United States Environmental Protection Agency
Region 8 Air and Radiation Division
Air Pollution Control
40 CFR Part 49 Tribal Minor New Source Review Permit to Construct
Technical Support Document for
Proposed Permit #SMNSR-UO-000021-2020.001

Monarch Natural Gas, LLC
Riverbend Compressor Station
Uintah and Ouray Indian Reservation
Uintah County, Utah

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 permit and presents information that is germane to this permit action.

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I. Introduction

On February 5, 2020, the EPA received an application from Monarch Natural Gas, LLC (Monarch) requesting a synthetic minor permit to construct and operate a modification project at the Riverbend Compressor Station (Riverbend) in accordance with the requirements of the MNSR permitting program. This proposed permit action would apply to an existing facility operating on the Uintah and Ouray Indian Reservation in Utah. The exact location is Latitude 39.98209, Longitude -109.847534, in Uintah County, Utah.

Records of potential air emissions indicate the facility was a major source ("major" as defined in §52.21) of nitrogen oxides (NO_X), with respect to the Prevention of Significant Deterioration (PSD) Permit Program at 40 CFR 52.21 at the time of construction, but is now a major source of NOx, with respect to the Tribal Nonattainment New Source Review (NNSR) Permit Program at 40 CFR 49.166.[1] The facility is also a major source of NO_X, carbon monoxide (CO), and hazardous air pollutants (HAP) with respect to the Title V Operating Permit Program at 40 CFR Part 71 (Part 71) and currently holds an active Part 71 permit that the EPA issued January 6, 2015 (Permit #V-UO-000021-2008.00).

This permit is proposed to approve the construction and operation of new emission sources, specifically two Joule Thomson (JT) Skids (10 million standard cubic feet per day (MMscfd) and 3 MMscfd, respectively), three 500 barrel (bbl) methanol storage tanks, two 18,000 gallon (gal) pressurized bullet tanks for processed natural gas liquid (NGL) storage, up to four gas driven piston methanol pumps and up to eight gas driven pneumatic controllers associated with the JT Skids. The JT Skids and associated equipment would be constructed inside an existing building within the existing footprint of the facility.

This proposed permit would also establish facility-wide annual emissions limits on total HAP. It requires the installation, maintenance and operation of a thermal oxidizer to control volatile organic compounds (VOC) and HAP emissions from two triethylene glycol (TEG) dehydration units that each includes a TEG reboiler. The permit also requires installation, maintenance and operation of the same thermal oxidizer to also control VOC and HAP emissions from working, standing, breathing and flashing loss emissions from four 400 barrel (bbl) storage tanks and two 18,000 gal pressurized bullet tanks. The proposed permit also contains requirements to operate a catalytic control system and air-to-fuel ratio (AFR) controller on four natural gas-fired 4-stroke lean-burn (4SLB) reciprocating internal combustion engines (RICE) used for natural gas compression at the facility, including associated formaldehyde (CH_2O), CO and NO_X emissions limits.

This permit contains emissions limits, construction and operational limitations and associated monitoring, recordkeeping and reporting requirements. Upon compliance with the permit, Monarch will have legally and practicably enforceable restrictions on emissions that can be used when determining the applicability of other CAA permitting requirements, such as those imposed by the PSD Permit Program at 40 CFR part 52, the NNSR Permit Program and Part 71.

[1] On April 30, 2018, the EPA designated portions of the Indian country lands within the Uintah and Ouray Indian Reservation as marginal nonattainment for the 2015 ozone NAAQS, effective on August 3, 2018. Riverbend is located within that marginal ozone nonattainment area. Appendix S lists the marginal ozone nonattainment major source threshold for VOC or NO_X emissions as 100 tpy. As such, although at the time of construction, Riverbend was considered a minor source with respect to the PSD Permit Program, it is now considered an existing major source of ozone for NO_X with respect to the NNSR Permit Program. At the effective date of this synthetic minor NSR permit, Riverbend will be a synthetic minor source with respect to the NNSR permit programs and the preconstruction review requirements of NNSR would apply to any future proposed modification that exceeds 100 tpy of VOC or NO_X emissions.

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

II. Facility Description and History

Riverbend receives a comingled liquid stream containing natural gas and natural gas condensate from third-party production wells in the surrounding field. The comingled stream gathered in the well field is temporarily stored in storage tanks in the field prior to being sent to Riverbend. The stabilized natural gas condensate from the well field is then routed to Riverbend. The inlet stream is routed to a 2-phase separator where the liquids are gravimetrically separated from the entrained gas. The natural gas condensate is routed to three condensate storage tanks. Working and breathing loss vapor emissions from the condensate storage tanks are routed to a thermal oxidizer for destruction. Once adequate volumes are accumulated in the storage tanks, the condensate is trucked off location for further processing or treatment.

Natural gas that exits the separator flows to four compressor engines which compress the gas. The gas stream is then split before it enters either of the two TEG dehydration units. The following describes the process of each of the TEG dehydration units: the compressed natural gas enters a dehydration unit and is bubbled up through lean TEG in a process vessel called a contactor. During this process, water vapor is removed from the gas to a concentration determined by a sales contract. The natural gas then exits the contactor, is metered and then routed to the JT Skid. The rich TEG exits the contactor and is depressurized in a TEG flash tank. The emissions from both flash tanks are routed back to the separator. The depressurized TEG is routed to and regenerated using heat in a vessel called a TEG reboiler. Methanol is injected at different points to the rich TEG to prevent hydrates from forming. Pneumatic pumps that control the injection rate are powered by instrument air. The vapors from both reboilers are routed to the thermal oxidizer. The regenerated lean TEG is circulated back to the contactor.

The natural gas enters the JT Skid which allows for more NGL's to drop out of the gas stream by utilizing a drop in pressure. The NGL's are routed to two 18,000 gal pressurized bullet tanks and the pipeline quality natural gas is then routed off site.

The emission units identified in Table 1, Existing Emission Units, are currently installed and/or operating at the facility. The information provided in this table is for informational purposes only and is not intended to be viewed as enforceable restrictions or open for public comment. The units and control requirements identified here either existed prior to any preconstruction permitting requirements or were approved through the permits identified. Table 2, Facility-Wide Emissions provides an accounting of uncontrolled and controlled emissions.

Table 1. Existing Emission Units

Description (acronyms defined below)	Controls	Original Preconstruction Approval Date &/or Emission Control Requirement Details
Four 4SLB, field gas-fired RICE for gas compression, with a maximum site rating of 1,340 hp. Each with Ariel JGE/4 Reciprocating Compressor.	Oxidation Catalyst	Control requirements established for all engines in the April 6, 2011 Consent Decree Civil Action No. 07-2:10-CV-01282-PMW.

Description (acronyms defined below)	Controls	Original Preconstruction Approval Date &/or Emission Control Requirement Details
24.0 MMscfd TEG Dehydration Unit 0.750 MMBtu/hr Reboiler Heater #3	Thermal Oxidizer	Control requirements established for the TEG dehydration units in the April 6, 2011 Consent Decree Civil Action No. 07-2:10-CV-01282-PMW. Began operations February 23, 2011. No pre-construction approval required for the installation of the TEG dehydration unit. Installed before the promulgation of the MNSR Permit Program.
25.0 MMscfd TEG Dehydration Unit 0.500 MMBtu/hr Reboiler Heater	Thermal Oxidizer	Control requirements established for the TEG dehydration units in the April 6, 2011 Consent Decree Civil Action No. 07-2:10-CV-01282-PMW. Began operations February 23, 2011. No pre-construction approval required for the installation of the engine. Installed before the promulgation of the MNSR Permit Program.
Three 400 bbl Condensate Storage Tanks	Thermal Oxidizer	Control requirements established for the condensate storage tanks in the April 6, 2011 Consent Decree Civil Action No. 07-2:10-CV-01282-PMW.
Five Methanol Storage Tanks (Two 300 bbl, three 210 bbl capacity)	None	NA
100 bbl TEG Dehydrator Tank	Thermal Oxidizer	Began operations February 23, 2011. No pre-construction approval required for the installation of the engine. Installed before the promulgation of the MNSR Permit Program.
Fugitive Emissions	None	Began operations February 23, 2011. No pre-construction approval required. Installed before the promulgation of the MNSR Permit Program.
Four Natural Gas-Driven Pneumatic Pumps	None	NA
Pigging Operations	None	Began operations February 23, 2011. No pre-construction approval required. Installed before the promulgation of the MNSR Permit Program.
TCI 3000 - Thermal Oxidizer	NA (unit is a control device)	Began operations February 23, 2011. No pre-construction approval required for the installation of the engine. Installed before the promulgation of the MNSR Permit Program.

Description (acronyms defined below)	Controls	Original Preconstruction Approval Date &/or Emission Control Requirement Details
Condensate Truck Loading	None	NA
Three - 0.50 MMBtu/hr natural gas-fired line heaters	None	NA
Three - 0.250 MMBtu/hr natural gas-fired tank heaters	None	NA

Mfg = Manufactured; hp = horsepower; bbl = barrel; MMscfd = million standard cubic feet per day; MMBtu/hr = million British thermal units per hour; IEU = insignificant emission unit.

The emissions-generating units and activities identified in Table 2, Emissions Units and/or Activities Proposed for Construction Approval, with the associated VOC potential to emit (PTE), are proposed to be approved for installation and operation at the facility. Table 2 only contains the VOC PTE because of the nature of emissions from the proposed activities. VOC emissions are the greatest source of emissions increase, the full list of PTE can be found in the application. Pursuant to 40 CFR 49.152, "potential to emit" is defined as the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation, or the effect it would have on emissions, is enforceable as a practical matter. Table 3, Facility-Wide Emissions, provides an accounting of current allowable emissions (uncontrolled PTE accounting for enforceable restrictions, depending on the pollutant) and proposed allowable emissions (controlled emissions accounting for restrictions proposed by this permit) in tons per year (tpy). As explained in Section III., of this document, issuance of this proposed permit will have the impact of reducing the PTE of NO_X, CO, VOC and HAP emissions for the Riverbend Compressor Station by establishing allowable emissions accounting for enforceable restrictions.

Table 2. Emissions Units and/or Activities Proposed for Construction Approval

Unit Description	Maximum Operational Design	VOC PTE (tpy)
Two JT Skids	One JT Skid with a maximum operational design of 10 MMscfd throughput, and One JT Skid with a maximum operational design of 3 MMscfd throughput	4.53
Two pressurized bullet tanks for NGL liquid storage	18,000 gal bullet tanks	10.97
Eight pneumatic controllers	Each pneumatic controller to operate at a natural gas bleed rate less than 6 scf/hour.	4.38
Three methanol storage tanks	500 bbl fixed roof storage tanks	0.40

Table 3. Facility-Wide Emissions

Pollutant	Current Allowable Emissions	Proposed Change in Allowable Emissions	Proposed Allowable Emissions (tons per year)
PM	2.11	-	2.11
PM_{10}	2.11	-	2.11
$PM_{2.5}$	NA	-	NA
SO_2	0.12	-	0.12
NO_X	106.40	-26.28	80.12
CO	108.80	-29.37	79.43
VOC	65.80	-12.75	53.05
Greenhouse Gases			
CO_2e (Total)	30,773	1,341	32,115
CH_2O	8.35	-	8.35
Benzene	3.66	-	3.66
Total HAPs*	**22.47**	**1.50**	**23.97**

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 Compound
CO_2e – Equivalent carbon dioxide (CO_2). A measure used to compare the emissions from various greenhouse gases based upon their global warming potential (GWP)
CH_2O - Formaldehyde
HFCs, PFCs, and SF_6 emissions are not created from oil and natural gas production operations

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

III. Proposed Synthetic Minor Permit Action

A. Facility-Wide and Engine-Specific Emissions Limitations

Riverbend is a natural gas compressor station. A two-phase field gas stream (condensate and natural gas), enters the facility through an inlet slug catcher where free liquids are separated from natural gas and stored, natural gas is compressed, and entrained water is removed from the natural gas. Two JT Skids would be installed to decrease NGL remaining in the gas stream from the facility that is routed to the pipeline, to meet pipeline sales-gas specifications.

Based on our review of Monarch's permit application and the estimated PTE/allowable emissions for the facility, the EPA is proposing facility-wide emissions limitations listed in Table 4, such that compliance with the requirements can be used when determining the applicability of the PSD Permit Program, NNSR Permit Program, Part 71 Permit Program and maximum available control technology (MACT) requirements.

Table 4. Proposed Facility-Wide and Engine-Specific Construction and Operational Limits, Monitoring, Recordkeeping and Reporting Requirements

Type	Proposed Requirement
Construction and Operational Limits	Annual facility-wide total HAP emissions shall not exceed 23.97 tons in any consecutive 12-month period. At no times may natural gas emissions to be vented to the atmosphere.
Emission Calculations Requirements	Calculate and record the facility-wide total HAP, in tons, at the end of each month,

	beginning with the first calendar month that permitted operations commence. Emissions from all controlled and uncontrolled emission sources for this facility shall be included in the calculations, including, but not limited to: compressor engines, heaters, TEG dehydrators and reboilers, and liquid storage tanks. Prior to 12 full months of operations under this permit commenced, add the recorded total HAP for each month to the recorded volumes for all previous months since permitted operations commenced. Thereafter, for each month, calculate a new 12-month rolling total by adding the recorded volumes to the volumes for the preceding 11 months.
Recordkeeping	The actual monthly and rolling 12-month facility-wide emission totals for total HAP in tons.

These proposed facility-wide HAP emissions limitations will result in a facility-wide total allowable emissions of 23.97 tpy of total HAP. The allowable emissions will ensure that the facility does not exceed the major source threshold for cumulative HAP with respect to Part 71.

B. Requirements for the JT Skid

The compressed natural gas after passing through the TEG dehydrators will go through the proposed JT Skid units. The JT Skids prepare gas for pipeline transmission by removing hydrocarbon liquids which are then sent for storage. JT Skids are a self-refrigeration system that uses a drop-in gas pressure, which allows the gas to expand, to create a Joule-Thompson cooling effect. The unit condenses hydrocarbons out of the gas to meet required gas pipeline specifications. The JT Skids that are proposed to be installed at Riverbend are closed units. Fugitive emissions of VOC and HAP are released from, but not limited to: vent lines, connections, fittings, valves, relief valves or any other appurtenance. The 18,000 gal pressurized bullet tanks have additional requirements in the permit.

Based on our review of Monarch's permit application and the estimated PTE for the new emission units, the EPA is proposing construction, operation and monitoring requirements listed in Table 5, such that compliance with the requirements can be used to limit the release of fugitive emissions from the JT Skids.

Table 5. Proposed JT Skid Construction and Operations Limits, Monitoring, Recordkeeping and Reporting Requirements

Type	Proposed Requirement
Construction and Operations Limits	Install, maintain, and operate two JT Skids used for the removal of NGLs, all meeting the following specifications: • One JT Skid limited to a maximum throughput of

	10 MMscfd. • One JT Skid limited to a maximum throughput of 3 MMscfd. • The construction, installation and operations of the two JT Skids also includes the installation of support equipment which includes three 500 bbl methanol tanks and up to eight pneumatic controllers associated with the operations of the JT Skids. • Two 18,000 gal pressurized bullet tanks for processed NGL storage.
Monitoring	The Permittee shall monitor the collection of all fugitive emission components of the JT Skids according to the following requirements: • Develop a fugitive emissions monitoring plan. • A fugitive emission is defined as any visible emissions from a fugitive emissions component[2] (including but not limited to) observed using optical gas imaging or an instrument reading of 500 ppm or greater using Method 21 of 40 CFR part 60, appendix A. • A monitoring survey of each fugitive emissions component shall be conducted semi-annually with at least 4 months separating each monitoring survey. • The initial monitoring survey must be conducted within 60 days of the first day of operation of the JT Skids. The Permittee shall repair all identified sources of fugitive emissions from the JT Skids according to the following requirements: • Each identified source of fugitive emissions shall be repaired or replaced as soon as practicable, but no later than 30 calendar days after detection of the fugitive emissions. • Each repaired or replaced fugitive emissions component must be resurveyed as soon as practicable, but no later than 30 days after being repaired, to ensure that there are no fugitive emissions.
Reporting Requirements	Records shall be maintained of each required surveys of the collection of fugitive emissions components that include the following information:

[2] Fugitive emissions component means any component that has the potential to emit fugitive emissions of methane or VOC from the JT Skids, including but not limited to valves, connectors, pressure relief devices, open-ended lines, flanges, covers and closed vent systems, thief hatches or other openings on a controlled storage vessel, compressors, instruments and meters. Devices that vent as part of normal operations, such as natural gas-driven pneumatic controllers or natural gas-driven pumps, are not fugitive emissions components, insofar as the natural gas discharged from the device's vent is not considered a fugitive emission. Emissions originating from other than the vent, such as the thief hatch on a controlled storage vessel, would be considered fugitive emissions.

	• Date of the survey. • Beginning and end time of the survey. • Name of operator(s) performing survey. If the survey is performed by optical gas imaging, you must note the training and experience of the operator. • Ambient temperature, sky conditions, and maximum wind speed at the time of the survey. • Monitoring instrument used. • Any deviations from the monitoring plan or a statement that there were no deviations from the monitoring plan. • Number and type of components for which fugitive emissions were detected. • Number and type of fugitive emissions components that were not repaired. • Number and type of difficult-to-monitor and unsafe-to-monitor fugitive emission components monitored. • The date of successful repair of the fugitive emissions component. • Number and type of fugitive emission components placed on delay of repair and explanation for each delay of repair. • Type of instrument used to resurvey a repaired fugitive emissions component that could not be repaired during the initial fugitive emissions finding.

The project area is in an ozone nonattainment area, as discussed in Section IV. Air Quality Review. These proposed monitoring requirements will have the effect of limiting the emissions of VOC and HAP from fugitive emissions components of the JT Skids.

C. TEG Dehydrator, NGL Storage Tanks, and Condensate Storage Tanks and Controls

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. The HAP emissions consist primarily of benzene, toluene, ethylbenzene and n-hexane.

The primary form of emission control is to capture and route the emissions from the still vent through a closed-vent system to a thermal oxidizer, flare or other combustion device to destroy the hydrocarbon content of the vapors. Monarch uses a thermal oxidizer designed and operated to destroy at least 95% of the VOC and total HAP emissions from the still vent. Monarch has requested enforceable permit restrictions on the TEG dehydration system to permanently recognize the use of the thermal oxidizer, as designed and operated to meet the manufacturer guaranteed 95% VOC and HAP destruction efficiency.

Monarch routes condensate from the inlet slug catcher into one of three 400 bbl condensate storage

tanks. Flashing emissions and working and breathing loss emissions from the condensate storage tanks are routed through a closed-vent system to the same enclosed combustor used for the TEG dehydration unit. Monarch would also route NGLs from the JT Skids to two 18,000 gal pressurized NGL bullet tanks. There are no vented emissions from the bullet tanks. Emissions from the bullet tanks would be generated and routed to the thermal oxidizer only during times of cleanout. The pollutant being emitted and controlled from the storage tanks is VOC.

Based on our review of Monarch's permit application, we are proposing the construction, operation, testing, monitoring, recordkeeping and reporting requirements in Table 6 for the TEG dehydration units, pressurized NGL bullet tanks and condensate storage tanks (hereinafter referred to collectively as NGL and condensate storage tanks) and are including any necessary testing, monitoring and recordkeeping requirements, pursuant to 40 CFR 49.151(b)(ii)(A), to ensure that the requested operational limits are legally and practicably enforceable. The proposed requirements are intended to establish the facility as a synthetic minor source of VOC and HAP emissions that can be used when determining the applicability to the PSD Permit Program, the Part 71 Permit Program and MACT requirements. Monarch has requested enforceable permit restrictions on the TEG dehydration units and tanks to permanently recognize the use of the thermal oxidizer, as designed and operated to meet the manufacturer guaranteed 95% VOC and HAP destruction efficiency.

Table 6. Proposed Dehydration System Construction, Operation, Testing, Monitoring, Recordkeeping and Reporting Requirements

Type	Proposed Requirement
Construction, Control and Operation	Install, continuously operate and maintain no more than two TEG dehydrators as specified in the permit. Install, continuously operate and maintain no more than three 400 bbl, fixed roof, condensate storage tanks designed and operated as specified in this permit. Construct, install, maintain and operate two 18,000 gal pressurized natural gas liquid bullet tanks designed and operated as specified in this permit. Route all produced natural gas emissions from the NGL and condensate storage tanks through a closed-vent system to a 57" diameter, 242" stack length thermal oxidizer with a maximum designed flow rate of 618 thousand scf per day (Mscf/d) designed, continuously operated and maintained to reduce mass content of uncontrolled HAP and VOC emissions by at least 95.0% by weight. The closed-vent system shall be designed and maintained to operate with no

	detectable emissions. The thermal oxidizer shall be: • Operated at all times that gases, vapors and fumes from the dehydrator are routed to it per manufacturer, vendor or Permittee's written instructions; • Operated with a liquid knock-out system to collect any condensable vapors to prevent liquids from going through the flare; • Equipped with a flash-back flame arrestor; • Equipped with either a continuous burning pilot flame or an operational electronically controlled automatic ignition device; • Equipped with a monitoring system for continuous measuring and recording of the parameters that indicate proper operation of the thermal oxidizer and the continuous burning pilot flame or electronically controlled automatic ignition device (such as a chart recorder, data logger or similar device); and • Maintained in a leak-free condition and operated with no visible smoke emissions.
Emissions Limits	Actual emissions of benzene from the process vents to the atmosphere for the dehydrator approved in this permit for installation and operation at the facility shall be maintained at less than 3.66 tons, in any consecutive 12-month period. The emission limits shall apply at all times.
Emissions Calculations Requirements	Actual benzene emissions shall be calculated using the GRI-GLYCalc™ model, Version 4.0 or higher.
Testing and Monitoring Requirements	• Obtain an extended wet gas analysis of the inlet stream to the dehydrator within 180 days of the effective date of the permit and once per calendar year as specified in the permit thereafter. • Read and record the total flow of natural gas at the sales and fuel meters once every month.

	• Demonstrate that the thermal oxidizer device achieves the 95.0% VOC emission destruction efficiency requirement by performing an initial performance test of the device within 180 days of commencing operation of a new, repaired, or replaced unit. • Subsequent performance tests of the thermal oxidizer device shall be conducted every 3 years thereafter. • Monthly auditory, visual and olfactory (AVO) inspections of the closed-vent system. Repair any deficient conditions within 30 days of identification. • Continuously monitor operation of the thermal oxidizer using the parameter monitoring and recording system. • Monthly inspections of the thermocouple, malfunction alarm and parameter monitoring system, as applicable, to verify proper operation. • Monthly visual inspections of the thermal oxidizer to ensure it operates with no visible smoke emissions using EPA Method 22. • Respond to failed visible emissions tests by conducting repairs according to manufacturer instructions. Upon return to operation from any repair activities, conduct a follow-up visible emissions test. If the thermal oxidizer fails the follow-up visible emissions test, repeat procedures until the thermal oxidizer passes a follow-up test.
Recordkeeping	• All required inspections, including dates and documentation of observations. • Any instances when a TEG dehydration unit vent stream is diverted or bypassed from the thermal oxidizer. • Read and record the gylcol pump recirculation rate of each operating TEG recirculation pump connected to the dehydrator and the sum of the sales and fuel meter at least once every calendar month. • Maintain the records of the GRI-

	GLYCalc™ model output reports. • Any corrective action taken. • Document and maintain records of all inspections for the closed-vent system, as well as all thermal oxidizer inspections and testing.
Reporting	Include a summary of all maintenance and monitoring conducted, corrective actions and all deviations from permit conditions in each required annual report to the EPA.

These proposed VOC and HAP emission control efficiency and operational requirements will result in facility-wide total allowable emissions of 53.05 tpy of VOC and 23.97 tpy of total HAP, as well as 3.66 tpy of benzene from the TEG dehydration units. The allowable emissions are based on the thermal oxidizer operating 8,760 hours in any consecutive 12-month period and accounting for manufacturer guaranteed VOC and HAP emissions control efficiencies of 95.0%.

D. 4SLB Field Gas-Fired Compressor Engines and Controls

Monarch is proposing to operate four field gas-fired 4SLB SI ICE and the primary form of emission control for field gas-fired lean-burn RICE is catalytic control systems, most commonly systems that use oxidation catalysts. Oxidation catalyst control systems are effective for control of CO, VOC and formaldehyde. These catalysts do not typically control NO_X emissions. However, lean-burn engines are designed to operate with more dilute field gas streams (a higher air-to-fuel ratio) than rich-burn engines. Because they operate on more dilute field gas streams, lean-burn engines also operate at lower combustion temperatures producing less NO_X emissions than rich-burn engines.

This proposed synthetic MNSR permit contains requirements to control these four engines using oxidation catalyst control systems capable of 93% CO control efficiency when operating at 90% load or higher. Based on our review of Monarch's permit application, we are proposing the construction, operation, control, testing, recordkeeping and reporting requirements in Table 7 for the four engines. The conditions in this permit are consistent with 40 CFR part 63 subpart ZZZZ (Subpart) ZZZZ, in addition to those requirements, this permit contains additional requirements to demonstrate compliance with lower emissions standards than Subpart ZZZZ, which would apply to the source. The proposed requirements are intended to be enforceable as a practical matter to establish the facility as a synthetic minor source of NO_X and CO emissions that can be used when determining the applicability to the PSD Permit Program, the Part 71 Permit Program and MACT requirements.

Table 7. Proposed Engine Construction, Control, Operation, Emissions, Testing, Monitoring, Recordkeeping and Reporting Requirements

Type	Proposed Requirement
Construction and Operation	Install, maintain, and operate four engines used for field gas compression, all meeting the following specifications: • Operated as 4SLB RICE • Fired with natural gas from the field • Equipped with non-resettable hours meter • Four SI ICE limited to 1,340 maximum site-rated hp.

Emissions Limits	Emissions limits shall apply at all times. • NO_X: 1.50 grams per hp-hour (g/hp-hr) and 19.40 tons in any 12 consecutive calendar months; • CO: 1.50 g/hp-hr and 19.40 tons in any 12 consecutive calendar months; and • CH_2O: 8.30 tons in any 12 12 consecutive calendar months.
Control, Operation and Maintenance	Install, continuously operate and maintain a catalytic control system on each engine that reduces the uncontrolled emissions of CO by at least 93.0% by weight. Follow engine and control manufacturer recommended maintenance schedules and procedures or equivalent procedures developed by the vendor or Permittee, to ensure optimum engine and control performance such that each engine meets the CO and NO_X emissions limits. Install, continuously operate and maintain electronically controlled temperature-sensing devices on each engine that continuously measure and record exhaust temperatures at the inlet and exhaust of each catalyst bed (e.g., thermocouple or resistance detectors and data loggers). Collect and record data at least once every 15 minutes. During operation, maintain engine exhaust temperature of each RICE at the inlet to the catalyst bed between 450 degrees Fahrenheit (°F) and 1,350 °F. Install, operate and maintain pressure sensing devices before and after the catalyst bed on each engine to directly read the pressure drop across the catalyst bed. During operation, maintain the pressure drop across the catalyst bed to within ±2 inches of water from the baseline pressure drop reading taken during the most recent performance test.
Monitoring	If the temperature at the inlet to any catalyst bed or the pressure drop across any catalyst bed exceed the operating limitations specified in the permit, investigate within 24 hours of discovering the deviation and take corrective actions specified in the permit. If the temperature at the inlet to any catalyst bed or the pressure drop across any catalyst bed exceed the operating limitations specified in the permit, investigate within 24 hours of discovering the deviation and take corrective actions specified in the permit.

Performance Testing	Initial performance testing for compliance with the CO and NO_X, emissions limits within 180 days after the facility commences operation, as well as no later than 180 days after installation of a catalytic control system and initial startup of a rebuilt or replaced engine, or if a catalytic element has been replaced. All performance tests conducted on the engines shall meet the requirements as specified in Table 4, point 1 and point 3, complying with the requirement to reduce CO emissions, of Subpart ZZZZ – Requirements for Performance Tests. The Permittee shall conduct performance tests on each engine and associated catalytic control system for the NO_X emissions limit and control efficiency requirements specified in this permit according to Method 7E of 40 CFR part 60, appendix A. Subsequent performance tests shall be conducted semi-annually on each engine. After compliance is demonstrated for two consecutive tests, the testing frequency may be reduced to annually. If an annual test indicates non-compliance, then the Permittee shall resume semi-annual testing.
Emissions Calculation	Calculate and record actual CH_2O, CO and NO_X emissions, in tons, at the end of each calendar month. Prior to 12 calendar months of operation under the permit, at the end of each calendar month, add the emissions for each month to the calculated emissions for all preceding months since the permit became effective and record the total. Thereafter, add the emissions for each month to the calculated emissions for the preceding 11 months and record the total.
Recordkeeping Requirements	Keep records of: all manufacturer and/or vendor specifications for each engine, catalytic control system and parameter monitoring device; all calibration and maintenance conducted for each engine, catalytic control system and parameter monitoring device; all required performance tests and parameter monitoring; all engine rebuilds and replacements; all required emissions calculations; and all deviations of permit conditions (including corrective actions and timeframe for return to compliance). The Permittee shall maintain and keep records of the following information: • All notifications submitted to the EPA to comply with the requirements of this section for each engine; • Maintenance conducted on the engines; • Documentations from the manufacturer and catalyst vendor which shows that the emissions standards and limits are met for each engine; and • Records of the hours of operations of each engine recorded

	through a non-settable hour meter. The Permittee shall submit an initial notification as required in 40 CFR 63.9(b)(1)-(5) to meet the emission standards of this permit including the following information: • Name and address of owner and operator; • The address of the facility; • Engine information including make, model, engine family, serial number, model year, maximum engine horsepower, and engine displacement; • Engine control equipment; and • Fuel used. The Permittee shall submit performance testing results of each test conducted within 60 days after the test(s) have been completed.

In the absence of the enforceable permit requirements, the NO_X and CO PTE for this facility would be 106.40 tpy and 108.80 tpy, respectively. These proposed CH_2O, CO and NO_X emissions limits, control efficiency and operational requirements will result in facility-wide allowable emissions of 8.30 tpy for CH_2O, 80.12 tpy for CO and 79.43 tpy for NO_X. The allowable emissions are based on the engines operating a maximum of 8,760 hours in a year and at the specified maximum horsepower ratings and accounting for the catalytic control system manufacturer guaranteed control efficiencies for each limited pollutant.

IV. Air Quality Review

The Federal 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 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 location of Riverbend is in Uintah County, Utah, approximately 22 miles southeast of Roosevelt and 36 miles southwest of Vernal, in the Uinta Basin. The Uinta Basin including Uintah County is located in an arid region of eastern Utah, east of the Wasatch Mountains and south of the Uinta Mountains, and is characterized by low and highly variable precipitation, abundant sunshine and low relative humidity and moderate temperatures with large diurnal and annual ranges. The southern rim of the basin is formed by the Tavaputs Plateau of the Book Cliffs. The central portion of the basin has an elevation of 5,000 to 5,500 feet, and the surrounding mountains form a natural basin that is conducive to persistent cold air pool inversion during winter. The climate of the Uinta Basin is semi-arid, with occasionally severe winter cold. The population of the Uinta Basin is approximately 50,000 with most of the residents located in the major towns of Vernal and Roosevelt in the northern portion of the basin. There is intensive energy development in the central and southern portion of the basin with primarily oil wells in the western portion and natural gas production wells in the eastern portion of the basin. Annual precipitation averages only approximately 6 inches of rain per year and 19 inches of snowfall, compared to 39 inches of average rainfall and 26 inches of average snowfall nationally at the similar latitudes. The typical number of days with measurable precipitation is about 18. The average high temperature

observed in July is 92 degrees Fahrenheit (º F) and the average low temperature observed in January is 5º F. Uintah County experiences an average of 240 sunny days with an ultraviolet (UV) index of 4.6. The average UV index nationwide is 4.3.

The Federal Major NSR Program for Nonattainment Areas in Indian Country (NNSR Permit Program) at 40 CFR part 49 is a preconstruction review requirement of the CAA that applies to proposed projects that are sufficiently large (in terms of emissions) to be a "major" stationary source or "major modification" of an existing stationary source in an area that the EPA has designated nonattainment for a NAAQS (See 40 CFR 49.167). Similar to the PSD Permit Program, source size is defined in terms of PTE, but a new stationary source or a modification to an existing stationary source is major if the proposed project has the PTE for any pollutant regulated under the 40 CFR part 49 requirements in amounts equal to or exceeding specified major source thresholds defined in 40 CFR part 51, appendix S.

On April 30, 2018, the EPA designated portions of the Indian country lands within the Uintah and Ouray Indian Reservation as marginal nonattainment for the 2015 ozone NAAQS effective on August 3, 2018. Riverbend is located within that marginal ozone nonattainment area. Appendix S lists the marginal ozone nonattainment major source threshold for VOC or NO_X emissions as 100 tpy. As such, at the time of construction, Riverbend was considered a minor source with respect to the PSD Permit Program. The approval of the synthetic MNSR permit discussed in this TSD would make Riverbend a minor source for ozone with respect to the NNSR Permit Program. The preconstruction review requirements of the NNSR Permit Program would apply to any future proposed modification at Riverbend that exceeds 100 tpy of VOC or NO_X emissions. Riverbend remains a minor source with respect to PSD for all other criteria pollutants.

The state of Utah, National Park Service (NPS) and the Ute Tribe operate ozone, $PM_{2.5}$ and NO_2 monitors in and around the Uinta Basin. Table 8 provides the valid ambient air concentrations measured at the NPS and Ute Tribe stations in relation to the NAAQS for the years 2017 through 2019. The closest monitors to Riverbend are the Ouray Monitor (about 11 miles) and the Myton monitor (about 18 miles). Regulatory attainment of the NAAQS is determined using design values, which are available from the EPA at https://www.epa.gov/air-trends/air-quality-design-values.

Table 8. Background Ambient Air Concentrations for the Project Area, 2017-2019

Site Name, Responsible Agency	Site Number	Pollutant	Design Value[a]	Valid?
Dinosaur NM, NPS	49-047-1002	Ozone	70 ppb	Yes
Myton, Ute Indian Tribe	49-013-7011	Ozone	75 ppb	Yes
		NO_2	20 ppb	Yes
Redwash, Ute Indian Tribe	49-047-2002	Ozone	72 ppb	Yes
		NO_2	15 ppb	Yes
Ouray, Ute Indian Tribe	49-047-2003	Ozone	89 ppb	Yes
		NO_2	14 ppb	Yes
Whiterocks, Ute Indian Tribe	49-047-7022	Ozone	67 ppb	Yes
		NO_2	16 ppb	Yes

Notes: ppb = parts per billion; NO_2 = nitrogen dioxide; O_3 = ozone.
[a] Design value for ozone is calculated as the three-year average of the 4th highest daily maximum measured concentration for each calendar year. Design value for NO_2 is the primary, 1- hour standard 3-year average of the 98th percentile daily maximum.

The ambient air concentrations measured at these stations show that concentrations for ozone in the project area have violated both the 2008 and 2015 ozone NAAQS (75 ppb and 70 ppb, respectively). The highest valid ozone design value from the Uinta Basin is from the Ouray monitor at 89 ppb. The

highest NO_2 design value in the Uinta Basin for 2017-2019 is from the Myton monitor at 20 ppb.

Riverbend Compressor Station Characteristics and Emissions

The facility is located at an elevation of approximately 5,050 feet. It is located in the southern section of the Uintah Basin, with no substantially higher hills in its immediate vicinity. It is located in a rural area with no residential areas within a minimum of two-mile radius from the facility. The ambient air measurements show existing air quality in the project area is violating both the 2008 and 2015 ozone NAAQS, and NO_X and VOC are precursors to ozone formation. The permit would result in a decrease of facility-wide allowable emissions of VOC by approximately 12 tpy and NO_X by approximately 26 tpy as indicated in Table 3. Therefore, we do not expect adverse impacts to local air quality from the proposed project and have determined that an AQIA modeling analysis is not required for this permit action.

V. Tribal Consultations and Communications

All minor source applications (synthetic minor, minor modification to an existing facility, new true minor and general permit) are submitted to both the tribe and the EPA per the application instructions (see https://www.epa.gov/caa-permitting/tribal-nsr-permits-region-8). We ask the tribe to communicate to the EPA any preliminary questions and comments on the application within 10 business days from the receipt of the application. In the event an AQIA is triggered, we email a copy of that document to the tribe within 5 business days from the date that we receive it.

Additionally, 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.

VI. Environmental Justice

On February 11, 1994, the President issued Executive Order 12898, entitled "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." The Executive Order calls on each federal agency to make environmental justice a part of its mission by “identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority populations and low-income populations.”

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

This discussion describes our assessment of the potential environmental impacts to potentially overburdened communities in connection with issuing this permit in Uintah County, Utah, within the exterior boundaries of the Uintah and Ouray Indian Reservation and describes our efforts at meaningful public involvement in the permit issuance process.

A. Environmental Impacts to Potentially Overburdened Communities

This permit action authorizes the construction of new air emission sources, and other physical modifications to the associated facility or its operations. However, the applicant is committed to more stringent facility requirements as described in this technical support document and associated permit to maintain emissions significantly below major source PSD permitting thresholds, as well as below the PSD significance thresholds for all criteria pollutants. The air emissions at the existing facility will not increase due to the associated action.

Furthermore, the permit would contain 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 this permit will not have disproportionately high or adverse human health effects on any communities in the vicinity of the Uintah and Ouray 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 the EPA email list that notifies them of public comment opportunities on the Uintah and Ouray Indian Reservation for proposed air pollution control permits via email at https://www.epa.gov/caa-permitting/caa-permitpublic-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 the EPA per the

3. Application instructions (see https://www.epa.gov/caa-permitting/tribal-nsr-permitsregion-8).

4. We ask that the tribe communicate to the EPA any preliminary questions and comments on the application within 10 business days of receiving it.

5. 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.

6. 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.

VII. Authority

Requirements under 40 CFR part 49 to obtain a 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 Permit 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. We are 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. Section 7601(d)), we are authorized to implement the MNSR regulations at

40 CFR part 49 in Indian country. Riverbend is located on Indian country lands within the exterior boundaries of the Uintah and Ouray Indian Reservation in Utah. The exact location is Latitude 39.98209, Longitude -109.847534, in Uintah County, Utah.

VIII. Public Notice and Comment, Hearing and Appeals

A. Public Comment Period

In accordance with 40 CFR 49.157, we must provide public notice and a 30-day public comment period to ensure that the affected community and the general public have reasonable access to the application and proposed permit information.

Due to the COVID-19 pandemic, for information regarding review of the application, the proposed permit, this technical support document and all supporting materials for the proposed permit, please use the following contacts:

Ute Indian Tribe
Energy & Minerals Division
Contact: Mike Natchees, Director, Air Quality Program, (435) 725-4974 or miken@utetribe.com

and

U.S. Environmental Protection Agency
Air and Radiation Division, Region 8
Contact: Colin Schwartz, Environmental Scientist, (303) 312-6043 or schwartz.colin@epa.gov

The proposed permit and related documents can be accessed on our website at: https://www.epa.gov/caa-permitting/caa-permit-publiccomment-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 issues 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 SMNSR Permit for the Riverbend Compressor Station," or submitted directly through https://www.regulations.gov, from Docket ID #EPA-R08-OAR-2020-0089. All comments will be considered and answered by the EPA in making the final decision on the permit. The EPA keeps a record of the commenters and of the issues raised during the public participation process.

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. We will hold a hearing whenever there is, on the basis of requests, a significant degree of public interest in a proposed permit. We may also hold a public hearing at our discretion whenever, for instance, such a hearing might clarify one or more issues involved in the permit decision.

In light of the current COVID-19 pandemic, the EPA reserves the right to delay, within reason, or hold electronic public hearings if possible. Further guidance regarding public hearings will be

decided at a later date taking into account local health and safety with regards to the COVID-19 pandemic.

C. Final 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; (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 or denial of the proposed 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, the source will be added to a list of final permit actions which is posted on our website at: https://www.epa.gov/caa-permitting/caa-permitsissued-epa-region-8. Anyone may request a copy of the final permit at any time by contacting the Tribal Air Permit Program at (800) 227–8917 or sending an email to r8airpermitting@epa.gov.

D. Appeals to the Environmental Appeals Board

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 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.