	0.0283
Total Emissions	0.4506	10.814	1.9735
Total Hydrocarbon Emissions	0.4506	10.814	1.9735
Total VOC Emissions	0.1096	2.631	0.4802
Total HAP Emissions	0.0029	0.070	0.0127

FLASH GAS EMISSIONS

Note: Flash Gas Emissions are zero with the Recycle/recompression control option.

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	4.4453	106.688	19.4705
Ethane	0.0647	1.553	0.2835
Propane	0.0447	1.072	0.1957
Isobutane	0.0164	0.394	0.0719
n-Butane	0.0269	0.647	0.1180
Isopentane	0.0021	0.051	0.0093
n-Pentane	0.0026	0.062	0.0114
n-Hexane	0.0010	0.024	0.0043
Other Hexanes	0.0089	0.214	0.0391
Heptanes	0.0006	0.015	0.0027
Methylcyclohexane	0.0004	0.010	0.0018

Total Emissions	4.6138	110.730	20.2082
Total Hydrocarbon Emissions	4.6138	110.730	20.2082
Total VOC Emissions	0.1037	2.489	0.4542
Total HAP Emissions	0.0010	0.024	0.0043

EQUIPMENT REPORTS:

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages:	1.25
Calculated Dry Gas Dew Point:	2.26 lbs. H2O/MMSCF
Temperature:	95.0 deg. F
Pressure:	1100.0 psig
Dry Gas Flow Rate:	12.0000 MMSCF/day
Glycol Losses with Dry Gas:	0.1695 lb/hr
Wet Gas Water Content:	Saturated
Calculated Wet Gas Water Content:	47.68 lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	6.61 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	4.74%	95.26%
Carbon Dioxide	99.68%	0.32%
Nitrogen	99.97%	0.03%
Methane	99.98%	0.02%
Ethane	99.93%	0.07%
Propane	99.89%	0.11%
Isobutane	99.85%	0.15%
n-Butane	99.81%	0.19%
Isopentane	99.82%	0.18%
n-Pentane	99.76%	0.24%
n-Hexane	99.62%	0.38%
Other Hexanes	99.71%	0.29%
Heptanes	99.34%	0.66%
Methylcyclohexane	98.23%	1.77%

FLASH TANK

Flash Control:	Recycle/recompression
Flash Temperature:	125.0 deg. F
Flash Pressure:	80.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.97%	0.03%
Carbon Dioxide	46.87%	53.13%
Nitrogen	6.62%	93.38%
Methane	6.80%	93.20%

Ethane	20.62%	79.38%
Propane	35.99%	64.01%
Isobutane	46.15%	53.85%
n-Butane	52.96%	47.04%
Isopentane	56.62%	43.38%
n-Pentane	62.13%	37.87%
n-Hexane	74.88%	25.12%
Other Hexanes	69.45%	30.55%
Heptanes	86.06%	13.94%
Methylcyclohexane	94.14%	5.86%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	48.16%	51.84%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	0.88%	99.12%
n-Pentane	0.80%	99.20%
n-Hexane	0.67%	99.33%
Other Hexanes	1.44%	98.56%
Heptanes	0.58%	99.42%
Methylcyclohexane	4.25%	95.75%

STREAM REPORTS:

WET GAS STREAM

Temperature: 95.00 deg. F
 Pressure: 1114.70 psia
 Flow Rate: 5.01e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.00e-001	2.39e+001
Carbon Dioxide	5.70e+000	3.31e+003
Nitrogen	1.88e-001	6.96e+001
Methane	9.35e+001	1.98e+004
Ethane	2.78e-001	1.10e+002
Propane	1.09e-001	6.32e+001
Isobutane	2.68e-002	2.05e+001
n-Butane	3.87e-002	2.96e+001
Isopentane	2.80e-003	2.66e+000
n-Pentane	3.00e-003	2.85e+000
n-Hexane	8.99e-004	1.02e+000

Other Hexanes	8.69e-003	9.88e+000
Heptanes	4.99e-004	6.60e-001
Methylcyclohexane	3.00e-004	3.88e-001

Total Components	100.00	2.34e+004

DRY GAS STREAM

Temperature: 95.00 deg. F
 Pressure: 1114.70 psia
 Flow Rate: 5.00e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)

Water	4.77e-003	1.13e+000
Carbon Dioxide	5.69e+000	3.30e+003
Nitrogen	1.88e-001	6.95e+001
Methane	9.36e+001	1.98e+004
Ethane	2.78e-001	1.10e+002
Propane	1.09e-001	6.32e+001
Isobutane	2.68e-002	2.05e+001
n-Butane	3.86e-002	2.96e+001
Isopentane	2.80e-003	2.66e+000
n-Pentane	2.99e-003	2.85e+000
n-Hexane	8.97e-004	1.02e+000
Other Hexanes	8.68e-003	9.85e+000
Heptanes	4.97e-004	6.56e-001
Methylcyclohexane	2.95e-004	3.81e-001

Total Components	100.00	2.34e+004

LEAN GLYCOL STREAM

Temperature: 95.00 deg. F
 Flow Rate: 2.50e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)

TEG	9.85e+001	1.39e+003
Water	1.50e+000	2.11e+001
Carbon Dioxide	7.60e-011	1.07e-009
Nitrogen	1.37e-013	1.93e-012
Methane	1.14e-017	1.60e-016
Ethane	2.73e-009	3.85e-008
Propane	2.02e-010	2.84e-009
Isobutane	6.49e-011	9.14e-010
n-Butane	1.01e-010	1.42e-009
Isopentane	1.75e-006	2.46e-005
n-Pentane	2.44e-006	3.43e-005
n-Hexane	1.39e-006	1.95e-005
Other Hexanes	2.08e-005	2.92e-004
Heptanes	1.56e-006	2.19e-005
Methylcyclohexane	2.03e-005	2.86e-004

Total Components	100.00	1.41e+003

RICH GLYCOL STREAM

Temperature: 95.00 deg. F
 Pressure: 1114.70 psia
 Flow Rate: 2.58e+000 gpm
 NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.59e+001	1.39e+003
Water	3.03e+000	4.39e+001
Carbon Dioxide	7.39e-001	1.07e+001
Nitrogen	1.33e-003	1.92e-002
Methane	3.30e-001	4.77e+000
Ethane	5.64e-003	8.15e-002
Propane	4.83e-003	6.98e-002
Isobutane	2.11e-003	3.05e-002
n-Butane	3.96e-003	5.73e-002
Isopentane	3.40e-004	4.92e-003
n-Pentane	4.74e-004	6.86e-003
n-Hexane	2.70e-004	3.90e-003
Other Hexanes	2.02e-003	2.92e-002
Heptanes	3.03e-004	4.39e-003
Methylcyclohexane	4.95e-004	7.16e-003
Total Components	100.00	1.45e+003

FLASH TANK OFF GAS STREAM

Temperature: 125.00 deg. F
 Pressure: 94.70 psia
 Flow Rate: 1.56e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.51e-001	1.12e-002
Carbon Dioxide	3.14e+001	5.68e+000
Nitrogen	1.56e-001	1.79e-002
Methane	6.73e+001	4.45e+000
Ethane	5.23e-001	6.47e-002
Propane	2.46e-001	4.47e-002
Isobutane	6.86e-002	1.64e-002
n-Butane	1.13e-001	2.69e-002
Isopentane	7.18e-003	2.13e-003
n-Pentane	8.75e-003	2.60e-003
n-Hexane	2.76e-003	9.81e-004
Other Hexanes	2.52e-002	8.93e-003
Heptanes	1.48e-003	6.12e-004
Methylcyclohexane	1.04e-003	4.19e-004
Total Components	100.00	1.03e+001

FLASH TANK GLYCOL STREAM

Temperature: 125.00 deg. F
 Flow Rate: 2.56e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.66e+001	1.39e+003
Water	3.05e+000	4.38e+001

Carbon Dioxide	3.49e-001	5.01e+000
Nitrogen	8.86e-005	1.27e-003
Methane	2.26e-002	3.24e-001
Ethane	1.17e-003	1.68e-002
Propane	1.75e-003	2.51e-002
Isobutane	9.80e-004	1.41e-002
n-Butane	2.11e-003	3.03e-002
Isopentane	1.94e-004	2.78e-003
n-Pentane	2.97e-004	4.26e-003
n-Hexane	2.04e-004	2.92e-003
Other Hexanes	1.41e-003	2.03e-002
Heptanes	2.63e-004	3.78e-003
Methylcyclohexane	4.69e-004	6.74e-003

Total Components	100.00	1.44e+003

FLASH GAS EMISSIONS

Control Method: Recycle/recompression
Control Efficiency: 100.00

Note: Flash Gas Emissions are zero with the
Recycle/recompression control option.

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 5.31e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)

Water	9.02e+001	2.27e+001
Carbon Dioxide	8.14e+000	5.01e+000
Nitrogen	3.25e-003	1.27e-003
Methane	1.44e+000	3.24e-001
Ethane	4.00e-002	1.68e-002
Propane	4.07e-002	2.51e-002
Isobutane	1.73e-002	1.41e-002
n-Butane	3.73e-002	3.03e-002
Isopentane	2.74e-003	2.76e-003
n-Pentane	4.19e-003	4.23e-003
n-Hexane	2.41e-003	2.90e-003
Other Hexanes	1.66e-002	2.00e-002
Heptanes	2.68e-003	3.75e-003
Methylcyclohexane	4.70e-003	6.45e-003

Total Components	100.00	2.82e+001

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: Ignacio Compressor Station
File Name: C:\Program Files (x86)\GRI-GLYCalc4\Catamount-Ignacio Dehy-14.ddf
Date: August 17, 2017

DESCRIPTION:

Description: Dehy-14, -Using 5/19/2016 Analysis
Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 95.00 deg. F
Pressure: 1100.00 psig
Wet Gas Water Content: Saturated

Table with 2 columns: Component, Conc. (vol %). Rows include Carbon Dioxide, Nitrogen, Methane, Ethane, Propane, Isobutane, n-Butane, Isopentane, n-Pentane, n-Hexane, Other Hexanes, Heptanes, Methylcyclohexane.

DRY GAS:

Flow Rate: 12.0 MMSCF/day
Water Content: 7.0 lbs. H2O/MMSCF

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.5 wt% H2O
Flow Rate: 2.5 gpm

PUMP:

Glycol Pump Type: Electric/Pneumatic

FLASH TANK:

Flash Control: Recycle/recompression
Temperature: 125.0 deg. F

Pressure: 80.0 psig

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GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Ignacio Compressor Station

File Name: C:\Program Files (x86)\GRI-GLYCalc4\Catamount-Ignacio Dehy-14.ddf

Date: August 17, 2017

DESCRIPTION:

Description: Dehy-14, 2015 Actual Emissions-Using
5/19/2016 Analysis

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.3263	7.830	1.4290
Ethane	0.0170	0.408	0.0745
Propane	0.0252	0.604	0.1102
Isobutane	0.0141	0.339	0.0618
n-Butane	0.0304	0.730	0.1332
Isopentane	0.0028	0.067	0.0121
n-Pentane	0.0042	0.102	0.0186
n-Hexane	0.0029	0.070	0.0128
Other Hexanes	0.0201	0.483	0.0881
Heptanes	0.0038	0.091	0.0166
Methylcyclohexane	0.0065	0.156	0.0285
Total Emissions	0.4533	10.879	1.9854
Total Hydrocarbon Emissions	0.4533	10.879	1.9854
Total VOC Emissions	0.1100	2.640	0.4818
Total HAP Emissions	0.0029	0.070	0.0128

FLASH GAS EMISSIONS

Note: Flash Gas Emissions are zero with the
Recycle/recompression control option.

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	4.4665	107.197	19.5634
Ethane	0.0650	1.561	0.2848
Propane	0.0448	1.075	0.1962
Isobutane	0.0165	0.395	0.0721
n-Butane	0.0270	0.648	0.1183
Isopentane	0.0021	0.051	0.0094
n-Pentane	0.0026	0.062	0.0114
n-Hexane	0.0010	0.024	0.0043
Other Hexanes	0.0089	0.215	0.0392
Heptanes	0.0006	0.015	0.0027

Methylcyclohexane	0.0004	0.010	0.0018

Total Emissions	4.6355	111.252	20.3035
Total Hydrocarbon Emissions	4.6355	111.252	20.3035
Total VOC Emissions	0.1039	2.495	0.4553
Total HAP Emissions	0.0010	0.024	0.0043

EQUIPMENT REPORTS:

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages: 1.25
 Calculated Dry Gas Dew Point: 2.13 lbs. H2O/MMSCF

Temperature: 95.0 deg. F
 Pressure: 1100.0 psig
 Dry Gas Flow Rate: 10.2000 MMSCF/day
 Glycol Losses with Dry Gas: 0.1440 lb/hr
 Wet Gas Water Content: Saturated
 Calculated Wet Gas Water Content: 47.68 lbs. H2O/MMSCF
 Calculated Lean Glycol Recirc. Ratio: 7.75 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	4.47%	95.53%
Carbon Dioxide	99.62%	0.38%
Nitrogen	99.97%	0.03%
Methane	99.97%	0.03%
Ethane	99.91%	0.09%
Propane	99.87%	0.13%
Isobutane	99.82%	0.18%
n-Butane	99.77%	0.23%
Isopentane	99.78%	0.22%
n-Pentane	99.72%	0.28%
n-Hexane	99.55%	0.45%
Other Hexanes	99.65%	0.35%
Heptanes	99.22%	0.78%
Methylcyclohexane	97.90%	2.10%

FLASH TANK

Flash Control: Recycle/recompression
 Flash Temperature: 125.0 deg. F
 Flash Pressure: 80.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.97%	0.03%
Carbon Dioxide	46.86%	53.14%
Nitrogen	6.65%	93.35%

Methane	6.81%	93.19%
Ethane	20.74%	79.26%
Propane	35.96%	64.04%
Isobutane	46.16%	53.84%
n-Butane	52.97%	47.03%
Isopentane	56.67%	43.33%
n-Pentane	62.18%	37.82%
n-Hexane	74.97%	25.03%
Other Hexanes	69.54%	30.46%
Heptanes	86.15%	13.85%
Methylcyclohexane	94.21%	5.79%

 REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	52.15%	47.85%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	0.88%	99.12%
n-Pentane	0.80%	99.20%
n-Hexane	0.67%	99.33%
Other Hexanes	1.44%	98.56%
Heptanes	0.58%	99.42%
Methylcyclohexane	4.25%	95.75%

 STREAM REPORTS:

 WET GAS STREAM

Temperature: 95.00 deg. F
 Pressure: 1114.70 psia
 Flow Rate: 4.26e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.00e-001	2.03e+001
Carbon Dioxide	5.70e+000	2.82e+003
Nitrogen	1.88e-001	5.91e+001
Methane	9.35e+001	1.68e+004
Ethane	2.78e-001	9.37e+001
Propane	1.09e-001	5.38e+001
Isobutane	2.68e-002	1.75e+001
n-Butane	3.87e-002	2.52e+001
Isopentane	2.80e-003	2.26e+000
n-Pentane	3.00e-003	2.43e+000

n-Hexane	8.99e-004	8.69e-001
Other Hexanes	8.69e-003	8.40e+000
Heptanes	4.99e-004	5.61e-001
Methylcyclohexane	3.00e-004	3.30e-001

Total Components	100.00	1.99e+004

DRY GAS STREAM

Temperature: 95.00 deg. F
 Pressure: 1114.70 psia
 Flow Rate: 4.25e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)

Water	4.50e-003	9.07e-001
Carbon Dioxide	5.69e+000	2.81e+003
Nitrogen	1.88e-001	5.91e+001
Methane	9.36e+001	1.68e+004
Ethane	2.78e-001	9.36e+001
Propane	1.09e-001	5.37e+001
Isobutane	2.68e-002	1.74e+001
n-Butane	3.86e-002	2.51e+001
Isopentane	2.80e-003	2.26e+000
n-Pentane	2.99e-003	2.42e+000
n-Hexane	8.96e-004	8.65e-001
Other Hexanes	8.67e-003	8.37e+000
Heptanes	4.96e-004	5.57e-001
Methylcyclohexane	2.94e-004	3.23e-001

Total Components	100.00	1.99e+004

LEAN GLYCOL STREAM

Temperature: 95.00 deg. F
 Flow Rate: 2.50e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)

TEG	9.85e+001	1.39e+003
Water	1.50e+000	2.11e+001
Carbon Dioxide	7.61e-011	1.07e-009
Nitrogen	1.38e-013	1.94e-012
Methane	1.14e-017	1.61e-016
Ethane	2.75e-009	3.87e-008
Propane	2.02e-010	2.85e-009
Isobutane	6.51e-011	9.17e-010
n-Butane	1.01e-010	1.42e-009
Isopentane	1.75e-006	2.47e-005
n-Pentane	2.44e-006	3.44e-005
n-Hexane	1.39e-006	1.96e-005
Other Hexanes	2.09e-005	2.94e-004
Heptanes	1.57e-006	2.21e-005
Methylcyclohexane	2.05e-005	2.88e-004

Total Components	100.00	1.41e+003

RICH GLYCOL STREAM

 Temperature: 95.00 deg. F
 Pressure: 1114.70 psia
 Flow Rate: 2.57e+000 gpm
 NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
-----	-----	-----
TEG	9.61e+001	1.39e+003
Water	2.81e+000	4.05e+001
Carbon Dioxide	7.42e-001	1.07e+001
Nitrogen	1.34e-003	1.93e-002
Methane	3.32e-001	4.79e+000
Ethane	5.69e-003	8.20e-002
Propane	4.85e-003	6.99e-002
Isobutane	2.12e-003	3.06e-002
n-Butane	3.98e-003	5.74e-002
Isopentane	3.42e-004	4.94e-003
n-Pentane	4.77e-004	6.88e-003
n-Hexane	2.72e-004	3.92e-003
Other Hexanes	2.03e-003	2.94e-002
Heptanes	3.06e-004	4.41e-003
Methylcyclohexane	4.99e-004	7.20e-003
-----	-----	-----
Total Components	100.00	1.44e+003

FLASH TANK OFF GAS STREAM

 Temperature: 125.00 deg. F
 Pressure: 94.70 psia
 Flow Rate: 1.57e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
-----	-----	-----
Water	1.40e-001	1.04e-002
Carbon Dioxide	3.13e+001	5.69e+000
Nitrogen	1.56e-001	1.81e-002
Methane	6.74e+001	4.47e+000
Ethane	5.23e-001	6.50e-002
Propane	2.46e-001	4.48e-002
Isobutane	6.85e-002	1.65e-002
n-Butane	1.12e-001	2.70e-002
Isopentane	7.17e-003	2.14e-003
n-Pentane	8.73e-003	2.60e-003
n-Hexane	2.76e-003	9.82e-004
Other Hexanes	2.51e-002	8.94e-003
Heptanes	1.48e-003	6.11e-004
Methylcyclohexane	1.03e-003	4.17e-004
-----	-----	-----
Total Components	100.00	1.04e+001

FLASH TANK GLYCOL STREAM

 Temperature: 125.00 deg. F
 Flow Rate: 2.55e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
-----	-----	-----
TEG	9.68e+001	1.39e+003

Water	2.83e+000	4.05e+001
Carbon Dioxide	3.50e-001	5.02e+000
Nitrogen	8.98e-005	1.29e-003
Methane	2.28e-002	3.26e-001
Ethane	1.19e-003	1.70e-002
Propane	1.76e-003	2.52e-002
Isobutane	9.85e-004	1.41e-002
n-Butane	2.12e-003	3.04e-002
Isopentane	1.95e-004	2.80e-003
n-Pentane	2.99e-004	4.28e-003
n-Hexane	2.05e-004	2.94e-003
Other Hexanes	1.43e-003	2.04e-002
Heptanes	2.65e-004	3.80e-003
Methylcyclohexane	4.74e-004	6.79e-003

Total Components	100.00	1.43e+003

FLASH GAS EMISSIONS

Control Method: Recycle/recompression
Control Efficiency: 100.00

Note: Flash Gas Emissions are zero with the
Recycle/recompression control option.

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 4.60e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)

Water	8.87e+001	1.94e+001
Carbon Dioxide	9.40e+000	5.02e+000
Nitrogen	3.79e-003	1.29e-003
Methane	1.68e+000	3.26e-001
Ethane	4.67e-002	1.70e-002
Propane	4.70e-002	2.52e-002
Isobutane	2.00e-002	1.41e-002
n-Butane	4.32e-002	3.04e-002
Isopentane	3.17e-003	2.77e-003
n-Pentane	4.85e-003	4.24e-003
n-Hexane	2.79e-003	2.92e-003
Other Hexanes	1.93e-002	2.01e-002
Heptanes	3.11e-003	3.78e-003
Methylcyclohexane	5.46e-003	6.50e-003

Total Components	100.00	2.48e+001

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: Ignacio Compressor Station
File Name: C:\Program Files (x86)\GRI-GLYCalc4\Catamount-Ignacio Dehy-14.ddf
Date: August 17, 2017

DESCRIPTION:

Description: Dehy-14, 2015 Actual -Using 5/19/2016 Analysis

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 95.00 deg. F
Pressure: 1100.00 psig
Wet Gas Water Content: Saturated

Table with 2 columns: Component and Conc. (vol %). Lists various hydrocarbons and their concentrations, such as Carbon Dioxide (5.7110), Nitrogen (0.1884), Methane (93.6381), Ethane (0.2781), Propane (0.1088), Isobutane (0.0268), n-Butane (0.0387), Isopentane (0.0028), n-Pentane (0.0030), n-Hexane (0.0009), Other Hexanes (0.0087), Heptanes (0.0005), Methylcyclohexane (0.0003), and Benzene (0.0005).

DRY GAS:

Flow Rate: 10.2 MMSCF/day
Water Content: 7.0 lbs. H2O/MMSCF

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.5 wt% H2O
Flow Rate: 2.5 gpm

PUMP:

Glycol Pump Type: Electric/Pneumatic

FLASH TANK:

Flash Control: Recycle/recompression
Temperature: 125.0 deg. F
Pressure: 80.0 psig

Smith, Claudia

From: Powers, Daniel <dpowers@southernute-nsn.gov>
Sent: Thursday, August 10, 2017 8:20 AM
To: Smith, Claudia
Subject: Catamount TMNSR Permit

Hi Claudia,

I had a few more thoughts in regards to our conversation yesterday about the Catamount TMNSR Permit.

For the requirement to calculate emissions monthly for the dehydration units based on an annual gas analysis, I thought it would be good to clarify that gas sampling must be conducted no less than every 12-months. My concern is that annual sampling could be interpreted as a calendar year and 23 months could pass between sampling events.

For Catamounts proposal to install a high temperature shut-down on the still vent column instead of a CPMS system, I am concerned about how Catamount will demonstrate that the high temperature shut-down is working and that it is calibrated. Maybe a requirement could be included for Catamount to perform routine performance evaluations of the high temperature shut down device. Otherwise a CPMS might still be the better option, considering that one of the big goals of our Settlement Agreement requirement was to correct operations of the dehydration units due to the number of odor complaints we have received from the nearby residence.

Let me know what you think about this and if you want to discuss this more.

Thanks,

Danny J. Powers

Air Quality Technical Manager
Southern Ute Indian Tribe
Air Quality Program
P.O. Box 737 MS#84
Ignacio, CO 81137
970-563-2265
dpowers@southernute-nsn.gov



Smith, Claudia

From: Powers, Daniel <dpowers@southernute-nsn.gov>
Sent: Wednesday, August 9, 2017 9:37 AM
To: Smith, Claudia
Subject: Accepted: Call to discuss Catamount comments on proposed SMNSR permit for Ignacio GTP

Smith, Claudia

From: Russell Hamm <rhammenviro@gmail.com>
Sent: Tuesday, August 08, 2017 8:04 AM
To: Smith, Claudia
Cc: creid@catamountep.com; <alanjkane@comcast.net>; Fallon, Gail; Danny Powers; mhutson@southernute-nsn.gov; Hari Krishna Bharadwaj
Subject: Re: Proposed Synthetic Minor NSR Permit for Catamount Ignacio Gas Treating Plant

Ms. Smith,

The maximum gas throughput for each unit will not change. Based on historical operations of the facility and the proposed use of Kimray 21020PV circulations pumps, the pump circulation rate of both should be reflected as 3.5 gallons per minute. While the note describes the previous justification for a larger circulation pumps, operations has deemed the 3.5 gpm units adequate.

Please let me know if further info is needed.

Best Regards,

On Mon, Aug 7, 2017 at 5:49 PM, Smith, Claudia <Smith.Claudia@epa.gov> wrote:

Mr. Hamm,

How does the planned change in pumps on the dehydration units impact the proposed permit condition I.C.5(c)(iv), particularly the recirculation rate listed in the table, but also the table note?

Thanks,

Claudia

From: Russell Hamm [mailto:rhammenviro@gmail.com]
Sent: Monday, July 17, 2017 8:53 AM
To: Smith, Claudia <Smith.Claudia@epa.gov>
Cc: creid@catamountep.com; <alanjkane@comcast.net> <alanjkane@comcast.net>; Fallon, Gail <fallon.gail@epa.gov>; Danny Powers <dpowers@southernute-nsn.gov>; mhutson@southernute-nsn.gov; Hari Krishna Bharadwaj <HBharadwaj@trinityconsultants.com>
Subject: Re: Proposed Synthetic Minor NSR Permit for Catamount Ignacio Gas Treating Plant

Ms. Smith,

Please find one correction to the provided response sent Friday.
I apologize for any confusion.

Best Regards,

On Fri, Jul 14, 2017 at 2:11 PM, Russell Hamm <rhammenviro@gmail.com> wrote:

Ms. Smith,

Please find a letter with our commentary concerns and requested changes attached. If any additional information is required, please let me know.

Thank you,

On Fri, Jun 23, 2017 at 5:01 PM, Smith, Claudia <Smith.Claudia@epa.gov> wrote:

I have attached the requested proposed permit, the accompanying technical support document, and the bulletin board notice for the proposed synthetic minor NSR permit for the Ignacio Gas Treating Plant. We will also be posting the proposed permit, technical support document, application and other supporting permit information in PDF format on our website at <http://www.epa.gov/caa-permitting/caa-permit-public-comment-opportunities-region-8> by the start of the public comment period.

In accordance with the regulations at 40 CFR 49.157 and 49.158, we are providing at least a 30-day period from June 26, 2017 to July 27, 2017 for public comment on this proposed permit (extended by one day to account for the July 4th holiday). Comments must be received by 5:00pm MT July 27, 2017, to be considered in the issuance of the final permit.

Please submit any written comments you may have concerning the terms and conditions of this permit. You can send them directly to me at smith.claudia@epa.gov, or to r8airpermitting@epa.gov. Should the EPA not accept any or all of these comments, you will be notified in writing and will be provided with the reasons for not accepting them.

Thank you,

Claudia Young Smith

Environmental Scientist

Air Program, Mail Code 8P-AR

US Environmental Protection Agency Region 8

1595 Wynkoop Street

Denver, Colorado 80202

Phone: [\(303\) 312-6520](tel:(303)312-6520)

Fax: [\(303\) 312-6064](tel:(303)312-6064)

<http://www.epa.gov/caa-permitting/caa-permitting-epas-mountains-and-plains-region>

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Russell Hamm
Environmental Specialist
Cell: [\(918\) 693-4833](tel:(918)693-4833)

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Russell Hamm
Environmental Specialist
Cell: [\(918\) 693-4833](tel:(918)693-4833)

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Russell Hamm
Environmental Specialist
Cell: (918) 693-4833

Smith, Claudia

From: Alan Kane <alanjkane@comcast.net>
Sent: Monday, July 17, 2017 6:29 AM
To: Smith, Claudia
Cc: Hamm, Russell; Fallon, Gail; Powers, Daniel; mhutson@southernute-nsn.gov; Kane, Alan
Subject: Re: Proposed Synthetic Minor NSR Permit for Catamount Ignacio Gas Treating Plant

Follow Up Flag: Follow up
Flag Status: Flagged

Claudia, we would like to change the glycol pumps for the following units. The current configuration is oversized;

- Tejas Production Service Contactor, (SN) 4501, 25 MMscfd maximum throughput, Reboiler rated at 0.5 (MMBtu/hr) with flash tank-(2) Kimray 21020 PV pumps. Only one can operate at a time. with a max. circulation rate of 3.5 gpm
- Valerus Contactor, SN S07-171, 12 MMscfd maximum throughput, Reboiler rated at 1.0 MMBtu/hr with flash tank-(1) Kimray 21020 PV and (1) 9020 PV pumps. Only one can operate at a time. With a max. circulation rate of 3.5 gpm.

Can we exchange these pumps now are will this require a modification to the SMNSR permit?

Thanks,

Alan Kane

From: "Claudia Smith" <Smith.Claudia@epa.gov>
To: creid@catamountep.com
Cc: "<alanjkane@comcast.net>" <alanjkane@comcast.net>, "Russell Hamm" <rhammenviro@gmail.com>, "Gail Fallon" <fallon.gail@epa.gov>, "Danny Powers" <dpowers@southernute-nsn.gov>, mhutson@southernute-nsn.gov
Sent: Friday, June 23, 2017 5:01:40 PM
Subject: Proposed Synthetic Minor NSR Permit for Catamount Ignacio Gas Treating Plant

I have attached the requested proposed permit, the accompanying technical support document, and the bulletin board notice for the proposed synthetic minor NSR permit for the Ignacio Gas Treating Plant. We will also be posting the proposed permit, technical support document, application and other supporting permit information in PDF format on our website at <http://www.epa.gov/caa-permitting/caa-permit-public-comment-opportunities-region-8> by the start of the public comment period.

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Thank you,

Claudia Young Smith
Environmental Scientist
Air Program, Mail Code 8P-AR
US Environmental Protection Agency Region 8
1595 Wynkoop Street
Denver, Colorado 80202

Phone: (303) 312-6520

Fax: (303) 312-6064

<http://www.epa.gov/caa-permitting/caa-permitting-epas-mountains-and-plains-region>

Smith, Claudia

From: Russell Hamm <rhammenviro@gmail.com>
Sent: Monday, July 17, 2017 8:53 AM
To: Smith, Claudia
Cc: creid@catamountep.com; <alanjkane@comcast.net>; Fallon, Gail; Danny Powers; mhutson@southernute-nsn.gov; Hari Krishna Bharadwaj
Subject: Re: Proposed Synthetic Minor NSR Permit for Catamount Ignacio Gas Treating Plant
Attachments: Ignacio GTP Prosal Response-Revision.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Ms. Smith,

Please find one correction to the provided response sent Friday.
I apologize for any confusion.

Best Regards,

On Fri, Jul 14, 2017 at 2:11 PM, Russell Hamm <rhammenviro@gmail.com> wrote:
Ms. Smith,

Please find a letter with our commentary concerns and requested changes attached. If any additional information is required, please let me know.

Thank you,

On Fri, Jun 23, 2017 at 5:01 PM, Smith, Claudia <Smith.Claudia@epa.gov> wrote:

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Thank you,

Claudia Young Smith

Environmental Scientist

Air Program, Mail Code 8P-AR

US Environmental Protection Agency Region 8

1595 Wynkoop Street

Denver, Colorado 80202

Phone: [\(303\) 312-6520](tel:3033126520)

Fax: [\(303\) 312-6064](tel:3033126064)

<http://www.epa.gov/caa-permitting/caa-permitting-epas-mountains-and-plains-region>

--
Russell Hamm
Environmental Specialist
Cell: [\(918\) 693-4833](tel:9186934833)

--
Russell Hamm
Environmental Specialist
Cell: (918) 693-4833



ENVIRONMENTAL ENGINEERING, INC.

July 17, 2017

EPA Region-8 Air Program
Tribal MNSR Permitting
Attn: Claudia Smith
1595 Wynkoop Street
Denver, Colorado 80202

Re: ***Ignacio Gas Treating Plant:***
Permit # SMNSR-SU-000052-2016.00
Proposed Synthetic Minor New Source Review Permit

Dear Ms. Smith:

In Catamount Energy Partner's July 14, 2017 Proposed Synthetic Minor Source Review Permit response, it was stated that: "Both, unit 12b and unit 14, will have one (1) Kimray 21020 and one (1) Kimray 9020 PV series circulation pumps installed with only one pump operating at a time." After the letter was provided to the EPA, field operations clarified that unit 12b, the 25MMscfd max throughput dehydrator, will have (2) Kimray 21020's rather than one (1) Kimray 2120 and one (1) Kimray 9020. Intended operation with only a single pump operating at a time remains unchanged with the maximum circulation rate of 3.5gallons per minute.

Please do not hesitate to contact me at (918) 693-4833 or rhammenviro@gmail.com if you have any questions concerns or require further information regarding this matter.

Sincerely,

Russell Hamm
Environmental Specialist
Kane Environmental Engineering, Inc.

cc: Mark Hutson, Environmental Director - Southern Ute Indian Tribe Environmental Program
Danny Powers, Air Quality Technical Manager - Southern Ute Indian Tribe Air Quality Program
Catamount Energy Partners



July 14, 2017

EPA Region-8 Air Program
Tribal MNSR Permitting
Attn: Claudia Smith
1595 Wynkoop Street
Denver, Colorado 80202

Re: *Ignacio Gas Treating Plant:*
Permit # SMNSR-SU-000052-2016.00
Proposed Synthetic Minor New Source Review Permit

Dear Ms. Smith:

We have reviewed the proposed Minor New Source Review Permit and have found that it stipulates several requirements well beyond any federal requirements and is beyond the intended memorialization of MACT HH exemption spelled out in the Consent Decree. Additionally, we have several requested changes that address operational practicality and are less cost prohibitive without compromising the intention of the stipulations.

C.3(a)(i) *Is the first instance requiring “all flash gas emissions to the sales pipeline, as specified in this permit;”*. Here and throughout, we would prefer to see “all flash gas emissions to the sales pipeline **or fuel system**, as specified in this permit;” to reflect the use of the flash gas as burner and driver fuel facility wide.

C.3(a)(iv) States “*Each TEG dehydration unit regenerator still vent column shall be equipped with an electronically controlled temperature-sensing device capable of continuously measuring and recording the operating temperature of the steam exiting the regenerator still vent and capable of triggering an alarm when the temperature exceeds a certain set point.*” *exceeding any federal requirements.* Catamount proposes to record and log temperatures twice daily and modify the recordkeeping requirement to reflect the twice daily log to verify that temperatures have not exceed the set threshold.

C.3(a)(v) Limits steam exiting each regenerator still vent to 375° F. Catamount requests that this limitation be extended to less than 400° F.

C.3(b) Stipulates that the permittee shall meet the requirements “for the closed-vent system”, which do not apply to installed units 12b and 14. Catamount requests that the entirety of section C.3(b), and concomitantly Section C.5(b), and Section C.6(i) be struck from the authorization based on the following exemptions:

Per 40 CFR 63.764(e)(1), the owner or operator of an area source is exempt from the requirements under 40 CFR 63.764(d) if the actual average emissions of benzene are less than 0.90 Megagram per year (1 tpy). It has been demonstrated that the actual emissions of benzene from both dehydrators are much lesser than 1 tpy.

40 CFR 63.771(c) (*which is the MACT HH citation from which the closed vent system requirements have been sourced from*), is not referenced by 40 CFR 63.764(d)(2) which has the requirements for optimum glycol recirculation rate, as referenced by the Settlement agreement document.

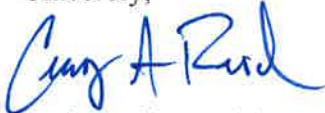
Neither the settlement agreement nor MACT HH requires these TEG dehydrators (12b and 14) be subject to closed vent system requirements under MACT HH.

C.4 Requires the permittee to “*obtain a wet gas analyses of the inlet wet gas stream to each TEG dehydration system at least once per calendar month*”, and “*include the inlet gas temperature and pressure at which the samples were taken.*” The associated monitoring and recordkeeping requirements are found in C.5(c)(i), C.5(d), and C.6(a), and all require a monthly analysis as the basis for calculation. Due to the exorbitant costs, fact that the associated coalbed methane gas has little associate benzene, and the inlet stream has little variation; Catamount proposes an annual sampling event with rolling 12-month records kept based on the previous analysis and monthly calculations based on throughput.

The only remaining alteration our review has revealed relates to the cited circulation rates of units 12 and 14b. The pumps on unit 12b and unit 14 are too large and are being altered, resulting in significant emissions reductions. Both, unit 12b and unit 14, will have one (1) Kimray 21020 and one (1) Kimray 9020 PV series circulation pumps installed with only one pump operating at a time. This change will result in a maximum circulation rate of 3.5 gallons per minute based on the higher pumping rate of the 21020's.

Please do not hesitate to contact Alan Kane, P.E., of Kane Environmental Engineering, at (281) 639-9590 or alanjkane@comcast.net, if you have any questions concerns or require further information regarding this matter.

Sincerely,

A handwritten signature in blue ink that reads "Craig Reid". The signature is fluid and cursive, with the first name "Craig" and last name "Reid" clearly distinguishable.

Craig Reid, President

Catamount Energy Partners, LLC

Enclosures

cc: Mark Hutson, Environmental Director - Southern Ute Indian Tribe Environmental Program
Danny Powers, Air Quality Technical Manager - Southern Ute Indian Tribe Air Quality Program
Alan Kane - Kane Environmental Engineering, Inc.

Public Notice: Request For Comments

Proposed Air Quality Permit Catamount Energy Partners Ignacio Gas Treating Plant

Notice issued: June 26, 2017

Written comments due:
5 p.m., July 27, 2017

Where is the proposed facility location?

Southern Ute Indian Reservation
La Plata County, Colorado
Ignacio Gas Treating Plant
Sec 13 T33N R9W
Latitude 37.10N
Longitude -107.77W

What is being proposed?

This proposed permit, drafted in accordance with the Tribal Minor New Source Review (MNSR) Permit Program at 40 CFR part 49, will apply to an existing facility operating on the Southern Ute Indian Reservation in southwest Colorado.

The Ignacio Gas Treating Plant dehydrates and then compresses natural gas for pipeline transmission and can process up to 25 million standard cubic feet per day (MMscfd) of natural gas. The plant operates two 1.042 MMscf per hour triethylene glycol (TEG) dehydration units used to remove water from natural gas.

Catamount Energy Partners operates the facility under a Settlement Agreement and Stipulated Final Compliance Order (Settlement Agreement), Enforcement Case (ID: 2016-02), executed between the Southern Ute Indian Tribe (SUIT) and former owner and operator of the facility, Elm Ridge Exploration Company, LLC.

The operator has historically claimed an exemption from certain requirements in the National Emissions Standards for Hazardous Air Pollutants for Oil and Gas Production Facilities at 40 CFR part 63, subpart HH, because the actual annual average benzene emissions were less than 1 ton per year (see 40 CFR 63.764(d)). As a stipulation of the Settlement Agreement, Catamount has requested a permit to establish legally and practically enforceable requirements to limit benzene

emissions from the TEG dehydration units for the purpose of ensuring the continued exemption from subpart HH. The permit the EPA is proposing to issue reflects the incorporation of the requested requirements, which include for each TEG dehydration unit, establishing an optimum glycol recirculation rate, a maximum operating temperature for the regenerator still vents, and benzene emission limits. The proposed requirements are consistent with the Settlement Agreement.

What are the effects on air quality?

This action will have no adverse air quality impacts. The emissions at this existing facility will not be increasing due to this permit action. In addition, this action does not authorize the construction of any new emission sources, or emission increases from existing sources, nor does it otherwise authorize any other physical modifications to the facility or its operations.

Where can I send comments?

EPA accepts comments by mail, fax and e-mail.

US EPA Region 8 Air Program, 8P-AR
Attn: Federal Minor NSR Coordinator
1595 Wynkoop Street,
Denver, CO 80202
R8AirPermitting@epa.gov
Fax: 303-312-6064

How can I review documents?

You can review an electronic copy of the proposed permits and related documents at the following locations:

Southern Ute Indian Tribe
Environmental Programs Division
Air Quality Program Office:
71 Mike Frost Way
Ignacio, Colorado 81137
Attn: Danny Powers, Air Quality
Technical Manager, 970-563-4705

and

US EPA Region 8 Office:
1595 Wynkoop Street, Denver, CO 80202
Attn: Claudia Smith, Permit Engineer,
303-312-6520

US EPA Region 8 Website:
<https://www.epa.gov/caa-permitting/caa-permit-public-comment-opportunities-region-8>

Permit number:
SMNSR-SU-000052-2016.001

What happens next?

EPA will review and consider all comments received during the comment period. Following this review, the EPA may issue the permit as proposed, issue a modified permit based on comments, or deny the permit.

Tribal Minor New Source Review in Indian Country



**United States
Environmental Protection
Agency**

**Region 8
Air Program
1595 Wynkoop Street
Denver, CO 80202
Phone 800-227-8917**

<https://www.epa.gov/caa-permitting/tribal-nsr-permits-region-8>



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8

1595 Wynkoop Street
Denver, CO 80202-1129
Phone 800-227-8917

<http://www.epa.gov/aboutepa/epa-region-8-mountains-and-plains>

Ref: 8P-AR

Mr. Craig Reid
President
Catamount Energy Partners
1801 Broadway, Suite 1000
Denver, Colorado 80202

JUN 22 2017

Re: Catamount Energy Partners, Ignacio Gas Treating Plant, Permit # SMNSR-SU-000052-2016.001, Proposed Synthetic Minor New Source Review Permit

Dear Mr. Reid:

The U.S. Environmental Protection Agency Region 8 has completed its review of Catamount Energy Partners' application (originally submitted by former owner/operator Elm Ridge Exploration Company, LLC) requesting a permit pursuant to the Tribal Minor New Source Review (MNSR) Permit Program at 40 CFR part 49 for the Ignacio Gas Treating Plant, located on the Southern Ute Indian Reservation.

Enclosed are the proposed permit and the corresponding technical support document. The regulations at 40 CFR 49.157 require that the affected community and the general public have the opportunity to submit written comments on any proposed MNSR permit. All written comments submitted within 30 calendar days after the public notice is published will be considered by the EPA in making its final permit decision. Enclosed is a copy of the public notice which will be published on the EPA's website located at: <https://www.epa.gov/caa-permitting/caa-permit-public-comment-opportunities-region-8>, on June 26, 2017. The public comment period will end at 5:00 p.m. on July 27, 2017.

The conditions contained in the proposed permit will become effective and enforceable by the EPA if the permit is issued final. If you are unable to accept any term or condition of the draft permit, please submit your written comments, along with the reason(s) for non-acceptance to:

Tribal MNSR Permit Contact
c/o Air Program (8P-AR)
U.S. EPA, Region 8
1595 Wynkoop Street
Denver, Colorado 80202

or

R8AirPermitting@epa.gov

If you have any questions concerning the enclosed proposed permit or technical support document, please contact Claudia Smith, of my staff, at (303) 312-6520.

Sincerely,

A handwritten signature in cursive script, appearing to read "Monica S. Morales".

Monica S. Morales
Director
Air Program

Enclosures (2)

cc: Mark Hutson, Acting Environmental Director, Southern Ute Indian Tribe Environmental Program
Danny Powers, Air Quality Technical Manager, Southern Ute Indian Tribe Air Quality Program
Alan Kane, Kane Environmental Engineering, Inc.

United States Environmental Protection Agency
Region 8, Air Program
1595 Wynkoop Street
Denver, CO 80202



**Air Pollution Control
Synthetic Minor Source Permit to Construct**

40 CFR 49.151

#SMNSR-SU-000052-2016.001

*Permit to Construct to establish legally and practically enforceable limitations
and requirements on sources at an existing facility*

Permittee:

Catamount Energy Partners

Permitted Facility:

Ignacio Gas Treating Plant
Southern Ute Indian Reservation
La Plata County, Colorado

Summary

On July 27, 2016, the Environmental Protection Agency, Region 8 (EPA) received an application from Elm Ridge Exploration Company, LLC (Elm Ridge) requesting a permit for the Ignacio Gas Treating Plant (Ignacio plant) in accordance with the requirements of the Tribal Minor New Source Review (MNSR) Permit Program at 40 CFR part 49. On May 29, 2017, the EPA received notification that the owner and operator of the facility had changed to Catamount Energy Partners (Catamount).

Catamount owns and operates the Ignacio plant on Indian country lands within the Southern Ute Indian Reservation, in La Plata County, Colorado. The Ignacio plant is a permitted major source with respect to the Title V Operating Permit Program at 40 CFR, part 70, as administered by the Southern Ute Indian Tribe (SUIT) Environmental Programs Division, Air Quality Program.¹ During compliance evaluations conducted by the SUIT in January of 2016, potential violations of the Title V operating permit and the SUIT/State of Colorado Environmental Commission's Reservation Air Code (RAC) were discovered. As a result, a Settlement Agreement and Stipulated Final Compliance Order Enforcement Case (ID: 2016-02), herein referred to as the Settlement Agreement, was executed between the SUIT and Elm Ridge on May 2, 2016. Two triethylene glycol (TEG) dehydration units operating at the facility have historically claimed the exemption from the federal requirements at 40 CFR 63.764(d) (National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Oil and Gas Production Facilities, (subpart HH)) due to actual annual average emissions of benzene being less than 0.9 megagrams per year (Mg/yr), or 1 ton per year (tpy), per 40 CFR 63.764(e). The Settlement Agreement stated that after extended gas sampling had been done, it should be used to demonstrate that the actual annual benzene emissions are less than 0.9 Mg/yr in accordance with 40 CFR 63.772(b). The Settlement Agreement stated that if Elm Ridge could demonstrate that the TEG dehydration units meet the actual annual average benzene exemption, Elm Ridge must apply to the EPA to obtain a permit under the MNSR rule to establish legally and practically enforceable limits for the dehydration units to limit benzene emissions to less than 0.9 Mg/yr.

This permit does not authorize the construction of any new emission sources, nor does it otherwise authorize any other physical modifications to the facility or its operations. This permit is intended only to incorporate requested emission limits and provisions from the July 27, 2016, application from Elm Ridge requesting a federally enforceable synthetic MNSR permit.

Upon compliance with this synthetic MNSR permit, the legally and practically enforceable emissions limitations can be used when determining the applicability of 40 CFR part 63, subpart HH, as well as other CAA requirements, such as the Title V Operating Permit Program at 40 CFR part 70 (part 70), in accordance with the SUIT's EPA-approved Part 70 Operating Permit Program, and other NESHAP at 40 CFR part 63.

The EPA has determined that issuance of this synthetic MNSR permit will not contribute to National Ambient Air Quality Standards (NAAQS) violations, or have potentially adverse effects on ambient air quality.

¹ Permit Number V-SUIT-0052-2014.01

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PROPOSED

I. Conditional Permit to Construct

A. General Information

<u>Facility:</u>	Catamount Energy Partners Ignacio Gas Treating Plant
<u>Permit Number:</u>	SMNSR-SU-000052-2016.001
<u>SIC Code and SIC Description:</u>	1311 - Crude Petroleum and Natural Gas
<u>NAICS Code and NAICS Description:</u>	211111 – Crude Petroleum and Natural Gas Extraction
<u>Site Location:</u>	<u>Corporate Office Location</u>
Ignacio Gas Treating Plant Sec 13 T33N R9W Southern Ute Indian Reservation La Plata County, Colorado	Catamount Energy Partners (Catamount) 1801 Broadway, Suite 1000 Denver, Colorado 80202

The equipment listed in this permit may only be operated by Catamount at the following location:

Latitude 37.10N, Longitude -107.77W

B. Applicability

1. This permit is being issued under authority of the MNSR Permit Program.
2. The requirements in this permit have been created, at the Permittee's request, to establish legally and practically enforceable restrictions for limiting benzene TEG dehydration unit emissions.
3. Any conditions established for this facility or any specific units at this facility pursuant to any permit issued under the authority of the Prevention of Significant Deterioration (PSD) Permit Program or the MNSR Permit Program shall continue to apply.
4. By issuing this permit, the EPA does not assume any risk of loss which may occur as a result of the operation of the permitted facility by the Permittee, Owner, and/or Operator, if the conditions of this permit are not met by the Permittee, Owner, and/or Operator.

C. Requirements for TEG Dehydration Systems

1. Construction and Operational Limits
 - (a) The Permittee may install and operate no more than one (1) high pressure TEG dehydration unit meeting the following specifications:
 - (i) Limited to a maximum natural gas processing capacity of 25 million standard cubic feet per day (MMscfd); and
 - (ii) Equipped with a natural gas-fired TEG reboiler limited to a maximum heat input capacity of 0.5 million British thermal units per hour (MMBtu/hr).
 - (b) The Permittee may install and operate no more than one (1) low pressure TEG dehydration unit meeting the following specifications:

- (i) Limited to a maximum natural gas processing capacity of 12 MMscfd; and
 - (ii) Equipped with a natural gas-fired TEG reboiler limited to a maximum heat input capacity of 1.0 MMBtu/hr.
- (c) Only the TEG dehydration units that are operated and controlled as specified in this permit may be installed and operated.
2. Emission Limits: Actual average emissions of benzene from the process vents to the atmosphere for each of the TEG dehydration units approved in this permit for installation and operation at the facility shall be maintained at less than 0.9 megagrams, or 1 ton, in any consecutive 12-month period. The emission limits shall apply at all times.

3. Control and Operational Requirements

- (a) *TEG Dehydration Units*. The Permittee shall meet the following requirements for the TEG dehydration units:
- (i) Each TEG dehydration unit shall be equipped with flash gas separators and closed-vent systems that route all flash gas emissions to the sales pipeline, as specified in this permit;
 - (ii) The high pressure TEG dehydration unit shall be equipped with an elevated dispersion stack on the TEG reboiler still vent;²
 - (iii) The Permittee shall meet the requirements in paragraphs (A) through (C) for each TEG dehydration unit:

- (A) Determine the optimum glycol recirculation rate using the following equation:

$$L_{OPT} = 1.15 * 3.0 \frac{\text{gal TEG}}{\text{lb H}_2\text{O}} * \left(\frac{F * (I - O)}{24 \text{ hr/day}} \right)$$

Where:

L_{OPT} = Optimal circulation rate in gallons per hour (gal/hr)

F = Gas flowrate in MMscfd

I = Inlet water content in pounds per MMscfd (lb/MMscfd)

O = Outlet water content (lb/MMscfd)

3.0 = The industry accepted rule of thumb for a TEG-to-water ratio in gal TEG/lb H₂O

1.15 = Adjustment factor included for a margin of safety

- (B) Operate the TEG dehydration unit such that the actual glycol circulation rate does not exceed the optimum glycol circulation rate determined in accordance with paragraph (A) above. If the TEG dehydration unit is unable to meet the sales gas specification for moisture content using the glycol circulation rate determined in accordance with paragraph (A) above, the Permittee shall calculate an alternate circulation rate using

²The dispersion stack was installed on June 28, 2016, to comply with the May 2, 2016 Settlement Agreement with the SUIT.

GRI-GLYCalc™, Version 3.0 or higher. The Permittee shall document why the TEG dehydration unit must be operated using the alternate circulation rate and submit this documentation to the EPA within 30 days of beginning operation using that alternate circulation rate;

- (C) If operating conditions change and a modification to the optimum or alternate glycol circulation rate is required, the Permittee shall prepare a new determination in accordance with paragraphs (A) and (B) above;
- (D) Submit documentation of each modified optimum glycol circulation rate and alternate glycol circulation rate determination to the EPA within 30 days of beginning operation using that circulation rate. Include in each submittal a statement by an official authorized by the Permittee, with that official's name, title and signature certifying that the Permittee will always operate the TEG dehydration unit using the optimum or alternative circulation rate determined in accordance with paragraphs (A) or (B) above;
- (iv) Each TEG dehydration unit regenerator still vent column shall be equipped with an electronically controlled temperature-sensing device capable of continuously measuring and recording the operating temperature of the steam exiting the regenerator still vent and capable of triggering an alarm when the temperature exceeds a certain set point.
- (v) The Permittee shall ensure that the operating temperature of the steam exiting each regenerator still vent does not exceed 375 °F.
- (vi) The Permittee shall follow, for each TEG dehydration unit, the manufacturer's recommended maintenance schedule and procedures to ensure optimum performance.
- (b) *Closed-Vent Systems.* The Permittee shall meet the following requirements for the closed-vent systems:
 - (i) Each closed-vent system shall route all hydrocarbon emissions from the dehydration unit flash gas separators to the sales pipeline;
 - (ii) All vent lines, connections, fittings, valves, relief valves, or any other appurtenance employed to contain and collect gases, vapors, and fumes and transport them from the flash gas separators to the sales line shall be maintained and operated during any time the dehydration units are operating;
 - (iii) Each closed-vent system shall be designed to operate with no detectable emissions;
 - (iv) If any closed-vent system contains one or more bypass devices that could be used to divert all or a portion of the gases, vapors, or fumes from entering the sales line, the Permittee shall meet the one of following requirements for each bypass device:

- (A) At the inlet to the bypass device that could divert the stream away from the sales line and into the atmosphere, properly install, calibrate, maintain, and operate a flow indicator that is capable of taking periodic readings and sounding an alarm when the bypass device is open such that the stream is being, or could be, diverted away from the sales line and into the atmosphere;
 - (B) Secure the bypass device valve installed at the inlet to the bypass device in the non-diverting position using a car-seal or a lock-and-key type configuration; and
 - (C) Low leg drains, high point bleeds, analyzer vents, open-ended valves or lines, and safety devices are not subject to the requirements applicable to bypass devices; and
- (v) The Permittee shall minimize leaks of hydrocarbon emissions from all vent lines, connections, fittings, valves, relief valves, or any other appurtenance employed to contain, collect, and transport gases, vapors, and fumes from the flash gas separators to the sales pipeline.

4. Testing Requirements

The Permittee shall obtain extended wet gas analyses of the inlet wet gas stream to each TEG dehydration system at least once per calendar month. The analysis shall include the inlet gas temperature and pressure at which the sample was taken.

5. Monitoring Requirements

- (a) The Permittee shall continuously measure and record the operating temperature in the regenerator still vent column of each TEG dehydration unit at all times the unit is operating. Additionally, at least once per day, the Permittee shall perform a manual reading of the temperature-sensing device and check the recorded temperatures from the previous 24-hour period to ensure there were no exceedances of the maximum operating temperature that indicate the alarm is not functioning properly. The Permittee shall record the manual temperature reading in a log book with the date and time of the reading and the name of the person performing the reading.
- (b) The Permittee shall monitor each closed vent system for leaks of hydrocarbon emissions from all vent lines, connections, fittings, valves, relief valves, or any other appurtenance employed to contain, collect, and transport gases, vapors, and fumes from the dehydration unit flash gas separators to the sales line as follows:
 - (i) Visit the facility on a quarterly basis to inspect all closed vent systems for defects that could result in air emissions, and document each inspection. Defects include, but are not limited to, visible cracks, holes, or gaps in piping; loose connections; or broken or missing caps or other closure devices. If a quarterly visit is not feasible due to sudden, infrequent, and unavoidable events (i.e., weather, road conditions), every effort shall be made to visit the facility as close to quarterly as possible;

- (ii) The inspections shall be based on audio, visual, and olfactory procedures; and
 - (iii) Any leaks detected in any closed vent system shall be addressed immediately unless the repair requires resources not currently available. If the resources are not available, the leak shall be repaired no later than 15 days after initial detection of the leak.
- (c) Actual average benzene emissions from each of the TEG dehydration units shall be determined using the most recent version of the GRI-GLYCalc™, Version 3.0 or higher, model and the following input parameters:
- (i) Current month's inlet wet gas stream properties;
 - (ii) Temperature and pressure of the gas provided in the inlet wet gas analysis;
 - (iii) 100 percent capture and collection of emissions from the flash gas separator, unless the closed-vent system was bypassed. In such cases, the flash gas separator capture and collection used in the calculation shall be 0.0% for the duration of the bypass; and
 - (iv) The maximum gas throughput and optimum or alternate glycol pump recirculation rate (as determined in accordance with Section I.C.3(a)(iii)(A) and (B) of this permit) for each TEG dehydration system as follows:

TEG Dehydration Unit Description	Glycol Pump Recirculation Rate*
25 MMscfd maximum gas throughput	4.7 gallons per minute
12 MMscfd maximum gas throughput	5.5 gallons per minute

* Note: Prior to submitting the application for this permit, the Permittee determined the L_{OPT} to be 3.9 gal/min for the high pressure TEG dehydration unit and 2.5 gal/min for the low pressure TEG dehydration unit using the calculations in Section II.C.3(a)(iii)(A) of this permit. The Permittee calculated the alternate circulation rates in this table using GRI-GLYCalc™, and included the documentation in the permit application. The overcirculation for the high pressure TEG dehydration unit protects the membranes in the downstream membrane treatment unit to extend the life of the membrane. The overcirculation for the low pressure TEG dehydration unit is done primarily in hot weather months to compensate for an undersized gas cooler and thereby meet the pipeline specifications for water content. According to calculations provided by the Permittee, the difference between the optimum and alternate circulation rates for each TEG dehydration unit results in a less than 10 percent difference in benzene emissions.

- (d) Actual average benzene emissions from each TEG dehydration unit shall be calculated and recorded at the end of each month, beginning with the first full calendar month after the effective date of this permit. Prior to 12 full months of operation under this permit, the Permittee shall, at the end of each month, add the emissions for that month to the calculated emissions for all previous months since the permit became effective, and record the total. Thereafter, the Permittee shall, at the end of each month, add the emissions for that month to the calculated emissions for the preceding 11 months and record a new 12-month total.

6. Recordkeeping Requirements

The Permittee shall keep records of the following:

- (a) The monthly benzene emissions calculations, GRI-GLYCalc™ model input parameters and GRI-GLYCalc™ model reports for each TEG dehydration unit;
- (b) The manufacturer's or vendor's written, site-specific engineering specifications, operating instructions, operating procedures, and maintenance schedules for each TEG dehydration unit and regenerator still vent temperature sensing and recording device;
- (c) Documentation of all determinations of optimum and alternate glycol circulation rates for each TEG dehydration unit calculated in accordance with Section I.C.3(a)(iii)(A) and (B) of this permit;
- (d) All required temperature monitoring of the steam exiting each TEG dehydration unit regenerator still vent;
- (e) Any exceedances of the maximum operating temperature of the steam exiting the regenerator still vent on each TEG dehydration unit or exceedances of operating parameters specified in the manufacturers' or vendors' guarantees or engineering specifications with regard to each TEG dehydration unit. The records shall identify the TEG dehydration unit experiencing the exceedance, the date, time and duration that the parameters were exceeded, the corrective actions taken and any preventative measures adopted to operate the TEG dehydration unit within that operating parameter;
- (f) Any instances in which the closed-vent system routing emissions from the flash separator on each TEG dehydration unit to the sales pipeline was bypassed or down in each calendar month, the reason for each incident, its duration, the corrective actions taken and any preventative measures adopted to avoid such bypasses or downtimes;
- (g) Any instances in which the temperature-sensing device installed to measure the operating temperature in each TEG dehydration unit regenerator still vent is not operational, the reason for each incident, its date, time and duration, any corrective actions taken and any preventative measures adopted to avoid such malfunction;
- (h) The monthly benzene emissions calculations included in each consecutive 12-month total for each TEG dehydration unit; and
- (i) Each closed-vent system leak detection inspection. All leak detection inspection records must include, at a minimum, the following information:
 - (i) A description of the methods used for the inspection;
 - (ii) The date of the inspection;
 - (iii) The findings of the inspection;
 - (iv) Any corrective action taken and the date of the corrective action;
 - (v) Reason for any delays to corrective actions;
 - (vi) The inspector's name and signature; and
 - (vii) All input parameters and calculations used to determine the monthly emissions.

D. Requirements for Records Retention

1. The Permittee shall retain all records required by this permit for a period of at least 5 years from the date the record was created.
2. Records shall be kept in the vicinity of the facility, such as at the facility, the location that has day-to-day operational control over the facility, or the location that has day-to-day responsibility for compliance of the facility.

E. Requirements for Reporting

1. Annual Emission Reports

(a) The Permittee shall submit a written annual report of the actual annual benzene emissions from each TEG dehydration unit at the facility each year no later than April 1st. The annual report shall cover the period for the previous calendar year. All reports must be certified to truth and accuracy by the by the person primarily responsible for Clean Air Act compliance of the Permittee.

(b) The report shall be submitted to:

U.S. Environmental Protection Agency, Region 8
Office of Partnerships and Regulatory Assistance
Tribal Air Permitting Program, 8P-AR
1595 Wynkoop Street
Denver, Colorado 80202

The report may be submitted via electronic mail to r8AirPermitting@epa.gov.

2. All other documents required to be submitted under this permit, with the exception of the **Annual Emission Reports**, shall be submitted to:

U.S. Environmental Protection Agency, Region 8
Office of Enforcement, Compliance & Environmental Justice
Air Toxics and Technical Enforcement Program, 8ENF-AT
1595 Wynkoop Street
Denver, Colorado 80202

Documents may be submitted electronically to r8airreportenforcement@epa.gov.

3. The Permittee shall promptly submit to the EPA a written report of any deviations of permit requirements, a description of the probable cause of such deviations, and any corrective actions or preventative measures taken. A “prompt” deviation report is one that is post marked or submitted via electronic mail to r8airreportenforcement@epa.gov as follows:

(a) Within 30 days from the discovery of any deviation of permit requirements that is left uncorrected for more than 5 days after discovering the deviation; and

- (b) By April 1st, for the discovery of a deviation of recordkeeping or other permit conditions during the preceding calendar year that do not affect the Permittee's ability to meet the emission limits.
4. The Permittee shall submit a written report for any required performance tests to the EPA within 60 days after completing the tests.
5. The Permittee shall submit any record or report required by this permit upon EPA request.

II. General Provisions

A. Conditional Approval

Pursuant to the authority of 40 CFR 49.151, the EPA hereby conditionally grants this permit. This authorization is expressly conditioned as follows:

1. *Document Retention and Availability:* This permit and any required attachments shall be retained and made available for inspection upon request at the location set forth herein.
2. *Permit Application:* The Permittee shall abide by all representations, statements of intent and agreements contained in the application submitted by the Permittee. The EPA shall be notified 10 days in advance of any significant deviation from this permit application as well as any plans, specifications or supporting data furnished.
3. *Permit Deviations:* The issuance of this permit may be suspended or revoked if the EPA determines that a significant deviation from the permit application, specifications, and supporting data furnished has been or is to be made. If the proposed source is constructed, operated, or modified not in accordance with the terms of this permit, the Permittee will be subject to appropriate enforcement action.
4. *Compliance with Permit:* The Permittee shall comply with all conditions of this permit, including emission limitations that apply to the affected emissions units at the permitted facility/source. Noncompliance with any permit term or condition is a violation of this permit and may constitute a violation of the Clean Air Act and is grounds for enforcement action and for a permit termination or revocation.
5. *Fugitive Emissions:* The Permittee shall take all reasonable precautions to prevent and/or minimize fugitive emissions during the construction period.
6. *National Ambient Air Quality Standard and PSD Increment:* The permitted source shall not cause or contribute to a National Ambient Air Quality Standard violation or a PSD increment violation.
7. *Compliance with Federal and Tribal Rules, Regulations, and Orders:* Issuance of this permit does not relieve the Permittee of the responsibility to comply fully with all other applicable federal and tribal rules, regulations, and orders now or hereafter in effect.

8. *Enforcement:* It is not a defense, for the Permittee, in an enforcement action, to claim that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
9. *Facility/Source Modifications:* For proposed modifications, as defined at 40 CFR 49.152(d), that would increase an emissions unit's allowable emissions of a pollutant above its existing permitted annual allowable emissions limit, the Permittee shall first obtain a permit modification pursuant to the MNSR regulations approving the increase. For a proposed modification that is not otherwise subject to review under the PSD or MNSR regulations, such proposed increase in the annual allowable emissions limit shall be approved through an administrative permit revision as provided at 40 CFR 49.159(f).
10. *Relaxation of Legally and Practically Enforceable Limits:* At such time that a new or modified source within this permitted facility/source or modification of this permitted facility/source becomes a major stationary source or major modification solely by virtue of a relaxation in any legally and practically enforceable limitation which was established after August 7, 1980, on the capacity of this permitted facility/source to otherwise emit a pollutant, such as a restriction on hours of operation, then the requirements of the PSD regulations shall apply to the source or modification as though construction had not yet commenced on the source or modification.
11. *Revise, Reopen, Revoke and Reissue, or Terminate for Cause:* This permit may be revised, reopened, revoked and reissued, or terminated for cause. The filing of a request by the Permittee, for a permit revision, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition. The EPA may reopen this permit for a cause on its own initiative, e.g., if this permit contains a material mistake or the Permittee fails to assure compliance with the applicable requirements.
12. *Severability Clause:* The provisions of this permit are severable, and in the event of any challenge to any portion of this permit, or if any portion is held invalid, the remaining permit conditions shall remain valid and in force.
13. *Property Rights:* This permit does not convey any property rights of any sort or any exclusive privilege.
14. *Information Requests:* The Permittee shall furnish to the EPA, within a reasonable time, any information that the EPA may request in writing to determine whether cause exists for revising, revoking and reissuing, or terminating this permit or to determine compliance with this permit. For any such information claimed to be confidential, you shall also submit a claim of confidentiality in accordance with 40 CFR part 2, subpart B.
15. *Inspection and Entry:* The EPA or its authorized representatives may inspect this permitted facility/source during normal business hours for the purpose of ascertaining compliance with all conditions of this permit. Upon presentation of proper credentials, the Permittee shall allow the EPA or its authorized representative to:
 - (a) Enter upon the premises where this permitted facility/source is located or emissions-related activity is conducted, or where records are required to be kept under the conditions of this permit;

- (b) Have access to and copy, at reasonable times, any records that are required to be kept under the conditions of this permit;
 - (c) Inspect, during normal business hours or while this permitted facility/source is in operation, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit;
 - (d) Sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with this permit or other applicable requirements; and
 - (e) Record any inspection by use of written, electronic, magnetic and photographic media.
16. *Permit Effective Date:* This permit is effective immediately upon issuance unless comments resulted in a change in the proposed permit, in which case this permit is effective 30 days after issuance. The Permittee may notify the EPA, in writing, that this permit or a term or condition of it is rejected. Such notice should be made within 30 days of receipt of this permit and should include the reason or reasons for rejection.
17. *Permit Transfers:* Permit transfers shall be made in accordance with 40 CFR 49.159(f). The Air Program Director shall be notified in writing at the address shown below if the company is sold or changes its name.
- U.S. Environmental Protection Agency, Region 8
Office of Partnerships and Regulatory Assistance
Tribal Air Permitting Program, 8P-AR
1595 Wynkoop Street
Denver, Colorado 80202
18. *Invalidation of Permit:* This permit becomes invalid if construction is not commenced within 18 months after the effective date of this permit, construction is discontinued for 18 months or more, or construction is not completed within a reasonable time. The EPA may extend the 18-month period upon a satisfactory showing that an extension is justified. This provision does not apply to the time period between the construction of the approved phases of a phased construction project. The Permittee shall commence construction of each such phase within 18 months of the projected and approved commencement date.
19. *Notification of Start-Up:* The Permittee shall submit a notification of the anticipated date of initial start-up of this permitted source to the EPA within 60 days of such date, unless this permitted source is an existing source.

B. Authorization

Authorized by the United States Environmental Protection Agency, Region 8

Monica S. Morales, Director
Air Program

Date

Air Pollution Control
40 CFR 49.151 Tribal Minor New Source Review
Technical Support Document
Proposed Permit #SMNSR-SU-000052-2016.001



Catamount Energy Partners
Ignacio Gas Treating Plant
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 synthetic MNSR permit and presents information that is germane to this permit action.

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I. Introduction

On July 27, 2016, the EPA received an application from Elm Ridge Exploration Company, LLC (Elm Ridge) requesting a permit for the Ignacio Gas Treating Plant in accordance with the requirements of the MNSR Permit Program. On May 29, 2017, the EPA received notification that the owner and operator of the facility had changed to Catamount Energy Partners (Catamount).

This permit action applies to an existing facility operating on the Southern Ute Indian Reservation in Colorado.

This synthetic 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. This permit is intended only to incorporate requested emission limits and provisions for operation of two (2) triethylene glycol (TEG) natural gas dehydration units operating at the facility. The limits were requested in accordance with a Settlement Agreement and Stipulated Final Compliance Order (Settlement Agreement) Enforcement Case (ID: 2016-02) executed between the Southern Ute Indian Tribe (SUIT) and Elm Ridge on May 2, 2016. A copy of the Settlement Agreement is included in the administrative docket for this proposed permit.

This synthetic MNSR permit reflects the incorporation of requirements at the request of Elm Ridge (maintained by Catamount). Elm Ridge requested these requirements in order to establish legally and practically enforceable requirements for benzene emissions from the TEG dehydration units operating at the facility for the purpose of avoiding certain requirements for hazardous air pollutants (HAP) in the National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Oil and Natural Gas Production Facilities at 40 CFR part 63, subpart HH.

The Ignacio Gas Treating Plant dehydrates and then compresses natural gas for pipeline transmission and can process up to 25 million standard cubic feet per day (MMscfd) of natural gas. The plant has two (2) 1.042 MMscf per hour TEG dehydration units used to remove water from natural gas. The two (2) TEG dehydration units have historically claimed the exemption from requirements at 40 CFR 63.764(d) of subpart HH due to the actual annual average emissions of benzene being less than 0.9 megagrams per year (Mg/yr), or 1 ton per year (tpy) per 40 CFR 63.764(e). The Settlement Agreement (Condition III.B.5) states that required extended gas sampling shall be used to demonstrate that actual annual benzene emissions are less than 0.9 Mg/yr per 40 CFR 63.772(b) and that if such a demonstration could be made for each TEG dehydration unit, Elm Ridge should apply to the EPA for a MNSR permit to establish legally and practically enforceable limits for the dehydrators to continue claiming the exemption from requirements at 40 CFR 63.764(d). Elm Ridge was able to make this demonstration for each of the dehydration units and, therefore, requested this proposed permit.

Upon compliance with the final synthetic MNSR permit, the legally and practically enforceable emission limitations can be used when determining the applicability of 40 CFR part 63, subpart HH, as well as other CAA requirements, such as the Title V Operating Permit Program at 40 CFR part 70 (part 70), in accordance with the SUIT's EPA-approved part 70 Operating Permit Program, and other NESHAPs at 40 CFR part 63.

II. Facility Description

The Ignacio Gas Treating Plant began initial operation in 1999. Wet gas contacts glycol in the contactor/absorber column of each TEG dehydration unit, where “lean” glycol (water-free) absorbs water from the gas stream. The dehydrated gas leaves the top of the absorber contactor, while the “rich” glycol (heavy with water) sinks to the bottom of the contactor where it is removed and routed to a flash separator where hydrocarbon vapors are removed and any liquid hydrocarbons are skimmed from the glycol. The rich glycol is passed through a heat exchanger and fed to the stripping column. The stripping column consists of a still column and reboiler designed to vaporize the water from the solution to regenerate the glycol. The glycol is recycled/reused in the contactor. The facility also uses a membrane unit to separate carbon dioxide gas from the natural gas stream, but there are no emissions of pollutants from the membrane unit. Two streams exit the membrane unit – a residue gas stream with a low concentration of carbon dioxide and a permeate gas stream that contains methane and the recovered carbon dioxide. The permeate gas is sent to market via pipeline for downstream processing and treating.

In addition to the two (2) TEG dehydration units, the Ignacio Gas Treating plant also operates a standby TEG dehydration unit (still vents do not operate simultaneously) and eight (8) natural gas-fired compressor engines.

The emission units identified in Table 1 are currently installed and/or operating at the facility and would be subject to the requirements in this proposed permit. 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 Permit 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 Proposed to be Regulated under this Permit

Unit/Emissions Description	Controls	Original Preconstruction Approval Date & Permit Number (as applicable)
One (1) low pressure TEG dehydration unit (Tejas Production Service Contactor, serial number (SN) 4501), 25 MMscfd maximum capacity throughput, with one (1) TEG reboiler rated at 0.5 million British thermal units per hour (MMBtu/hr) (Tejas Production Service, SN 4758).	Flash tank and elevated dispersion stack on reboiler still vent	No preconstruction approval required for installation of the dehydration unit. Installed prior to promulgation of the MNSR Permit Program. Historically claimed exemption from requirements of NESHAP, subpart HH for actual annual average benzene emissions less than 0.9 Mg/yr (1 tpy) per 40 CFR 63.764(e). May 2, 2016, Settlement Agreement and Stipulated Final Compliance Order Enforcement Case (ID: 2016-02) with the SUIT containing specific requirements for demonstrating actual annual average benzene emissions less than 0.9 Mg/yr (1 tpy) and applying for a MNSR permit from the EPA to establish legally and practically enforceable emission limitations for the unit.

Unit/Emissions Description	Controls	Original Preconstruction Approval Date & Permit Number (as applicable)
One (1) low pressure TEG dehydration unit (Valerus Contactor, SN S07-171), 12 MMscfd maximum capacity throughput, with one (1) TEG reboiler rated at 1.0 MMBtu/hr (Valerus, SN P2162).	Flash tank	<p>No preconstruction approval required for installation of the dehydration unit. Installed prior to promulgation of the MNSR Permit Program.</p> <p>Historically claimed exemption from requirements of NESHAP, subpart HH for actual annual average benzene emissions less than 0.9 Mg/yr (1 tpy) per 40 CFR 63.764(e).</p> <p>May 2, 2016, Settlement Agreement and Stipulated Final Compliance Order Enforcement Case (ID: 2016-02) with the SUIT contained specific requirements for demonstrating actual annual average benzene emissions less than 0.9 Mg/yr (1 tpy) and applying for a MNSR permit from the EPA to establish legally and practically enforceable emission limitations for the unit.</p>

Table 2. Emissions for TEG Dehydration Units Proposed to be Regulated under this Permit

Pollutant	Controlled Potential Emissions (tons per year)	
PM	0.0	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 ₂ O – 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 <i>HFCs, PFCs and SF₆ emissions are not created during oil and gas production operations.</i>
PM ₁₀	0.0	
PM _{2.5}	0.0	
SO ₂	0.09	
NO _x	0.64	
CO	0.54	
VOC	4.63	
Greenhouse Gases		
CO ₂ (mass basis)	NA	
CH ₄ (mass basis)	NA	
N ₂ O (mass basis)	NA	
HFCs (mass basis)	NA	
PFCs (mass basis)	NA	
SF ₆ (mass basis)	NA	
GHG _{total} (mass basis)	NA	
CO _{2e} (Total)	2,926.30	
Hazardous Air Pollutants (HAPs)		
Acetaldehyde	NA	
Acrolein	NA	
Benzene	0.49	
Ethyl-Benzene	NA	
Toluene	NA	
n-Hexane	NA	
Xylene	NA	
Formaldehyde	NA	
Total HAPs	0.62*	

*Total is represented as the current and proposed allowable emission limit and is inclusive of, but not limited to, the individual HAPs listed above.

III. Proposed Synthetic MNSR Permit Action

A. TEG Dehydration Units

The natural gas industry commonly uses the glycol absorption process to remove naturally occurring water from raw natural gas. Most commonly, the glycol absorbent used is TEG. The TEG dehydration process produces VOC and HAP emissions from pressure reduction of rich glycol (immediately post absorption and prior to stripping and regeneration) and from the stripping of the rich glycol to regenerate lean glycol to be reused in the process. Often TEG dehydration units are equipped with a flash tank or flash separator to which “rich” glycol removed from the bottom of the contactor is routed for removal of hydrocarbon vapors and skimming of any liquid hydrocarbons from the glycol. The HAP emissions consist primarily of benzene, toluene, ethylbenzene and xylenes.

The primary form of emission control is to capture and route the emissions through a closed-vent system either to: an enclosed combustion device, flare, or other combustion device to destroy the hydrocarbon content of the vapors; or to be injected into a pipeline for market sale. Elm Ridge captures and routes emissions from the two TEG dehydration units in either a residue gas stream sent via pipeline to the untreated gas market or a permeate gas stream sent downstream via pipeline for further processing and treating before entering the treated gas market.

Catamount’s TEG Dehydration Process at the Ignacio Gas Treating Plant is capable of processing 25 MMscf of natural gas per day using two (2) TEG dehydrators. The following are the dehydrators currently operating at the Ignacio Gas Treating Plant:

1. One (1), high pressure 25 MMscfd dehydration unit with a 0.5 MMBtu/hr natural gas fired TEG reboiler and flash tank and equipped with an elevated dispersion stack on the TEG reboiler still vent; and
2. One (1), low pressure 12 MMscfd dehydration unit with a 1.0 MMBtu/hr natural gas fired TEG reboiler and flash tank.

Elm Ridge explained in their permit application (maintained by Catamount) that the two (2) TEG dehydration units have historically claimed the exemption from the requirements of 40 CFR 63.764(d) of NESHAP subpart HH because their actual annual average emissions of benzene were less than 0.9 Mg/yr (1 tpy) per 40 CFR 63.764(e). The Settlement Agreement stated that if using extended gas sampling demonstrates that the two (2) TEG dehydration units meet the actual annual average benzene exemption, Elm Ridge should apply to the EPA to obtain an MNSR permit to establish legally and practically enforceable benzene emission limitations for the TEG dehydration units. We are proposing the following enforceable emission limitations for the two (2) TEG dehydration units, based on our review of Elm Ridge’s application:

1. Establishment of an optimum glycol recirculation rate and associated recordkeeping consistent with 40 CFR 63.764(d)(2).

Based on information in Elm Ridge’s permit application (maintained by Catamount), the optimum glycol circulation rate was determined according to 40 CFR 63.764(d)(2) to be 3.9 gallons per minute (gpm) for the high-pressure TEG dehydration unit and 2.5 gpm for the low-pressure TEG dehydration unit. 40 CFR 63.764(d)(2)(ii) allows for calculation of an alternate circulation rate using GRI-GLYCalc™ if a subject unit is unable to meet the sales gas

specification for moisture content using the calculated optimal glycol circulation rate, and must document why the unit must be operated using the alternate circulation rate. Catamount uses a slightly higher rate, 4.7 gpm, than the calculated optimum glycol circulation rate for the high-pressure TEG dehydration unit, 3.9 gpm, to protect the membranes in the downstream membrane treatment unit. The slight over-circulation ensures that the life of the membrane is significantly extended. The difference in benzene emissions between these two circulation rates is less than 10% of the benzene exemption level of 0.9 Mg/yr (1 tpy). Catamount also uses a higher glycol circulation rate, 5.5 gpm, than the calculated optimum glycol circulation rate for the low-pressure TEG dehydration unit, to compensate for an undersized gas cooler and thereby meet pipeline specifications for water content. This over-circulation is done primarily in hot weather months and the difference in benzene emissions between the two circulation rates is less than 1% of the benzene exemption level of 0.9 Mg/yr (1 tpy).

2. Establishment of a maximum operating temperature for the two (2) TEG dehydration unit regenerator still vents and associated monitoring and recordkeeping to ensure the maximum operating temperature is not exceeded.

Elm Ridge requested (maintained by Catamount) a maximum operating temperature for the two (2) TEG dehydration unit regenerator still vents of 375 °F. According to information Elm Ridge provided in the permit application, the regenerator still vents actually operate between 200 °F and 215 °F and the operating temperature of the regenerator is monitored by operating procedures at 375 °F, which ensures that the steam exiting the still vent is at least 197 °F. The regenerators are equipped with a temperature indicator (simple gauge) to monitor the operating temperatures of the regenerator and Catamount performs daily manual readings to ensure the maximum operating temperature is not exceeded.

According to the SUIT Air Quality Program, the TEG dehydration units are undersized for gas flow through the system. Catamount has to elevate the TEG temperature in the regenerators at or above the temperature for burning TEG in order to drive the moisture from the TEG fast enough to keep up with the influent wet gas flow. Subsequently, scorched TEG vapors were found exiting the regenerator still vent, causing a strong odor in the vicinity of the plant. The Settlement Agreement attempted to address the issue by requiring the addition of dispersion stacks on the still vents (previously plumbed to ground level) and by requiring continuous monitoring of the temperature of the steam exiting the TEG regenerator still vent to prevent excessive temperatures that result in scorching of the TEG. Elm Ridge requested (maintained by Catamount) that the permit contain the same temperature monitoring equipment and protocol as they currently employ; however, given the issues identified by the SUIT Air Quality Program, we determined that a manual gauge on the regenerators, rather than on the still vents, and once per day reading and recordkeeping, is insufficient to demonstrate that the maximum operating temperature of the steam exiting the still vents is not being exceeded. Digital gauges capable of measuring and recording temperatures at regular more frequent intervals and with alarm features should a temperature exceed a certain set point are commercially and readily available and would allow for truly “continuous” measurement to assure compliance with the maximum operating temperature limit. Therefore, we are proposing that a temperature indicating device capable of continuously measuring and recording the operating temperature in the TEG dehydration unit regenerator still vents be installed and operated at all times that the respective TEG dehydration unit is operating.

3. Installation of an elevated dispersion stack on the reboiler for the high-pressure TEG dehydration unit.

At Elm Ridge's request (maintained by Catamount) and consistent with the Settlement Agreement, we are proposing a requirement to install an elevated dispersion stack on the reboiler of the high-pressure TEG dehydration unit to aid in dispersion of emissions from the unit. We have included a note in the permit that the riser was installed on June 28, 2016.

4. Establishment of emission limits for the high-pressure and low-pressure TEG dehydration units, such that benzene emissions from each unit shall not exceed 0.9 Mg/yr (or 1 tpy) in any consecutive 12-month period.

At Elm Ridge's request (maintained by Catamount) and consistent with the Settlement Agreement, we are proposing a benzene emissions limit of 0.9 Mg/yr (or 1 tpy) for each TEG dehydration unit, to ensure that Catamount may continue to meet the exemption from the requirements of NESHAP subpart HH at 40 CFR 63.764(d). To ensure compliance with those emission limits, we are proposing a requirement that emissions from the flash tank on each TEG dehydration unit be captured and routed through a closed-vent system to be injected to a gathering pipeline to natural gas market. We are proposing associated monitoring of the closed-vent systems to ensure that they are leak free. We are also proposing that benzene emissions from each unit be calculated on a monthly basis and those monthly emissions used to calculate a rolling 12-month total. We are proposing to require that an extended laboratory analysis of the wet gas processed through the TEG dehydration units be conducted annually and used in GRI-GLYCalc™ runs to estimate monthly emissions from each unit. The GLYCalc™ run shall also use the total monthly throughput of wet gas to each unit, averaged on a daily basis, and the worst case pressure and temperature parameters, as inputs to the GLYCalc™ runs.

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 issuance of this synthetic MNSR permit and the emissions will continue to be well controlled at all times. This synthetic MNSR permit 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. Furthermore, the substantive requirements of the Consent Agreement with the EPA and the Settlement Agreement with the SUIT Air Quality Program have already been fulfilled at this facility. In short, issuance of this synthetic MNSR permit will have no adverse air quality impacts; therefore, we have determined that an AQIA modeling analysis is not required for the proposed synthetic MNSR permit.

V. Tribal Consultations and Communications

We offer tribal government leaders an opportunity to consult on each proposed synthetic 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 SUIT was offered an opportunity to consult on this synthetic MNSR permit action

via letter dated February 9, 2017. On March 9, 2017, the EPA received a letter from the Chairman accepting the EPA's offer to consult on the proposed permit, with instruction to work with the Tribe's Air Quality Program to arrange consultation. The EPA consulted with the Tribe's Air Quality Program via teleconference on May 10, 2017. As the permit was requested as a result of the Settlement Agreement between the SUIT and Elm Ridge, the Air Quality Program desired to verify that the proposed conditions of the permit met the intent of the Settlement Agreement. The EPA verbally discussed the proposed permit conditions and the Air Quality Program expressed satisfaction with the information provided. The consultation for this permit action is considered to be completed.

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 <https://www.epa.gov/caa-permitting/tribal-nsr-permits-region-8>). The Tribe is asked to respond to us with questions and comments on the application within 10 business days from receiving it. 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 synthetic 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 synthetic 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 policies. 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 environmental justice communities and assess potential effects in connection with issuing the proposed CAA synthetic MNSR permit in La Plata County within the exterior boundaries of the Southern Ute Indian Reservation.

A. Environmental Impacts to Potentially Overburdened Communities

This synthetic 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 email list 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 permit applications (synthetic minor, modification to an existing facility, new true minor or general permit) are submitted to both the SUIIT and the EPA per the application instructions (see <http://www2.epa.gov/region8/tribal-minor-new-source-review-permitting>).
3. The Tribe is asked to respond within 10 business days to the EPA 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 9, 2017, and received a letter accepting the offer on March 9, 2017. Consultation with the Tribe was conducted via teleconference on May 10, 2017, and is considered completed.

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, or for any minor source to voluntarily accept restrictions on its potential to emit for any other reasons. 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 Catamount Ignacio Gas Treating Plant 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 37.10N, Longitude -107.77W, in La Plata County, Colorado.

VIII. Public Notice and Comment, Hearing and Appeals

A. Public Comment Period

In accordance with 40 CFR 49.157, the EPA 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
(Please call Danny Powers, Air Quality Technical Manager, at 970-563-4705 in advance of your visit)

And

U.S. EPA
Region 8 Air Program Office
1595 Wynkoop Street (8P-AR)
Denver, Colorado 80202-1129
(Please call Claudia Smith at 303-312-6520 in advance of your visit)

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 <https://www.epa.gov/caa-permitting/caa-permit-public-comment-opportunities-region-8>.

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 Catamount Ignacio Gas Treating Plant".

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 proposed synthetic 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 synthetic MNSR permit decision.

C. Final Synthetic 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 <https://www.epa.gov/caa-permitting/caa-permits-issued-epa-region-8>. Anyone may request a copy of the final synthetic 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.

Smith, Claudia

From: Smith, Claudia
Sent: Friday, June 23, 2017 4:01 PM
To: 'creid@catamountep.com'
Cc: <alanjkane@comcast.net>; 'Russell Hamm'; Fallon, Gail; Danny Powers; Mark Hutson (mhutson@southernute-nsn.gov)
Subject: Proposed Synthetic Minor NSR Permit for Catamount Ignacio Gas Treating Plant
Attachments: Bulletin Board Notice Proposed MNSR Permit for Catamount Ignacio Gas Treating Plant.pdf; Catamount IgnacioGTP Proposed Permit&TSD SMNSR-SU-000052-2016 001.pdf

I have attached the requested proposed permit, the accompanying technical support document, and the bulletin board notice for the proposed synthetic minor NSR permit for the Ignacio Gas Treating Plant. We will also be posting the proposed permit, technical support document, application and other supporting permit information in PDF format on our website at <http://www.epa.gov/caa-permitting/caa-permit-public-comment-opportunities-region-8> by the start of the public comment period.

In accordance with the regulations at 40 CFR 49.157 and 49.158, we are providing at least a 30-day period from June 26, 2017 to July 27, 2017 for public comment on this proposed permit (extended by one day to account for the July 4th holiday). Comments must be received by 5:00pm MT July 27, 2017, to be considered in the issuance of the final permit.

Please submit any written comments you may have concerning the terms and conditions of this permit. You can send them directly to me at smith.claudia@epa.gov, or to r8airpermitting@epa.gov. Should the EPA not accept any or all of these comments, you will be notified in writing and will be provided with the reasons for not accepting them.

Thank you,

Claudia Young Smith
Environmental Scientist
Air Program, Mail Code 8P-AR
US Environmental Protection Agency Region 8
1595 Wynkoop Street
Denver, Colorado 80202

Phone: (303) 312-6520

Fax: (303) 312-6064

<http://www.epa.gov/caa-permitting/caa-permitting-epas-mountains-and-plains-region>

Smith, Claudia

From: Smith, Claudia
Sent: Friday, June 23, 2017 4:02 PM
Subject: Notice of Public Comment Period – Proposed Permit to Construct on the Southern Ute Indian Reservation
Attachments: Bulletin Board Notice Proposed MNSR Permit for Catamount Ignacio Gas Treating Plant.pdf

In accordance with the regulations at 40 CFR 49.157 and 49.158, the EPA is hereby providing notification of the availability for public comment of the proposed Clean Air Act synthetic minor New Source Review permit for the following source located on the Southern Ute Indian Reservation:

Catamount Energy Partners – Ignacio Gas Treating Plant

Electronic copies of the proposed permit, technical support document, application and other supporting permit information may be viewed online at <http://www.epa.gov/caa-permitting/caa-permit-public-comment-opportunities-region-8>.

Paper copies of the proposed permit, technical support document, application, and other supporting permit information may be reviewed by contacting the Federal and/or Tribal contacts identified on the attached public notice bulletin.

Comments may be sent by mail to:

US EPA Region 8
Air Program Office
1595 Wynkoop Street, 8P-AR
Denver, CO 80202
Attn: Claudia Smith - Tribal NSR Coordinator

or

Electronically to R8AirPermitting@epa.gov

In accordance with the regulations at §49.157, the Agency is providing at least a 30-day period from June 26, 2017 through July 27, 2017 for public comment on this proposed permit. Comments must be received by 5:00pm MT July 27, 2017, to be considered in the issuance of the final permit. If a public hearing is held regarding this permit, you will be sent a copy of the public hearing notice at least 30 days in advance of the hearing date.

Claudia Young Smith
Environmental Scientist
Air Program, Mail Code 8P-AR
US Environmental Protection Agency Region 8
1595 Wynkoop Street
Denver, Colorado 80202

Phone: (303) 312-6520

Fax: (303) 312-6064

<http://www.epa.gov/caa-permitting/caa-permitting-epas-mountains-and-plains-region>

Smith, Claudia

From: Smith, Claudia
Sent: Thursday, June 22, 2017 4:50 PM
To: Danny Powers
Subject: Materials for Public Notice and Comment: Proposed MNSR Permit for Catamount Ignacio Gas Treating Plant
Attachments: Administrative Docket - Catamount IgnacioGTP Proposed Permit SMNSR-SU-000052-2016 001.pdf; Bulletin Board Notice Proposed MNSR Permit for Catamount Ignacio Gas Treating Plant.pdf

Mr. Powers,

The U.S. Environmental Protection Agency Region 8 is proposing to issue a synthetic minor permit for the Catamount Energy Partners Ignacio Gas Treating Plant on the Southern Ute Indian Reservation, in accordance with the Tribal Minor New Source Review Permit Program at 40 CFR part 49. As requested by Catamount, this permit would incorporate enforceable requirements for the installation and operation of two tri-ethylene glycol (TEG) dehydration systems for control of benzene emissions. This permit is only intended to incorporate requested emission limits and provisions from the permit application for existing emissions units operating at the facility and will not approve any new construction or increases in emissions.

A public comment period for the proposed permit will begin on **June 26, 2017**, and end on **July 27, 2017**.

I have enclosed PDFs containing the proposed permit and supporting documentation, and we ask that you please make this material available for public review until the end of the public comment period. In addition, I have provided a PDF of the bulletin board public notice announcement and would appreciate it if you could post this announcement in prominent locations in your area, or otherwise as you see fit (e.g., as discussed previously, in the Tribal newspaper). All of these documents will also be available for review in electronic format on our website at: <https://www.epa.gov/caa-permitting/caa-permit-public-comment-opportunities-region-8>.

Thank you for your assistance in this matter. Should you have any questions regarding our request you may contact me at (303) 312-6520.

Claudia Young Smith
Environmental Scientist
Air Program, Mail Code 8P-AR
US Environmental Protection Agency Region 8
1595 Wynkoop Street
Denver, Colorado 80202

Phone: (303) 312-6520

Fax: (303) 312-6064

<http://www.epa.gov/caa-permitting/caa-permitting-epas-mountains-and-plains-region>

MEMO TO FILE

DATE: June 20, 2017

SUBJECT: Southern Ute Indian Reservation, Ignacio Gas Treating Plant; Catamount Energy Partners, Environmental Justice

FROM: Colin Schwartz, EPA Region 8 Air Program

TO: Source Files:
AIRTRIBAL, SU, Catamount Energy Partners Ignacio Gas Treating Plant
SMNSR-SU-000052-2016.001, 7/27/2016
FRED # 109625

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" as the fair treatment and 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 with respect to Environmental Justice in permitting is to enable overburdened communities to have full and meaningful access to the permitting process and to develop permits that address environmental justice issues to the greatest extent practicable under existing environmental laws. *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 as a result of greater vulnerability to environmental hazards.

This discussion describes our efforts to identify environmental justice communities and assess potential effects in connection with issuing this permit in La Plata County, Colorado, on Indian country lands within the Southern Ute Indian Reservation.

As described in the following sections of this memorandum, we conclude that issuance of the aforementioned permit is not expected to have disproportionately high or adverse human health effects on overburdened or any communities in the vicinity of the facility.

Permit Request

The EPA received an application from Elm Ridge Exploration Company, LLC. (Elm Ridge) requesting a synthetic minor permit for the existing Ignacio Gas Treating Plant in accordance with the requirements of the Tribal Minor New Source Review (MNSR) Permit Program at 40 CFR Part 49. Elm Ridge, per the Settlement Agreement and Stipulated Final Compliance Order Enforcement Case (ID:2016-02) with the Southern Ute Indian Tribe (Settlement Agreement), requested legally and practically enforceable limits for two (2) triethylene glycol (TEG) dehydration units operating at the facility to limit benzene

emissions. On May 29, 2017, the EPA received notification that the owner and operator of the facility had changed to Catamount Energy Partners (Catamount).

This permit 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. This permit is only intended to incorporate requested enforceable emission limits and operational restrictions from the MNSR application. Catamount (formerly Elm Ridge), per the Settlement Agreement, requested legally and practically enforceable limits for the (2) TEG dehydration units to limit benzene emissions to less than 0.9 megagrams, or one ton, in any consecutive 12 months.

Upon compliance with this permit, Catamount will have legally and practically enforceable restrictions on emissions that can be used when determining the applicability of other CAA permitting requirements, such as under the Prevention of Significant Deterioration Permit Program at 40 CFR Part 52 and the Title V Operating Permit Program at 40 CFR Part 71. The EPA has determined that issuance of this MNSR permit will not contribute to National Ambient Air Quality Standards (NAAQS) violations, or have potentially adverse effects on ambient air quality.

The facility is located at:

Sec 13 T33N R9W
Latitude 37.10, Longitude -107.77

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. Because the permit actions do not authorize the construction of any new emission sources, or emission increases from existing units we have determined that an AQIA modeling analysis is not required for this action.

For purposes of Executive Order 12898 on environmental justice, the EPA has recognized that compliance with the NAAQS is “emblematic of achieving a level of public health protection that, based on the level of protection afforded by a primary NAAQS, demonstrates that minority or low-income populations will not experience disproportionately high and adverse human health or environmental effects due to the exposure to relevant criteria pollutants.” *In re Shell Gulf of Mexico, Inc. & Shell Offshore, Inc.*, 15 E.A.D., slip op. at 74 (EAB 2010). This is because the NAAQS are health-based standards, designed to protect public health with an adequate margin of safety, including sensitive populations such as children, the elderly, and asthmatics.

The EPA has determined that issuance of this MNSR permit will not contribute to National Ambient Air Quality Standards (NAAQS) violations, or have potentially adverse effects on ambient air quality.

Environmental Impacts to Potentially Overburdened Communities

This 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 associated action.

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, we conclude that issuance of the aforementioned permit will not have disproportionately high or adverse human health effects on communities in the vicinity of the Southern Ute Indian Reservation.

Tribal Consultation and 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 email list that notifies them of public comment opportunities on the Southern Ute Indian Reservation for proposed air pollution control permits via email at <https://www.epa.gov/caa-permitting/caa-permit-public-comment-opportunities-region-8>.
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 <https://www.epa.gov/caa-permitting/tribal-nsr-permits-region-8>).
3. The Tribe is asked to respond within 10 business days 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 9, 2017. On March 9, 2017, the EPA received a letter from the Chairman accepting the EPA’s offer to consult on the proposed permit, with instruction to work with the Tribe’s Air Quality Program to arrange consultation. The EPA consulted with the Tribe’s Air Quality Program via teleconference on May 10, 2017. As the permit was requested as a result of the Settlement Agreement between the SUI and Elm Ridge, the Air Quality Program desired to

verify that the proposed conditions of the permit met the intent of the Settlement Agreement. The EPA verbally discussed the proposed permit conditions and the Air Quality Program expressed satisfaction with the information provided. The consultation for this permit action is considered to be completed.

MEMO TO FILE

DATE: June 20, 2017

SUBJECT: Southern Ute Indian Reservation, Ignacio Gas Treating Plant; Catamount Energy Partners, Endangered Species Act

FROM: Colin Schwartz, EPA Region 8 Air Program

TO: Source Files:
AIRTRIBAL, SU, Catamount Energy Partners Ignacio Gas Treating Plant
SMNSR-SU-000052-2016.001, 7/27/2016
FRED # 109625

Pursuant to Section 7 of the Endangered Species Act (ESA), 16 U.S.C. §1536, and its implementing regulations at 50 CFR, part 402, the EPA is required to ensure that any action authorized, funded, or carried out by the Agency is not likely to jeopardize the continued existence of any Federally-listed endangered or threatened species or result in the destruction or adverse modification of such species' designated critical habitat. Under ESA, those agencies that authorize, fund, or carry out the federal action are commonly known as "action agencies." If an action agency determines that its federal action "may affect" listed species or critical habitat, it must consult with the U.S. Fish and Wildlife Service (FWS). If an action agency determines that the federal action will have no effect on listed species or critical habitat, the agency will make a "no effect" determination. In that case, the action agency does not initiate consultation with the FWS and its obligations under Section 7 are complete.

In complying with its duty under ESA, the EPA, as the action agency, examined the potential effects on listed species and designated critical habitat relating to issuing this Clean Air Act (CAA) synthetic minor New Source Review permit in La Plata County, Colorado, on Indian country lands within the Southern Ute Indian Reservation.

This memorandum describes EPA's efforts to assess potential effects on TES in connection with issuing this Clean Air Act (CAA) synthetic minor New Source Review permit in La Plata County, Colorado, on Indian country lands within the Southern Ute Indian Reservation. As explained further below, EPA has concluded that the proposed permit action will have "*No effect*" on listed TES or designated critical habitat.

Permit Request

The EPA received an application from Elm Ridge Exploration Company, LLC. (Elm Ridge) requesting a synthetic minor permit for the existing Ignacio Gas Treating Plant in accordance with the requirements of the Tribal Minor New Source Review (MNSR) Permit Program at 40 CFR Part 49. Elm Ridge, per the Settlement Agreement and Stipulated Final Compliance Order Enforcement Case (ID:2016-02) with the Southern Ute Indian Tribe (Settlement Agreement), requested legally and practically enforceable limits for two (2) triethylene glycol (TEG) dehydration units operating at the facility to limit benzene emissions. On May 29, 2017, the EPA received notification that the owner and operator of the facility had changed to Catamount Energy Partners (Catamount).

This permit 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. This permit is only intended to incorporate requested enforceable emission limits and operational restrictions from the MNSR application. Catamount (formerly Elm Ridge), per the Settlement Agreement, requested legally and practically enforceable limits for the (2) TEG dehydration units to limit benzene emissions to less than 0.9 megagrams, or one ton, in any consecutive 12 months.

Upon compliance with this permit, Catamount will have legally and practically enforceable restrictions on emissions that can be used when determining the applicability of other CAA permitting requirements, such as under the Prevention of Significant Deterioration Permit Program at 40 CFR Part 52 and the Title V Operating Permit Program at 40 CFR Part 71. The EPA has determined that issuance of this MNSR permit will not contribute to National Ambient Air Quality Standards (NAAQS) violations, or have potentially adverse effects on ambient air quality.

The facility is located at:

Sec 13 T33N R9W
Latitude 37.10, Longitude -107.77

Conclusion

The EPA has concluded that the proposed synthetic minor NSR permit action will have “*No effect*” on listed TES or designated critical habitat. This proposed 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 associated facility or its operations. The emissions, approved at present, from the existing facility will not increase due to the associated permit action. Because the EPA has determined that the federal action will have no effect on TES or designated critical habitat, the agency has made a “*No effect*” determination. Therefore, the EPA did not initiate consultation with the FWS and our obligations under Section 7 are complete.

MEMO TO FILE

DATE: June 20, 2017

SUBJECT: Southern Ute Indian Reservation, Ignacio Gas Treating Plant; Catamount Energy Partners, National Historic Preservation Act

FROM: Colin Schwartz, EPA Region 8 Air Program

TO: Source Files:
AIRTRIBAL, SU, Catamount Energy Partners Ignacio Gas Treating Plant
SMNSR-SU-000052-2016.001, 7/27/2016
FRED # 109625

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to take into account the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment with regard to such undertakings. Under the ACHP's implementing regulations at 36 C.F.R. Part 800, Section 106 consultation is generally with state and tribal historic preservation officials in the first instance, with opportunities for the ACHP to become directly involved in certain cases. An "undertaking" is "a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license or approval." 36 C.F.R. § 800.16(y).

Under the NHPA Section 106 implementing regulations, if an undertaking is a type of activity that has the potential to cause effects on historic properties, assuming any are present, then federal agencies consult with relevant historic preservation partners to determine the area of potential effect (APE) of the undertaking, to identify historic properties that may exist in that area, and to assess and address any adverse effects that may be caused on historic properties by the undertaking. If an undertaking is a type of activity that does not have the potential to cause effects on historic properties, the federal agency has no further obligations. 36 C.F.R. § 800.3(a)(1).

This memorandum describes EPA's efforts to assess potential effects on historic properties in connection with to issuing this Clean Air Act (CAA) synthetic minor New Source Review permit in La Plata County, Colorado, on Indian country lands within the Southern Ute Indian Reservation. As explained further below, EPA is finding that the proposed action does not have the potential to cause effects on historic properties, even assuming such historic properties are present.

Permit Request

The EPA received an application from Elm Ridge Exploration Company, LLC. (Elm Ridge) requesting a synthetic minor permit for the existing Ignacio Gas Treating Plant in accordance with the requirements of the Tribal Minor New Source Review (MNSR) Permit Program at 40

CFR Part 49. Elm Ridge, per the Settlement Agreement and Stipulated Final Compliance Order Enforcement Case (ID:2016-02) with the Southern Ute Indian Tribe (Settlement Agreement), requested legally and practically enforceable limits for two (2) triethylene glycol (TEG) dehydration units operating at the facility to limit benzene emissions. On May 29, 2017, the EPA received notification that the owner and operator of the facility had changed to Catamount Energy Partners (Catamount).

This permit 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. This permit is only intended to incorporate requested enforceable emission limits and operational restrictions from the MNSR application. Catamount (formerly Elm Ridge), per the Settlement Agreement, requested legally and practically enforceable limits for the (2) TEG dehydration units to limit benzene emissions to less than 0.9 megagrams, or one ton, in any consecutive 12 months.

Upon compliance with this permit, Catamount will have legally and practically enforceable restrictions on emissions that can be used when determining the applicability of other CAA permitting requirements, such as under the Prevention of Significant Deterioration Permit Program at 40 CFR Part 52 and the Title V Operating Permit Program at 40 CFR Part 71. The EPA has determined that issuance of this MNSR permit will not contribute to National Ambient Air Quality Standards (NAAQS) violations, or have potentially adverse effects on ambient air quality.

The facility is located at:

Sec 13 T33N R9W
Latitude 37.10, Longitude -107.77

Finding of No Historic Properties Affected

The EPA has reviewed the proposed action for potential impacts on historic properties. Because the activities authorized by the EPA permit 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, the Agency finds that this permit action will have no effect on historic properties, even assuming any are present.

State and Tribal Consultation

Because this undertaking is a type of activity that does not have the potential to cause effects on historic properties, the EPA has no further obligations under Section 106 of the National Historic Preservation Act or 36 C.F.R. part 800.



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
FEDERAL MINOR NEW SOURCE REVIEW PROGRAM IN INDIAN COUNTRY
40 CFR 49.151**

**Change in Company Ownership Notification
(Form OWN)**

Use of this information request form is voluntary and not approved by the Office of Management and Budget. The following is a check list of the type of information that Region 8 will use to process information on your change in ownership notification. While submittal of this form is not required, it does offer details on the information we will use to process the change in ownership. Use of application forms for this program is currently under Office of Management and Budget review and these information request forms will be replaced/updated after that review is completed.

Please submit information to following two entities:

Federal Minor NSR Permit Coordinator
U.S. EPA, Region 8
1595 Wynkoop Street, 8P-AR
Denver, CO 80202-1129
R8airpermitting@epa.gov

For more information, visit:
<http://www.epa.gov/caa-permitting/tribal-nsr-permitting-region-8>

The Tribal Environmental Contact for the specific reservation:

If you need assistance in identifying the appropriate Tribal Environmental Contact and address, please contact
R8airpermitting@epa.gov.

FACILITY INFORMATION

Facility Name and Description			
Ignacio Gas Treating Plant			
Minor Source Permit To Construct Number N/A Application Submitted to EPA on 7/25/2016			
Physical Address (home base for portable sources) 11117 CR310 Ignacio, Colorado 81137			
Reservation	County* La Plata	Latitude (decimal format)* N 37.10	Longitude (decimal format)* W -107.77
Quarter Quarter Section*	Section* 13	Township* 33N	Range* 9W

*Provide all proposed locations of operation for portable sources

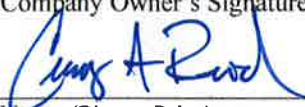
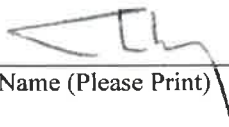
NEW COMPANY	PREVIOUS COMPANY
Company Name (Who owns this facility?) Catamount Energy Partners (Facility Operator)	Company Name (Who was the previous owner?) Elm Ridge Exploration Company, LLC Ignacio Gas Treating Plant
New Company Contact/Title (Who is the <u>primary</u> contact for the new company that owns this facility?) Craig Reid / President	
Mailing Address 1801 Broadway, Suite 1000 Denver, Colorado 80202	
Email Address creid@catamountep.com	
Telephone Number (720) 484-2344	
Facsimile Number	

INFORMATION ON HOW TO HANDLE MULTIPLE SITES

On a separate piece of paper continue the list of the facility source name, permit number, and location descriptions for each facility/source for which ownership has changed.

The undersigned, as an authorized representative of the company, acknowledges that the above information is correct, and requests that the name change be made in all Air Permitting records.

AUTHORIZATION

New Company Catamount Energy Partners (Facility Operator)	Previous Company Elm Ridge Exploration Company, LLC
Company Owner's Signature 	Previous Company Owner's Signature 
Name (Please Print) Craig Reid	Name (Please Print) James M. Clark, Jr.
Title President	Title President



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8**

1595 Wynkoop Street
DENVER, CO 80202-1129
Phone 800-227-8917
<http://www.epa.gov/region08>

May 10, 2017

Ref: 8P-AR

MEMORANDUM

SUBJECT: Record of Communication – Consultation with Southern Ute Indian Tribe Air Quality Program

FROM: Claudia Smith
Air Program

TO: Ignacio Gas Treating Plant Proposed Synthetic Minor NSR Permit Consultation

This memorandum is to serve as a record of communication for a consultation that occurred between the Southern Ute Indian Tribe's Air Quality Program (AQP) and US EPA Region 8 on May 10, 2017, by teleconference.

Attendees:

EPA Patrick Rogers, Region 8 Tribal Advisor
Claudia Smith, Air Permitting and Monitoring Unit

Southern Ute Tribe AQP Mark Hutson, AQP Manager, Southern Ute Indian Tribe
Danny Powers, AQP Air Permitting Manager, Southern Ute Indian Tribe

Summary of Consultation

The purpose of this meeting was to discuss with the Tribe a proposed minor New Source Review (MNSR) permit being drafted by the EPA for the existing Ignacio Gas Treating Plant on the Southern Ute Indian Reservation. The meeting was in response to a request for consultation from the Chairman of the Southern Ute Indian Tribe (Honorable Clement J. Frost), dated March 6, 2017, directing the EPA to work with Mark Hutson, AQP Manager, for further coordination and consultation.

EPA provided a verbal summary of the conditions drafted in the proposed permit and discussions focused on how the conditions relate to the intent of a consent agreement between the Southern Ute Indian Tribe and former owner operator of the facility, Elm Ridge Exploration Company, LLC (now Catamount Energy Partners), requiring that the operator apply for such a permit with the EPA.

We asked if there was additional information the Tribe would like to share or concerns that the Tribe would like to raise regarding EPA proceeding to propose the permit. The AQP expressed satisfaction that the EPA's draft proposed permit would meet the intent of the Tribe's settlement agreement with the operator and that they looked forward to reviewing the proposed permit during the public comment period.

Smith, Claudia

Subject: Elm Ridge TMNSR Permit Discussion

Location: Conf Call

Start: Wed 5/10/2017 11:00 AM

End: Wed 5/10/2017 12:00 PM

Recurrence: (none)

Meeting Status: Accepted

Organizer: Powers, Daniel

Call to discuss the proposed TMNSR permit for Elm Ridge Ignacio Gas Plant
Claudia and Patrick,

The conference number for today's call is: 970-563-4791

Smith, Claudia

From: Hayes, Oakley <ohayes@southernute-nsn.gov>
Sent: Thursday, March 09, 2017 9:19 AM
To: Smith, Claudia
Cc: Powers, Daniel
Subject: MNSR Permit (Elm Ridge) Consultation
Attachments: 170306 FINAL EPA Consultation Acceptance Letter (Elm RIdge).pdf

Ms. Smith,

Please find attached the Southern Ute Indian Tribe's letter accepting EPA's offer to consult on the specified permitting action. A hard copy will also be mailed to you.
If you have any questions or concerns, please contact me.

Regards,

Oakley Hayes
Air Quality Scientist
Southern Ute Indian Tribe
Office: 970-563-2244





SOUTHERN UTE INDIAN TRIBE

March 6, 2017

Claudia Smith, Permit Engineer
U.S. Environmental Protection Agency Region 8
1595 Wynkoop Street
Denver, CO 80202-1129

RE: Notification of Consultation and Coordination with Respect to the Issuance of Air Pollution Control Permit to Elm Ridge Exploration Company, LLC, for the Ignacio Gas Treating Plant on the Southern Ute Indian Reservation

Ms. Smith,

This letter is in response to the U.S. Environmental Protection Agency Region 8's (EPA) offer to consult on the issuance of a Clean Air Act air pollution control Minor New Source Review permit (MNSR) for Elm Ridge Exploration Company, LLC's (Elm Ridge) Ignacio Gas Treating Plant. In accordance with Settlement Agreement and Stipulated Final Compliance Order Enforcement Case 2016-02, executed between the Southern Ute Indian Tribe (Tribe) and Elm Ridge on May 2, 2016, Elm Ridge has applied for a MNSR permit.

The Tribe appreciates the opportunity, and would like to accept the offer to consult with EPA on this permitting action. Please coordinate the consultation through the Environmental Program Division's Air Quality Program Manager, Mark Hutson. Questions and communications should be directed to him at mhutson@southernute-nsn.gov.

Sincerely,

A handwritten signature in blue ink that reads "Clement J. Frost".

Clement J. Frost
Southern Ute Indian Tribe Chairman



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8

1595 Wynkoop Street
Denver, CO 80202-1129
Phone 800-227-8917

<http://www.epa.gov/aboutepa/epa-region-8-mountains-and-plains>

Ref: 8P-AR

FEB - 9 2017

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

The Honorable Clement Frost, Chairman
Southern Ute Indian Tribe
P.O. Box 737
Ignacio, Colorado 81137-0737

Re: Notification of Consultation and Coordination with Respect to the Issuance of Air Pollution Control Permit to Elm Ridge Exploration Company, LLC, for the Ignacio Gas Treating Plant on the Southern Ute Indian Reservation

Dear Chairman Frost:

The U.S. Environmental Protection Agency Region 8 is offering an opportunity to consult to the Southern Ute Indian Tribe on issuance of a Clean Air Act air pollution control Minor New Source Review (MNSR) permit for an existing natural gas treating plant on Indian country lands within the Southern Ute Indian Reservation in La Plata County, Colorado. In accordance with the MNSR Permit Program at 40 CFR part 49, owner and operator Elm Ridge Exploration Company, LLC, is requesting a permit with federally enforceable air pollutant emission limits (synthetic MNSR permit) for two existing glycol dehydration units operating at the existing Ignacio Gas Treating Plant. The limits were requested in accordance with a Settlement Agreement and Stipulated Final Compliance Order (Settlement Agreement) Enforcement Case (ID: 2016-02) executed between the Southern Ute Indian Tribe and Elm Ridge on May 2, 2016, to memorialize certain requirements from the Settlement Agreement in the MNSR permit.


The EPA welcomes the opportunity to consult and coordinate with the Southern Ute Indian Tribe. This consultation and coordination process would be conducted in accordance with the *EPA Policy on Consultation and Coordination with Indian Tribes* (www.epa.gov/tribal/consultation/consult-policy.htm). We invite you and your designated consultation representative(s) to participate in this process.

If you choose to consult about this permitting action, we would very much appreciate a reply in writing to this letter within 30 days after you receive it. The official EPA contact person for any consultation and coordination process on this permit action is Claudia Smith, a permit engineer on my staff. Upon receipt of your reply, we would work with your tribal government to develop a consultation plan including a description of the process we would follow, opportunity for your input, and timeline for us to provide feedback and to complete the consultation. We would send a draft consultation plan for your review as soon as practical after we receive your reply to this letter. The agency's goal would be to ensure that you have an opportunity to provide tribal input into this permit action.

In addition to offering government-to-government consultation, the EPA plans to regularly coordinate and communicate with the Southern Ute Tribe Environmental Program's Air Quality Program Manager, Mark Hutson, for facilities located on Indian country lands within the Southern Ute Indian Reservation. If you would prefer to designate an alternative representative for communication on air pollution control permitting matters, please notify us of that person's name and contact information. We will continue to keep the tribal government informed and to seek your input on these permits.

Thank you very much for your attention to this matter. Please contact me at (303) 312-6776, or your staff can contact Claudia Smith at (303) 312-6520 or smith.claudia@epa.gov, should you have any questions on this action. We look forward to hearing from you on this important matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Martin Hestmark". The signature is fluid and cursive, with a large, stylized initial "M".

Martin Hestmark
Assistant Regional Administrator
Office of Partnerships and Regulatory Assistance

cc: Mark Hutson, Air Quality Program Manager, Southern Ute Indian Tribe Environmental Program

Smith, Claudia

From: Powers, Daniel <dpowers@southernute-nsn.gov>
Sent: Wednesday, January 04, 2017 2:42 PM
To: Smith, Claudia
Cc: mhutson@southernute-nsn.gov
Subject: RE: Call Regarding Elm Ridge TMNSR Application

Claudia,

Mark and I have discussed this and feel that daily measurements of the still vent are not adequate for the reasons outlined below.

The compliance issue, and subsequent odor complaints we documented in the area of Elm Ridge, resulted from the dehydration units at Elm Ridge essentially being “undersized” for the gas flow through the system. Elm Ridge had to elevate the glycol temperature in the reboiler at or above the temp for burning triethylene glycol in order to drive the moisture from the TEG fast enough to keep up with the influent wet gas flow. Subsequently, scorched TEG vapors were being pushed out the still vent, causing a “burned rubber” odor in the vicinity of the plant. With the Settlement Agreement, we attempted to address the issue in two ways: First, we added dispersion requirements for the still vent as the vents had previously been plumbed to ground level, and; Two, we intended for Elm Ridge to continuously monitor the TEG temperature to prevent over-temps and scorching.

We understand Elm Ridge wants to keep the same old gauge and record the temperature once a day at the reboiler (not the still vent) just as they had been, but feel this is not sufficient given the issues presented above. Digital gauges that measure and record temperatures at intervals are commercially and readily available and some also have “alarm” features should a temperature exceed a certain set point. We feel Elm Ridge should look into getting and installing some type of continuous temp monitor for the reboilers, especially given that we documented fifteen violations of their permit (some related to non-compliance with EPA’s own previous Consent Decree) provisions.

If you have any questions concerning the intent of our Settlement Agreement with Elm Ridge, please don’t hesitate to call us.

Thanks,

Danny J. Powers

Air Quality Technical Manager
Southern Ute Indian Tribe
Air Quality Program
P.O. Box 737 MS#84
Ignacio, CO 81137
970-563-2265
dpowers@southernute-nsn.gov



From: Smith, Claudia [mailto:Smith.Claudia@epa.gov]
Sent: Wednesday, January 04, 2017 12:16 PM
To: Powers, Daniel <dpowers@southernute-nsn.gov>
Cc: Hutson, Mark <mhutson@southernute-nsn.gov>
Subject: RE: Call Regarding Elm Ridge TMNSR Application

I may, just to refresh my memory. I recall that you all were concerned that daily temperature measurements of the glycol dehydrator still vents may not be adequate? I confirmed with Elm Ridge that the temperature sensing devices are simple gages and not electronically controlled devices capable of continuous measurement and recording.

Thanks,

Claudia

From: Powers, Daniel [mailto:dpowers@southernute-nsn.gov]
Sent: Friday, December 16, 2016 2:16 PM
To: Smith, Claudia <Smith.Claudia@epa.gov>
Cc: mhutson@southernute-nsn.gov
Subject: RE: Call Regarding Elm Ridge TMNSR Application

Hi Claudia,

We did not have any comments or concerns beyond those discussed in our last conversation. Let us know if you'd like to discuss these items again.

Thanks,

Danny J. Powers

Air Quality Technical Manager
Southern Ute Indian Tribe
Air Quality Program
P.O. Box 737 MS#84
Ignacio, CO 81137
970-563-2265
dpowers@southernute-nsn.gov



From: Smith, Claudia [mailto:Smith.Claudia@epa.gov]
Sent: Friday, December 16, 2016 11:51 AM
To: Powers, Daniel
Cc: Hutson, Mark
Subject: RE: Call Regarding Elm Ridge TMNSR Application

Danny,

Did we have any outstanding items to discuss regarding this permit? Elm Ridge has asked for a status on the permit and I just wanted to make sure our discussions had been wrapped up before drafting the permit and technical support document.

Thanks,

Claudia

From: Powers, Daniel [<mailto:dpowers@southernute-nsn.gov>]
Sent: Monday, August 01, 2016 1:28 PM
To: Smith, Claudia <Smith.Claudia@epa.gov>
Cc: mhutson@southernute-nsn.gov
Subject: RE: Call Regarding Elm Ridge TMNSR Application

Hi Claudia,

How about tomorrow, any time after 12:30 pm.

Thanks,

Danny

From: Smith, Claudia [<mailto:Smith.Claudia@epa.gov>]
Sent: Monday, August 01, 2016 12:19 PM
To: Powers, Daniel <dpowers@southernute-nsn.gov>
Cc: Hutson, Mark <mhutson@southernute-nsn.gov>
Subject: RE: Call Regarding Elm Ridge TMNSR Application

Danny, I apologize, I am only available today between 2pm and 3pm and then 4 - 4:30 pm. I am completely available tomorrow after 12:30 pm.

Thanks,

Claudia

From: Smith, Claudia
Sent: Monday, August 01, 2016 12:11 PM
To: 'Powers, Daniel' <dpowers@southernute-nsn.gov>
Cc: mhutson@southernute-nsn.gov
Subject: RE: Call Regarding Elm Ridge TMNSR Application

I'm available after 2pm today, and fairly open tomorrow. Let me know what time works best for you.

Thanks,

Claudia

From: Powers, Daniel [<mailto:dpowers@southernute-nsn.gov>]
Sent: Monday, August 01, 2016 11:02 AM
To: Smith, Claudia <Smith.Claudia@epa.gov>

Cc: mhutson@southernute-nsn.gov

Subject: Call Regarding Elm Ridge TMNSR Application

Hi Claudia,

Do you have time today or sometime this week to discuss the Elm Ridge TMNSR permit application?

Thanks,

Danny J. Powers

Air Quality Technical Manager

Southern Ute Indian Tribe

Air Quality Program

P.O. Box 737 MS#84

Ignacio, CO 81137

970-563-2265

dpowers@southernute-nsn.gov



Smith, Claudia

From: Beeline Regulatory <BeelineRegulatory@elmridge.net>
Sent: Wednesday, December 28, 2016 7:59 AM
To: Smith, Claudia
Subject: RE: Oil and Natural Gas Rules Signed Today

Claudia, they are simple gauges.

Dianna Lee

Regulatory Compliance
Beeline Gas Systems
2001 E. Blanco Blvd.
Bloomfield, NM 87413
Office: 505-634-1144 ext. 105
Cell: 505-330-2736
BeelineRegulatory@elmridge.net

From: Smith, Claudia [mailto:Smith.Claudia@epa.gov]
Sent: Thursday, December 22, 2016 3:36 PM
To: Beeline Regulatory
Subject: RE: Oil and Natural Gas Rules Signed Today

Dianna,

Regarding the temperature indicator on the regenerator still vent columns of the TEG dehydration units, are they electronic sensing devices capable of continuously recording the temperature or are we talking just a simple gauge?

Thanks,

Claudia

From: Smith, Claudia
Sent: Friday, December 16, 2016 2:23 PM
To: 'Beeline Regulatory' <BeelineRegulatory@elmridge.net>
Subject: RE: Oil and Natural Gas Rules Signed Today

Dianna,

This permit is being drafted. I will keep you posted when I have an idea of the start of the public comment period.

Thanks,

Claudia

From: Beeline Regulatory [<mailto:BeelineRegulatory@elmridge.net>]
Sent: Thursday, December 01, 2016 2:55 PM
To: Smith, Claudia <Smith.Claudia@epa.gov>
Subject: RE: Oil and Natural Gas Rules Signed Today

Claudia, I am just following up on the permit we had applied for this summer and maybe a status update on that.

Thanks!

Dianna Lee

Regulatory Compliance

Beeline Gas Systems

2001 E. Blanco Blvd.

Bloomfield, NM 87413

Office: 505-634-1144 ext. 105

Cell: 505-330-2736

BeelineRegulatory@elmridge.net

From: Smith, Claudia [<mailto:Smith.Claudia@epa.gov>]
Sent: Friday, May 13, 2016 2:23 PM
To: Beeline Regulatory
Subject: RE: Oil and Natural Gas Rules Signed Today

This is an existing facility that has already been permitted under the CAA, so none of these rules should have an impact unless Elmridge intends to modify the facility.

Thanks,

Claudia

From: Beeline Regulatory [<mailto:BeelineRegulatory@elmridge.net>]
Sent: Friday, May 13, 2016 11:00 AM
To: Smith, Claudia <Smith.Claudia@epa.gov>
Subject: RE: Oil and Natural Gas Rules Signed Today

What will this mean to me in reference to the permit we have been discussing with the settlement agreement exactly?

Dianna Lee

Regulatory Compliance

Beeline Gas Systems

2001 E. Blanco Blvd.

Bloomfield, NM 87413

Office: 505-634-1144 ext. 105

Cell: 505-330-2736

BeelineRegulatory@elmridge.net

From: Smith, Claudia [<mailto:Smith.Claudia@epa.gov>]

Sent: Thursday, May 12, 2016 10:41 AM

Subject: Oil and Natural Gas Rules Signed Today

The EPA issued three final Clean Air Act rules for the oil and natural gas industry today. Information can be found at the website link below. The effective dates of the rules will be based on the date they are published in the Federal Register, so keep checking this webpage for updates.

<https://www3.epa.gov/airquality/oilandgas/actions.html>

Claudia Young Smith

Environmental Scientist

Air Program, Mail Code 8P-AR

US Environmental Protection Agency Region 8

1595 Wynkoop Street

Denver, Colorado 80202

Phone: (303) 312-6520

Fax: (303) 312-6064

<http://www.epa.gov/caa-permitting/caa-permitting-epas-mountains-and-plains-region>

Smith, Claudia

From: Hutson, Mark <mhutson@southernute-nsn.gov>
Sent: Monday, August 01, 2016 11:23 AM
To: Powers, Daniel; Smith, Claudia
Cc: tojohns@southernute-nsn.gov; smaynes@mbssl.com; Hall, Lorelyn; Begay, Julianne
Subject: RE: Call Regarding Elm Ridge TMNSR Application

Importance: High

Claudia

We would like to discuss with you the TMNSR permit application submitted by Beeline for the Elm Ridge Ignacio Gas Plant. Our request is following the 5/12/15 *Region 8 Communication Guidelines for EPA Tribal Minor NSR Permit Writers Southern Ute Indian Tribe*. We recognize the application submitted by Elm Ridge, and potentially any final TMNSR permit, may not address the concerns of AQP with regards to the operation and monitoring of the glycol dehydration units at the site. A Settlement Agreement entered into between the Tribe and Elm Ridge as a result of a recent enforcement action is the underlying driver in this TMNSR permitting action.

Thanks

From: Powers, Daniel
Sent: Monday, August 01, 2016 11:02 AM
To: Claudia Smith (Smith.Claudia@epamail.epa.gov) <Smith.Claudia@epamail.epa.gov>
Cc: Hutson, Mark <mhutson@southernute-nsn.gov>
Subject: Call Regarding Elm Ridge TMNSR Application

Hi Claudia,

Do you have time today or sometime this week to discuss the Elm Ridge TMNSR permit application?

Thanks,

Danny J. Powers

Air Quality Technical Manager
Southern Ute Indian Tribe
Air Quality Program
P.O. Box 737 MS#84
Ignacio, CO 81137
970-563-2265
dpowers@southernute-nsn.gov



SMNSR-SU-000052-2016.001
Synthetic Minor NSR Permit

7.25.2016

RECEIVED JUL 27 2016

Claudia Young Smith
Environmental Scientist
Air Program, Mail Code 8P-AR
US Environmental Protection Agency Region 8
1595 Wynkoop Street
Denver, Colorado 80202

Re: Elm Ridge Exploration Company, LLC Ignacio Gas Treating Plant

Permit Application TMNSR

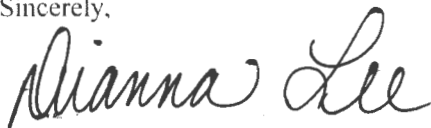
Certified receipt number: 7015 0640 0005 8540 0625

Dear Sir or Madam:

Please see attached TMNSR permit. I have also emailed an electronic copy to the following address: r8airpermitting@epa.gov. on 7.25.2016.

Please feel free to contact me should you have any questions at 505-634-1144 or via e-mail at beelineregulatory@elmridge.net

Sincerely,



Regulatory Compliance Administrator

Attachment: Tribal Minor New Source Review Permit Application

cc: Southern Ute Indian Tribe (SUIT), Environmental Programs Division, Air Quality Program
P.O. Box 737, MS #84 Ignacio, CO 81137

July 22, 2016

Federal Minor NSR Permit Coordinator
Tribal NSR Permits Lead
U.S Environmental Protection Agency, Region 8
1595 Wynkoop Street, 8P-AR
Denver, CO 80202-1129

RE: Tribal Minor New Source Review Permit Application for Dehydrators and Reboilers
Elm Ridge Exploration Company, LLC
Ignacio Gas Treating Plant

Dear Sir/Madam,

Elm Ridge Exploration Company, LLC (Elm Ridge) owns and operates a gas treating plant in La Plata County, Colorado (Ignacio plant). The Ignacio plant is a permitted major source facility with respect to the Title V Major Source Operating Permit project¹ as administered by the Southern Ute Indian Tribe Environmental Programs Division (EPD), Air Quality Program.

Elm Ridge is submitting this Tribal Minor New Source Review (TMNSR) permit application to EPA Region 8 for obtaining a TMNSR permit under 40 CFR 49.151 and thereby establishing legally and practically enforceable requirements and emission limits for the dehydrators and associated reboilers per Condition III.B.6 of the Settlement Agreement. This application contains all relevant components including the Federal Minor New Source Review Forms (Form NEW and Form SYNMIN).

Please note that this permit is being requested exclusively for dehydrators (Unit 12b and Unit 14) and the associated reboilers (Unit 11b and Unit 13) at the Ignacio Plant² and does not include other emission sources like the compressor engines at the Ignacio Plant.

Please feel free to contact me at (972) 889-2100, if there are any questions regarding this submittal.

Sincerely,
ELM RIDGE EXPLORATION COMPANY, LLC

James M. Clark
President

Cc: Southern Ute Indian Tribe (SUIT), Environmental Programs Division, Air Quality Program
P.O. Box 737, MS# 84, Ignacio, Colorado 81137

¹ Permit Number V-SUIT-0052-2014.01

² Based on communication between Mr. Michael Freeman (Air Quality Enforcement Coordinator, SUIT) and Mr. Hari Krishna Bharadwaj (Trinity Consultants) on June 6, 2016.

TRIBAL MINOR NEW SOURCE REVIEW APPLICATION
Elm Ridge Exploration Company, LLC > Ignacio Gas Treating Plant
Dehydrators and Reboilers

Prepared By:
James. M Clarke - President

Elm Ridge Exploration Company, LLC
Ignacio Gas Treating Plant
12225 Greenville Ave, Suite 950
Dallas, TX-75243
(979) 889-2100

Hari Krishna Bharadwaj – Consultant

TRINITY CONSULTANTS
1391 N Speer Blvd, Suite 350
Denver, CO 80204
(720) 638-7647

July 2016

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1. EXECUTIVE SUMMARY

Elm Ridge Exploration Company, LLC (Elm Ridge) owns and operates a gas treating plant in La Plata County, Colorado (Ignacio plant). The Ignacio plant is a permitted major source facility with respect to the Title V Major Source Operating Permit project as administered by the Southern Ute Indian Tribe Environmental Programs Division (EPD), Air Quality Program.

The Ignacio plant is a major source of Hazardous Air Pollutants (HAP) as formaldehyde emissions are above the major source threshold^{1 2} of 10 tons per year (tpy) for individual HAP. The Ignacio plant is also a minor source under the Prevention of Significant Deterioration (PSD) permitting program, since the potential emissions of all regulated pollutants are below the applicable major source threshold of 250 tpy. The Ignacio plant operates eight natural gas fired engines (Equipment ID: E1 – E8) for compression and two TEG (Tri Ethylene Glycol) dehydration units (Equipment ID: 12b and 14) with flash tanks for dehydration.

Elm Ridge submitted an application to the U.S. Environmental Protection Agency (EPA) Region 8 in May 2010 for an initial Title V permit. On March 2, 2012, the EPA determined that the Southern Ute Indian Tribe (SUIT) of the Southern Indian Reservation had met the requirements of 40 CFR 70.4(b) for full approval to administer its Title V Program. On November 08, 2012, the United States Environmental Protection Agency filed Consent Decree Case No 1: 12-cv-02584-REB-KLM with Elm Ridge. This consent decree was filed due to the fact that the Ignacio Gas Treating Plant operated without filing for an operating permit within 12 months of becoming a major source, as required by Title V and 40 CFR 63.6590 (a) of the Clean Air Act .

Therefore, Elm Ridge submitted an initial Title V permit application on February 28, 2013 seeking authorization to operate under the SUIT Part 70. An initial Part 70 permit (#V-SUIT-0052-2014.00) was issued in August 2014. Elm Ridge also submitted a minor permit revision to Title V permit in July 2015 and received an updated Title V permit (#V-SUIT-0052-2014.01) on November 2, 2015

During compliance evaluations conducted by the SUIT in January 5, 2016, violations of the Title V permit and the SUIT/State of Colorado Environmental Commission's Reservation Code (RAC) were discovered. As a result, a Settlement Agreement and Stipulated Final Compliance Order Enforcement Case (ID: 2016-02), herein referred to as the Settlement Agreement (was executed between the SUIT and Elm Ridge on May 02, 2016. A copy of the settlement agreement is provided under Appendix B.

The two TEG dehydration units (Unit 12b and Unit 14) have historically claimed the exemption from requirements of 40 CFR 63.764(d) (Subpart HH) due to their actual annual average emissions of benzene being less than 0.9 Mg/yr (1 tpy) per 40 CFR 63.764(e). The settlement agreement (Condition III.B.5) states that after extended gas sampling has been done as mandated by the SUIT, it should be used to demonstrate that the actual annual benzene emissions are less than 0.9 Mg/yr as mandated under 40 CFR 63.772(b). Condition III.B.6 of the Settlement Agreement states that if it can demonstrated the dehydrator units 12b and 14 meet the average benzene exemption after completing requirements under Condition III.B.5, Elm Ridge should apply to EPA

¹ Major source means any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants.

² Note that for purposes of 40 CFR 63 Subpart HH (MACT HH), only emissions from dehydration units and storage vessels are to be aggregated to determine major source status. The Ignacio Plant is an area source of HAPs per MACT HH, since the emissions of HAPs from the dehydration units and storage tanks at the facility do not exceed major source thresholds.

region 8 and obtain a TMNSR permit under 40 CFR 49.151 to establish legally and practically enforceable limits for the dehydrators.

The results of the sampling and GRI-Glycalc runs demonstrate that the dehydrators (Unit 12 b and Unit 14) do meet the actual average benzene exemption (more details in Section 3) and therefore, Elm Ridge is submitting this Tribal Minor New Source Review permit application to obtain a permit and thereby establish legally and practically enforceable requirements and emission limits for the dehydrators to stay below the 0.9 Mg/yr of benzene emissions.

Note that this permit is being requested exclusively for dehydrators (Unit 12b and Unit 14) and the associated reboilers (Unit 11b and Unit 13) at the Ignacio Plant³ and does not include other emission sources like the compressor engines at the Ignacio Plant.

1.1. APPLICATION CONTENT

This permit application was prepared in accordance with the Federal Minor New Source Review Program in Indian County (40 CFR 49.151):

- Section 1: Executive Summary
- Section 2: Process Description, Process Flow Diagram and Site Layout;
- Section 3: Emission Calculations and Supporting Documentation;
- Section 4: Federal Minor New Source Review Forms (Form NEW and Form SYNMIN)
- Section 5: Attachments Required by form SYNMIN (Item 1, 2, 3, 4 and 5)
- Section 6: Regulatory Analysis;
- Appendix A: Inlet Gas Sampling Results
- Appendix B: Other Supporting Documentation

³ Based on communication between Mr. Michael Freeman (Air Quality Enforcement Coordinator, SUIT) and Mr. Hari Krishna Bharadwaj (Trinity Consultants) on June 6, 2016.

Table 1-1. Emission Summary

Equipment ID	Equipment Description	Potential Emissions (tpy)						
		NO _x	CO	SO ₂	VOC	HAPs	Benzene	CO ₂ e
12b	High Pressure TEG Dehydration Unit with Flash Tank	-	-	-	3.01	0.59	0.49	984.36
14	Low Pressure TEG Dehydration Unit with Flash Tank	-	-	-	1.59	0.03	0.00	1164.40
11b	High Pressure Dehydrator Reboiler	0.21	0.18	0.03	0.01	-	-	259.18
13	Low Pressure Dehydrator Reboiler	0.43	0.36	0.06	0.02	-	-	518.36
Total Emissions (tpy)		0.64	0.54	0.09	4.63	0.62	0.49	2926.30

2. PROCESS AND FACILITY INFORMATION

The Ignacio plant is located at 11117 County Road 310, approximately eight miles west of Ignacio in La Plata County, Colorado. The plant is located within the exterior boundaries of the Southern Ute Indian Reservation. The central Universal Transverse Mercator (UTM) coordinates of the Ignacio plant are approximately 253.7 kilometers (km) East and 4,110.1 km North in UTM Zone 13 [North American Datum 1983 (NAD83)]. An area map showing the location of the Ignacio plant is provided in Figure 2-1. A process flow diagram for the plant operations is included in Figure 2-2.

2.1. PROCESS DESCRIPTION (GAS TREATING OPERATIONS)

The Ignacio plant dehydrates and then compresses natural gas for transmission. The Ignacio plant began initial operation in 1999 and can process up to 25 MMscf/day of natural gas. The Ignacio plant includes eight (8) natural gas-fired compressor engines.

The plant has two (2) 1.042 MMscf/hr TEG dehydrators with flash tanks (12b and 14)[†]. These TEG dehydration units are used to remove water from natural gas. Wet gas contacts “lean” (water free) glycol in the contactor/absorber column, where the glycol absorbs water from the gas stream. The dehydrated gas leaves the top of the contactor. The “rich” glycol (heavy with water) sinks to the bottom of the contactor where it is removed and sent to a flash tank where hydrocarbon vapors are removed and any liquid hydrocarbons are skimmed from the glycol. The rich glycol is passed through a heat exchanger and fed to the stripping column. The stripping column consists of a still column and reboiler (Unit 11b and 13 respectively) designed to vaporize the water from the solution and regenerate the glycol. The glycol is recycled/reused in the contactor. Information on these TEG Dehydration units and reboilers given below in Table 2-1:

Table 2-1. Emission Unit Summary

Emission Unit ID	Equipment Description	Control Equipment
12b	One (1) High pressure TEG dehydration unit (Tejas Production Service Contactor, SN 4501) with a flash tank, Max capacity of 25 MMscfd	Flash Tank
14	One (1) Low pressure TEG dehydration unit (Valerus Contactor, SN S07-171) with a flash tank, Max capacity of 12 MMscfd	Flash Tank
11b	One (1) High Pressure Dehydrator Reboiler, rated at 0.5 MMBtu/hr (Tejas Production Service, SN 4758)	None
13	One (1) Low Pressure Dehydrator Reboiler, rated at 1 MMBtu/hr (Valerus, SN P2162)	None

[†] There is also another TEG Unit (Unit 12a) which acts as a standby for Unit 12b. The two vents do not operate simultaneously.

The facility also includes a membrane unit to separate carbon dioxide gas from the natural gas stream. Note that there are no emissions of pollutants from the membrane unit.

Two streams exit the membrane unit: a residue gas stream with a low concentration of carbon dioxide and a permeate gas stream that contains methane and the recovered carbon dioxide. The permeate gas is sent to market via pipeline for downstream processing and treating.

Figure 2-1. Process Flow Diagram

PROCESS FLOW DIAGRAM – IGNACIO GAS TREATING PLANT

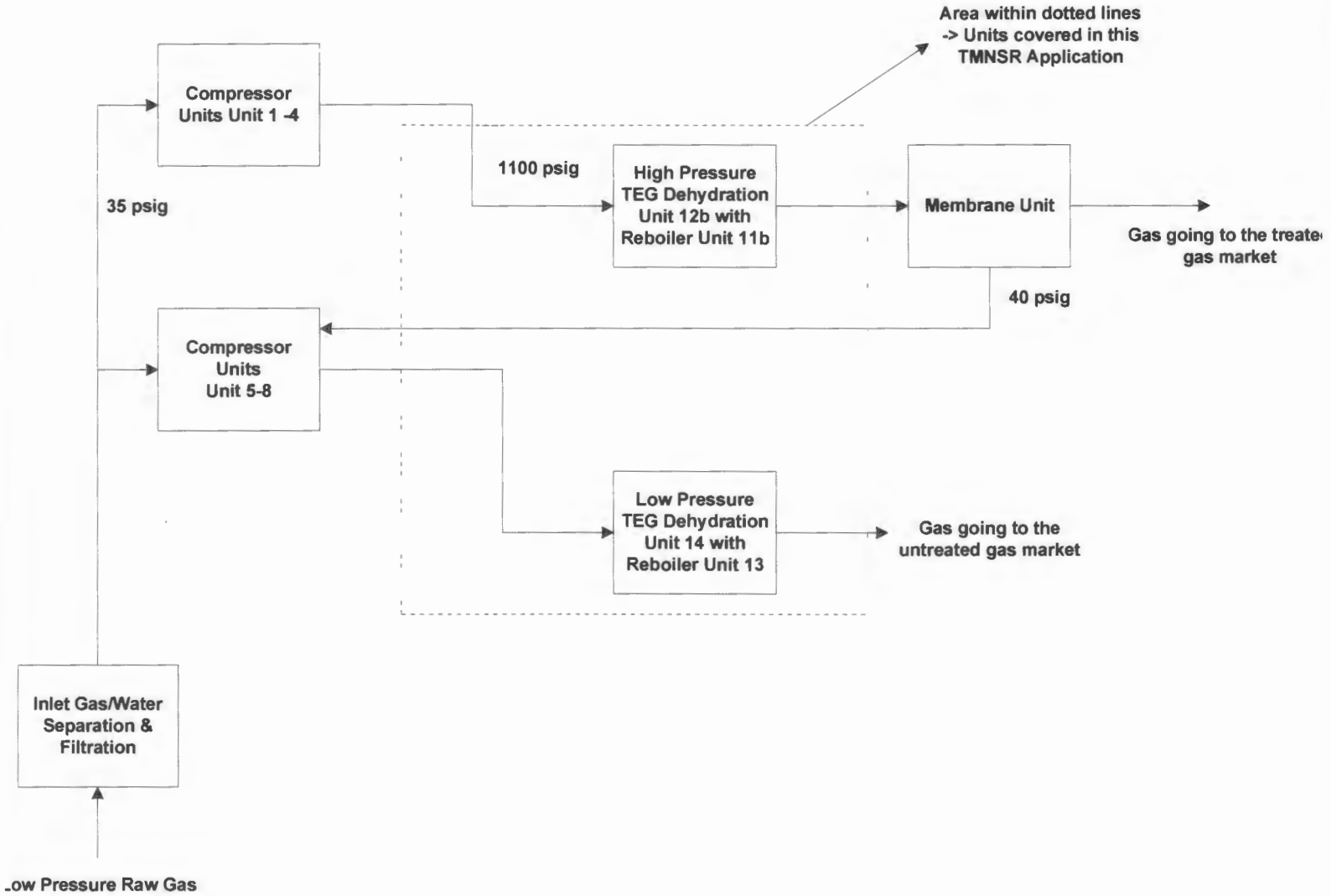
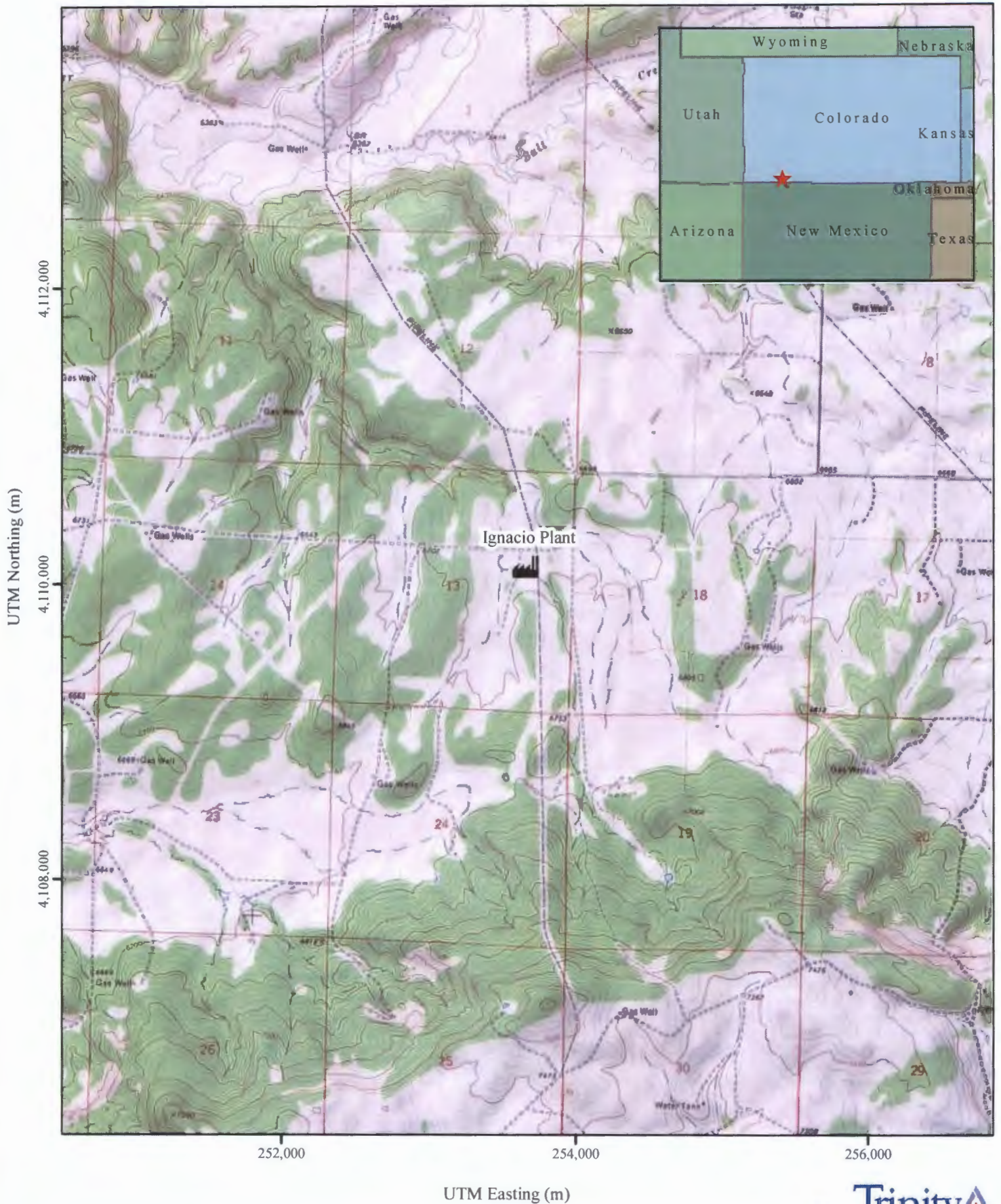


Figure 2-2. Area Map

Area Map
Elm Ridge Exploration Company, LLC
Ignacio Gas Treating Plant
La Plata County, Colorado



Coordinates reflect UTM Zone 13, NAD83.

3. EMISSION CALCULATIONS

3.1. EMISSIONS FROM TEG DEHYDRATORS AND FLASH TANKS

Potential emissions from the TEG dehydration units (Units 12b and 14) are estimated using GRI-GLYCalc Version 4.0. The GRI-GLYCalc input and aggregate output files for both the dehydrators have also been provided in this section. There will be emissions of VOC (Volatile Organic Compounds) and HAPs from regenerator still vents and flash tanks of the dehydrators (Units 12b and 14). Both these dehydrators operate throughout the year (8760 hrs/yr).

3.2. NATURAL GAS REBOILERS

Potential emissions from two (2) reboilers (Units 11b and 13) are calculated based on the maximum heat input rate of the unit and emission factors from AP-42 Section 1.4 – *Natural Gas Combustion* (07/98). A heating value of 1020 Btu/scf is assumed for natural gas. Annual emissions are calculated based on continuous operation (8,760 hours per year). A sample calculation for potential annual Carbon Monoxide (CO) emissions from the reboiler 11b is provided below:

Potential Annual CO Emissions – Line Heater (10b)

$$\begin{aligned} &= \text{Heat Input Rate} \left(\frac{\text{MMBtu}}{\text{hr}} \right) \times \text{Emission Factor} \left(\frac{\text{lb}}{\text{MMscf}} \right) \times \left(\frac{\text{scf}}{1020 \text{ Btu}} \right) \times \left(\frac{\text{ton}}{2,000 \text{ lb}} \right) \times 8,760 \frac{\text{hr}}{\text{yr}} \\ &= 0.50 \left(\frac{\text{MMBtu}}{\text{hr}} \right) \times 84 \left(\frac{\text{lb}}{\text{MMscf}} \right) \times \left(\frac{\text{scf}}{1020 \text{ Btu}} \right) \times \left(\frac{\text{ton}}{2,000 \text{ lb}} \right) \times 8,760 \frac{\text{hr}}{\text{yr}} = 0.18 \text{ tpy} \end{aligned}$$

3.3. EMISSION SUMMARY

A summary of the emissions associated with the operation of the dehydrators (Units 12b and 14) and reboilers (11b and 13) for the Ignacio plant have been provided under Table 1-1. Operation of the dehydrators and reboiler result in the emissions of nitrogen oxides (NO_x), CO, VOC, sulfur dioxide (SO₂), greenhouse gases (expressed in terms of carbon dioxide equivalents (CO₂e) and HAPs (inclusive of benzene).

Detailed emission calculations including emission factors along with necessary supporting documentation have been provided in this section.

Elm Ridge Exploration Company, LLC - Ignacio Gas Treating Plant
 Overall Emission Summary

Equipment ID	Equipment Description	Potential Emissions (tpy)						
		NO _x	CO	SO ₂	VOC	HAPs	Benzene	CO ₂ e
12b	High Pressure TEG Dehydration Unit with Flash Tank	-	-	-	3.01	0.59	0.49	984.36
14	Low Pressure TEG Dehydration Unit with Flash Tank	-	-	-	1.59	0.03	0.00	1164.40
11b	High Pressure Dehydrator Reboiler	0.21	0.18	0.03	0.01	-	-	259.18
13	Low Pressure Dehydrator Reboiler	0.43	0.36	0.06	0.02	-	-	518.36
Total Emissions (tpy)		0.64	0.54	0.09	4.63	0.62	0.49	2926.30

Elm Ridge Exploration Company, LLC - Ignacio Gas Treating Plant
TEG Dehydration Unit (12b) Emission Calculations

Equipment Information

Emission Unit ID: **12b**
 Description: TEG Dehydration Unit

GRI-GLYCalc Version 4.0 Inputs:

Emission Controls: Flash Tank
 Potential operation: 8760 hr/yr
 Actual operation: 8760 hr/yr
 Wet gas: 110 F and 1100 psig, Saturated
 Dry Gas: 25 MMscfd, 7.0 lbs H₂O/MMscf
 Glycol circ. rate: 4.7 gpm, electric pump
 Flash Tank: 125 deg F, 25 psig.

Throughputs

Potential Throughput: 25 MMscfd
 Actual Throughput for 2015: 5.076 MMscfd

Emission Calculations (Potential Emissions)¹

	VOC (lb/hr)	VOC (tpy)	HAP (lb/hr)	HAP (tpy)	Benzene (lb/hr)	Benzene (tpy)	CO ₂ e (lb/hr)	CO ₂ e (tpy)
Regenerator	0.3093	1.3547	0.1228	0.5380	0.1101	0.4823	6.75	29.57
Flash Tank	0.3783	1.6570	0.0125	0.0548	0.0028	0.0125	217.99	954.80
Total	0.6876	3.0117	0.1353	0.5928	0.1129	0.4948	224.74	984.3612

¹ Potential Emissions based on GRI-GLYCalc run dated 06/15/2016 (Uncontrolled Regenerator Emissions and Flash Tank Off Gas Streams), using maximum daily throughput.

Emission Calculations (Actual Emissions for 2015)¹

	VOC (lb/hr)	VOC (tpy)	HAP (lb/hr)	HAP (tpy)	Benzene (lb/hr)	Benzene (tpy)	CO ₂ e (lb/hr)	CO ₂ e (tpy)
Regenerator	0.2899	1.2696	0.0979	0.4289	0.0845	0.3703	7.16	31.36
Flash Tank	0.3859	1.6902	0.0120	0.0525	0.0022	0.0094	228.29	999.91
Total	0.6758	2.9598	0.1099	0.4814	0.0867	0.3797	235.45	1031.271

¹ Actual Emissions based on GRI-GLYCalc run dated 06/22/2016 (Uncontrolled Regenerator Emissions and Flash Tank Off Gas Streams), using actual throughput for 2015.

Elm Ridge Exploration Company, LLC - Ignacio Gas Treating Plant
TEG Dehydration Unit (14) Emission Calculations

Equipment Information

Emission Unit ID: **14**
 Description: TEG Dehydration Unit

GRI-GLYCalc Version 4.0 Inputs:

Emission Controls: Flash Tank
 Potential operation: 8760 hr/yr
 Actual operation: 8760 hr/yr
 Wet gas: 120 F and 1100 psig, Saturated
 Dry Gas: 12 MMscfd, 7.0 lbs H₂O/MMscf
 Glycol circ. rate: 5.5 gpm, electric pump
 Flash Tank: 125 deg F, 80 psig,

Throughputs

Potential Throughput: 12 MMscfd
 Actual Throughput for 2015: 10.2 MMscfd

Emission Calculations (Potential Emissions) ¹

	VOC (lb/hr)	VOC (tpy)	HAP (lb/hr)	HAP (tpy)	Benzene (lb/hr)	Benzene (tpy)	CO ₂ e (lb/hr)	CO ₂ e (tpy)
Regenerator	0.1779	0.7793	0.0052	0.0230	0	0	18.9775	83.12
Flash Tank	0.1843	0.8073	0.0017	0.0074	0	0	246.8675	1081.28
Total	0.3622	1.5866	0.0069	0.0304	0	0	265.845	1164.4011

¹ Potential Emissions based on GRI-GLYCalc run dated 06/15/2016 (Uncontrolled Regenerator Emissions and Flash Tank Off Gas Streams), using maximum daily throughput.

Emission Calculations (Actual Emissions for 2015) ¹

	VOC (lb/hr)	VOC (tpy)	HAP (lb/hr)	HAP (tpy)	Benzene (lb/hr)	Benzene (tpy)	CO ₂ e (lb/hr)	CO ₂ e (tpy)
Regenerator	0.1783	0.7810	0.0053	0.0231	0	0	19.095	83.64
Flash Tank	0.1848	0.8094	0.0017	0.0074	0	0	248.15	1086.88
Total	0.3631	1.5904	0.007	0.0305	0	0	267.24	1170.5112

¹ Actual Emissions based on GRI-GLYCalc run dated 06/22/2016 (Uncontrolled Regenerator Emissions and Flash Tank Off Gas Streams), using actual throughput for 2015.

Elm Ridge Exploration Company, LLC - Ignacio Gas Treating Plant
High Pressure Dehydrator Reboiler - Emission Calculations

Equipment Information

Emission Unit ID: **11b**
 Description: High Pressure Dehydrator Reboiler

Fuel Consumption

Input heat rate: 0.50 MMBtu/hr Manufacturer's data
 Fuel heat value: 1020 Btu/scf Nominal for natural gas
 Fuel rate: 490 scf/hr Input heat rate / Fuel heat value
 Annual fuel usage: 4.3 MMscf/yr
 Potential Hours of Operation: 8760 hrs/yr

Emission Rates

Uncontrolled Emissions

NOx	CO	VOC	SO ₂ *	CO ₂	CH ₄	N ₂ O	Units	Source
100	84	5.5		120,000	2.3	2.2	lb/MMscf	Unit emission rates from AP-42 Table 1.4-1 & 2
0.05	0.04	0.003		59	0.001	0.001	lb/hr	lb/MMscf * scf/hr / 1,000,000 scf/MMscf
			0.01				lb/hr	(5/100/7000) * fuel usage
0.21	0.18	0.01	0.03	257.65	0.00	0.00	tpy	lb/hr * hrs/yr / 2000lb/ton
					CO ₂ e	259.18	tpy	

*SO₂ emissions based on fuel sulfur content of 5 gr S/100 scf or 0.00714 lb S/Mscf
 0.00714 lb S/Mscf * fuel consumption (Mscf/hr) * 64 lb SO₂/32 lb S = lb/hr SO₂

Elm Ridge Exploration Company, LLC - Ignacio Gas Treating Plant
Low Pressure Dehydrator Reboiler - Emission Calculations

Equipment Information

Emission Unit ID: **13**
 Description: Low Pressure Dehydrator Reboiler

Fuel Consumption

Input heat rate: 1.00 MMBtu/hr Manufacturer's data
 Fuel heat value: 1020 Btu/scf Nominal for natural gas
 Fuel rate: 980 scf/hr Input heat rate / Fuel heat value
 Annual fuel usage: 8.6 MMscf/yr
 Potential Hours of Operation: 8760 hrs/yr

Emission Rates

Uncontrolled Emissions

NOx	CO	VOC	SO ₂ *	CO	CH ₄	N ₂ O	Units	Source
100	84	5.5		120.000	2.3	2.2	lb/MMscf	Unit emission rates from AP-42 Table 1.4-1 & 2
0.10	0.08	0.005		118	0.002	0.002	lb/hr	lb/MMscf * scf/hr / 1,000,000 scf/MMscf
			0.01				lb/hr	(5/100/7000) * fuel usage
0.43	0.36	0.02	0.06	515.29	0.01	0.01	tpy	lb/hr * hrs/yr / 2000lb/ton
					CO ₂ e	518.36	tpy	

*SO₂ emissions based on fuel sulfur content of 5 gr S/100 scf, or 0.00714 lb S/MMscf
 0.00714 lb S/MMscf * fuel consumption (Mscf/hr) * 64 lb SO₂/32 lb S = lb/hr SO₂

POTENTIAL EMISSIONS FOR DEHY UNIT 12b - AGGREGATE SUMMARY

Page: 1

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Iganacio Gas Treating Unit - Dehy Unit 12b
 File Name: P:\CLIENTS\Elm Ridge\160601.0064 Compliance Support 2016\04. Working
 Files\Glycalc and Permitting Project\Glycalc Runs\Ignacio Gas Plant_Dehy 12b_Permitting
 Runs 2016-06-15 1350 HKB.ddf
 Date: June 15, 2016

DESCRIPTION:

Description: Emissions being calculated for permit using
 latest gas analysis dated 05/11/2016

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.2700	6.481	1.1828
Ethane	0.0179	0.430	0.0784
Propane	0.0270	0.649	0.1184
Isobutane	0.0277	0.664	0.1211
n-Butane	0.0615	1.475	0.2692
Isopentane	0.0179	0.430	0.0785
n-Pentane	0.0157	0.376	0.0687
n-Hexane	0.0127	0.305	0.0557
Other Hexanes	0.0003	0.007	0.0012
Heptanes	0.0101	0.242	0.0441
Methylcyclohexane	0.0187	0.450	0.0821
Benzene	0.1101	2.643	0.4823
C8+ Heavies	0.0076	0.184	0.0335
Total Emissions	0.5972	14.334	2.6159
Total Hydrocarbon Emissions	0.5972	14.334	2.6159
Total VOC Emissions	0.3093	7.423	1.3547
Total HAP Emissions	0.1228	2.948	0.5380
Total BTEX Emissions	0.1101	2.643	0.4823

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	8.7196	209.270	38.1917
Ethane	0.1642	3.941	0.7192
Propane	0.1091	2.620	0.4781
Isobutane	0.0731	1.754	0.3201
n-Butane	0.1235	2.963	0.5407
Isopentane	0.0313	0.752	0.1372
n-Pentane	0.0218	0.523	0.0954
n-Hexane	0.0097	0.232	0.0423
Other Hexanes	0.0003	0.007	0.0012
Heptanes	0.0037	0.089	0.0162
Methylcyclohexane	0.0028	0.067	0.0123
Benzene	0.0028	0.068	0.0125
C8+ Heavies	0.0002	0.006	0.0011

Total Emissions	9.2621	222.290	40.5679
Total Hydrocarbon Emissions	9.2621	222.290	40.5679
Total VOC Emissions	0.3783	9.079	1.6570
Total HAP Emissions	0.0125	0.300	0.0548
Total BTEX Emissions	0.0028	0.068	0.0125

COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	8.9896	215.751	39.3745
Ethane	0.1821	4.371	0.7977
Propane	0.1362	3.268	0.5965
Isobutane	0.1007	2.418	0.4412
n-Butane	0.1849	4.438	0.8100
Isopentane	0.0492	1.181	0.2156
n-Pentane	0.0375	0.899	0.1640
n-Hexane	0.0224	0.537	0.0980
Other Hexanes	0.0005	0.013	0.0024
Heptanes	0.0138	0.330	0.0603
Methylcyclohexane	0.0215	0.517	0.0943
Benzene	0.1130	2.711	0.4947
C8+ Heavies	0.0079	0.190	0.0346
Total Emissions	9.8593	236.624	43.1838
Total Hydrocarbon Emissions	9.8593	236.624	43.1838
Total VOC Emissions	0.6876	16.502	3.0117
Total HAP Emissions	0.1353	3.248	0.5927
Total BTEX Emissions	0.1130	2.711	0.4947

COMBINED REGENERATOR VENT/FLASH GAS EMISSION CONTROL REPORT:

Component	Uncontrolled tons/yr	Controlled tons/yr	% Reduction
Methane	39.3745	39.3745	0.00
Ethane	0.7977	0.7977	0.00
Propane	0.5965	0.5965	0.00
Isobutane	0.4412	0.4412	0.00
n-Butane	0.8100	0.8100	0.00
Isopentane	0.2156	0.2156	0.00
n-Pentane	0.1640	0.1640	0.00
n-Hexane	0.0980	0.0980	0.00
Other Hexanes	0.0024	0.0024	0.00
Heptanes	0.0603	0.0603	0.00
Methylcyclohexane	0.0943	0.0943	0.00
Benzene	0.4947	0.4947	0.00
C8+ Heavies	0.0346	0.0346	0.00
Total Emissions	43.1838	43.1838	0.00
Total Hydrocarbon Emissions	43.1838	43.1838	0.00
Total VOC Emissions	3.0117	3.0117	0.00
Total HAP Emissions	0.5927	0.5927	0.00
Total BTEX Emissions	0.4947	0.4947	0.00

EQUIPMENT REPORTS:

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages: 1.25
 Calculated Dry Gas Dew Point: 4.54 lbs. H2O/MMSCF

Temperature: 110.0 deg. F
 Pressure: 1100.0 psig
 Dry Gas Flow Rate: 25.0000 MMSCF/day
 Glycol Losses with Dry Gas: 0.6099 lb/hr
 Wet Gas Water Content: Saturated
 Calculated Wet Gas Water Content: 72.31 lbs. H2O/MMSCF
 Calculated Lean Glycol Recirc. Ratio: 3.99 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	6.27%	93.73%
Carbon Dioxide	99.74%	0.26%
Nitrogen	99.98%	0.02%
Methane	99.98%	0.02%
Ethane	99.94%	0.06%
Propane	99.91%	0.09%
Isobutane	99.88%	0.12%
n-Butane	99.84%	0.16%
Isopentane	99.85%	0.15%
n-Pentane	99.81%	0.19%
n-Hexane	99.70%	0.30%
Other Hexanes	99.77%	0.23%
Heptanes	99.50%	0.50%
Methylcyclohexane	98.67%	1.33%
Benzene	89.47%	10.53%
C8+ Heavies	98.31%	1.69%

FLASH TANK

Flash Control: Vented to atmosphere
 Flash Temperature: 125.0 deg. F
 Flash Pressure: 25.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.94%	0.06%
Carbon Dioxide	27.61%	72.39%
Nitrogen	2.87%	97.13%
Methane	3.00%	97.00%
Ethane	9.83%	90.17%
Propane	19.85%	80.15%
Isobutane	27.45%	72.55%
n-Butane	33.24%	66.76%

Isopentane	36.71%	63.29%
n-Pentane	42.16%	57.84%
n-Hexane	57.04%	42.96%
Other Hexanes	50.25%	49.75%
Heptanes	73.28%	26.72%
Methylcyclohexane	87.51%	12.49%
Benzene	97.61%	2.39%
C8+ Heavies	97.23%	2.77%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	35.97%	64.03%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	1.36%	98.64%
n-Pentane	1.19%	98.81%
n-Hexane	0.88%	99.12%
Other Hexanes	1.99%	98.01%
Heptanes	0.68%	99.32%
Methylcyclohexane	4.57%	95.43%
Benzene	5.12%	94.88%
C8+ Heavies	12.22%	87.78%

STREAM REPORTS:

WET GAS STREAM

Temperature: 110.00 deg. F
 Pressure: 1114.70 psia
 Flow Rate: 1.04e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.52e-001	7.55e+001
Carbon Dioxide	3.60e+000	4.36e+003
Nitrogen	1.68e-001	1.30e+002
Methane	9.55e+001	4.21e+004
Ethane	3.48e-001	2.88e+002
Propane	1.19e-001	1.45e+002
Isobutane	5.11e-002	8.17e+001
n-Butane	7.31e-002	1.17e+002
Isopentane	1.67e-002	3.31e+001
n-Pentane	9.89e-003	1.96e+001

n-Hexane	3.20e-003	7.57e+000
Other Hexanes	9.99e-005	2.37e-001
Heptanes	9.99e-004	2.75e+000
Methylcyclohexane	5.99e-004	1.62e+000
Benzene	4.99e-004	1.07e+000
C8+ Heavies	9.99e-005	4.68e-001

Total Components	100.00	4.74e+004

DRY GAS STREAM

Temperature: 110.00 deg. F
 Pressure: 1114.70 psia
 Flow Rate: 1.04e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)

Water	9.57e-003	4.73e+000
Carbon Dioxide	3.60e+000	4.35e+003
Nitrogen	1.69e-001	1.30e+002
Methane	9.56e+001	4.21e+004
Ethane	3.48e-001	2.88e+002
Propane	1.19e-001	1.45e+002
Isobutane	5.12e-002	8.16e+001
n-Butane	7.31e-002	1.17e+002
Isopentane	1.67e-002	3.30e+001
n-Pentane	9.88e-003	1.96e+001
n-Hexane	3.19e-003	7.55e+000
Other Hexanes	9.98e-005	2.36e-001
Heptanes	9.95e-004	2.74e+000
Methylcyclohexane	5.92e-004	1.60e+000
Benzene	4.47e-004	9.60e-001
C8+ Heavies	9.83e-005	4.60e-001

Total Components	100.00	4.73e+004

LEAN GLYCOL STREAM

Temperature: 110.00 deg. F
 Flow Rate: 4.70e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)

TEG	9.85e+001	2.61e+003
Water	1.50e+000	3.97e+001
Carbon Dioxide	4.31e-011	1.14e-009
Nitrogen	1.18e-013	3.11e-012
Methane	1.14e-017	3.02e-016
Ethane	3.25e-009	8.60e-008
Propane	2.09e-010	5.54e-009
Isobutane	1.14e-010	3.02e-009
n-Butane	1.73e-010	4.59e-009
Isopentane	9.35e-006	2.47e-004
n-Pentane	7.11e-006	1.88e-004
n-Hexane	4.25e-006	1.12e-004
Other Hexanes	2.08e-007	5.50e-006
Heptanes	2.61e-006	6.92e-005
Methylcyclohexane	3.39e-005	8.98e-004

Benzene	2.24e-004	5.94e-003
C8+ Heavies	4.02e-005	1.06e-003

Total Components	100.00	2.65e+003
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RICH GLYCOL STREAM

Temperature: 110.00 deg. F
 Pressure: 1114.70 psia
 Flow Rate: 4.89e+000 gpm
 NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.52e+001	2.61e+003
Water	4.03e+000	1.10e+002
Carbon Dioxide	4.17e-001	1.14e+001
Nitrogen	1.14e-003	3.13e-002
Methane	3.28e-001	8.99e+000
Ethane	6.65e-003	1.82e-001
Propane	4.97e-003	1.36e-001
Isobutane	3.68e-003	1.01e-001
n-Butane	6.76e-003	1.85e-001
Isopentane	1.81e-003	4.95e-002
n-Pentane	1.37e-003	3.76e-002
n-Hexane	8.21e-004	2.25e-002
Other Hexanes	2.01e-005	5.50e-004
Heptanes	5.05e-004	1.38e-002
Methylcyclohexane	8.19e-004	2.24e-002
Benzene	4.34e-003	1.19e-001
C8+ Heavies	3.27e-004	8.96e-003
Total Components	100.00	2.74e+003

FLASH TANK OFF GAS STREAM

Temperature: 125.00 deg. F
 Pressure: 39.70 psia
 Flow Rate: 2.84e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	4.76e-001	6.41e-002
Carbon Dioxide	2.51e+001	8.26e+000
Nitrogen	1.45e-001	3.04e-002
Methane	7.27e+001	8.72e+000
Ethane	7.30e-001	1.64e-001
Propane	3.31e-001	1.09e-001
Isobutane	1.68e-001	7.31e-002
n-Butane	2.84e-001	1.23e-001
Isopentane	5.80e-002	3.13e-002
n-Pentane	4.03e-002	2.18e-002
n-Hexane	1.50e-002	9.66e-003
Other Hexanes	4.25e-004	2.74e-004
Heptanes	4.93e-003	3.70e-003
Methylcyclohexane	3.81e-003	2.80e-003
Benzene	4.86e-003	2.84e-003

C8+ Heavies 1.95e-004 2.49e-004

 Total Components 100.00 1.76e+001

FLASH TANK GLYCOL STREAM

 Temperature: 125.00 deg. F
 Flow Rate: 4.85e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.58e+001	2.61e+003
Water	4.06e+000	1.10e+002
Carbon Dioxide	1.16e-001	3.15e+000
Nitrogen	3.30e-005	8.98e-004
Methane	9.93e-003	2.70e-001
Ethane	6.58e-004	1.79e-002
Propane	9.94e-004	2.70e-002
Isobutane	1.02e-003	2.77e-002
n-Butane	2.26e-003	6.15e-002
Isopentane	6.68e-004	1.82e-002
n-Pentane	5.83e-004	1.59e-002
n-Hexane	4.72e-004	1.28e-002
Other Hexanes	1.02e-005	2.77e-004
Heptanes	3.73e-004	1.01e-002
Methylcyclohexane	7.22e-004	1.96e-002
Benzene	4.27e-003	1.16e-001
C8+ Heavies	3.20e-004	8.71e-003
-----	-----	-----
Total Components	100.00	2.72e+003

REGENERATOR OVERHEADS STREAM

 Temperature: 212.00 deg. F
 Pressure: 14.70 psia
 Flow Rate: 1.52e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.77e+001	7.07e+001
Carbon Dioxide	1.78e+000	3.15e+000
Nitrogen	7.98e-004	8.98e-004
Methane	4.19e-001	2.70e-001
Ethane	1.48e-002	1.79e-002
Propane	1.53e-002	2.70e-002
Isobutane	1.18e-002	2.77e-002
n-Butane	2.63e-002	6.15e-002
Isopentane	6.18e-003	1.79e-002
n-Pentane	5.41e-003	1.57e-002
n-Hexane	3.67e-003	1.27e-002
Other Hexanes	7.83e-005	2.71e-004
Heptanes	2.50e-003	1.01e-002
Methylcyclohexane	4.75e-003	1.87e-002
Benzene	3.51e-002	1.10e-001
C8+ Heavies	1.12e-003	7.65e-003
-----	-----	-----
Total Components	100.00	7.44e+001

POTENTIAL EMISSIONS FOR DEHY UNIT 12b - INPUT SUMMARY

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GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: Iganacio Gas Treating Unit - Dehy Unit 12b
File Name: P:\CLIENTS\Elm Ridge\160601.0064 Compliance Support 2016\04. Working
Files\Glycalc and Permitting Project\Glycalc Runs\Ignacio Gas Plant_Dehy 12b_Permitting
Runs 2016-06-15 1350 HKB.ddf
Date: June 15, 2016

DESCRIPTION:

Description: Emissions being calculated for permit using
latest gas analysis dated 05/11/2016

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 110.00 deg. F
Pressure: 1100.00 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	3.6049
Nitrogen	0.1687
Methane	95.5934
Ethane	0.3485
Propane	0.1195
Isobutane	0.0512
n-Butane	0.0732
Isopentane	0.0167
n-Pentane	0.0099
n-Hexane	0.0032
Other Hexanes	0.0001
Heptanes	0.0010
Methylcyclohexane	0.0006
Benzene	0.0005
C8+ Heavies	0.0001

DRY GAS:

Flow Rate: 25.0 MMSCF/day
Water Content: 7.0 lbs. H2O/MMSCF

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.5 wt% H2O
Flow Rate: 4.7 gpm

PUMP:

Glycol Pump Type: Electric/Pneumatic

FLASH TANK:

Flash Control: Vented to atmosphere
Temperature: 125.0 deg. F
Pressure: 25.0 psig

POTENTIAL EMISSIONS FOR DEHY UNIT 14 - AGGREGATE SUMMARY

Page: 1

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Ignacio Gas Treating Plant Dehy Unit 14
 File Name: P:\CLIENTS\Elm Ridge\160601.0064 Compliance Support 2016\04. Working
 Files\Glycalc and Permitting Project\Glycalc Runs\Ignacio Gas Plant_Dehy 14_Permitting
 Runs 2016-06-07 1450.ddf
 Date: June 15, 2016

DESCRIPTION:

Description: Emissions being calculated for permit using
 the latest gas analysis dated 05/11/2016

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.7591	18.218	3.3247
Ethane	0.0373	0.894	0.1632
Propane	0.0532	1.277	0.2330
Isobutane	0.0285	0.685	0.1250
n-Butane	0.0600	1.439	0.2626
Isopentane	0.0054	0.129	0.0235
n-Pentane	0.0080	0.192	0.0350
n-Hexane	0.0052	0.126	0.0230
Heptanes	0.0065	0.156	0.0285
Methylcyclohexane	0.0111	0.266	0.0486
Total Emissions	0.9742	23.382	4.2672
Total Hydrocarbon Emissions	0.9742	23.382	4.2672
Total VOC Emissions	0.1779	4.270	0.7793
Total HAP Emissions	0.0052	0.126	0.0230

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	9.8747	236.994	43.2514
Ethane	0.1356	3.254	0.5938
Propane	0.0901	2.162	0.3945
Isobutane	0.0317	0.760	0.1386
n-Butane	0.0506	1.215	0.2217
Isopentane	0.0039	0.095	0.0173
n-Pentane	0.0047	0.112	0.0204
n-Hexane	0.0017	0.040	0.0074
Heptanes	0.0010	0.024	0.0044
Methylcyclohexane	0.0007	0.016	0.0030
Total Emissions	10.1946	244.671	44.6525
Total Hydrocarbon Emissions	10.1946	244.671	44.6525
Total VOC Emissions	0.1843	4.424	0.8073
Total HAP Emissions	0.0017	0.040	0.0074

COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	10.6338	255.211	46.5761
Ethane	0.1728	4.148	0.7570
Propane	0.1433	3.438	0.6275
Isobutane	0.0602	1.444	0.2636
n-Butane	0.1106	2.654	0.4844
Isopentane	0.0093	0.223	0.0408
n-Pentane	0.0127	0.304	0.0555
n-Hexane	0.0069	0.166	0.0303
Heptanes	0.0075	0.180	0.0329
Methylcyclohexane	0.0118	0.283	0.0516
Total Emissions	11.1689	268.053	48.9196
Total Hydrocarbon Emissions	11.1689	268.053	48.9196
Total VOC Emissions	0.3622	8.693	1.5865
Total HAP Emissions	0.0069	0.166	0.0303

COMBINED REGENERATOR VENT/FLASH GAS EMISSION CONTROL REPORT:

Component	Uncontrolled tons/yr	Controlled tons/yr	% Reduction
Methane	46.5761	46.5761	0.00
Ethane	0.7570	0.7570	0.00
Propane	0.6275	0.6275	0.00
Isobutane	0.2636	0.2636	0.00
n-Butane	0.4844	0.4844	0.00
Isopentane	0.0408	0.0408	0.00
n-Pentane	0.0555	0.0555	0.00
n-Hexane	0.0303	0.0303	0.00
Heptanes	0.0329	0.0329	0.00
Methylcyclohexane	0.0516	0.0516	0.00
Total Emissions	48.9196	48.9196	0.00
Total Hydrocarbon Emissions	48.9196	48.9196	0.00
Total VOC Emissions	1.5865	1.5865	0.00
Total HAP Emissions	0.0303	0.0303	0.00

EQUIPMENT REPORTS:

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages: 1.25
 Calculated Dry Gas Dew Point: 4.61 lbs. H₂O/MMSCF

Temperature: 120.0 deg. F
 Pressure: 1100.0 psig

Dry Gas Flow Rate: 12.0000 MMSCF/day
 Glycol Losses with Dry Gas: 0.4352 lb/hr
 Wet Gas Water Content: Saturated
 Calculated Wet Gas Water Content: 95.19 lbs. H2O/MMSCF
 Calculated Lean Glycol Recirc. Ratio: 7.29 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	4.83%	95.17%
Carbon Dioxide	99.40%	0.60%
Nitrogen	99.94%	0.06%
Methane	99.95%	0.05%
Ethane	99.84%	0.16%
Propane	99.77%	0.23%
Isobutane	99.71%	0.29%
n-Butane	99.63%	0.37%
Isopentane	99.65%	0.35%
n-Pentane	99.56%	0.44%
n-Hexane	99.32%	0.68%
Heptanes	98.86%	1.14%
Methylcyclohexane	96.97%	3.03%

FLASH TANK

Flash Control: Vented to atmosphere
 Flash Temperature: 125.0 deg. F
 Flash Pressure: 80.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.98%	0.02%
Carbon Dioxide	48.17%	51.83%
Nitrogen	6.97%	93.03%
Methane	7.14%	92.86%
Ethane	21.56%	78.44%
Propane	37.13%	62.87%
Isobutane	47.41%	52.59%
n-Butane	54.22%	45.78%
Isopentane	57.88%	42.12%
n-Pentane	63.34%	36.66%
n-Hexane	75.88%	24.12%
Heptanes	86.71%	13.29%
Methylcyclohexane	94.46%	5.54%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	50.57%	49.43%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%

Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	0.86%	99.14%
n-Pentane	0.79%	99.21%
n-Hexane	0.66%	99.34%
Heptanes	0.58%	99.42%
Methylcyclohexane	4.23%	95.77%

STREAM REPORTS:

WET GAS STREAM

Temperature: 120.00 deg. F
 Pressure: 1114.70 psia
 Flow Rate: 5.01e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	2.01e-001	4.77e+001
Carbon Dioxide	5.70e+000	3.31e+003
Nitrogen	1.88e-001	6.96e+001
Methane	9.35e+001	1.98e+004
Ethane	2.78e-001	1.10e+002
Propane	1.09e-001	6.33e+001
Isobutane	2.67e-002	2.05e+001
n-Butane	3.86e-002	2.97e+001
Isopentane	2.79e-003	2.66e+000
n-Pentane	2.99e-003	2.85e+000
n-Hexane	8.98e-004	1.02e+000
Heptanes	4.99e-004	6.61e-001
Methylcyclohexane	2.99e-004	3.89e-001
Total Components	100.00	2.35e+004

DRY GAS STREAM

Temperature: 120.00 deg. F
 Pressure: 1114.70 psia
 Flow Rate: 5.00e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.72e-003	2.31e+000
Carbon Dioxide	5.68e+000	3.30e+003
Nitrogen	1.88e-001	6.96e+001
Methane	9.37e+001	1.98e+004
Ethane	2.78e-001	1.10e+002
Propane	1.09e-001	6.31e+001
Isobutane	2.67e-002	2.05e+001
n-Butane	3.86e-002	2.96e+001
Isopentane	2.79e-003	2.66e+000
n-Pentane	2.99e-003	2.84e+000
n-Hexane	8.95e-004	1.02e+000
Heptanes	4.95e-004	6.53e-001
Methylcyclohexane	2.91e-004	3.77e-001

 Total Components 100.00 2.34e+004

LEAN GLYCOL STREAM

 Temperature: 120.00 deg. F
 Flow Rate: 5.50e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.85e+001	3.05e+003
Water	1.50e+000	4.65e+001
Carbon Dioxide	6.43e-011	1.99e-009
Nitrogen	1.36e-013	4.23e-012
Methane	1.15e-017	3.57e-016
Ethane	2.63e-009	8.16e-008
Propane	1.88e-010	5.83e-009
Isobutane	5.83e-011	1.81e-009
n-Butane	8.86e-011	2.74e-009
Isopentane	1.51e-006	4.68e-005
n-Pentane	2.06e-006	6.36e-005
n-Hexane	1.12e-006	3.48e-005
Heptanes	1.22e-006	3.78e-005
Methylcyclohexane	1.58e-005	4.91e-004
Total Components	100.00	3.10e+003

RICH GLYCOL STREAM

 Temperature: 120.00 deg. F
 Pressure: 1114.70 psia
 Flow Rate: 5.66e+000 gpm
 NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.61e+001	3.05e+003
Water	2.90e+000	9.19e+001
Carbon Dioxide	6.28e-001	1.99e+001
Nitrogen	1.33e-003	4.22e-002
Methane	3.35e-001	1.06e+001
Ethane	5.45e-003	1.73e-001
Propane	4.52e-003	1.43e-001
Isobutane	1.90e-003	6.02e-002
n-Butane	3.49e-003	1.11e-001
Isopentane	2.95e-004	9.36e-003
n-Pentane	4.01e-004	1.27e-002
n-Hexane	2.19e-004	6.96e-003
Heptanes	2.38e-004	7.55e-003
Methylcyclohexane	3.87e-004	1.23e-002
Total Components	100.00	3.17e+003

FLASH TANK OFF GAS STREAM

 Temperature: 125.00 deg. F
 Pressure: 94.70 psia
 Flow Rate: 3.27e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.44e-001	2.23e-002
Carbon Dioxide	2.73e+001	1.03e+001
Nitrogen	1.63e-001	3.92e-002
Methane	7.15e+001	9.87e+000
Ethane	5.24e-001	1.36e-001
Propane	2.37e-001	9.01e-002
Isobutane	6.33e-002	3.17e-002
n-Butane	1.01e-001	5.06e-002
Isopentane	6.34e-003	3.94e-003
n-Pentane	7.51e-003	4.67e-003
n-Hexane	2.26e-003	1.68e-003
Heptanes	1.16e-003	1.00e-003
Methylcyclohexane	8.04e-004	6.80e-004
Total Components	100.00	2.06e+001

FLASH TANK GLYCOL STREAM

Temperature: 125.00 deg. F
Flow Rate: 5.61e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.68e+001	3.05e+003
Water	2.91e+000	9.19e+001
Carbon Dioxide	3.04e-001	9.60e+000
Nitrogen	9.32e-005	2.94e-003
Methane	2.41e-002	7.59e-001
Ethane	1.18e-003	3.73e-002
Propane	1.69e-003	5.32e-002
Isobutane	9.05e-004	2.85e-002
n-Butane	1.90e-003	6.00e-002
Isopentane	1.72e-004	5.42e-003
n-Pentane	2.56e-004	8.06e-003
n-Hexane	1.68e-004	5.28e-003
Heptanes	2.08e-004	6.55e-003
Methylcyclohexane	3.68e-004	1.16e-002
Total Components	100.00	3.15e+003

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 1.06e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.03e+001	4.54e+001
Carbon Dioxide	7.81e+000	9.60e+000
Nitrogen	3.76e-003	2.94e-003
Methane	1.70e+000	7.59e-001
Ethane	4.44e-002	3.73e-002
Propane	4.32e-002	5.32e-002
Isobutane	1.76e-002	2.85e-002

n-Butane	3.70e-002	6.00e-002
Isopentane	2.67e-003	5.37e-003
n-Pentane	3.97e-003	8.00e-003
n-Hexane	2.18e-003	5.25e-003
Heptanes	2.33e-003	6.51e-003
Methylcyclohexane	4.05e-003	1.11e-002

Total Components	100.00	5.60e+001

POTENTIAL EMISSIONS FOR DEHY UNIT 14 - INPUT SUMMARY

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: Ignacio Gas Treating Plant Dehy Unit 14
File Name: P:\CLIENTS\Elm Ridge\160601.0064 Compliance Support 2016\04. Working Files\Glycalc and Permitting Project\Glycalc Runs\Ignacio Gas Plant_Dehy 14_Permitting Runs 2016-06-07 1450.ddf
Date: June 15, 2016

DESCRIPTION:

Description: Emissions being calculated for permit using the latest gas analysis dated 05/11/2016

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 120.00 deg. F
Pressure: 1100.00 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	5.7110
Nitrogen	0.1884
Methane	93.6381
Ethane	0.2781
Propane	0.1088
Isobutane	0.0268
n-Butane	0.0387
Isopentane	0.0028
n-Pentane	0.0030
n-Hexane	0.0009
Heptanes	0.0005
Methylcyclohexane	0.0003

DRY GAS:

Flow Rate: 12.0 MMSCF/day
Water Content: 7.0 lbs. H2O/MMSCF

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.5 wt% H2O
Flow Rate: 5.5 gpm

PUMP:

Glycol Pump Type: Electric/Pneumatic

FLASH TANK:

Flash Control: Vented to atmosphere
Temperature: 125.0 deg. F
Pressure: 80.0 psig

2015 ACTUAL EMISSIONS FOR DEHY UNIT 12b - AGGREGATE SUMMARY

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Iganacio Gas Treating Unit - Dehy Unit 12b
 File Name: P:\CLIENTS\Elm Ridge\160601.0064 Compliance Support 2016\04. Working
 Files\Glycalc and Permitting Project\Glycalc Runs\Actual Emissions - Glycalc Runs\Ignacio
 Gas Plant Dehy 12b Permitting Runs 2016-06-22 1346 HKB.ddf
 Date: June 22, 2016

DESCRIPTION:

Description: Emissions being calculated for permit using
 latest gas analysis dated 05/11/2016
 (Actuals for 2015)

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.2864	6.873	1.2544
Ethane	0.0201	0.482	0.0879
Propane	0.0271	0.651	0.1188
Isobutane	0.0283	0.680	0.1241
n-Butane	0.0629	1.509	0.2754
Isopentane	0.0186	0.447	0.0815
n-Pentane	0.0163	0.391	0.0713
n-Hexane	0.0134	0.321	0.0586
Other Hexanes	0.0003	0.007	0.0013
Heptanes	0.0107	0.257	0.0470
Methylcyclohexane	0.0198	0.474	0.0865
Benzene	0.0845	2.029	0.3703
C8+ Heavies	0.0080	0.191	0.0348
Total Emissions	0.5963	14.312	2.6119
Total Hydrocarbon Emissions	0.5963	14.312	2.6119
Total VOC Emissions	0.2899	6.957	1.2696
Total HAP Emissions	0.0979	2.350	0.4289
Total BTEX Emissions	0.0845	2.029	0.3703

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	9.1316	219.158	39.9963
Ethane	0.1728	4.146	0.7567
Propane	0.1114	2.674	0.4880
Isobutane	0.0749	1.798	0.3281
n-Butane	0.1263	3.032	0.5534
Isopentane	0.0321	0.771	0.1407
n-Pentane	0.0223	0.535	0.0976
n-Hexane	0.0098	0.236	0.0430
Other Hexanes	0.0003	0.007	0.0012
Heptanes	0.0037	0.089	0.0162
Methylcyclohexane	0.0027	0.064	0.0117
Benzene	0.0022	0.052	0.0094

C8+ Heavies	0.0002	0.005	0.0010

Total Emissions	9.6902	232.565	42.4432
Total Hydrocarbon Emissions	9.6902	232.565	42.4432
Total VOC Emissions	0.3859	9.262	1.6902
Total HAP Emissions	0.0120	0.287	0.0525
Total BTEX Emissions	0.0022	0.052	0.0094

COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	9.4180	226.031	41.2507
Ethane	0.1928	4.628	0.8446
Propane	0.1385	3.325	0.6068
Isobutane	0.1032	2.478	0.4522
n-Butane	0.1892	4.541	0.8288
Isopentane	0.0507	1.217	0.2222
n-Pentane	0.0386	0.926	0.1689
n-Hexane	0.0232	0.557	0.1016
Other Hexanes	0.0006	0.014	0.0025
Heptanes	0.0144	0.346	0.0632
Methylcyclohexane	0.0224	0.538	0.0982
Benzene	0.0867	2.081	0.3797
C8+ Heavies	0.0082	0.196	0.0358

Total Emissions	10.2866	246.877	45.0551
Total Hydrocarbon Emissions	10.2866	246.877	45.0551
Total VOC Emissions	0.6758	16.218	2.9599
Total HAP Emissions	0.1099	2.638	0.4814
Total BTEX Emissions	0.0867	2.081	0.3797

COMBINED REGENERATOR VENT/FLASH GAS EMISSION CONTROL REPORT:

Component	Uncontrolled tons/yr	Controlled tons/yr	% Reduction
Methane	41.2507	41.2507	0.00
Ethane	0.8446	0.8446	0.00
Propane	0.6068	0.6068	0.00
Isobutane	0.4522	0.4522	0.00
n-Butane	0.8288	0.8288	0.00
Isopentane	0.2222	0.2222	0.00
n-Pentane	0.1689	0.1689	0.00
n-Hexane	0.1016	0.1016	0.00
Other Hexanes	0.0025	0.0025	0.00
Heptanes	0.0632	0.0632	0.00
Methylcyclohexane	0.0982	0.0982	0.00
Benzene	0.3797	0.3797	0.00
C8+ Heavies	0.0358	0.0358	0.00

Total Emissions	45.0551	45.0551	0.00
Total Hydrocarbon Emissions	45.0551	45.0551	0.00
Total VOC Emissions	2.9599	2.9599	0.00
Total HAP Emissions	0.4814	0.4814	0.00
Total BTEX Emissions	0.3797	0.3797	0.00

EQUIPMENT REPORTS:

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages: 1.25
 Calculated Dry Gas Dew Point: 2.72 lbs. H2O/MMSCF

Temperature: 110.0 deg. F
 Pressure: 1100.0 psig
 Dry Gas Flow Rate: 5.0800 MMSCF/day
 Glycol Losses with Dry Gas: 0.1238 lb/hr
 Wet Gas Water Content: Saturated
 Calculated Wet Gas Water Content: 72.31 lbs. H2O/MMSCF
 Calculated Lean Glycol Recirc. Ratio: 19.14 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	3.75%	96.25%
Carbon Dioxide	98.70%	1.30%
Nitrogen	99.87%	0.13%
Methane	99.89%	0.11%
Ethane	99.67%	0.33%
Propane	99.53%	0.47%
Isobutane	99.38%	0.62%
n-Butane	99.20%	0.80%
Isopentane	99.25%	0.75%
n-Pentane	99.03%	0.97%
n-Hexane	98.49%	1.51%
Other Hexanes	98.83%	1.17%
Heptanes	97.42%	2.58%
Methylcyclohexane	93.19%	6.81%
Benzene	60.27%	39.73%
C8+ Heavies	91.41%	8.59%

FLASH TANK

Flash Control: Vented to atmosphere
 Flash Temperature: 125.0 deg. F
 Flash Pressure: 25.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.94%	0.06%
Carbon Dioxide	27.48%	72.52%
Nitrogen	2.98%	97.02%
Methane	3.04%	96.96%
Ethane	10.41%	89.59%
Propane	19.58%	80.42%
Isobutane	27.44%	72.56%

n-Butane	33.23%	66.77%
Isopentane	37.01%	62.99%
n-Pentane	42.51%	57.49%
n-Hexane	57.89%	42.11%
Other Hexanes	51.12%	48.88%
Heptanes	74.52%	25.48%
Methylcyclohexane	88.57%	11.43%
Benzene	97.64%	2.36%
C8+ Heavies	97.56%	2.44%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	72.92%	27.08%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	1.35%	98.65%
n-Pentane	1.18%	98.82%
n-Hexane	0.86%	99.14%
Other Hexanes	1.96%	98.04%
Heptanes	0.67%	99.33%
Methylcyclohexane	4.52%	95.48%
Benzene	5.12%	94.88%
C8+ Heavies	12.31%	87.69%

STREAM REPORTS:

WET GAS STREAM

Temperature: 110.00 deg. F
 Pressure: 1114.70 psia
 Flow Rate: 2.12e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.52e-001	1.54e+001
Carbon Dioxide	3.60e+000	8.86e+002
Nitrogen	1.68e-001	2.64e+001
Methane	9.55e+001	8.57e+003
Ethane	3.48e-001	5.86e+001
Propane	1.19e-001	2.94e+001
Isobutane	5.11e-002	1.66e+001
n-Butane	7.31e-002	2.38e+001
Isopentane	1.67e-002	6.73e+000
n-Pentane	9.89e-003	3.99e+000

n-Hexane	3.20e-003	1.54e+000
Other Hexanes	9.99e-005	4.82e-002
Heptanes	9.99e-004	5.60e-001
Methylcyclohexane	5.99e-004	3.29e-001
Benzene	4.99e-004	2.18e-001
C8+ Heavies	9.99e-005	9.52e-002

Total Components	100.00	9.64e+003

DRY GAS STREAM

Temperature: 110.00 deg. F
 Pressure: 1114.70 psia
 Flow Rate: 2.12e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)

Water	5.74e-003	5.76e-001
Carbon Dioxide	3.56e+000	8.75e+002
Nitrogen	1.69e-001	2.64e+001
Methane	9.56e+001	8.56e+003
Ethane	3.48e-001	5.84e+001
Propane	1.19e-001	2.93e+001
Isobutane	5.10e-002	1.65e+001
n-Butane	7.27e-002	2.36e+001
Isopentane	1.66e-002	6.68e+000
n-Pentane	9.82e-003	3.95e+000
n-Hexane	3.16e-003	1.52e+000
Other Hexanes	9.90e-005	4.76e-002
Heptanes	9.76e-004	5.46e-001
Methylcyclohexane	5.60e-004	3.07e-001
Benzene	3.02e-004	1.32e-001
C8+ Heavies	9.16e-005	8.70e-002

Total Components	100.00	9.60e+003

LEAN GLYCOL STREAM

Temperature: 110.00 deg. F
 Flow Rate: 4.70e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)

TEG	9.85e+001	2.61e+003
Water	1.50e+000	3.97e+001
Carbon Dioxide	4.37e-011	1.16e-009
Nitrogen	1.25e-013	3.32e-012
Methane	1.20e-017	3.16e-016
Ethane	3.44e-009	9.10e-008
Propane	2.13e-010	5.64e-009
Isobutane	1.17e-010	3.10e-009
n-Butane	1.77e-010	4.69e-009
Isopentane	9.63e-006	2.55e-004
n-Pentane	7.32e-006	1.94e-004
n-Hexane	4.41e-006	1.17e-004
Other Hexanes	2.16e-007	5.72e-006
Heptanes	2.74e-006	7.25e-005

Methylcyclohexane	3.53e-005	9.34e-004
Benzene	1.72e-004	4.56e-003
C8+ Heavies	4.22e-005	1.12e-003

Total Components	100.00	2.65e+003

RICH GLYCOL STREAM

Temperature: 110.00 deg. F
 Pressure: 1114.70 psia
 Flow Rate: 4.78e+000 gpm
 NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)

TEG	9.72e+001	2.61e+003
Water	2.03e+000	5.45e+001
Carbon Dioxide	4.31e-001	1.16e+001
Nitrogen	1.24e-003	3.31e-002
Methane	3.51e-001	9.42e+000
Ethane	7.19e-003	1.93e-001
Propane	5.16e-003	1.39e-001
Isobutane	3.85e-003	1.03e-001
n-Butane	7.05e-003	1.89e-001
Isopentane	1.90e-003	5.10e-002
n-Pentane	1.44e-003	3.88e-002
n-Hexane	8.69e-004	2.33e-002
Other Hexanes	2.13e-005	5.71e-004
Heptanes	5.40e-004	1.45e-002
Methylcyclohexane	8.71e-004	2.34e-002
Benzene	3.40e-003	9.13e-002
C8+ Heavies	3.46e-004	9.30e-003

Total Components	100.00	2.68e+003

FLASH TANK OFF GAS STREAM

Temperature: 125.00 deg. F
 Pressure: 39.70 psia
 Flow Rate: 2.94e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)

Water	2.33e-001	3.25e-002
Carbon Dioxide	2.46e+001	8.39e+000
Nitrogen	1.48e-001	3.22e-002
Methane	7.34e+001	9.13e+000
Ethane	7.41e-001	1.73e-001
Propane	3.26e-001	1.11e-001
Isobutane	1.66e-001	7.49e-002
n-Butane	2.80e-001	1.26e-001
Isopentane	5.74e-002	3.21e-002
n-Pentane	3.98e-002	2.23e-002
n-Hexane	1.47e-002	9.82e-003
Other Hexanes	4.18e-004	2.79e-004
Heptanes	4.75e-003	3.69e-003
Methylcyclohexane	3.51e-003	2.67e-003
Benzene	3.56e-003	2.16e-003

C8+ Heavies	1.72e-004	2.27e-004

Total Components	100.00	1.81e+001

FLASH TANK GLYCOL STREAM

Temperature: 125.00 deg. F
Flow Rate: 4.74e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)

TEG	9.78e+001	2.61e+003
Water	2.04e+000	5.44e+001
Carbon Dioxide	1.19e-001	3.18e+000
Nitrogen	3.70e-005	9.87e-004
Methane	1.07e-002	2.86e-001
Ethane	7.53e-004	2.01e-002
Propane	1.02e-003	2.71e-002
Isobutane	1.06e-003	2.83e-002
n-Butane	2.36e-003	6.29e-002
Isopentane	7.08e-004	1.89e-002
n-Pentane	6.18e-004	1.65e-002
n-Hexane	5.07e-004	1.35e-002
Other Hexanes	1.10e-005	2.92e-004
Heptanes	4.05e-004	1.08e-002
Methylcyclohexane	7.76e-004	2.07e-002
Benzene	3.34e-003	8.91e-002
C8+ Heavies	3.40e-004	9.07e-003

Total Components	100.00	2.66e+003

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 3.47e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)

Water	8.96e+001	1.47e+001
Carbon Dioxide	7.90e+000	3.18e+000
Nitrogen	3.86e-003	9.87e-004
Methane	1.95e+000	2.86e-001
Ethane	7.31e-002	2.01e-002
Propane	6.73e-002	2.71e-002
Isobutane	5.33e-002	2.83e-002
n-Butane	1.18e-001	6.29e-002
Isopentane	2.82e-002	1.86e-002
n-Pentane	2.47e-002	1.63e-002
n-Hexane	1.70e-002	1.34e-002
Other Hexanes	3.64e-004	2.86e-004
Heptanes	1.17e-002	1.07e-002
Methylcyclohexane	2.20e-002	1.98e-002
Benzene	1.18e-001	8.45e-002
C8+ Heavies	5.11e-003	7.95e-003

Total Components	100.00	1.85e+001

2015 ACTUAL EMISSIONS FOR DEHY UNIT 12b - INPUT SUMMARY

Page: 1

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: Iganacio Gas Treating Unit - Dehy Unit 12b
File Name: P:\CLIENTS\Elm Ridge\160601.0064 Compliance Support 2016\04. Working
Files\Glycalc and Permitting Project\Glycalc Runs\Actual Emissions - Glycalc Runs\Ignacio
Gas Plant Dehy 12b Permitting Runs 2016-06-22 1346 HKB.ddf
Date: June 22, 2016

DESCRIPTION:

Description: Emissions being calculated for permit using
latest gas analysis dated 05/11/2016
(Actuals for 2015)

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 110.00 deg. F
Pressure: 1100.00 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	3.6049
Nitrogen	0.1687
Methane	95.5934
Ethane	0.3485
Propane	0.1195
Isobutane	0.0512
n-Butane	0.0732
Isopentane	0.0167
n-Pentane	0.0099
n-Hexane	0.0032
Other Hexanes	0.0001
Heptanes	0.0010
Methylcyclohexane	0.0006
Benzene	0.0005
C8+ Heavies	0.0001

DRY GAS:

Flow Rate: 5.1 MMSCF/day
Water Content: 7.0 lbs. H2O/MMSCF

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.5 wt% H2O
Flow Rate: 4.7 gpm

PUMP:

Glycol Pump Type: Electric/Pneumatic

FLASH TANK:

Flash Control: Vented to atmosphere
Temperature: 125.0 deg. F
Pressure: 25.0 psig

2015 ACTUAL EMISSIONS FOR DEHY UNIT 14 - AGGREGATE SUMMARY

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Ignacio Gas Treating Plant Dehy Unit 14
 File Name: P:\CLIENTS\Elm Ridge\160601.0064 Compliance Support 2016\04. Working
 Files\Glycalc and Permitting Project\Glycalc Runs\Actual Emissions - Glycalc Runs\Ignacio
 Gas Plant Dehy 14 Permitting Runs 2016-06-22 1350.ddf
 Date: June 22, 2016

DESCRIPTION:

Description: Emissions being calculated for permit using
 the latest gas analysis dated 05/11/2016
 (Actual Emissions for 2015)

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.7638	18.331	3.3454
Ethane	0.0377	0.904	0.1651
Propane	0.0532	1.278	0.2331
Isobutane	0.0286	0.687	0.1253
n-Butane	0.0601	1.442	0.2632
Isopentane	0.0054	0.129	0.0236
n-Pentane	0.0080	0.193	0.0352
n-Hexane	0.0053	0.127	0.0231
Heptanes	0.0065	0.157	0.0287
Methylcyclohexane	0.0112	0.268	0.0488
Total Emissions	0.9798	23.515	4.2915
Total Hydrocarbon Emissions	0.9798	23.515	4.2915
Total VOC Emissions	0.1783	4.280	0.7810
Total HAP Emissions	0.0053	0.127	0.0231

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	9.9258	238.220	43.4751
Ethane	0.1362	3.270	0.5967
Propane	0.0903	2.167	0.3955
Isobutane	0.0317	0.762	0.1390
n-Butane	0.0508	1.218	0.2223
Isopentane	0.0040	0.095	0.0173
n-Pentane	0.0047	0.112	0.0205
n-Hexane	0.0017	0.040	0.0074
Heptanes	0.0010	0.024	0.0044
Methylcyclohexane	0.0007	0.016	0.0030
Total Emissions	10.2469	245.925	44.8813
Total Hydrocarbon Emissions	10.2469	245.925	44.8813
Total VOC Emissions	0.1848	4.435	0.8094
Total HAP Emissions	0.0017	0.040	0.0074

COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	10.6896	256.551	46.8206
Ethane	0.1739	4.174	0.7618
Propane	0.1435	3.445	0.6287
Isobutane	0.0603	1.448	0.2643
n-Butane	0.1109	2.661	0.4856
Isopentane	0.0093	0.224	0.0409
n-Pentane	0.0127	0.305	0.0556
n-Hexane	0.0070	0.167	0.0305
Heptanes	0.0075	0.181	0.0331
Methylcyclohexane	0.0118	0.284	0.0518
Total Emissions	11.2267	269.440	49.1728
Total Hydrocarbon Emissions	11.2267	269.440	49.1728
Total VOC Emissions	0.3631	8.715	1.5905
Total HAP Emissions	0.0070	0.167	0.0305

COMBINED REGENERATOR VENT/FLASH GAS EMISSION CONTROL REPORT:

Component	Uncontrolled tons/yr	Controlled tons/yr	% Reduction
Methane	46.8206	46.8206	0.00
Ethane	0.7618	0.7618	0.00
Propane	0.6287	0.6287	0.00
Isobutane	0.2643	0.2643	0.00
n-Butane	0.4856	0.4856	0.00
Isopentane	0.0409	0.0409	0.00
n-Pentane	0.0556	0.0556	0.00
n-Hexane	0.0305	0.0305	0.00
Heptanes	0.0331	0.0331	0.00
Methylcyclohexane	0.0518	0.0518	0.00
Total Emissions	49.1728	49.1728	0.00
Total Hydrocarbon Emissions	49.1728	49.1728	0.00
Total VOC Emissions	1.5905	1.5905	0.00
Total HAP Emissions	0.0305	0.0305	0.00

EQUIPMENT REPORTS:

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages: 1.25
 Calculated Dry Gas Dew Point: 4.36 lbs. H2O/MMSCF

Temperature: 120.0 deg. F

Pressure: 1100.0 psig
 Dry Gas Flow Rate: 10.1500 MMSCF/day
 Glycol Losses with Dry Gas: 0.3680 lb/hr
 Wet Gas Water Content: Saturated
 Calculated Wet Gas Water Content: 95.19 lbs. H₂O/MMSCF
 Calculated Lean Glycol Recirc. Ratio: 8.59 gal/lb H₂O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	4.57%	95.43%
Carbon Dioxide	99.29%	0.71%
Nitrogen	99.93%	0.07%
Methane	99.94%	0.06%
Ethane	99.81%	0.19%
Propane	99.73%	0.27%
Isobutane	99.65%	0.35%
n-Butane	99.56%	0.44%
Isopentane	99.59%	0.41%
n-Pentane	99.47%	0.53%
n-Hexane	99.20%	0.80%
Heptanes	98.65%	1.35%
Methylcyclohexane	96.40%	3.60%

FLASH TANK

Flash Control: Vented to atmosphere
 Flash Temperature: 125.0 deg. F
 Flash Pressure: 80.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.98%	0.02%
Carbon Dioxide	48.14%	51.86%
Nitrogen	6.99%	93.01%
Methane	7.15%	92.85%
Ethane	21.67%	78.33%
Propane	37.08%	62.92%
Isobutane	47.40%	52.60%
n-Butane	54.21%	45.79%
Isopentane	57.90%	42.10%
n-Pentane	63.36%	36.64%
n-Hexane	75.94%	24.06%
Heptanes	86.78%	13.22%
Methylcyclohexane	94.51%	5.49%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	54.67%	45.33%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%

Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	0.86%	99.14%
n-Pentane	0.79%	99.21%
n-Hexane	0.66%	99.34%
Heptanes	0.58%	99.42%
Methylcyclohexane	4.23%	95.77%

STREAM REPORTS:

WET GAS STREAM

Temperature: 120.00 deg. F
 Pressure: 1114.70 psia
 Flow Rate: 4.24e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	2.01e-001	4.04e+001
Carbon Dioxide	5.70e+000	2.80e+003
Nitrogen	1.88e-001	5.89e+001
Methane	9.35e+001	1.68e+004
Ethane	2.78e-001	9.33e+001
Propane	1.09e-001	5.35e+001
Isobutane	2.67e-002	1.74e+001
n-Butane	3.86e-002	2.51e+001
Isopentane	2.79e-003	2.25e+000
n-Pentane	2.99e-003	2.42e+000
n-Hexane	8.98e-004	8.65e-001
Heptanes	4.99e-004	5.59e-001
Methylcyclohexane	2.99e-004	3.29e-001
Total Components	100.00	1.99e+004

DRY GAS STREAM

Temperature: 120.00 deg. F
 Pressure: 1114.70 psia
 Flow Rate: 4.23e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.19e-003	1.85e+000
Carbon Dioxide	5.68e+000	2.78e+003
Nitrogen	1.88e-001	5.88e+001
Methane	9.37e+001	1.67e+004
Ethane	2.78e-001	9.31e+001
Propane	1.09e-001	5.34e+001
Isobutane	2.67e-002	1.73e+001
n-Butane	3.86e-002	2.50e+001
Isopentane	2.79e-003	2.24e+000
n-Pentane	2.99e-003	2.40e+000
n-Hexane	8.94e-004	8.58e-001
Heptanes	4.94e-004	5.51e-001

Methylcyclohexane 2.89e-004 3.17e-001

Total Components 100.00 1.98e+004

LEAN GLYCOL STREAM

Temperature: 120.00 deg. F

Flow Rate: 5.50e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.85e+001	3.05e+003
Water	1.50e+000	4.65e+001
Carbon Dioxide	6.44e-011	2.00e-009
Nitrogen	1.37e-013	4.25e-012
Methane	1.16e-017	3.59e-016
Ethane	2.65e-009	8.21e-008
Propane	1.89e-010	5.84e-009
Isobutane	5.85e-011	1.81e-009
n-Butane	8.88e-011	2.75e-009
Isopentane	1.52e-006	4.69e-005
n-Pentane	2.06e-006	6.38e-005
n-Hexane	1.13e-006	3.50e-005
Heptanes	1.23e-006	3.79e-005
Methylcyclohexane	1.59e-005	4.93e-004
Total Components	100.00	3.10e+003

RICH GLYCOL STREAM

Temperature: 120.00 deg. F

Pressure: 1114.70 psia

Flow Rate: 5.64e+000 gpm

NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.63e+001	3.05e+003
Water	2.68e+000	8.50e+001
Carbon Dioxide	6.30e-001	2.00e+001
Nitrogen	1.34e-003	4.25e-002
Methane	3.38e-001	1.07e+001
Ethane	5.49e-003	1.74e-001
Propane	4.53e-003	1.44e-001
Isobutane	1.91e-003	6.03e-002
n-Butane	3.50e-003	1.11e-001
Isopentane	2.96e-004	9.39e-003
n-Pentane	4.03e-004	1.28e-002
n-Hexane	2.21e-004	6.99e-003
Heptanes	2.40e-004	7.59e-003
Methylcyclohexane	3.89e-004	1.23e-002
Total Components	100.00	3.17e+003

FLASH TANK OFF GAS STREAM

Temperature: 125.00 deg. F

Pressure: 94.70 psia

Flow Rate: 3.28e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.33e-001	2.07e-002
Carbon Dioxide	2.72e+001	1.03e+001
Nitrogen	1.63e-001	3.95e-002
Methane	7.16e+001	9.93e+000
Ethane	5.24e-001	1.36e-001
Propane	2.37e-001	9.03e-002
Isobutane	6.32e-002	3.17e-002
n-Butane	1.01e-001	5.08e-002
Isopentane	6.33e-003	3.95e-003
n-Pentane	7.50e-003	4.68e-003
n-Hexane	2.26e-003	1.68e-003
Heptanes	1.16e-003	1.00e-003
Methylcyclohexane	7.97e-004	6.76e-004
Total Components	100.00	2.07e+001

FLASH TANK GLYCOL STREAM

Temperature: 125.00 deg. F
Flow Rate: 5.60e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.70e+001	3.05e+003
Water	2.70e+000	8.50e+001
Carbon Dioxide	3.05e-001	9.61e+000
Nitrogen	9.44e-005	2.97e-003
Methane	2.43e-002	7.64e-001
Ethane	1.20e-003	3.77e-002
Propane	1.69e-003	5.32e-002
Isobutane	9.09e-004	2.86e-002
n-Butane	1.91e-003	6.01e-002
Isopentane	1.73e-004	5.44e-003
n-Pentane	2.57e-004	8.09e-003
n-Hexane	1.69e-004	5.31e-003
Heptanes	2.09e-004	6.58e-003
Methylcyclohexane	3.70e-004	1.16e-002
Total Components	100.00	3.15e+003

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 9.14e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	8.88e+001	3.85e+001
Carbon Dioxide	9.06e+000	9.61e+000
Nitrogen	4.40e-003	2.97e-003
Methane	1.98e+000	7.64e-001
Ethane	5.20e-002	3.77e-002
Propane	5.01e-002	5.32e-002

Isobutane	2.04e-002	2.86e-002
n-Butane	4.29e-002	6.01e-002
Isopentane	3.10e-003	5.39e-003
n-Pentane	4.62e-003	8.03e-003
n-Hexane	2.54e-003	5.27e-003
Heptanes	2.71e-003	6.55e-003
Methylcyclohexane	4.71e-003	1.12e-002

Total Components	100.00	4.91e+001

2015 ACTUAL EMISSIONS FOR DEHY UNIT 14 - INPUT SUMMARY

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: Ignacio Gas Treating Plant Dehy Unit 14
File Name: P:\CLIENTS\Elm Ridge\160601.0064 Compliance Support 2016\04. Working
Files\Glycalc and Permitting Project\Glycalc Runs\Actual Emissions - Glycalc Runs\Ignacio
Gas Plant Dehy 14 Permitting Runs 2016-06-22 1350.ddf
Date: June 22, 2016

DESCRIPTION:

Description: Emissions being calculated for permit using
the latest gas analysis dated 05/11/2016
(Actual Emissions for 2015)

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 120.00 deg. F
Pressure: 1100.00 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	5.7110
Nitrogen	0.1884
Methane	93.6381
Ethane	0.2781
Propane	0.1088
Isobutane	0.0268
n-Butane	0.0387
Isopentane	0.0028
n-Pentane	0.0030
n-Hexane	0.0009
Heptanes	0.0005
Methylcyclohexane	0.0003

DRY GAS:

Flow Rate: 10.2 MMSCF/day
Water Content: 7.0 lbs. H2O/MMSCF

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.5 wt% H2O
Flow Rate: 5.5 gpm

PUMP:

Glycol Pump Type: Electric/Pneumatic

FLASH TANK:

Flash Control: Vented to atmosphere
Temperature: 125.0 deg. F
Pressure: 80.0 psig

4. FEDERAL MINOR NSR PROGRAM IN INDIAN COUNTY-FORMS

Federal Minor New Source Review Forms (Form NEW and Form SYNMIN) have been provided in this Section.



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
FEDERAL MINOR NEW SOURCE REVIEW PROGRAM IN INDIAN
COUNTRY**

40 CFR 49.151

**Application for New Construction
(Form NEW)**

Please check all that apply to show how you are using this form:

- Proposed Construction of a New Source
- Proposed Construction of New Equipment at an Existing Source
- Proposed Modification of an Existing Source
- Other – Please Explain -> Application to obtain a TMNSR permit to establish legally and practically enforceable limits**

Use of this information request form is voluntary and not yet approved by the Office of Management and Budget. The following is a check list of the type of information that Region 8 will use to process information on your proposed project. While submittal of this form is not required, it does offer details on the information we will use to complete your requested approval and providing the information requested may help expedite the process. Use of application forms for this program is currently under Office of Management and Budget review and these information request forms will be replaced/updated after that review is completed.

Please submit information to following two entities:

Federal Minor NSR Permit Coordinator
U.S. EPA, Region 8
1595 Wynkoop Street, 8P-AR
Denver, CO 80202-1129
R8airpermitting@epa.gov

For more information, visit:
<http://www.epa.gov/caa-permitting/tribal-nsr-permitting-region-8>

The Tribal Environmental Contact for the specific reservation:

If you need assistance in identifying the appropriate Tribal Environmental Contact and address, please contact:
R8airpermitting@epa.gov

A. GENERAL SOURCE INFORMATION

1. (a) Company Name (Who owns this facility?) Elm Ridge Exploration Company, LLC		2. Facility Name: Ignacio Gas Treating Plant	
(b) Operator Name (Is the company that operates this facility different than the company that owns this facility? What is the name of the company?): Same as above			
3. Type of Operation: Natural Gas Treating Plant		4. Portable Source? Yes <input checked="" type="checkbox"/> No	5. Temporary Source? Yes <input checked="" type="checkbox"/> No
6. NAICS Code: 211111		7. SIC Code: 1311	
8. Physical Address (Or, home base for portable sources): 11117 County Road 310			
9. Reservation*: Southern Ute Indian Reservation	10. County*: La Plata	11a. Latitude (decimal format)*: 37.10	11b. Longitude (decimal format)*: 107.77
12a. Quarter Quarter Section*:	12b. Section*: 13	12c. Township*: 33N	12d. Range*: 9W

*Provide all proposed locations of operation for portable sources

B. PREVIOUS PERMIT ACTIONS (Provide information in this format for each permit that has been issued to this source. Provide as an attachment if additional space is necessary)

Facility Name on the Permit: Ignacio Gas Treating Plant
Permit Number (xx-xxx-xxxxx-xxxx.xx): Title V (Part 70) Permit, # V-SUIT-0052-2014.00
Date of the Permit Action: August 28, 2014

Facility Name on the Permit: Ignacio Gas Treating Plant
Permit Number (xx-xxx-xxxxx-xxxx.xx): Title V (Part 70) Permit, # V-SUIT-0052-2014.01
Date of the Permit Action: November 2, 2015

Facility Name on the Permit
Permit Number (xx-xxx-xxxxx-xxxx.xx)
Date of the Permit Action

Facility Name on the Permit
Permit Number (xx-xxx-xxxxx-xxxx.xx)
Date of the Permit Action

Facility Name on the Permit
Permit Number (xx-xxx-xxxxx-xxxx.xx)
Date of the Permit Action

C. CONTACT INFORMATION

Company Contact (Who is the <u>primary</u> contact for the company that owns this facility?): James M. Clark, Jr.		Title: President
Mailing Address: 12225 Greenville Ave, Suite 950, Dallas, TX -75243		
Email Address : JClark@elmridge.net		
Telephone Number: 972-889-2100 (Ext 100)	Facsimile Number	
Operator Contact (Is the company that operates this facility different than the company that owns this facility? Who is the <u>primary</u> contact for the company that operates this facility?: Dianna Lee (Beeline Gas Systems)		Title: Regulatory Compliance
Mailing Address: 2001 E. Blanco Blvd., Bloomfield, NM - 87413		
Email Address : BeelineRegulatory@elmridge.net		
Telephone Number: 505-634-1144 (Ext 105)	Facsimile Number	
Permitting Contact (Who is the person <u>primarily</u> responsible for Clean Air Act permitting for the company? We are seeking one main contact for the company. Please do not list consultants.): Dianna Lee (Beeline Gas Systems)		Title: Regulatory Compliance
Mailing Address: 2001 E. Blanco Blvd., Bloomfield, NM - 87413		
Email Address: BeelineRegulatory@elmridge.net		
Telephone Number: 505-634-1144 (Ext 105)	Facsimile Number	
Compliance Contact (Is the person responsible for Clean Air Act compliance for this company different than the person responsible for Clean Air Act permitting? Who is the person <u>primarily</u> responsible for Clean Air Act compliance for the company? We are seeking one main contact for the company. Please do not list consultants.) Dianna Lee (Beeline Gas Systems)		Title: Regulatory Compliance
Mailing Address: 2001 E. Blanco Blvd., Bloomfield, NM - 87413		
Email Address: BeelineRegulatory@elmridge.net		
Telephone Number: 505-634-1144 (Ext 105)	Facsimile Number	

D. ATTACHMENTS

Include all of the following information (see the attached instructions)

*Please do not send Part 71 Operating Permit Application Forms in lieu of the check list below.

- FORM SYNMIN** - New Source Review Synthetic Minor Limit Request Form, if synthetic minor limits are being requested. (See Section 4 of the Application)
 - Narrative description of the proposed production processes. This description should follow the flow of the process flow diagram to be submitted with this application. (See Section 2 of the Application)
 - Process flow chart identifying all proposed processing, combustion, handling, storage, and emission control equipment. (See Section 2 of the Application)
 - A list and descriptions of all proposed emission units and air pollution-generating activities. (See Section 2 of the Application)
 - Type and quantity of fuels, including sulfur content of fuels, proposed to be used on a daily, annual and maximum hourly basis. (See Section 2 and 3 of the Application)
 - Type and quantity of raw materials used or final product produced proposed to be used on a daily, annual and maximum hourly basis. (N/A)
 - Proposed operating schedule, including number of hours per day, number of days per week and number of weeks per year. (See Section 3 of the Application)
 - A list and description of all proposed emission controls, control efficiencies, emission limits, and monitoring for each emission unit and air pollution generating activity. (See Section 3 and 5 of the Application)
 - Criteria Pollutant Emissions** - Estimates of Current Actual Emissions, Current Allowable Emissions, Post-Change Uncontrolled Emissions, and Post-Change Allowable Emissions for the following air pollutants: particulate matter, PM₁₀, PM_{2.5}, sulfur oxides (SO_x), nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compound (VOC), lead (Pb) and lead compounds, fluorides (gaseous and particulate), sulfuric acid mist (H₂SO₄), hydrogen sulfide (H₂S), total reduced sulfur (TRS) and reduced sulfur compounds, including all calculations for the estimates. (See Section 3 of the Application)
- These estimates are to be made for each emission unit, emission generating activity, and the project/source in total. Note, there are no insignificant emission units or activities in this permitting program, only exempted units and activities. Please see the regulation for a list of exempted units and activities.
- Air Quality Review** (See Section 6 of the Application)
 - ESA (Endangered Species Act)** (See Section 6 of the Application)
 - NHPA (National Historic Preservation Act)** (See Section 6 of the Application)

E. TABLE OF ESTIMATED EMISSIONS

The following tables provide the total emissions in tons/year for all pollutants from the calculations required in Section D of this form, as appropriate for the use specified at the top of the form.

E(i) – Proposed New Source – See Section 4 for more information, Total Emissions (from units 12b,14, 11b and 13) are given below:

Pollutant	Potential Emissions (tpy)	Proposed Allowable Emissions (tpy)	
PM	-	-	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 Oxides NO _x - Nitrogen Oxides CO - Carbon Monoxide VOC - Volatile Organic Compound Pb - Lead and lead compounds Fluorides - Gaseous and particulates H ₂ SO ₄ - Sulfuric Acid Mist H ₂ S - Hydrogen Sulfide TRS - Total Reduced Sulfur RSC - Reduced Sulfur Compounds
PM ₁₀	-	-	
PM _{2.5}	-	-	
SO ₂	0.09	0.09	
NO _x	0.64	0.64	
CO	0.54	0.54	
VOC	4.63	4.63	
Pb	-	-	
Fluorides	-	-	
H ₂ SO ₄	-	-	
H ₂ S	-	-	
TRS	-	-	
RSC	-	-	

Emissions calculations must include fugitive emissions if the source is one the following listed sources, pursuant to CAA Section 302(j):

- | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> (a) Coal cleaning plants (with thermal dryers); (b) Kraft pulp mills; (c) Portland cement plants; (d) Primary zinc smelters; (e) Iron and steel mills; (f) Primary aluminum ore reduction plants; (g) Primary copper smelters; (h) Municipal incinerators capable of charging more than 250 tons of refuse per day; (i) Hydrofluoric, sulfuric, or nitric acid plants; (j) Petroleum refineries; (k) Lime plants; (l) Phosphate rock processing plants; (m) Coke oven batteries; (n) Sulfur recovery plants; (o) Carbon black plants (furnace process); (p) Primary lead smelters; (q) Fuel conversion plants; | <ul style="list-style-type: none"> (r) Sintering plants; (s) Secondary metal production plants; (t) Chemical process plants (u) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input; (v) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels; (w) Taconite ore processing plants; (x) Glass fiber processing plants; (y) Charcoal production plants; (z) Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input, and (aa) Any other stationary source category which, as of August 7, 1980, is being regulated under section 111 or 112 of the Act. |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
FEDERAL MINOR NEW SOURCE REVIEW PROGRAM IN INDIAN COUNTRY
40 CFR 49.151**

**Application For Synthetic Minor Limit
(Form SYNMIN)**

Use of this information request form is voluntary and not yet approved by the Office of Management and Budget. The following is a check list of the type of information that Region 8 will use to process information on your proposed project. While submittal of this form is not required, it does offer details on the information we will use to complete your requested approval and providing the information requested may help expedite the process. Use of application forms for this program is currently under Office of Management and Budget review and these information request forms will be replaced/updated after that review is completed.

Please submit information to following two entities:

Federal Minor NSR Permit Coordinator
U.S. EPA, Region 8
1595 Wynkoop Street, 8P-AR
Denver, CO 80202-1129
R8airpermitting@epa.gov

For more information, visit:
<http://www.epa.gov/caa-permitting/tribal-nsr-permitting-region-8>

The Tribal Environmental Contact for the specific reservation:

If you need assistance in identifying the appropriate Tribal Environmental Contact and address, please contact:

R8airpermitting@epa.gov

A. GENERAL INFORMATION

Company Name (Who owns this facility?) Elm Ridge Exploration Company, LLC	Facility Name: Ignacio Gas Treating Plant
Company Contact (Who is the <u>primary</u> contact for the company that owns this facility?): James M. Clark, Jr.	Title: President
Mailing Address: 12225 Greenville Ave, Suite 950, Dallas, TX -75243	
Email Address: JClark@elmridge.net	
Telephone Number: 972-889-2100 (Ext 100)	Facsimile Number

B. ATTACHMENTS

For each criteria air pollutant, hazardous air pollutant and for all emission units and air pollutant-generating activities to be covered by a limitation, include the following:

- Item 1** - The proposed limitation and a description of its effect on current actual, allowable and the potential to emit. **See Section 5 of the Application**
- Item 2** - The proposed testing, monitoring, recordkeeping, and reporting requirements to be used to demonstrate and assure compliance with the proposed limitation. **See Section 5 of the Application**
- Item 3** - A description of estimated efficiency of air pollution control equipment under present or anticipated operating conditions, including documentation of the manufacturer specifications and guarantees. **See Section 5 of the Application**
- Item 4** - Estimates of the Post-Change Allowable Emissions that would result from compliance with the proposed limitation, including all calculations for the estimates. **See Section 5 of the Application**

Item 5 – Estimates of the potential emissions of Greenhouse Gas (GHG) pollutants. See Section 5 of the Application

The public reporting and recordkeeping burden for this collection of information is estimated to average 6 hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed form to this address.

5. ATTACHMENTS REQUIRED BY THE SYNMIN FORM

The information required per Section B of Form SYNMIN (Attachments) are addressed in this section:

Item 1: The proposed limitation and a description of its effect on current actual, allowable and the potential to emit.

Item 2: The proposed testing, monitoring, recordkeeping, and reporting requirements to be used to demonstrate and assure compliance with the proposed limitation.

Response to Item 1 and Item 2:

The dehydrators (Units 12b and 14) at the Ignacio Plant are subject to 40 CFR 63, Subpart HH (More details provided in Section 6). The dehydrators are seeking an exemption from MACT HH requirements specified under 40 CFR 63.764(d). 40 CFR 63.764(d) deals with control, monitoring and recordkeeping/reporting requirements for dehydrators at an area source of HAP.

This exemption is provided under 40 CFR 63.764(e)(2) which states that “ *The owner or operator is exempt from the requirements of 40 CFR 63.764(d) if the actual average emissions of benzene from the glycol dehydration unit process vents to the atmosphere are less than 0.90 megagram per year, as determined by the procedures specified under 40 CFR 63.772(b)(2)*”.

Per 40 CFR 63.772(b)(2)(i), the determination of actual average benzene of BTEX emissions from a glycol dehydration unit can be made using GRI-GLYCalc and that the inputs to the model will be representative of actual operating conditions.

The wet gas samples⁵ used for this determination was collected upstream of the absorber/contacter for both dehydrators, as specified in the settlement agreement (Condition III.B.5). The actual throughputs of gas through dehydrators 12b and 14 in the calendar year 2015 were used to estimate actual and maximum emissions of benzene. The results provided below in Table 5-1 show that the emissions of benzene (actual and potential) are lesser than 0.90 Mg/yr (1 tpy) limit, thereby exempting both these dehydrators from MACT HH requirements specified under 40 CFR 63.764(d).

Table 5-1. Annual Benzene Emissions from Units 12b and 14

Emission Unit ID	Potential Throughput (MMscfd)	Potential Emissions (tpy)	Actual Throughput (MMscfd)	Actual Benzene emissions in 2015 (tpy)
12b	25	0.49	5.08	0.38
14	12	0	10.2	0

Per the settlement agreement, legally and practically enforceable requirements and limits are requested for the following parameters:

- 1) Establishment of an optimum glycol recirculation rate and maintaining records per 40 CFR 63.764(d)(2):**

⁵ Sample 43663 corresponding to Dehy 12b was taken on 05/11/2016. Sample 43664 corresponding to Dehy 14 was taken on 05/11/2016. These samples have been provided under Appendix B.

- The facility has determined the L_{OPT} (Optimum glycol circulation rate) to be 3.9 gal/min for Unit 12b and 2.5 gal /min for Unit 14 (calculations provided with this section).
- Elm Ridge will endeavor to operate the TEG dehydration units (12b and 14) in such a way that the actual glycol circulation rate does not exceed the L_{OPT} (optimum glycol circulation rate).
- 40 CFR 63.764(d)(2)(ii) states that if the TEG dehydration units (12b and 14) are unable to meet the sales gas specification for moisture content using the calculated optimum glycol circulation rate, Elm Ridge will calculate an alternate circulation rate using GRI–GLYCalc. Elm Ridge will document why the TEG dehydration units must be operated using the alternate circulation rate. This documentation is provided below:
 - Elm Ridge uses a slightly higher rate than the L_{OPT} values for Unit 12. Elm Ridge uses 4.7 gal/min for Unit 12b to protect the membranes in the downstream membrane treatment unit. This slight over circulation ensures that the life of the membranes is extended for a significant period of time. The difference in emissions between these two circulation rates are also minimal as shown in the table below (Table 5-2).
 - Elm Ridge also uses a higher rate than the L_{OPT} values for Unit 14. Elm Ridge uses 5.5 gal/min for Unit 14. This over circulation is done primarily in hot weather months to compensate for an undersized gas cooler and thereby to meet the pipeline specifications for water content. The difference in emissions between these two circulation rates are also minimal as shown in the table below.
- Therefore Elm Ridge requests the usage of the alternate circulation rate (4.7 gal/min for dehydrator Unit 12b and 5.5 gal/min for dehydrator unit 14) taking into account the minimal difference in VOC and benzene emission rates and also the operational needs of the plant as documented above.

Table 5-2. L_{OPT} and Actual Glycol Circulation Rate Comparison

Emission Unit ID	Calculated L_{OPT} (gal/min)	Actual Circulation Rate (gal/min)	Reason	Difference in emissions between using L_{OPT} rates and Actual Circulation Rates (tpy of VOC)	Difference in emissions between using L_{OPT} rates and Actual Circulation Rates (tpy of benzene)
12b	3.9	4.7	Downstream membrane protection	0.52	0.08
14	2.5	5.5	Meeting pipeline specifications in hot months	0.88	0

- Elm Ridge will also maintain records of the L_{OPT} determination and perform an annual review of the L_{OPT} determination. If operating conditions change and a modification to the optimum glycol circulation rate is required, Elm Ridge shall prepare an alternate L_{OPT} determination and submit a notification to the EPA with the following information:
 - Calculation/Documentation of the original L_{OPT}
 - Calculation/Documentation of the alternate L_{OPT} with justification on why it is required
 - Name of the manufacturer and the model number of the glycol circulation pump(s) in operation

- Statement by a responsible official, with that official's name, title, and signature, certifying that the facility will always operate the glycol dehydration unit using the optimum circulation rate.

2) Establishment of a maximum operating temperature for the regenerator still vent and proposing a monitoring and recordkeeping methodology to ensure the temperature does not exceed the maximum operating temperature

- 375 °F is proposed as the maximum operating temperature of the regenerator still vent. The actual still vent runs between 200 to 215 °F and the reboiler is monitored by operating procedures at 375 °F, which ensures that the steam coming out of the vent is at least 197 °F
- The still vent columns are equipped with a temperature indicator to ensure that the temperature does not exceed the maximum limit. Daily manual readings are also taken to ensure continuous compliance.

3) Installation of an elevated dispersion stack on the reboiler for Unit 12b

- A vent stack riser was installed on the Unit 11b (Reboiler for Unit 12b) on June 28, 2016.

4) Emissions from Unit 12b and 14 to not exceed 0.9 Mg/yr in any consecutive 12 month period.

- Elm Ridge will ensure that the actual average benzene emission rates for units 12b and 14 will not exceed 0.9 Mg/yr, calculated on a rolling 12 month basis.
- To ensure compliance with this requirements, Elm Ridge proposes the following requirements:
 - Monthly emissions from units 12b and 14 will be estimated using GRI-GLYCalc and these results will entered in a spreadsheet which will calculate a rolling 12 month benzene emission rate
 - The parameters used in the GRI-GLYCalc will be based on total monthly throughput averaged on a daily basis and worst case temperature/pressure parameters.
 - A fresh wet gas analysis will be conducted each year and those results will be used in the GRI-GLYCalc runs to estimate emissions on monthly emissions.

Item 3: A description of estimated efficiency of air pollution control equipment under present or anticipated operating conditions, including documentation of the manufacturer specifications and guarantees.

Response to Item 3: Both TEG dehydrators (12b and 14) are equipped with flash tanks, which work as air pollution control equipment. In a flash tank separator, the gas and liquid are separated at a pressure ranging between 40 to 100 psig. At this low pressure, the gas is rich in methane and lighter VOCs, but the water remains in the liquid. Post the flash tank, the wet TEG (minus methane and lighter VOCs) is heated to remove the water and remaining methane and VOCs. The gas from the flash tank is rich in methane and is either used as a fuel gas at the plant or vented to the atmosphere. The operating conditions of the flash tank for units 12b and 14 are provided in Table 5-3 below. It is estimated that a flash tank captures up to 40% VOC and 90% of the methane entrained by the TEG, thereby reducing emissions.⁶

⁶ Source: https://www3.epa.gov/gasstar/documents/ll_flashtanks3.pdf

Table 5-3. Flash Tank Operating Parameters

Emission Unit ID	Flash Tank Temperature (°F)	Flash Tank Pressure (psig)
12b	125	25
14	125	80

Item 4 - Estimates of the Post-Change Allowable Emissions that would result from compliance with the proposed limitation, including all calculations for the estimates:

Response to Item 4: The actual and potential emissions of benzene have been provided under Table 5-1. Emission calculations (including Glycalc Runs) have been provided under Section 4 of this application.

Item 5: Estimates of the potential emissions of Greenhouse Gas (GHG) pollutants

Response to Item 5: The potential emissions for GHG pollutants from the dehydrators and reboilers have been provided in Section 3(Emission Calculations).

Elm Ridge Exploration Company, LLC - Ignacio Gas Treating Plant

LOPT Calculation for Dehydrators 12b and 14.

Per 63.764 d (2): Each owner or operator of an area source not located in a UA plus offset and UC boundary (as defined in §63.761) shall comply with paragraphs (d)(2)(i) through (iii) of this section.

(i) Determine the optimum glycol circulation rate using the following equation:

$$L_{OPT} = 1.15 * 3.0 \frac{\text{gal TEG}}{\text{lb H}_2\text{O}} * \left(\frac{F * (I - O)}{24 \text{ hr/day}} \right)$$

Where:

L_{OPT} = Optimal circulation rate, gal/hr.

F = Gas flowrate (MMSCF/D).

I = Inlet water content (lb/MMSCF).

O = Outlet water content (lb/MMSCF).

3.0 = The industry accepted rule of thumb for a TEG-to water ratio (gal TEG/lb H₂O).

1.15 = Adjustment factor included for a margin of safety.

Emission Unit ID	"F" Gas Flowrate (MMSCF/Day)	"I" Inlet Water Content ¹ (lb/MMSCF)	"O" Outlet Water Content ¹ (lb/MMSCF)	L _{OPT} (gal/hr)	L _{OPT} (gal/min)
12b	25	72.31	7	234.7	3.9
14	12	95.19	7	152.1	2.5

¹ Per GlyCalc Aggregate Reports dated June 22, 2016 for unit 12b and 14.

6. REGULATORY ANALYSIS

The operation of the Dehydrator units (Unit 12b and Unit 14) at the Ignacio plant are subject to certain air quality regulations. This section summarizes the air permitting requirements and key air quality regulations that apply to the operation of the dehydrators at the Ignacio plant pertaining to the equipment that are addressed in this permit application.

6.1. PERMITTING PROGRAMS

6.1.1. New Source Review and Modifications in Indian Country

In June 10, 2011, EPA finalized a Federal Implementation Plan (FIP) to ensure that Clean Air Act permitting requirements are applied consistently to facilities in Indian country. The FIP puts in place the two remaining pieces of the preconstruction air permitting program (NSR) in Indian Country (minor NSR and non-attainment major NSR rule). It lays out requirements for EPA to issue air permits to sources in Indian country, or allows tribes to take responsibility for issuing air permits according to EPA's requirements. Since the Southern Ute Indian Tribe (SUIT) of the Southern Indian Reservation has not been delegated for issuance of minor NSR permitting, this application is being submitted to the EPA for obtaining a permit to establish legally and practically enforceable requirements and emission limits for the dehydrators.

NSR requires that construction of new emission sources or modifications to existing emission sources be evaluated when significant net emission increases results. Two distinct NSR programs apply depending on whether the plant is located in an attainment or nonattainment area for a particular pollutant. Nonattainment NSR (NNSR) permitting is required for facilities located in nonattainment areas, while PSD permitting is required for facilities located in attainment areas.

The Ignacio plant is located in La Plata County, which has been designated as attainment or unclassifiable for all regulated air pollutants.⁷ Therefore, the plant is not subject to NNSR permitting requirements for any criteria pollutants.

For the purposes of determining applicability of the PSD program, a "major stationary source" is defined in §52.21 as any source type belonging to the list of specifically delineated source categories ("List of 28") which emits or has the potential to emit 100 tpy or more of any PSD pollutant, or any other source type which emits or has the potential to emit such pollutants in amounts equal to or greater than 250 tpy. Gas treatment plants are not on the "List of 28" with a lower threshold of 100 tpy.⁸ The Ignacio plant is a minor source with respect to the PSD permitting program since potential facility-wide emissions of all PSD pollutants are below the applicable 250 tpy threshold.

6.2. NEW SOURCE PERFORMANCE STANDARDS

New Source Performance Standards (NSPS) require new, reconfigured, or reconstructed sources to control emissions to the level achievable by the best demonstrated technology as specified in the applicable provisions.

⁷ §81.306

⁸ Fugitive emissions are not required to be included for the applicability determination for the Ignacio plant since it is not one of the 28 source categories with a lower threshold of 100 tpy.

6.2.1. Subpart A - General Provisions

Any source subject to a NSPS is also subject to the general provisions of NSPS Subpart A, unless specifically excluded. As discussed below, the reboilers (Unit 11 and Unit 13b) are not subject to NSPS Subpart Dc and are therefore not subject to NSPS Subpart A. The reboilers will not be required to submit an initial notification, conduct performance tests, or semiannual monitoring or reporting.

6.2.2. Subpart Dc - Small Industrial-Commercial-Institutional Steam Generating Units

NSPS Subpart Dc applies to boilers and heaters that were constructed and installed after June 6, 1989 and have a heat input capacity between 10 and 100 MMBtu/hr. The facility operates natural gas-fired reboiler heaters (Unit 11 and Unit 13b) which are rated under 10 MMBtu/hr heat capacity. Per 40 CFR 60.40c(a), heaters with heat input capacity rated below 10 MMBtu/hr are not subject to Subpart Dc.

6.3. NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

NESHAP are emission standards for HAP and are applicable to major and area sources of HAP. A HAP major source is defined as having potential emissions in excess of 25 tpy for total HAP and/or potential emissions in excess of 10 tpy for any individual HAP. An area source is a stationary source that is not a major source. NESHAP apply to sources in specifically regulated industrial source categories [CAA Section 112(d)] or on a case-by-case basis [Section 112(g)] for facilities not regulated as a specific industrial source type.

6.3.1. Subpart A - General Provisions

Any source subject to a source-specific NESHAP is also subject to the general provisions of NESHAP Subpart A. Unless specifically excluded by the source-specific NESHAP, Subpart A generally requires initial construction notification, initial startup notification, performance tests, performance test date initial notification, general monitoring requirements, general recordkeeping requirements, and semiannual monitoring and/or excess emission reports.

6.3.2. Subpart HH - Oil and Natural Gas Production Facilities

NESHAP Subpart HH, *National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Processing Facilities*, applies to emission points at oil and natural gas production facilities that are HAP major or HAP area sources and that process, upgrade, or store hydrocarbon liquids or process, upgrade, or store natural gas prior to the point at which natural gas enters the natural gas transmission and storage source category.

An important distinction needs to be made regarding the usage of "HAP Major" in the context of Subpart HH. Major source, as used in this subpart, shall have the same meaning as in 40 CFR 63.2, except that:

- (1) Emissions from any oil or gas exploration or production well (with its associated equipment, as defined in this section), and emissions from any pipeline compressor station or pump station shall not be aggregated with emissions from other similar units to determine whether such emission points or stations are major sources, even when emission points are in a contiguous area or under common control;*
- (2) Emissions from processes, operations, or equipment that are not part of the same facility, as defined in this section, shall not be aggregated; and*
- (3) For facilities that are production field facilities, only HAP emissions from glycol dehydration units and storage vessels shall be aggregated for a major source determination. For facilities that are not production*

field facilities, HAP emissions from all HAP emission units shall be aggregated for a major source determination.

The Ignacio Gas Treating plant satisfies the definition of a production field facility⁹ and not a gas processing plant¹⁰ as there is no process at the plant which involves fractionation of mixed NGLs to natural gas products or extraction of NGLs from field gas. Therefore per Subpart HH, only the emissions from the dehydration units and storage vessels at the production field facilities should be aggregated when comparing to major source thresholds. The total HAP emissions from the glycol dehydrators and the storage vessels with the potential for flash emissions are below major source thresholds and therefore, the Ignacio Plant is an area source for Subpart HH.

According to 40 CFR 63.760(b)(2), the affected sources at HAP area sources include each glycol dehydrator unit at the plant. Therefore, the only affected sources at the plant are the TEG dehydrators (Unit 12b and Unit 14)

40 CFR 63.764(d) provides the requirements for operating the affected sources (TEG dehydrators) at an area source of HAP. However, an affected source is exempt from these requirements if the criteria listed in either 40 CFR §63.764(e)(1)(i) (actual annual average flowrate of natural gas to dehydrator <85,000 scf/day) or 40 CFR §63.764(e)(1)(ii) (actual annual average emissions of benzene <0.90 Mg/yr) are met.

The TEG dehydrator units (Unit 12b and Unit 14) meet the exemption specified in 40 CFR §63.764(e)(1)(ii) as the actual average emissions of benzene from the process vent to the atmosphere are less than 0.90 Mg/yr, as demonstrated in Table 5-1. Elm Ridge will determine these emissions per the procedures specified under 40 CFR 63.772(b)(2) and maintain records for the determination of this criteria as required per 40 CFR 63.774(d)(1). In addition, Elm Ridge will ensure compliance with legally and practically enforceable requirements and limits requested in this permit per the Settlement Agreement.

6.4. AIR QUALITY REVIEW

Elm Ridge requests that an air quality review be waived considering the insignificant emission rate and ambient air quality impact from the units addressed in this application.

6.5. ESA (ENDANGERED SPECIES ACT) REVIEW

There are no species that will be harmed with this proposal as the units covered under this permit application are existing units in operation at the Ignacio plant and the emission rate as demonstrated in this application is insignificant.

6.6. NHPA (NATIONAL HISTORIC PRESERVATION ACT) REVIEW

There are no cultural resources that will be affected by this proposal as the units covered under this permit application are existing units in operation at the Ignacio plant and the emission rate as demonstrated in this application is insignificant.

⁹ Production field facilities are those located prior to the point of custody transfer. The definition of custody transfer (40 CFR 63.761) means the point of transfer after the processing/treating in the producing operation, except for the case of a natural gas processing plant, in which case the point of custody transfer is the inlet to the plant.

¹⁰ A natural gas processing plant is defined in 40 CFR 63.761 as any processing site engaged in the extraction of NGLs from field gas, or the fractionation of mixed NGLs to natural gas products, or a combination of both. A treating plant or gas plant that does not engage in these activities is considered to be a production field facility

APPENDIX A - INLET GAS SAMPLING RESULTS

Inlet Gas Analysis for Dehy 12b



Sample Matrix: Gas
 Sample Type: N/A
 Preservative: N/A
 Sample Container: 300 ml cylinder
 # 1826
 Method(s): ASTM D 5443
 Multi-Isomer analysis by Gas
 Chromatography

Client: Beeline Gas Services
 Project Location: Ignacio Plant
 Sample Id.: ElmRidge
 Dehy #2
 Sample Temp.: N/A
 Atmospheric Temp.: N/A
 Pressure: 800 psig
 Field Data: N/A
 Sample Date: 5/11/16
 Time: 1:10 pm
 Sampled By: N/A
 Analysis Date: 5/19/16
 Analysis By: Trey Rodgers

Lab #: 43663
 Quality Control Report: 4168

Analytical Results

<u>Gas Composition</u>	<u>Mol %</u>	<u>GPM</u>
Nitrogen (N2):	0.1687	0.0186
Carbon Dioxide (CO2):	3.6049	0.6123
<u>Hydrocarbon Composition</u>	<u>Mol %</u>	<u>GPM</u>
Methane (CH4):	95.5934	16.3447
Ethane (C2H6):	0.3485	0.0934
Propane (C3H8):	0.1195	0.0330
Iso-Butane (C4H10):	0.0512	0.0168
N-Butane (C4H10):	0.0732	0.0231
Iso-Pentane (C5H12):	0.0167	0.0061
N-Pentane (C5H12):	0.0099	0.0036
Hexane+ (C6H14):	0.0141	0.0061
Totals	100.0000	17.1577

Comments - Additional Data

BTU -dry (BTU/ft ³):	984.9	Z-Comp. Factor-dry:	0.99788
BTU -water vapor sat.(BTU/ft ³):	968.1	Z-Comp. Factor-water vapor sat.:	0.99754
Specific Gravity -dry:	0.5960	14.73 psi Pressure Base	
Specific Gravity-water vapor sat.:	0.5966		
<u>Gasoline Content (GPM)</u>			
Ethane & Heavier	0.1821	Butane & Heavier	0.0557
Propane & Heavier	0.0887	Pentane & Heavier	0.0158

*See Next Page for Compositional breakdown of C6+ Fractions

43663 – ElmRidge, Dehy #2

Analytical Results

<u>C6+ Fractions Composition</u>		
<u>Hexane Isomers (C6's)</u>		<u>Mol %</u>
2,2-dimethylbutane	P	0.0003
2,3-dimethylbutane	PN	0.0005
2-methylpentane	P	0.0028
3-methylpentane	P	0.0016
methylcyclopentane	N	0.0035
benzene	A	0.0005
cyclohexane	N	0.0000
n-hexane	P	0.0032
<u>Heptane Isomers (C7's)</u>		
2,2-dimethylpentane	P	0.0000
2,4-dimethylpentane		0.0000
3-methylhexane	P	0.0001
1,3-dimethylcyclopentane	N	0.0000
1,c3-dimethylcyclopentane	N	0.0000
1,t2-dimethylcyclopentane	N	0.0000
toluene	A	0.0000
methylcyclohexane	N	0.0006
ethylcyclopentane	N	0.0000
n-heptane	P	0.0010
<u>Octane Isomers (C8's)</u>		
2,4 + 2,5-dimethylhexane	P	0.0000
1,t2,c4-trimethylcyclopentane	N	0.0000
1,t2,c3-trimethylcyclopentane	N	0.0000
2-methylheptane	P	0.0000
1,c2,t4-trimethylcyclopentane	N	0.0000
3-methylheptane	P	0.0000
1,c3-dimethylcyclohexane	N	0.0000
1,t4-dimethylcyclohexane	N	0.0000
methyl-ethylcyclopentanes	N	0.0000
1,c4 & 1,t3-dimethylcyclohexane	N	0.0000
1,c2-dimethylcyclohexane	N	0.0000
ethylcyclohexane	N	0.0000
ethylbenzene	A	0.0000
m + p-xylene	A	0.0000
o-xylene	A	0.0000
n-octane	P	0.0001

43663 – ElmRidge, Dehy #2

C6+ Fractions Composition (cont.)		
		Mol %
Nonane Isomers (C9's)		
trimethylhexanes	P	0.0000
dimethylheptanes	P	0.0000
isopropylcyclopentane	N	0.0000
n-propylcyclopentane	N	0.0000
3-methyloctane	P	0.0000
trimethylcyclohexanes	N	0.0000
isopropylbenzene	A	0.0000
isopropylcyclohexane	N	0.0000
n-propylcyclohexane	N	0.0000
n-propylbenzene	A	0.0000
m-ethyltoluene	A	0.0000
p-ethyltoluene	A	0.0000
1,3,5-trimethylbenzene + 4&5-methylnonane	A/P	0.0000
o-ethyltoluene + 3-methylnonane	A/P	0.0000
1,2,3-trimethylbenzene	A	0.0000
n-nonane	P	0.0000
Decane Isomers (C10's)		
2-methylnonane	P	0.0000
tert-butylbenzene	A	0.0000
1,2,4-trimethylbenzene	A	0.0000
Isobutylcyclohexane + t-butylcyclohexane	N	0.0000
isobutylbenzene	A	0.0000
sec-butylbenzene	A	0.0000
n-butylcyclohexane	N	0.0000
1,3-diethylbenzene	A	0.0000
1,2-diethylbenzene + n-butylbenzene	A	0.0000
1,4-diethylbenzene	A	0.0000
n-decane	P	0.0000
unidentified C9 naphthenes + C10 paraffins		0.0000
unidentified C10 aromatics + C11 paraffins		0.0000
Ungrouped C10's		0.0000
Undecane Isomers (C11's)		
n-undecane	P	0.0000
Dodecane Isomers (C12's)		
isdodecane +	P	0.0000

Comments - Additional Data

A – Aromatic (Ring Hydrocarbons), N – Naphthene (Cyclic Paraffins & Alkanes), P – Paraffin (Alkanes)



Sample Matrix: Gas
 Sample Type: N/A
 Preservative: N/A
 Sample Container: 300 ml cylinder
 # 1067
 Method(s): ASTM D 5443
 Multi-Isomer analysis by Gas
 Chromatography

Lab #: 43664
 Quality Control Report: 4168

Client: Beeline Gas Services
 Project Location: Ignacio Plant
 Sample Id.: ElmRidge
 Dehy #3
 Sample Temp.: N/A
 Atmospheric Temp.: N/A
 Pressure: 300 psig
 Field Data: N/A
 Sample Date: 5/11/16
 Time: 1:05 pm
 Sampled By: N/A
 Analysis Date: 5/19/16
 Analysis By: Trey Rodgers

Analytical Results

<u>Gas Composition</u>	<u>Mol %</u>	<u>GPM</u>
Nitrogen (N2):	0.1884	0.0208
Carbon Dioxide (CO2):	5.7110	0.9700
<u>Hydrocarbon Composition</u>	<u>Mol %</u>	<u>GPM</u>
Methane (CH4):	93.6381	16.0110
Ethane (C2H6):	0.2781	0.0745
Propane (C3H8):	0.1088	0.0300
Iso-Butane (C4H10):	0.0268	0.0088
N-Butane (C4H10):	0.0387	0.0122
Iso-Pentane (C5H12):	0.0028	0.0010
N-Pentane (C5H12):	0.0030	0.0011
Hexane+ (C6H14):	0.0043	0.0019
Totals	100.0000	17.1314

Comments - Additional Data

BTU -dry (BTU/ft ³):	960.3	Z-Comp. Factor-dry:	0.99783
BTU -water vapor sat.(BTU/ft ³):	943.9	Z-Comp. Factor-water vapor sat.:	0.99750
Specific Gravity -dry:	0.6145	14.73 psi Pressure Base	
Specific Gravity-water vapor sat.:	0.6148		
<u>Gasoline Content (GPM)</u>			
Ethane & Heavier	0.1295	Butane & Heavier	0.0250
Propane & Heavier	0.0550	Pentane & Heavier	0.0040

*See Next Page for Compositional breakdown of C6+ Fractions

43664 – ElmRidge, Dehy #3

Analytical Results

<u>C6+ Fractions Composition</u>		
<u>Hexane Isomers (C6's)</u>		<u>Mol %</u>
2,2-dimethylbutane	P	0.0000
2,3-dimethylbutane	PN	0.0001
2-methylpentane	P	0.0008
3-methylpentane	P	0.0005
methylcyclopentane	N	0.0010
benzene	A	0.0000
cyclohexane	N	0.0000
n-hexane	P	0.0009
<u>Heptane Isomers (C7's)</u>		
2,2-dimethylpentane	P	0.0000
2,4-dimethylpentane		0.0000
3-methylhexane	P	0.0000
1,t3-dimethylcyclopentane	N	0.0000
1,c3-dimethylcyclopentane	N	0.0000
1,t2-dimethylcyclopentane	N	0.0000
toluene	A	0.0000
methylcyclohexane	N	0.0003
ethylcyclopentane	N	0.0000
n-heptane	P	0.0005
<u>Octane Isomers (C8's)</u>		
2,4 + 2,5-dimethylhexane	P	0.0000
1,t2,c4-trimethylcyclopentane	N	0.0000
1,t2,c3-trimethylcyclopentane	N	0.0000
2-methylheptane	P	0.0000
1,c2,t4-trimethylcyclopentane	N	0.0000
3-methylheptane	P	0.0000
1,c3-dimethylcyclohexane	N	0.0000
1,t4-dimethylcyclohexane	N	0.0000
methyl-ethylcyclopentanes	N	0.0000
1,c4 & 1,t3-dimethylcyclohexane	N	0.0000
1,c2-dimethylcyclohexane	N	0.0000
ethylcyclohexane	N	0.0000
ethylbenzene	A	0.0000
m + p-xylene	A	0.0000
o-xylene	A	0.0000
n-octane	P	0.0000

43664 – ElmRidge, Dehy #3

C6+ Fractions Composition (cont.)		
Nonane Isomers (C9's)		Mol %
trimethylhexanes	P	0.0000
dimethylheptanes	P	0.0000
isopropylcyclopentane	N	0.0000
n-propylcyclopentane	N	0.0000
3-methyloctane	P	0.0000
trimethylcyclohexanes	N	0.0000
isopropylbenzene	A	0.0000
isopropylcyclohexane	N	0.0000
n-propylcyclohexane	N	0.0000
n-propylbenzene	A	0.0000
m-ethyltoluene	A	0.0000
p-ethyltoluene	A	0.0000
1,3,5-trimethylbenzene + 4&5-methylnonane	A/P	0.0000
o-ethyltoluene + 3-methylnonane	A/P	0.0000
1,2,3-trimethylbenzene	A	0.0000
n-nonane	P	0.0000
Decane Isomers (C10's)		
2-methylnonane	P	0.0000
tert-butylbenzene	A	0.0000
1,2,4-trimethylbenzene	A	0.0000
Isobutylcyclohexane + t-butylcyclohexane	N	0.0000
isobutylbenzene	A	0.0000
sec-butylbenzene	A	0.0000
n-butylcyclohexane	N	0.0000
1,3-diethylbenzene	A	0.0000
1,2-diethylbenzene + n-butylbenzene	A	0.0000
1,4-diethylbenzene	A	0.0000
n-decane	P	0.0000
unidentified C9 naphthenes + C10 paraffins		0.0000
unidentified C10 aromatics + C11 paraffins		0.0000
Ungrouped C10's		0.0000
Undecane Isomers (C11's)		
n-undecane	P	0.0000
Dodecane Isomers (C12's)		
isdodecane +	P	0.0000

Comments - Additional Data

A – Aromatic (Ring Hydrocarbons), N – Naphthene (Cyclic Paraffins & Alkanes), P – Paraffin (Alkanes)

APPENDIX B - OTHER SUPPORTING DOCUMENTATION

**AIR QUALITY PROGRAM
ENVIRONMENTAL PROGRAMS DIVISION
SOUTHERN UTE INDIAN TRIBE**

**SETTLEMENT AGREEMENT AND STIPULATED FINAL COMPLIANCE ORDER
Enforcement Case ID: 2016-02**

**In the Matter of:
Elm Ridge Exploration Company, LLC - Ignacio Gas Treating Plant**

This Settlement Agreement and Stipulated Final Compliance Order is entered into between the Southern Ute Indian Tribe Air Quality Program, pursuant to the Southern Ute Indian Tribe's authority under §§1-104, 1-105 and 2-121 of the Southern Ute Indian Tribe/State of Colorado Environmental Commission's Reservation Air Code (RAC) and the Southern Ute and Colorado Intergovernmental Agreement Implementation Act of 2004, Pub. L. No. 108-336, 118 Stat. 1354, and Elm Ridge Exploration Company, LLC (Elm Ridge). The Air Quality Program and Elm Ridge may be referred to collectively as "the Parties."

I. STATEMENT OF PURPOSE

The mutual objectives of the Parties entering into this Settlement Agreement and Stipulated Final Compliance Order are:

- A. To bring Elm Ridge into compliance with the RAC.
- B. To resolve alleged RAC violations, as described below, discovered at Elm Ridge's Ignacio Gas Treating Plant by the Air Quality Program during an on-site inspection and records review on January 5, 2016.

II. HISTORY AND ALLEGED VIOLATIONS

The Parties stipulate to the following facts:

- A. Elm Ridge owns and operates the Ignacio Gas Treating Plant, a production field facility, located at Section 13, T33N, R9W, in La Plata County, Colorado. Elm Ridge Ignacio Gas Treating Plant is subject to the Southern Ute Indian Tribe/State of Colorado Environmental Commission's RAC, federal air quality statutes and regulations, and the terms and conditions of Operating Permit No. V-SUIT-0052-2014.01. Permit Condition V.B.1(a), Compliance Requirements, of the operating permit provides that any noncompliance with permit terms or conditions constitutes a violation of the RAC and the Clean Air Act.

B. The Environmental Protection Agency Region 8 (EPA) filed Consent Decree Case No. 1:12-cv-02584 on November 08, 2012 alleging Elm Ridge Ignacio Gas Treating Plant operated without filing an application for a Part 71 permit within 12-months of becoming a “major source” of nitrogen oxides, carbon monoxide, and hazardous air pollutants (HAPs), as required under Title V and 40 CFR §63.6590(a) of the Clean Air Act.

C. On January 5, 2016, two authorized Air Quality Compliance Specialists of the Air Quality Program conducted an on-site inspection associated with a full compliance evaluation to assess the compliance status of the Elm Ridge Ignacio Gas Treating Plant with respect to the terms and conditions of Operating Permit No. V-SUIT-0052-2014.01. In addition, at the NOV conference on April 20 2016, Elm Ridge formally disclosed to the Air Quality Program that an additional instance of a violation identical to the alleged violation outlined in Section C.7. of this Notice exists at the Ignacio Gas Treating Plant and is identified as Section C.7.4.

D. The Air Quality Program found the following alleged violations. In addition, the list below includes the additional violation disclosed at the April 20, 2016 NOV Conference:

1. **Permit Provisions II.F.11.a. and IV.B.1.** – Failure to submit a required semiannual monitoring (SIXMON) report by January 31.
 - Finding: The SIXMON report for the reporting period from August 28, 2014 until December 31, 2014, was due January 31, 2015. Monitoring is required by MACT ZZZZ for all engine units, emission units E1 through E8. The report was received on July 15, 2015, 165 days late.

2. **Permit Provision V.B.2.** – Failure to submit an Annual Certification of Compliance (ACOMP) by January 31 for the preceding 12-month period, beginning January 1 and ending December 31 of the preceding year.
 - Finding: The ACOMP for the reporting period of January 1, 2014 through December 31, 2014, due January 31, 2015, was received on July 15, 2015, 165 days late.

3. **RAC 4-103 and 40 CFR §63.6625(b) and Permit Provisions II.F.6.a.** – Failure to operate and maintain each Continuous Parameter Monitor System (CPMS) according to the following requirements:
 1. Prepare a site-specific monitoring plan that addresses the monitoring system design, data collection, and the quality assurance and quality control elements.
 2. Install, operate, and maintain each CPMS according to the procedures set forth in a site-specific monitoring plan.
 3. Conduct the CPMS equipment performance evaluation, system accuracy audits, or other audit procedures in accordance with the site specific monitoring plan at least annually.

- Finding: Elm Ridge Ignacio Gas Treating Plant reported 389 CPMS system failures in the 2015 semiannual monitoring report for the reporting period January 1 through June 30, 2015 submitted on July 31, 2015. The company failed to provide a site-specific CPMS performance evaluation plan and stated during the inspection the CPMS is calibrated annually, though the company failed to provide records documenting that CPMS equipment performance evaluations have been performed.

4. RAC 3-102 and 40 CFR §60.4245(d) and Permit Provision II.D.5. – Failure to submit a valid performance test report, as required by New Source Performance Standard Subpart JJJJ, by the 60th day following the completion of a performance test.

- Finding: Performance tests were completed on July 13, 2015 for emission units E2 and E8. Results were not provided within the required 60 days after completion of the tests. Test results for emission units E2 and E8 were provided during the January 5, 2016 inspection, 116 days late of the September 11, 2015 due date.

5. RAC 4-103 and 40 CFR §63.6645(h)(2) and Permit Provisions II.F.7.c. – Failure to submit a Notification of Compliance Status, as required by MACT ZZZZ, after the completion of a valid initial performance test.

- Finding: A Notification of Compliance Status was not submitted for emission unit E2 within 60 days of the performance test, due September 11, 2015.

6. RAC 4-103 and 40 CFR §63.10(d)(2) and Permit Provision II.F.7.c. – Failure to submit initial performance testing results, as required by MACT ZZZZ, by the 60th day following the completion of a performance test.

- Finding: Performance tests for emission units E6 and E7 were completed on March 10, 2015 and the results were due May 9, 2015. The performance tests for emission units E3 through E7 were completed on April 13, 2015 and the results were due June 12, 2015. The performance tests for emission units E2 and E8 were completed on July 13, 2015 and the results were due September 11, 2015.

Performance test results for all emission units (E2 through E8), were provided during the inspection on January 5, 2016 and all test reports were more than 60 days late. The test results for emission units E6 and E7 were 241 days late, the test results for emission units E3 through E7 were 207 days late, and the test results for emission units E2 and E8 were 116 days late.

7. **RAC 4-103 and 40 CFR §63.6645(g) and Permit Provision II.F.9.d.** – Failure to notify the Tribe in writing of the intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin.
- Finding: Notifications were not received for performance tests for the following emission units:
 1. E6 and E7 conducted on March 10, 2015
 2. E3 through E7 conducted on April 13, 2015
 3. E2 and E8 conducted on July 13, 2015
 4. E3 – E5, E7, and E8 conducted on December 16, 2015
8. **RAC 4-103 and 40 CFR §63.6650(e)(5-7) and Permit Provision II.F.11.e.(vi-xi)** – Failure to include a summary of total duration of deviations as a percent of the total source operating time, the total duration of the deviations due to control equipment problems, process problems, or other causes, and a summary of the total duration of CPMS downtime as a percent of the total operating time for each six month reporting period for each affected stationary reciprocating internal combustion engine (RICE).
- Finding: The SIXMON reports for the reporting period from August 28, 2014 until December 31, 2014, and for the reporting period from January 1, 2015 until June 30, 2015 failed to include summaries of the operating status for each RICE and summaries of deviation totals for each RICE and CPMS, and did not include CPMS descriptions and summaries.
9. **RAC 2-116(2)(a)(iv) and Permit Provision IV.C.2.** – Failure to provide contemporaneous notice of Off Permit Change for engine exchanges.
- Finding: Emission units E5 and E6 were exchanged on December 15, 2014 and March 4, 2015, without a contemporaneous notice. Written notices for the engine exchanges were provided to the Tribe by Elm Ridge on December 8, 2015. The notice for emission unit E5 was 358 days late and the notice for emission unit E6 was 279 days late.
10. **RAC 2-118 and Permit Provisions V.A.(2 & 4)** – Failure to submit an annual emissions inventory and pay an annual emissions fee by April 1.
- Finding: The annual emissions inventory and emissions fee payment for calendar year 2014 were due April 1, 2015 but were received on April 16, 2015, 15 days late.
11. **RAC 4-103 and 40 CFR §63.6630(b) and Permit Provision II.F.7.b.** – Failure to establish pressure drop across the catalyst and catalyst inlet temperature during the initial performance test.

- Finding: The initial performance testing for emission unit E2, provided during the inspection on January 5, 2016, failed to document that the pressure drop across the catalyst and catalyst inlet temperature were established.

12. Permit Provision III.C.1. – Failure to convert natural gas powered pneumatic controllers at the facility to compressed instrument air no later than 180 days after the November 8, 2012 effective date of Consent Decree No. 1:12-cv-02584-REB-KLM (Consent Decree).

- Finding: Elm Ridge Ignacio Gas Treating Plant was required to convert all natural gas powered pneumatic controllers to compressed instrument air by May 7, 2013. Based on an email from Elm Ridge dated January 28, 2016, the system became fully operational on February 26, 2014, 295 days late.

13. Permit Provision III.A.1. – Failure to replace an existing uncontrolled engine by December 31, 2014 as required by Consent Decree Case No. 1:12-cv-02584, Paragraph 11.

- Finding: Emission unit E1, an uncontrolled four stroke lean burn (4SLB) reciprocating internal combustion engine (RICE) was required to be replaced with a controlled 4SLB RICE by December 31, 2014. During the inspection on January 5, 2016, it was confirmed by serial number, that uncontrolled RICE emission unit E1 was still located on the skid in the engine room connected to the compressor and inlet and outlet gas pipelines. A RICE meeting the replacement criteria was located outside the engine room, still in the shipment packaging.

14. Permit Provision V.C.1. – Failure to provide and supplement information that the Tribe requested in writing to determine permit compliance.

- Finding: Two information requests were sent to Elm Ridge on January 13, 2016. Submittals provided by Elm Ridge on January 28, 2016 did not supply all of the requested documents. Additionally, the company has failed to provide either a Delegated Authorized Representative or Responsible Official and an updated certification of truth and completeness (CTAC) for the time period beginning February 1, 2016 through current.

15. RAC 4-103, 40 CFR §63.774(d)(1)(ii), and Permit Provision II.B.1. – Failure to maintain records adequately demonstrating actual average benzene emission from the glycol dehydration unit still vent are less than 0.9 megagrams per year.

- Finding: The dehydration unit, emission unit 12b, is operating under the exemption for glycol dehydration units with actual average emissions of benzene less than 0.9 Mg/yr. Elm Ridge has not maintained the records required to demonstrate the exemption criteria for emission unit 12b, using the sampling procedures presented in the GRI-GLYCalc™ Technical Reference

Manual, which require wet gas samples to be collected upstream of the absorber. The wet gas sample used for the determination did not clearly identify the sample location. Upon a follow-up inspection of the site, plant operators identified a wet gas sample location downstream of the absorber. No additional documentation has been provided by Elm Ridge regarding the sampling location.

A. The Air Quality Program issued a Notice of Violation (NOV) to Elm Ridge on April 4, 2016 for the alleged violations documented at the Ignacio Gas Treating Plant.

B. A NOV conference was held on April 20, 2016 to provide Elm Ridge with an opportunity to present data, arguments, and other information concerning the alleged violations. At the conference, Elm Ridge did not present any additional arguments, data or information disputing the alleged violations at Ignacio Gas Treating Plant.

C. The Air Quality Program and Elm Ridge entered into settlement discussions for alleged violations at the Ignacio Gas Treating Plant since it is in the interest of both parties to resolve the alleged violations and reach a settlement agreement. The terms of the Parties' Settlement Agreement and Stipulated Final Compliance Order are set forth below.

III. COMPLIANCE REQUIREMENTS

Based on the foregoing stipulated facts, Elm Ridge agrees to do the following:

A. Effective immediately and without limitation, Elm Ridge shall comply with the Reservation Air Code and Operating Permit No. V-SUIT-0052-2014.01 in the regulation and control of air pollutants from Elm Ridge's Ignacio Gas Treating Plant, including timely reporting.

B. Within 90 days of the effective date of this settlement agreement, Elm Ridge shall submit a written Notification of Compliance to the Air Quality Program demonstrating these compliance requirements have been met.

1. Elm Ridge shall determine whether to permanently remove or replace the uncontrolled 4SLB RICE, emission unit E1, with the controlled 4SLB replacement RICE, as required by Permit Provision III.A.1.
 - i. If the RICE is removed, Elm Ridge shall submit a report detailing completion of engine removal along with the notification of compliance to the Tribe.
 - ii. If the RICE is replaced, Elm Ridge shall complete the notification of startup and initial performance testing for the replacement RICE, as

required under 40 CFR 63.6645, and apply to the Tribe for an operating permit revision.

2. Elm Ridge shall resume semiannual performance testing for all engine emission units E2 – E8, as required under Permit Provision II.D.3. and II.F.8. After compliance has been demonstrated for two consecutive tests, the permittee may reduce the frequency of subsequent performance tests to annually.
 - i. As part of the performance testing for emission units E2 through E4, Elm Ridge shall establish and validate the following operating parameters and limitations as required under Permit Provision II.D.2. and II.F.2:
 - a. NOx emission limit of 1.0g/HP-hr
 - b. CO emission limit of 2.0g/HP-hr
 - c. VOC emission limit of 0.7g/HP-hr
 - d. Reduction of Carbon Monoxide by 93%
 - e. Establish and maintain the pressure drop across each catalyst as required
 - f. Establish and maintain each catalyst inlet temperature as required
 - ii. As part of the performance testing for emission units E5 through E8, Elm Ridge shall establish and validate the following operating parameters and limitations, as required under Permit Provision II.F.2.:
 - a. Reduction of Carbon Monoxide by 93%
 - b. Establish and maintain the pressure drop across each catalyst as required
 - c. Establish and maintain each catalyst inlet temperature as required
3. Elm Ridge shall prepare a site-specific monitoring plan for each Continuous Parameter Monitoring System (CPMS), operate and maintain each CPMS according to the plan, and conduct an evaluation annually, as required under 40 CFR 63.6625(b).
4. Elm Ridge shall include, on the SIXMON and ACOMP forms to be submitted, a summary of the total deviations (if any) as a percent of total source operating time and a breakdown of the deviations into the cause of the problem, as required under 40 CFR 63.6650(e)(5-7).
5. Elm Ridge shall document, as required under Permit Provision II.B. that emission units 12b and 14 (triethylene glycol dehydration units) are exempt from the

standards of 40 CFR 63.764(d), including the following technical and recordkeeping requirements:

- i. Elm Ridge shall complete an extended gas analysis and GRI-GLYCalc report and provide the Tribe notification at least 30 days before the gas sample is collected and allow the Tribe's Air Quality Program inspectors to be present during the sample collection.
 - ii. Elm Ridge shall use this extended gas analysis to demonstrate the actual annual average benzene emissions are less than 0.9 Mg/yr using the methodology outlined in 63.772(b).
 - iii. Elm Ridge shall provide records documenting compliance with the 0.9 Mg/yr actual annual average benzene exemption in accordance with 63.774(d)(1).
6. If it is determined emission units 12b and 14 do meet the 0.9 Mg/yr actual annual average benzene exemption under 63.764(e) after completing the requirements of III.5 of this Agreement, then Elm Ridge shall apply to EPA and receive a TMNSR permit under 40 CFR Part 49.151 to establish legally and practically enforceable requirements and emission limits for the following:
- iv. Elm Ridge shall establish an optimum glycol recirculation rate and maintain records in accordance with 63.764(d)(2) for emission units 12b and 14.
 - v. Elm Ridge shall establish a maximum operating temperature and propose a monitoring and recordkeeping methodology to ensure the temperature does not exceed the maximum operating temperature for emission units 12b and 14.
 - vi. Elm Ridge shall install an elevated dispersion stack on the reboiler on emission unit 12b.
 - vii. The actual annual average benzene emission rates for both emission unit 12b and 14 shall not exceed 0.9 Mg/yr in any consecutive 12 month period.
7. If it is determined emission units 12b and 14 are subject to the major source requirements as defined in 63.761 after completing the requirements of III.5 of this Agreement, Elm Ridge shall comply immediately with the major source

requirements of 40 CFR Subpart HH and apply to EPA and receive a TMNSR permit under 40 CFR Part 49.151 to establish legally and practically enforceable requirements and to demonstrate compliance with the following emission limitation:

- i. Reduce the concentration of Total Organic Compounds or HAPs to levels equal or less than 20 parts per million by volume on a dry basis corrected to 3 percent oxygen.
8. Upon completion of compliance requirements III.(6 or 7), Elm Ridge shall submit to the Tribe a Notification of Compliance and an application to incorporate the requirements of the TMNSR permit into the Operating Permit No. V-SUIT-0052-2014.01 within 30 days.

IV. PENALTIES

A. Based upon the factors set forth in the Clean Air Act and the Southern Ute Indian Tribe's Enforcement Procedures and Penalty Policy, the Air Quality Program has assessed a civil penalty in the amount of One Hundred Eighty-Eight Thousand One Hundred Nine Dollars (\$188,109) against Elm Ridge for alleged violations of the Reservation Air Code and Title V Operating Permit cited in Section II of this Settlement Agreement and Stipulated Final Compliance Order. (See attached Penalty Summary).

B. The amount of Eighteen Thousand Two Hundred Fifty-Four Dollars (\$18,254) will be deferred contingent upon Elm Ridge's timely and satisfactory compliance with all the terms of this Settlement Agreement and Stipulated Final Compliance Order. The deferred amount will be waived if Elm Ridge executes this Settlement Agreement on or before May 4, 2016 and the amount of One Hundred Sixty-Nine Thousand Eight Hundred Fifty-Five Dollars (\$169,855) is paid within 30 days of the effective date of this Settlement Agreement and upon full compliance with all terms of the Settlement Agreement and Stipulated Final Compliance Order. If Elm Ridge fails to timely and satisfactorily comply with the requirements of this Settlement Agreement and Stipulated Final Compliance Order, the Air Quality Program may require Elm Ridge to pay all or part of the deferred penalty.

C. Elm Ridge shall pay the civil penalty due by electronic funds transfer (EFT) to the Southern Ute Indian Tribe, Air Quality Program in accordance with written instructions to be provided to Elm Ridge by the Air Quality Program. At the time of payment, Elm Ridge shall send a copy of the EFT transaction record, together with a transmittal letter, which shall state that the payment is for the civil penalty owed pursuant to this Settlement Agreement and Stipulated Final Compliance Order and shall reference Settlement Agreement and Stipulated Final Compliance Order Enforcement Case ID 2016-02, by email to mhutson@southernute-nsn.gov; and by mail to:

**Environmental Programs Division
P.O. Box 737 MS# 84
Ignacio, CO 81137**

D. Penalties paid pursuant to this Settlement Agreement and Stipulated Final Compliance Order are not deductible for federal tax purposes under 28 U.S.C. § 162(f).

V. ELM RIDGE AGREEMENT TO SETTLE

A. Elm Ridge agrees to the terms and conditions of this Settlement Agreement and Stipulated Final Compliance Order. Compliance with this Settlement Agreement and Stipulated Final Compliance Order shall be a requirement under the RAC. Elm Ridge agrees not to challenge the factual or legal determinations made by the Air Quality Program in connection with this enforcement case, the Air Quality Program's authority to bring, or the federal court's jurisdiction to hear, any action to enforce the terms of this Settlement Agreement and Stipulated Final Compliance Order.

B. The undersigned representative of Elm Ridge certifies that he or she is fully authorized to enter into the terms and conditions of this Settlement Agreement and Stipulated Final Compliance Order and to execute and legally bind Elm Ridge to this document.

C. Failure by Elm Ridge to comply with any of the terms of this Settlement Agreement and Stipulated Final Compliance Order shall constitute a breach of this Settlement Agreement and Stipulated Final Compliance Order and may result in referral of the matter to the Tribe's legal counsel for enforcement of this Settlement Agreement and Stipulated Final Compliance Order and for such other relief as may be appropriate.

VI. SCOPE AND EFFECT OF SETTLEMENT AGREEMENT

A. The Parties agree and acknowledge that this Settlement Agreement and Stipulated Final Compliance Order constitutes a full and final resolution of the alleged noncompliance addressed in this Settlement Agreement and Stipulated Final Compliance Order, and further agree not to challenge the terms and conditions of this Settlement Agreement and Stipulated Final Compliance Order in any proceeding before any administrative body or any judicial forum, whether by way of direct judicial review or collateral challenge.

B. This Settlement Agreement and Stipulated Final Compliance Order fully and finally resolves the Air Quality Program's civil claims for the violations alleged in the Notice of Violation. Nothing herein shall be construed as prohibiting the Air Quality Program from seeking compliance with this Settlement Agreement and Stipulated Final Compliance Order in the event Elm Ridge fails to fulfill its obligations under this Settlement Agreement and Stipulated Final Compliance Order. The Air Quality Program reserves all legal and equitable remedies available to enforce the provisions of this Settlement Agreement and Stipulated Final Compliance Order. This Settlement Agreement and Stipulated Final Compliance Order shall not

be construed to limit the rights of the Air Quality Program to obtain penalties or injunctive relief for violations not addressed in this Settlement Agreement and Stipulated Final Compliance Order. The Air Quality Program further reserves all legal and equitable remedies to address any imminent and substantial endangerment to the public health or welfare or the environment arising at, or posed by, Elm Ridge, whether related to the violations addressed in this Settlement Agreement and Stipulated Final Compliance Order or otherwise.

C. This Settlement Agreement and Stipulated Final Compliance Order constitutes a final agency order upon execution by Elm Ridge and the Air Quality Program and shall be enforceable by either party. The Parties agree that any violation of the provisions of this Settlement Agreement and Stipulated Final Compliance Order by Elm Ridge shall be a violation of a final order of the Air Quality Program.

D. The Parties' obligations under this Settlement Agreement and Stipulated Final Compliance Order are limited to the matters expressly stated herein or in approved submissions required hereunder. All submissions made pursuant to this Settlement Agreement and Stipulated Final Compliance Order are incorporated into this Settlement Agreement and Stipulated Final Compliance Order and become enforceable under the terms of this Settlement Agreement and Stipulated Final Compliance Order as of the date of approval by the Air Quality Program.

E. The Air Quality Program's approval of any submission, standard, or action under this Settlement Agreement and Stipulated Final Compliance Order shall not constitute a defense to, or an excuse for, any prior violation of any requirement under the RAC or any subsequent violation of any requirement of this Settlement Agreement and Stipulated Final Compliance Order or the RAC.

F. The alleged violations will constitute part of Elm Ridge's compliance history for any purpose for which such history is relevant, including considering the violations described above in assessing a penalty for any subsequent violations, in accordance with the provisions of RAC §2-121, against Elm Ridge.

G. Elm Ridge shall comply with all applicable federal, Environmental Commission, and tribal laws or regulations and shall obtain all necessary approvals or permits to conduct the investigation and remedial activities required by this Settlement Agreement and Stipulated Final Compliance Order and perform its obligations required hereunder. The Air Quality Program makes no representation with respect to approval and permits required by federal, Environmental Commission, and tribal laws or regulations other than those specifically referred to herein.

H. By signing this Settlement Agreement and Stipulated Final Compliance Order, Elm Ridge certifies that the information it has supplied concerning this matter was at the time of submission, and is, truthful, accurate, and complete for each such submission, response, and statement.

I. This Settlement Agreement and Stipulated Final Compliance Order constitutes the final, complete, and exclusive agreement and understanding among the parties with respect to the settlement embodied herein and supersedes all prior agreements and understandings, whether oral or written, concerning the settlement embodied herein. No other document, nor any representation, inducement, agreement, understanding, or promise, constitutes any part of this Settlement Agreement and Stipulated Final Compliance Order or the settlement it represents, nor shall it be used in construing the terms of this Settlement Agreement and Stipulated Final Compliance Order.

VII. NOTICES

Unless otherwise specified, any report, notice or other communication required under the Settlement Agreement and Stipulated Final Compliance Order shall be sent to:

**Southern Ute Indian Tribe
Environmental Programs Division
Air Quality Program
P.O. Box 737 MS# 84
Ignacio, CO 81137**

For: Elm Ridge Exploration Company, LLC - Ignacio Gas Treating Plant

VIII. EFFECT OF BANKRUPTCY PETITION

The obligations imposed by this Settlement Agreement and Stipulated Final Compliance Order require the performance by Elm Ridge of actions which are reasonably designed to protect public health and welfare and the environment. Any enforcement of the obligations imposed by this Settlement Agreement and Stipulated Final Compliance Order constitutes, solely for the purposes of 11 U.S.C. section 362(b)(4), the enforcement of a judgment, other than a money judgment, obtained in an action to enforce the Tribe's regulatory and police powers.

IX. MODIFICATIONS

This Settlement Agreement and Stipulated Final Compliance Order may be modified only upon mutual written agreement of the Parties. The Air Quality Program, in its sole discretion, may extend any deadlines set forth herein, and upon acceptance of such extension by Elm Ridge, any such extension shall constitute a modification to this Settlement Agreement and Stipulated Final Compliance Order.

X. COUNTERPARTS

This Settlement Agreement and Stipulated Final Compliance Order may be executed in multiple counterparts, each of which shall be deemed an original, but all of which shall constitute one and the same agreement.

XI. RESERVATION OF RIGHTS

The Air Quality Program reserves the right to bring any action or to seek civil or administrative penalties for any past, present or future violations of the RAC not specifically addressed herein. Further, the Air Quality Program has the right to bring any action to enforce this Settlement Agreement and Stipulated Final Compliance Order and to seek any authorized penalties for any violation of this Settlement Agreement and Stipulated Final Compliance Order. The Air Quality Program reserves the right to revoke this Settlement Agreement and Stipulated Final Compliance Order if and to the extent the Air Quality Program finds, after signing this Settlement Agreement and Stipulated Final Compliance Order, that any information provided by Elm Ridge was materially false or inaccurate at the time such information was provided to the Air Quality Program, and the Air Quality Program reserves the right to assess and collect any and all civil penalties for any violation described herein.

XII. BINDING EFFECT, EFFECTIVE DATE, AND TERM

This Settlement Agreement and Stipulated Final Compliance Order is binding upon the Parties to this Settlement Agreement and Stipulated Final Compliance Order and their corporate subsidiaries or parents, their officers, directors, agents, attorneys, employees, contractors, successors in interest, and assigns. The undersigned representatives certify that they are authorized by the party or parties whom they represent to enter into this Settlement Agreement and Stipulated Final Compliance Order and to execute and legally bind that party or those parties to the terms and conditions of the Settlement Agreement and Stipulated Final Compliance Order. This Settlement Agreement and Stipulated Final Compliance Order shall become effective as of the date on which the last of all required signatures has been obtained and shall expire upon Elm Ridge's fulfillment of all of its obligations under this Settlement Agreement and Stipulated Final Compliance Order.

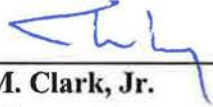
XIII. DISPUTE RESOLUTION

Any claim, dispute, or controversy arising out of or in connection with or relating to this Settlement Agreement and Stipulated Final Compliance Order or the breach or alleged breach thereof, shall be settled by mutual agreement of the Parties' senior management to the extent possible. To the extent disputes cannot be mutually resolved, each party may pursue any available remedies.

XIV. STIPULATED FINAL COMPLIANCE ORDER

This Settlement Agreement and Stipulated Final Compliance Order, agreed to by the Parties, is approved as a final Compliance Order.

ELM RIDGE EXPLORATION COMPANY, LLC

By:  Date: 5/2/2016
James M. Clark, Jr.
President

**SOUTHERN UTE INDIAN TRIBE,
AIR QUALITY PROGRAM**

By:  Date: 05/03/2016
Thomas Johnson
Environmental Programs Division Head

By:  Date: 05/03/2016
Mark A. Hutsón 
Air Quality Program Manager

cc: Lorelyn Hall, Tribal Legal Counsel
Sam W. Maynes, Tribal Legal Counsel