September 8, 2021

NorthWestern Energy
Laurel Generating Station
11 East Broadway Street
Butte, Montana 59701

Dear Ms. Sullivan:

Montana Air Quality Permit #5261-00 is deemed final as of September 8, 2021, by the Department of Environmental Quality (Department). As this is an Energy Development Project, the appeal period ends on September 22, 2021. All conditions of the Department's Decision remain the same. Enclosed is a copy of your permit with the final date indicated.
Conditions: See attached.

For the Department,

Julie A. Merkel
Permitting Services Section Supervisor
Air Quality Bureau
(406) 444-3626

Craig Henrikson, P.E.
Environmental Engineer
Air Quality Bureau
(406) 444-6711

Enclosures

PLAINTIFFS' EXHIBIT
P294

Montana Department of Environmental Quality
Air, Energy & Mining Division

Montana Air Quality Permit #5261-00

NorthWestern Energy
11 East Broadway Street
Butte, Montana 59701

September 8, 2021

MONTANA AIR QUALITY PERMIT

Issued to: NorthWestern Energy
11 East Broadway Street
Butte, Montana 59701

MAQP: #5261-00
Application Received: May 10, 2021
Revised App. Received: June 9, 2021
Preliminary Determination: July 9, 2021
Department's Decision: August 23, 2021
Permit Final: September 8, 2021

A Montana Air Quality Permit (MAQP), with conditions, is hereby granted to NorthWestern Energy (NWE), pursuant to Sections 75-2-204 and 211 of the Montana Code Annotated (MCA), as amended, and Administrative Rules of Montana (ARM) 17.8.740, *et seq.*, as amended, for the following:

Section I: Permitted Facilities

A. The generating units proposed for the Laurel Generating Station (LGS) consist of eighteen (18) natural gas-fired reciprocating internal combustion engine (RICE) generator sets each with a nominal gross output of approximately 9.7-megawatt electric (MWe) per generator, for total nominal gross plant output of 175 MWe. Each engine is rated for approximately 13,008 horsepower (hp).

An emergency generator and an emergency fire pump would also be located at the LGS, each equipped with a diesel engine rated at 2,682 brake horsepower (bhp) and 315 bhp, respectively.

There would also be a 1.11 million British thermal unit per hour (MMBtu/hr) natural gas dew point heater, also referred to as a line heater, for preheating natural gas to the RICE.

Fugitive Road Dust Emissions

B. Plant Location

The legal description of the site is the N ½ of Section 15, Township 2 South, Range 24 East in Yellowstone County, Montana. The City of Laurel wastewater treatment plant borders the property to the west while existing NWE and CHS Laurel Refinery property make up the northern boundary. A private residence borders the northeastern and eastern sides. The main LGS facility building will be constructed in approximately the center of the 36-acre lot.

Section II: Conditions and Limitations

A. Emission Limitations

1. Emissions from each RICE generator set shall not exceed the following based on a 1-hour average during steady state operation when RICE are not in either cold start-up, warm start-up, hot start-up or shutdown mode. Cold start-up mode

begins with "ignition to Minimum Emissions Compliance Load (MECL)" and lasts for 30 minutes. Warm start-ups and hot start-ups begin with ignition to MECL and lasts for 8 minutes. Shutdown runs from MECL to closure of the fuel supply and last 6.2 minutes (ARM 17.8.752):

i. Nitrogen oxides (NO_x[1]) 1.70 pounds per hour (lb/hr) for each of the 18 RICE generator sets
ii. Carbon monoxide (CO) 1.59 lb/hr for each of the 18 RICE generator sets
iii. Volatile organic compounds (VOC) 2.44 lb/hr including formaldehyde for each of the 18 RICE generator sets

2. NWE shall combust only pipeline quality natural gas for the RICE and dew point heater to minimize emissions of PM, $PM_{10,}$ and $PM_{2.5}$ (ARM 17.8.752).

3. NWE shall install, operate, and maintain an oxidation catalyst on each RICE generator set for control of CO and VOCs (ARM 17.8.752).

4. NWE shall install, operate, and maintain Selective Catalytic Reduction (SCR) on each RICE generator set for control of NO_x (ARM 17.8.752).

5. NWE shall limit the total number of transient events which include cold start-up, warm start-up, hot start-up and shutdown to the following event totals during any rolling 12-month time period (ARM 17.8.752):

i. Cold start-ups: 13,140 events
ii. Warm/Hot start-ups: 19,710 events
iii. Shutdowns: 32,850 events

6. NWE shall use good combustion practices during transient periods identified in Section II.A.5 to reduce emissions during these transient periods (ARM 17.8.752).

7. NWE shall not cause or authorize emissions to be discharged into the outdoor atmosphere from any sources installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304).

8. NWE shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308).

9. NWE shall treat all unpaved portions of the haul roads, access roads, parking lots, or general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precautions limitation in Section II.A.8 (ARM 17.8.749).

10. NWE shall comply with all applicable standards and limitations associated with both the emergency diesel generator set and diesel-fired emergency fire pump

1 NO_x reported as NO_2.

engine requirements contained in 40 Code of Federal Regulations (CFR) 60, Subpart IIII. NWE shall also comply with the reporting, recordkeeping and notification requirements in 40 CFR 60, Subpart IIII (ARM 17.8.340 and 40 CFR 60, Subpart IIII).

11. NWE shall comply with all applicable standards and limitations associated with the RICE as identified in Table 1 of 40 CFR 60, Subpart JJJJ, as well as the reporting, recordkeeping and notification requirements contained in 40 CFR 60, Subpart JJJJ (ARM 17.8.340 and 40 CFR 60, Subpart JJJJ).

12. NWE shall comply with all applicable standards and limitations associated with the RICE, and the reporting, recordkeeping and notification requirements contained in 40 CFR 63, Subpart ZZZZ (ARM 17.8.342 and 40 CFR 63, Subpart ZZZZ).

13. NWE shall, prior to start-up of the first RICE, submit the manufacturer's maintenance schedules to the Montana Department of Environmental Quality (Department) for the RICE generator sets and associated control devices. (ARM 17.8.749, ARM 17.8.340, and 40 CFR 60, Subpart JJJJ.)

14. NWE shall maintain a log of maintenance activities completed for each RICE generator set and control devices used to demonstrate compliance with the manufacturer's maintenance schedules according to Section II.A.13. The log shall be available for request by the Department (ARM 17.8.749, ARM 17.8.340, and 40 CFR 60, Subpart JJJJ).

15. The emergency generator engine and fire pump engine shall be used for emergency or back-up operations only, and shall each be limited to 300 hours of operation during any rolling 12-month time period. Preventative maintenance activities shall be included in the 300 hours of operation during any rolling 12-month time period (ARM 17.8.749).

B. Testing Requirements

1. NWE shall test each RICE for NOx and CO, concurrently, to demonstrate compliance with the NOx and CO emission limits contained in Section II.A.1, within 180 days of initial start-up. The testing shall continue on an every 4-year basis, or according to another testing/monitoring schedule as may be approved by the Department. The duration between testing shall not exceed 4 years from the day of the last source test (ARM 17.8.105 and 17.8.749).

2. NWE shall test each RICE for VOC to demonstrate compliance with the VOC emission limit contained in Section II.A.1. This testing shall be completed within 180 days of initial start-up. If NWE can demonstrate simultaneous compliance with the CO and VOC emission limits, the VOC testing can be discontinued after the initial compliance demonstration, otherwise the VOC testing shall be conducted on an every 4-year basis, or according to another testing/monitoring schedule as may be approved by the Department. If simultaneous compliance demonstration is successful, the CO compliance demonstration shall serve as a surrogate compliance demonstration for the VOC limit in Section II.A.1. The

duration between testing shall not exceed 4 years from the day of the last source test (ARM 17.8.105 and 17.8.749).

3. For the 18 RICE generator sets, if NWE does not operate and maintain the RICE and control device according to the manufacturer's written instructions, as identified in 40 CFR 60.4243, or if the RICE generator sets are non-certified engines, NWE shall conduct performance testing described in 40 CFR 60, Subpart JJJJ or as required by the Department (40 CFR 60, Subpart A; 40 CFR 60, Subpart JJJJ; ARM 17.8.105; 17.8.340; and 17.8.749).

4. The 18 RICE generator sets will be classified as new stationary RICE and will be subject to 40 CFR 63, Subpart ZZZZ and the applicable emissions limit requirements and compliance tests identified in this regulation (40 CFR 63, Subpart A; 40 CFR 63, Subpart ZZZZ; ARM 17.8.342; and ARM 17.8.749).

5. NWE shall provide annual documentation of the sulfur content within the natural gas supply pipeline either through documentation from the supplier or via sample taken and tested at the site. The sulfur content shall be below 0.005 grains/scf which is the supply for the RICE and the dew point heater (ARM 17.8.749).

6. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).

7. The Department may require further testing (ARM 17.8.105).

C. Operational Reporting Requirements

1. NWE shall supply the Department with annual production information for all emission points, as required by the Department in the annual emission inventory request. The request will include, but is not limited to, all sources of emissions identified in the emission inventory contained in the permit analysis.

   Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emission inventory request. Information shall be in the units required by the Department. This information may be used to calculate operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505).

2. NWE shall document, by month, the combined hours of steady state operation of the 18 RICE. By the 25th day of each month, NWE shall total the combined hours of steady state operation of the 18 RICE for the previous month. The information for each of the previous months shall be submitted annually to the Department along with the annual emission inventory (ARM 17.8.749).

3. NWE shall document, by month, the combined hours of start-up and shutdown of the 18 RICE. By the 25th day of each month, NWE shall total the combined hours of startup and shutdown operation of the 18 RICE for the previous month. The information for each of the previous months shall be submitted annually to the Department along with the annual emission inventory (ARM 17.8.749).

4. NWE shall document, by month, the hours of operation of the emergency diesel engine/generator set and emergency diesel-fire pump. By the 25th day of each month, NWE shall total the hours of operation of the emergency diesel engine/generator set for the previous month. The information for each of the previous months shall be submitted annually to the Department along with the annual emission inventory (ARM 17.8.749).

5. NWE shall document the results of the sulfur content on the natural gas fuel required by Section II.B.5. The information shall be submitted annually to the Department along with the annual emission inventory (ARM 17.8.749).

6. NWE shall notify the Department of any construction or improvement project conducted, pursuant to ARM 17.8.745, that would include ***the addition of a new emissions unit***, change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation. The notice must be submitted to the Department, in writing, 10 days prior to startup or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.745(l)(d) (ARM 17.8.745).

7. All records compiled in accordance with this permit must be maintained by NWE as a permanent business record for at least 5 years following the date of the measurement, must be available at the plant site for inspection by the Department, and must be submitted to the Department upon request. These records may be stored at a location other than the plant site upon approval by the Department (ARM 17.8.749).

D. Notification

NWE shall provide the Department with written notification of the following information within the specified time periods (ARM 17.8.749):

1. Start-up date of each RICE generator set within 15 working days of the start-up date of the RICE.

2. NWE shall provide any required notifications required under 40 CFR 60, Subpart IIII; 40 CFR 60, Subpart JJJJ; and 40 CFR 63, Subpart ZZZZ (40 CFR 60, Subpart IIII; 40 CFR 60, Subpart JJJJ; 40 CFR 63, Subpart ZZZZ; ARM 17.8.340; and ARM 17.8.342).

SECTION III: General Conditions

A. Inspection – NWE shall allow the Department's representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment such as Continuous Emission Monitoring Systems (CEMS) or Continuous Emission Rate Monitoring Systems (CERMS), or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.

B. Waiver – The permit and the terms, conditions, and matters stated herein shall be deemed accepted if NWE fails to appeal as indicated below.

C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving NWE of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.* (ARM 17.8.756).

D. Enforcement – Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties, or other enforcement action as specified in Section 75-2-401, *et seq.*, MCA.

E. Appeals – Any person or persons jointly or severally adversely affected by the Department's decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefor, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department's decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the effective date of the Department's decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, the Department's decision on the application is final 16 days after the Department's decision is made.

F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by the Department at the location of the source.

G. Permit Fee – Pursuant to Section 75-2-220, MCA, failure to pay the annual operation fee by NWE may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.

H. Duration of Permit – Construction or installation must begin or contractual obligations entered into that would constitute substantial loss within 3 years of permit issuance and proceed with due diligence until the project is complete or the permit shall expire (ARM 17.8.762).

Montana Air Quality Permit (MAQP) Analysis
NorthWestern Energy
MAQP #5261-00

I. Introduction/Process Description

NorthWestern Energy (NWE) proposes to install and operate the equipment identified in Section I.A. The facility is proposed to locate in Laurel, Montana in Yellowstone County, and is known as the Laurel Generating Station (LGS).

A. Permitted Equipment

The generating units proposed for the LGS consist of 18 Caterpillar Reciprocating Internal Combustion Engine (RICE) generator sets, each with a nominal gross output of approximately 9.7 MWe, for total nominal gross plant output of 175 MWe.

Additional equipment includes an emergency generator and an emergency fire pump, each equipped with a diesel engine. The emergency diesel engine/ generator set is rated at 2,682 brake horsepower (bhp) and will supply power for essential electrical equipment. The diesel fire pump engine is rated at 315 bhp.

There would also be a 1.11 million British thermal unit per hour (MMBtu/hr) natural gas dew point heater, also referred to as a line heater, for preheating natural gas to the RICE.

Fugitive Dust Road Emissions

B. Source Description

The emitting units associated with this application are the 18 RICE generator sets, one 2,682-bhp diesel-fired emergency engine/generator, one 315-bhp diesel fire pump engine, and a 1.11 MMBtu/hr natural gas dew point heater. The facility function is intended to provide maximum flexibility for on-demand capacity, ancillary services and critical grid regulation services.

C. Response to Public Comments

Three groupings of comments were received on the PD. These include comments from 1) NWE/Bison Engineering, 2) comments received from the public, and 3) comments submitted by a group including MEIC, Sierra Club and Earthjustice. Comments received by NWE and those from the public are identified in the below table with detailed explanations to the public comments directly below the table. The comments have been summarized as the majority of public comments were similar in nature.

Person/Group Commenting	Permit Reference on PD	Comment	Department Response
Bison/NWE	Section II.A.1.iii	Section II.A.1.iii currently states, "Volatile organic compounds (VOC) 2.44 lb/hr as methane for each of the 18 RICE	Condition updated including reference to formaldehyde in the BACT analysis.

		generator sets"]. The "as methane" language conflicts with the VOC testing requirements listed in 40 CFR 60.4244 (f) where VOC is measured as propane. In addition, the emission limit of 2.44 lb/hr proposed by NorthWestern includes formaldehyde. Therefore, Bison is requesting this condition be updated to "Volatile organic compounds (VOC) 2.44 lb/hr including formaldehyde for each of the 18 RICE generator sets"	
Bison/NWE	Section II.A.11 and Section II.B.1	In Sections II.A.11 and II.B.1, the NSPS Subpart JJJJ permit language mentions "manufacturer's emission limit certification" and "the RICE are considered certified." While NWE will be maintaining the engines pursuant to the manufacturer's maintenance schedules and written instructions, NWE needs to retain the options contained in NSPS JJJJ to install certified engines or non-certified engines that verify compliance with the requirements of NSPS JJJJ. Due to the rigors of attaining and maintaining EPA certificates of conformity on low production rate engine families, it is common for large industrial engine manufacturers to sell non-certified engines that comply with the NSPS JJJJ requirements. The CAT engines proposed for the Laurel Generating Station are guaranteed to perform to the emission levels that were submitted with the May 10, 2021 initial and June 9, 2021 revised applications. Those	These two conditions were updated as requested.

		guarantees meet or perform better than the Table 1 NSPS JJJJ limitations. However, there is a distinction between guaranteed performance and engine manufacturer certification under NSPS JJJJ. Section 60.4243(b)(2) of NSPS JJJJ was written for engine installations that may apply to Laurel where the owner or operator installs a non-certified engine and complies with the performance testing, operation and maintenance requirements of the subpart. While the current language does not explicitly require NWE to install JJJJ certified engines, it could be implied. The compliance demonstration requirements of NSPS JJJJ §60.4243(b)(2) ensure that any non-certified engine installed meets or exceeds the performance specifications required by that subpart and doesn't subject the manufacturer to costly certification processes that are ultimately passed down to the customer. Based on that information, NWE is requesting the conditions be edited to read: Section II.A.11. NWE shall, prior to start-up of the first RICE, submit the manufacturer's maintenance schedules to the Montana Department of Environmental Quality (Department) for the RICE generator sets and associated control devices (ARM 17.8.749, ARM 17.8.340, and 40 CFR 60, Subpart JJJJ.)	

		Section II.B.1 For the 18 RICE generator sets, if NWE does not operate and maintain the RICE and control device according to the manufacturer's written instructions, as identified in 40 CFR 60.4243, or if the RICE generator sets are non-certified engines, NWE shall conduct performance testing described in 40 CFR 60, Subpart JJJJ or as required by the Department (40 CFR 60, Subpart A; 40 CFR 60, Subpart JJJJ; ARM 17.8.105; 17.8.340; and 17.8.749).	
DEQ	Table VI-4 SIL Modeled Emissions Increase Table	The PM2.5 Annual Table tpy total does not match the sum of the emission entries above.	PM2.5 annual was corrected to match the sum of the individual row entries.
Public Comment Received in Form Letters	General	Permitting a new source in area that already exceeds the limit for sulfur dioxide pollution. Why does NWE get air pollution permit in a nonattainment area in Laurel?	See detailed Department response below, referenced as Pub_Com_1
Public Comment Received in Form Letters	General	Climate changing pollution and adding 42,000 tons of climate changing pollution. Why are greenhouse gases not evaluated with this proposed project?	See detailed Department response below, referenced as Pub_Com_2
Public Comment Received in Form Letters	General	500-700 tons of harmful pollutants entering the air each year from the new gas plant. What's the full impact of these toxins? What about impacts including asthma and other health issues?	See detailed Department response below, referenced as Pub_Com_3
Public Comment Received in Form Letters	General	Air pollution travels on the wind, so how will other Montanans be impacted?	See detailed Department response below, referenced as Pub_Com_4
Public Comment Received in Form Letters	General	This project should have an Environmental Impact Statement prepared	A Final Environmental Assessment has been prepared in this Decision document detailing why an EA is appropriate for this permit action rather than an EIS. Tight time restraints on DEQ's permitting actions under the

			Montana Air Quality Act do not allow time for an EIS. See *Cameron Springs v. Mt. Deq*, 2008 Mont. Dist. LEXIS 161 (Mont. Dist. Ct. April 23, 2008). See also Final EA within this document.
Public Comment Received in Letters	General	What about concerns with large facilities such as these having catastrophic failures including for pipelines?	The scope of this action is the construction and operation of RICE, emergency engines, a dew point heater and fugitive road dust. Individual engines can fail but these would not cause a catastrophic failure beyond the individual engines themselves. Each individual RICE would be fitted with combustion interlocks on the fuel gas train. These interlocks would be similar to National Fire Protection Agency (NFPA) regulations specifically NFPA 69. Standard on Explosion Prevention Systems. A new natural gas pipeline to the site is not regulated by MDEQ.
Public Comment Received in Letters	General	What about impact on property values surrounding the proposed site?	The proposed site has relatively few private residences which are in close proximity to the site. The two closest are identified within the Final EA. The area already includes industrial tenants including the Laurel wastewater treatment plant, CHS refinery and an existing NWE substation. Aesthetics and noise are addressed in the Final EA in Section #9 Aesthetics.
Public Comment Received in Letters	General	RICE are not required to meet emission limits during startup and shutdown.	See comment in the MEIC table below, five rows down from the top where emissions for startup and shutdown are addressed. This describes where new permit conditions were added in the Department Decision for the number of allowed transient events. These are in the Permit at Section II.A.5.
Public Commenter #359		1) Fully analyze potential pollutants resulting from	See Pub_Com_5

		periods of startup, which are expected to occur thousands of times per year. Even if DEQ requires SCR for control of NOx and CO, it takes significant time during startup to reach optimal operating parameters. This fact must be taken into account when estimating pollutants. 2) Require monitoring and recordkeeping for intermittent startup and shutdown for each unit, not simply the facility as a whole. 3) Fully analyze potential pollutants from diesel ignition during startup. 4) Fully analyze potential pollutants from the diesel generator. 5) Require that any diesel combusted onsite be ultra-low-sulfur diesel, given siting in a nonattainment area for sulfur. 6) Limit the amount of diesel that can be combusted in any rolling 12-month period. 7) Limit the number of hours per year that the diesel generator can be operated. 8) Specify the size of diesel storage tanks and whether they will be constructed above or below ground. 9) Fully analyze CUMULATIVE emissions from all potential emissions units. 10) Most importantly, analyze and provide an accounting of TOTAL potential emissions of greenhouse gases. As Montanans suffer the most extreme weather and long-term air quality degradation in our state's history, it is imperative that DEQ redouble its efforts to protect public	

		health and the environment. Without an accurate accounting of potential pollution from this proposed source, it will be impossible to make a reasoned and responsible decision about permitting it to be built.	

The Department received a total of 700 comments on the NWE Laurel draft permit following the 15-day extension of the public

Pub_Com_1

The air quality classification for the immediate area is "Unclassifiable or Better Than National Standards" (40 CFR 81.327) for all pollutants, apart from sulfur dioxide (SO2). The site location is within the Laurel SO_2 nonattainment area (NAA) for the 1971 primary SO2 National Ambient Air Quality Standards (NAAQS). This NAA is a 2-kilometer (km) (1.2 miles, mi) radius circle centered on the geographic center of the CHS Laurel Refinery. The proposed facility does not constitute a significant increase in SO_2 due to the use of clean burning natural gas as the primary fuel for the RICE. The Department expects that a future redesignation effort will show compliance with the 1971 SO_2 standard. While the 1971 24-hour SO_2 standard is still the official federal designation status for the Laurel area, the standard has likely not been exceeded since the large SO_2 reductions which occurred at large stationary sources starting around 1990 and continuing through today. These reductions have recently been highlighted in Montana's Regional Haze Progress Report showing Yellowstone County reductions of SO_2 approaching 25,000 tons per year from base year 1990.

Additional Background

SO_2 emissions for the proposed project are the result of the 18 engines (RICE) burning pipe-line quality natural gas, effectively operating up to 8,760 hours per year including start-up and shutdown cycles. Natural gas is inherently low in sulfur concentrations and when analyzing fossil fuels for air quality purposes related to sulfur, natural gas is often identified as a "clean burning fuel". The "clean burning fuel" description for natural gas can also be used to describe its characteristics relative to other combustion products including for particulate matter (PM). However, for this discussion, the response is directed at the question regarding concern around SO_2. As described previously, there is a very small SO_2 nonattainment area which surrounds the CHS Laurel refinery. This designation was based on the 1971 primary SO_2 National Ambient Air Quality Standards (NAAQS). This nonattainment area is still on the books today and therefore requires ambient air quality evaluations for projects that meet the criteria for construction in nonattainment areas. However, the proposed NWE Laurel Generating Station, has proposed SO_2 emissions of only 14.1 tons per year. This proposed SO_2 increase with the project does not require an ambient air quality analysis for SO_2 because the project increases are below the significance levels for an ambient air analysis. This would be consistent with Appendix W of 40 CFR 51, Guideline on Air Quality Models, January 2017. The SO_2 emissions for the project are constrained by the permit conditions requiring only the use of pipeline quality natural gas with the inherent low sulfur content. PSD regulations apply to a new stationary source if it is deemed "major." A stationary source that is "listed" according to ARM 17.8.801(22)(a)(i) is considered major if it has the potential to emit more than 100 tpy of any pollutant subject to regulation under the Federal Clean Air Act. Non-listed sources are subject to PSD permitting requirements at 250 tpy. The NWE Laurel Generating Station is not listed, therefore the trigger threshold for SO_2 emissions for PSD requirements would be 250 tpy. With a proposed increase of only 14.1 tpy, the NWE Laurel Generating Station not subject to the PSD nonattainment regulations.

Pub_Com_2

The Department of Environmental Quality, specifically the Air Quality Bureau does not regulate greenhouse gases such as CO_2. The Bureau is required to regulate the emissions of criteria pollutants including NOx, SO_2, PM, VOC, CO and ozone. Until such time as the State of Montana decides to regulate greenhouse gases as part of the Air Quality Bureau's statutory requirements, CO_2 emissions are only required to be reported by certain industrial sources under Federal Reporting Programs. The Federal Program currently is essentially a reporting program to develop national greenhouse gas inventories, but only requires evaluations for CO_2 when the proposed emissions are above very high thresholds, and in these cases, the required steps are to ensure that the equipment design implements best practices such as heat recovery to minimize the quantity of fuel used. It does not restrict the type or quantity of fuel that may be used, rather it requires an evaluation for those practices that minimize the quantity of fuel to be combusted.

The reference to 42,000 tons of climate changing pollution is reference to the amount of CO_2 (mass emissions) that will result if each RICE operates at the proposed 8,760 hours. As long as natural gas is being combusted in the engines, CO_2 will be produced at a known rate. There currently is no off-the-shelf solution to economically capture and control CO_2 emissions from natural gas engines. While there are innovative solutions being researched and piloted on exhaust streams from natural gas combustion processes, they are not required on new or existing equipment either at a federal level or within the State of Montana. If these solutions become economical in the future, they likely would be identified as BACT for RICE.

Pub_Com_3

The reference to 500 to 700 tons of harmful pollutants represents the approximate maximum total of particulate matter (PM), NOx, SO_2, CO, VOC, methane, as well as formaldehyde that could be released from the RICE during the course of a year's operation when running up to the 8,760 hours per year for all combined engines. The emissions of these pollutants are constrained by the permit conditions established for the RICE. For example, to minimize both CO and VOC, oxidation catalyst is required to minimize the release of CO and VOCs. Further, to control NOx, SCR is required on each of the engines as a permit condition. These permit conditions were established from the BACT analysis required for all minor source permitting in Montana. Montana is one of the few states which requires a BACT analysis on minor sources.

PM, NOx, CO and VOCs were evaluated as required for their impacts on ambient air quality and compared to the ambient standards. This analysis was provided in the NWE application, and was validated by review by the Department, and is summarized in section VI. Ambient Air Impact Analysis of the permit analysis section. The results demonstrate that the project will not cause or contribute to a violation of either the MAAQS or NAAQS, As concluded within that section, The Department determined that the project-related PM_{10}, $PM_{2.5}$, NO_2, and CO emissions (with offsite facility emissions) will not cause or contribute to a violation of a federal or state ambient air quality standard. This decision was based on the air dispersion modeling with qualitative/quantitative analyses.

Other emissions including formaldehyde do not have equivalent ambient air quality standards. The Air Quality Bureau does not have authority to specifically regulated Air Toxics and therefore the release of the compounds such as formaldehyde is not regulated by the Air Quality Bureau.

Pub_Com_4

The criteria pollutants for this project including NOx and PM were modeled and do not show any violations of ambient air quality standards where the public would be exposed. Typical demonstrations are done at the "fence line" or property boundary so that concentration of pollutants do not exceed ambient air quality standards.

All fossil fuel combustion processes emit pollutants as described earlier within this Air Quality Section. Releases of these pollutants disperses into the atmosphere and travel with the wind direction, decreasing in concentration as the pollutants are diluted with ambient air. Concentrations of these pollutants are evaluated at ground level, from the boundary where the public would be able to reside at and out to 50 km from the facility. For this proposed project, particulate matter and NOx concentrations were modeled (along with nearby source emissions and background concentrations) to demonstrate that there would be no violations of any ambient air quality standards associated with these pollutants. The proposed project would only have an increase of a maximum of 14.3 tons per year of SO_2, this level of emissions increase was not required to undergo an SO_2 modeling demonstration. Negligible formation and deposition of sulfur would occur from the RICE as they are required to use low sulfur content natural gas. The emergency engine generator set and fire pump will combust diesel fuel but these engines operate intermittently for actual emergencies and testing. Fossil fuel power plants are also known to contribute to deposition which is formed by the presence of combustion species in the exhaust stream with other species in the exhaust stream and in the atmosphere. Natural gas power plants emit significantly less pollutants due to the makeup of natural gas which is primarily methane and is considered a "clean-burning fuel" when compared to facilities burning coal and oil.

Pub_Com_5

Restrictions have been placed on the number of transient events which are identified as startup and shutdown events. Monthly totals are required for these events with reporting to the Department. Diesel fuel use is limited at the site to the emergency generator and fire pump engine. These are limited to 300 hours of operation each. There is no planned large diesel storage tank on site as the 300-hour limitation can be accommodated with a much smaller tank capacity. These are required for protection of personnel and equipment. Diesel fuel that is available is nationally only available as ultra-low sulfur content. Ambient modeling has been conducted to look specifically at NOx and particulate matter emissions and those results demonstrate compliance with ambient air quality standards. Greenhouse gas emissions are not required to be evaluated for this permit application. Compliance demonstrations including source testing were added in the Decision to demonstrate compliance against permit emission limits for NOx, CO and VOCs. Please see the additional Department response in the MEIC table below which begins with "EarthJustice Letter" in the Summary of Comment column for further discussion on Greenhouse gases.

Comments Received from MEIC, Sierra Club and Earthjustice with Department Responses

Permit Reference to PD	Summary of Comment	Department Response
Section II.A.1.ii	The proposed CO BACT limit for the natural gas-fired RICE generator sets is not supported in the permit record. Further, compliance with the CO BACT limit is not required under the terms of the Draft Permit, and therefore the CO BACT limit is not practically enforceable.	To better align the CO BACT limit submitted by NWE and approved by the Department, compliance testing has been added for a compliance demonstration with the CO BACT limit. The CO testing requirement has been added within the Department's Decision as Section II.B.1. This includes on-going source testing demonstrations. Source Test Reports are required to be submitted to the Department under Section II.B.6. Further, annual emission inventory submittals are required to the Department under Section II.C.1. which will total actual emissions for the facility once operational.
Section II.A.1.iii	The proposed VOC BACT limit for the natural gas-fired RICE generator sets is not supported in the permit record. Further, compliance with the VOC BACT limit is not required under the terms of the Draft Permit, and therefore the VOC BACT limit is not practically enforceable.	To better align the VOC BACT limit submitted by NWE and approved by the Department, compliance testing has been added for a compliance demonstration with the VOC BACT limit. The VOC testing requirement has been added within the Department's Decision as Section II.B.2. This includes on-going testing demonstrations. Source Test Reports are required to be submitted to the Department under Section II.B.6. Further, annual emission inventory submittals are required to the Department under Section II.C.1. which will total actual emissions for the facility once operational.
Section II.A.1.i	The permit lacks testing and reporting requirements to ensure the Nitrogen Oxides (NOx) BACT Limits for the RICE Units are enforceable	To better align the NOx BACT limit submitted by NWE and approved by the Department, compliance testing has been added for a compliance demonstration with the NOx BACT limit. The NOx testing requirement has been added within the Department's Decision as Section II.B.1. This includes on-going testing demonstrations. Source Test Reports are required to be submitted to the Department under Section II.B.6. Further, annual emission inventory submittals are required to the Department under Section II.C.1. which will total actual emissions for the facility once operational.
General	The Draft Permit fails to require BACT for Greenhouse Gas Emissions	The Supreme Court of the United States (SCOTUS), in its *Utility Air Regulatory Group v. EPA* decision on June 23, 2014, ruled that the Clean Air Act neither compels nor permits EPA to require a source to obtain a PSD or Title V permit on the sole basis of its potential emissions of GHG. SCOTUS also ruled that EPA lacked the authority to tailor the Clean Air Act's unambiguous numerical thresholds of 100 or 250 TPY to accommodate a CO2e threshold of 100,000 TPY. SCOTUS upheld that EPA reasonably interpreted the Clean Air Act to require

		sources that would need PSD permits based on their emission of conventional pollutants to comply with BACT for GHG. As such, sources that must undergo PSD permitting due to pollutant emissions other than GHG may still be required to comply with BACT for GHG emissions. The Laurel Generating Station does not trigger PSD permitting as a new major source of emissions, therefore; no BACT analysis is required for GHGs for this application.
General	The Draft Permit fails to impose emission limits Reflective of BACT for Startup and Shutdown, and the Permit Lacks Pertinent Definitions of Terms Related to the Startup and Shutdown Exemptions	As these engines are intended for "fast starts" to serve electric load, restricting the total number of startups and shutdowns will limit emissions from these transient events. This permit condition has been added as Section II.A.5. The permit contains reporting requirements for each type of startup and shutdown. Definitions of cold startup, warm startup, and shutdown have been included in Section II.A.1. Section II.C.3. requires monthly documentation of the total number of startup and shutdown events. With respect to testing, EPA reference method testing would not be valid during these transient conditions because the changing stack flow conditions/characteristics (flow, temperature, volume, etc.) would not meet the goals of a "representative measurement" associated with the methods, particularly Method 1. EPA has been very consistent in applying work practice standards for startup/shutdown conditions (specifically in MACT standards), and as emission limits because of the changing conditions and short-term nature of the events. EPA has also been very consistent in not applying numeric standards for startup/shutdown for NSPS standards because of the issues noted above.
General	NWE Appears to Have Understated Short Term Emission Rates from the LGS RICE Units During Startup and Shutdown.	It is normal practice to accept as a basis for emissions, information from the manufacturer as to the expected emissions during operation of the units. There is no requirement to assign any degradation factor or specific safety factor for emission profiles over the life of the equipment. NWE has contractual agreements with the manufacturer to meet emission limits upon commencement of operation for steady state performance. startup These are guaranteed for steady state operation across the range of expected operating conditions. Emission testing and associated limits, at transient conditions including cold startup, warm startup and shutdown is not practical given there are no reference test methods for these particular scenarios. Engines referenced that were installed nearly ten years ago are not the same engines being proposed for this project and technology is constantly improving for controlling emissions.
	MDEQ's Determination that the Laurel Generating Station Does	As submitted by NWE, the potential to emit is below 250 for all pollutants and therefore is below the threshold for PSD major source applicability. Defined in Montana rules

	Not Have the Potential to Emit at Least 250 tons/year of any Pollutant is Erroneous, and the Facility Should be Considered a Major Stationary Source Subject to Prevention of Significant Deterioration (PSD) Permitting Requirements.	at ARM 17.8.801(22)(a)(ii). Further, additional requirements limiting the number of cold startups, warm startups, and shutdowns along with definitions are contained within the Decision. These are referenced as Sections II.A.1 and II.A.5. Compliance demonstrations for the BACT conditions for CO, VOC and NOx in Section II.A.1 have been added in Sections II.B.1 and Section II.B.2. Annual hourly operating limits have been placed on the emergency generator and fire pump engine in Section II.A.14. The line heater has been added requiring the use of pipeline quality natural gas in Section II.A.2. A demonstration for sulfur content has also been added in Section II.B.5. NWE is required to submit annual emission inventories to the Department.
General	The Permit Should Require Use of a Tier 4 Engine for the Backup Emergency Generator and Emergency Fire Pump Engine and Limit Operating Hours	There is no explicit requirement to mandate a Tier 4 engine for either emergency engine. Enforceable operating hours of 300 hours per year have been added for each emergency engine. This is referenced as Section II.A.15. The total emissions from emergency operation of these engines are nearly insignificant at less than 5 tpy for all pollutants. Emergency equipment is considered essential for safety of personnel and infrastructure protection.
General	The Draft Permit Lacks Requirements to Ensure the Accuracy of the Assumed SO2 Emissions from Natural Gas and Diesel Combustion.	Montana DEQ accepts the use of "pipeline quality natural gas" as an enforceable condition in all air quality permits with the enforceable condition in the preliminary determination, Section II.A.2. A new condition has been added to Section II.A.2 to require pipeline quality natural gas on the line heater. Sulfur content documentation of the natural gas line has been added in Section II.B.5. A record keeping requirement for pipeline quality natural gas has been added to the Decision as Section II.C.5. The SO2 emissions are minor for this proposed project and slight variations in sulfur content do not change the applicable requirements for this project. Sulfur content in diesel is well regulated at a national level and the Department does not have concerns regarding the operation of the emergency engines for up to 300 hours each per year.
General	The Air Quality Impact Demonstration is Flawed for SO_2 evaluation	Montana DEQ determined that the proposed SO_2 increases of 14.1 tpy did not merit an ambient demonstration. While the 1971 24-hour SO_2 standard is still the official federal designation status for the Laurel area, the standard has likely not been exceeded since the large SO_2 reductions which occurred at large stationary sources starting around 1990 and continuing through today. These reductions have recently been highlighted in Montana's Regional Haze Progress Report showing Yellowstone County reductions of SO_2 approaching 25,000 tons per year from base year 1990. The modeling guidance referenced is a draft document and there are no statutory requirements on this project to model SO_2 against the MAAQS and NAAQS.

General	The Air Quality Impact Demonstration is flawed for failing to limit public to ambient air quality exposure	NWE intends to fence the property, put up security cameras and have access badging to the site. The proposed property is surrounded by private land ownership on all sides. The City of Laurel wastewater treatment plant borders the property to the west while existing NWE and CHS property makes up the northern boundary. These neighboring parcels to the north are additionally separated from the property by an irrigation ditch. A private residence borders the northeastern and eastern sides. Lastly, another irrigation ditch defines the entire southern boundary. All property lines are pronounced and clearly indicate private land ownership. Public access (aside from blatant trespassing) is clearly precluded due to the irrigation ditches to the north and south boundaries, the private residence to the east, and the fenced off sewage treatment plant property to the west. Access to the public is thus sufficiently restricted.
General	NWE's "SIL Grid" approach is not supported in Montana regulations. Specifically reference to ARM 17.8.1006(2) and NOx to NO2 conversion assumption. Reference page 18 of comment letter. Concern about increment analysis.	References to ARM 17.8., Subchapter 10 – Subchapter 10 is clearly applicable to major sources that cause or contribute to a violation of the national ambient air quality standards and/or a nonattainment area. There would need to be a violation of NAAQS, either existing or modeled, for it to be applicable. The comment related to ARM 17.8.1006(2) states, "For sources of nitrogen oxides, the initial determination of whether a source would cause or contribute to a violation of the national ambient air quality standard for nitrogen dioxide should be made using an atmospheric simulation model assuming all the nitric oxide emitted is oxidized to nitrogen dioxide by the time the plume reaches ground level." However, the rule continues and says "The initial concentration estimates may be adjusted if adequate data are available to account for the expected oxidation rate." The modeling performed for LGS followed the applicable federal air dispersion modeling standards in 40 CFR 51, Appendix W, allowed per the omitted sentence above. Appendix W provides more accurate and up to date methodology for analyses with respect to cause and contribution, for NOx and other pollutants. Those required methods were used in this analysis. No NAAQS violation was found in the LGS or previous analyses in the area, and the rules in ARM 17.8, Subchapter 10 do not apply. The Department believes the increment analysis was appropriately conducted and the modeled sources for this analysis are included in the new Table VI-7 added to the permit analysis.
General	The LGS permit application simply refers to "competing sources" as being included in the cumulative modeling.	The preliminary determination previously identified the competing sources within the permit analysis. A new table has been added to the permit analysis to indicate the emissions that were used in the analysis for each of these sources. This table is titled Table VI-7 – Competing

	MDEQ must disclose the sources, emission units, and emission rates modeled for each pollutant NAAQS analysis.	Sources Modeled Annual Emissions. The tables below this new table have been incremented up each by one.
General	The permit application is required to have a map and diagram of the proposed facility and emitting units, including the location of each associated stack, the height and outline of associated buildings, and the height and outline of each associated stack, pursuant to ARM 17.8.748(4)(a).	Preliminary stack information is included in the NWE application. Projects that are proposed often have preliminary design information and those are used in the analysis. Planned RICE stack discharge heights are currently at 77 feet with the addition of stack silencers that were added for noise mitigation. If the project design changes including stack information, the project assumptions would have to be reviewed to determine if any conclusions in the permit and analysis would be different. If the scope of the project changes, that would require a permit modification otherwise the facility would be in violation of the original issued permit. The Air Quality Bureau has no authority to regulate how the natural gas line is routed to the site and specifically to the engines.
Environmental Assessment	EarthJustice Letter dated August 10, 2021, pg. 19: "In addition, the plot plan for the source does not provide any indication of where the gas pipeline bringing natural gas to the LGS site will be located. The location for the gas line needs to be determined first before the location of the RICE engines and other units and buildings can be determined. MDEQ must require NWE to identify where the gas line will come from and come into the site, so the public can be assured that the location of RICE and other emission units will not be modified and affect the integrity of the ambient air modeling analysis."	As included in the Final EA, Table 1: Proposed Action Details, the summary of the proposed action is stated as follows: NWE's permit application is to construct and operate eighteen (18) 9.7-megawatt-electrical (MWe) reciprocating internal combustion engines (RICE), one 2,682 -bhp emergency diesel-fired generator, one 315-bhp diesel-fired fire pump engine and a 1.11 MMBtu/hr natural gas line heater. The project is subject to approval by the DEQ Air Quality Bureau as the potential project emissions exceed 25 tons per year for regulated pollutants and fugitive road dust. The applicant modeled the locations of the proposed emitting units represented in the proposed action details in the description above. These include the RICE. The natural gas line routing is independent of the proposed locations for the RICE. The ambient air quality analysis conclusions are based on the proposed RICE locations. If the RICE locations were moved in a significant manner, it would require a review of whether the results of the ambient air quality analysis would change. The location of the natural gas line is outside the scope of the EA, and the DEQ Air Quality Bureau is not allowed under statutory requirements to consider the natural gas line routing.
Environmental Assessment	EarthJustice Letter dated August 10, 2021, pg. 20: "Where, as here, the agency prepares an EA, the EA must	The Final EA has been updated based on this comment to break out the direct, secondary and cumulative impacts throughout the EA for readers to easily identify these types of impacts for resource areas.

	evaluate the direct, secondary, and cumulative environmental impacts of the proposed action;[88] reasonable alternatives to the proposed action;[89] and mitigation measures.[90] "The agency must examine the relevant data and articulate a satisfactory explanation for its action, including a rational connection between the facts found and the choice made."[91] "[G]eneral statements about 'possible' effects and the existence of 'some risk' do not constitute a 'hard look' absent a justification regarding why more definitive information could not be provided."[92]"	The use of the words "possible" and "some risk" are not used to describe impacts from the Proposed Action.
Environmental Assessment	MDEQ"s Draft Environmental Assessment Does not comply with MEPA	The Final EA has been updated based on the comments received on the Draft EA. Within the time allowed by the Clean Air Act of Montana, DEQ has issued a Final EA that complies with the statutes and administrative rules of Montana for MEPA. Please see the Final EA for compliance with MEPA.
Environmental Assessment	The Draft EA Does Not Contain Adequate Disclosure or Analysis of Potential Impacts to Air Quality.	The Final EA has been updated based on the comments received on the Draft EA. The EA discloses the impacts of the Proposed Action to air quality impacts. The requirements of application for an air quality permit requires modeling of potential impacts and the application was deemed complete by the Department on June 9, 2021. The Final EA has been updated to include the required analysis from the application and has been verified by the Department. Please see the Final EA, Section #3 Air Quality. As described in the Permit Analysis Section VI. Ambient Air Quality Analysis, the proposed emission PTEs are above the modeling thresholds listed in Montana's draft Modeling Guideline for PM10, PM2.5, NO2, and CO, and warranted further analyses. Emission increases were first modeled to determine if any model receptors exceeded the Class II Significant Impact Levels (SILs), presented in Table VI-1. For those pollutants and averaging times that exceed the applicable SILs, NWE demonstrated compliance with NAAQS, MAAQS, and PSD Increments, also presented in Table VI-1. For this

		project, PM10 24-hour, PM10 annual, PM2.5 24-hour, PM2.5 annual, NO2 1-hour and NO2 annual Class II SILs were exceeded, which then warranted NAAQS, MAAQS and analyses for applicable pollutant/time periods. Additionally, compliance was shown for Class II Increment, and a Class I SIL analysis was performed to ensure that the project would not adversely affect the closest Class I area, the North Absaroka Wilderness Area. VOCs and SO2 potential emissions did not exceed the SILs for these pollutants and accordingly were not required to undergo further ambient analysis. The comment regarding disclosure of climate change impacts from the Proposed Action is a function of environmental reviews under MEPA may not include a review of actual or potential impacts beyond Montana's borders. It may not include actual or potential impacts that are regional, national, or global in nature. § 75-20-201(2)(a), MCA.
Environmental Assessment	EarthJustice Letter dated August 10, 2021, pg. 23: "The Draft EA also fails to adequately disclose or analyze the project's potential harm to water quality and soils.[118] NWE proposes to construct and operate the LGS on the banks of the Yellowstone River. To bring fuel to the facility, NWE would conduct horizontal, directional drilling and place a gas pipeline under the Yellowstone River adjacent to the facility. Yet the Draft EA does not even mention the river—or the pipeline—let alone evaluate the associated environmental risks. MDEQ offers no rationale for why it failed to consider foreseeable water and soil quality impacts.	A Final EA has been included in the Decision document to highlight water and soil impacts. The Final EA has been updated to include the required analysis and has been verified by the Department. The proposed project is north of the Yellowstone River and the application has indicated and the Final EA put that distance at approximately 300 feet. Please see the Final EA, Sections #1 Topography, Geology and Soil Quality, Stability and Moisture. As mentioned in the EA response previously about the natural gas pipeline, DEQ's analysis is not required to review the pipeline routing, and does not have the authority to restrict the route. Please see the Final EA, Sections #1 Topography, Geology and Soil Quality, Stability and Moisture and #2 Water Quality, Quantity, and Distribution.".

	Among other things, MDEQ failed to evaluate: - the potential spills or releases of gas from the pipeline or other infrastructure; - potential spills or releases of other hazardous materials stored on site; - potential release of hazardous drilling mud from pipeline installation; - stormwater runoff from the LGS facility into the Yellowstone River; or - sedimentation impacts to the Yellowstone River from construction and operation of the LGS and pipeline. Each of these potential impacts could significantly harm the physical environment. MDEQ's failure to disclose or analyze these potential impacts, and any other foreseeable water and soil quality impacts, violates MEPA.[119]"	MDEQ under the proposed action is reviewing whether to permit to construct and operate eighteen (18) 9.7-megawatt-electrical (MWe) reciprocating internal combustion engines (RICE), one 2,682 -bhp emergency diesel-fired generator, one 315-bhp diesel-fired fire pump engine and a 1.11 MMBtu/hr natural gas line heater. Permitting of the natural gas pipeline itself, is not part of the proposed action. Additionally, natural gas is not regulated by the DEQ Air Quality Bureau. The emergency engines on site will combust diesel fuel but due to the limited hours of operation which are expected, no separate diesel storage tanks are proposed for the project. The Final EA has addressed storage and handling of aqueous ammonia in Section #11 Human Health and Safety. Please see the Final EA Section #2 Water Quality, Quantity and Distribution. As discussed earlier, the pipeline construction and operation are not part of the proposed air quality permit application. The Final EA addresses potential and foreseeable impacts. DEQ currently has no applications pending before it regarding water, and will need more information in order to determine what cumulative effect issuing any of those potential permits may have See the Final EA all sections.
Environmental Assessment	EarthJustice Letter dated August 10, 2021, pg. 23: "In addition to potential impacts to air, climate, water, and soils, the Draft EA overlooked other potential impacts from construction and operation the LGS. Under MEPA, an EA must consider impacts on the "human population in the area" including "human health," "industrial and commercial activity,"	The Air Quality Bureau does not have authority over the construction schedule nor the duration of it. DEQ does not have any other permit applications currently before it (e.g. for water) and would therefore need more information (contained in an application) to make determinations about cumulative impacts with respect to those potential future permits in areas other than Air Quality. The Air Quality permit will be valid for three years before the project approval would expire if NWE were not actively working toward implementing the project. The duration of the project would continue at the pace set by NWE. The construction schedule is estimated to begin in April 2022 and wrap up in May 2023.

	and any other "appropriate social . . . circumstances."[120] The Draft EA unlawfully lacks any discussion of the impacts to the human population.[121] The Draft EA acknowledges that the construction and operation of the proposed Laurel Generating Station will result in the disturbance of "approximately 25 acres" for the construction of "buildings and parking" and require 150 temporary construction related jobs and 10-15 permanent jobs.[122] Despite this acknowledgment, the Draft EA fails to disclose even the most basic information related to the construction, including the anticipated length of the construction period, or analyze any of the impacts associated with the increase in industrial activity or construction at the project site.[123] At a minimum, MDEQ must analyze: - The impacts of paving agricultural land. - The impacts from increased traffic and parking in the surrounding area, both during the construction phase and as a result of long-term operations. - Any impacts on existing roads related to	Please see the Final EA Section #12 Human Health and Safety specific to impacts. Ambient modeling demonstrations in the Permit Analysis Section VI Ambient Air Impact Analysis demonstrate that the pollutants regulated by the DEQ Air Quality Bureau would be in compliance with NAAQS and MAAQS which are considered to be protective of human health. Please see the Final EA Section #13 Industrial, Commercial and Agricultural Activities and Production. This section of the Final EA identifies impacts that fall within this category. See the Final EA Section #11 Human Health and Safety. See the Permit Analysis Section VI Ambient Air Impact Analysis where a demonstration for ambient air quality impacts and conclusions the project is in compliance with the MAAQS and NAAQS. The Final EA has addressed the anticipated construction schedule which MDEQ has no authority to regulate other than once the Air Quality Permit is issued, NWE is authorized to begin construction of the proposed project. See the Final EA Section #12 Industrial, Commercial and Agricultural Activities and Production. Please see Final EA Section #1 Topography, Geology and Soil Stability and Moisture. Please see Final EA Section #4 Vegetation Cover, Quantity and Quality. These sections cover the comment raised. The proposed project disturbance is estimated at 25 acres. This is identified in the Final EA in Table 1 and throughout other areas of the Final EA. The footprint of the project impacts the ground as described in the Final EA Section #4 Vegetation Cover, Quantity and Quality. The reduction in agricultural acreage is identified in Section #12 Industrial, Commercial and Agricultural Activities and Production. See Final EA Section #16

	the transportation of employees and heavy construction equipment, such as bulldozers, front end loaders, excavators, dump trucks, scrapers, compactors, etc. - The impacts of additional sanitary waste and water use impacts of the estimated 150 temporary workers in the short-term and 15 permanent employees. - The impacts associated with dust resulting from construction activities. - The impacts of construction and operations related to noise, including an analysis of any applicable noise regulation. The Draft EA's failure to disclose any impacts related to increased industrialization violates MEPA.[124]	Demand for Government Services for further reference to additional traffic. See Final EA Section #11 Human Health and Safety for references to increased traffic. See Final EA Section #12 Industrial, Commercial and Agricultural Activities and Production. Equipment expected in operation during construction includes those shown in the Final EA Table 1. See Final EA Section #15 Demand for Government Services for reference that the proposed facility will be connected to the Laurel Sanitary System. See the Final EA Section #3 Air Quality. Dust impacts are identified and Permit Conditions including Section II.A.7-9 provide enforceable permit conditions to demonstrate compliance. All aesthetics are covered in the Final EA including noise with noise levels documented in Section 9 Aesthetics. Intermittent noise from equipment during construction will also occur over the duration of the project. The majority of work identified would occur Monday thru Friday as identified in the Final EA Section #3 Air Quality. The increase in commercial and industrialization is covered in the Final EA Section #12 Industrial, Commercial and Agricultural Activities and Production. Additional information is disclosed in Section #15 Demand for Government Services.
Environmental Assessment	EarthJustice Letter dated August 10, 2021, pg. 24: "MDEQ's Draft EA unlawfully fails to evaluate whether any alternatives to the proposed Laurel Generating Station could feasibly accomplish the project's stated goal of "[a]dd[ing] electrical generating capacity at a new facility to help meet customer load requirements."[127]	A Final EA has been included in the Decision document to further address alternatives and highlight project mitigations. The Air Quality Bureau does not have the authority to dictate the scope of a proposed project. The objective of the project is to provide "fast start" electrical load to the grid and that requires the short startup and shutdown cycles which the proposed equipment offers. Engines and turbines are uniquely qualified for this type of grid infrastructure. The no-action alternative does not allow NWE to obtain an air quality permit for this proposed project. DEQ may

	Instead, MDEQ asserts, without analysis or elaboration, that although considered, a "'no-action' alternative was eliminated from further consideration."[128] Similarly, the Draft EA unlawfully dismisses all other potential alternatives without discussing any of the anticipated impacts or disclosing the rationale for ultimately rejecting those alternatives.129 MDEQ's only mention of considered alternatives references the Draft Permit's BACT analysis.[130] However, as noted above, MDEQ failed to conduct any BACT analysis for greenhouse gas emissions and significant emissions during startup and shutdown of the facility, and thus did not address any alternatives to reduce these categories of emissions. Further, even for other pollutants and operating conditions for which MDEQ did perform BACT analyses, the Draft Permit failed in numerous respects to make BACT limits practically enforceable. Accordingly, the BACT requirements in the Draft Permit do not satisfy MDEQ's MEPA obligations to fully evaluate feasible alternative parameters to reduce the project's environmental impacts.	not withhold, deny, or impose conditions on the permit based on the information contained in this Environmental Assessment. § 75-1-201(4), MCA. Under ARM 17.8.749, Conditions for Issuance or Denial or Permit, NWE is required to meet the permit conditions and therefore satisfies the requirements under ARM 17.8.749 for obtaining an air quality permit. The proposed equipment is to provide "fast start" electrical load to the grid and that requires the short startup and shutdown cycles which the proposed equipment offers. Engines and turbines are uniquely qualified for this type of grid infrastructure. As previously noted, and included in the response to public comments: The Supreme Court of the United States (SCOTUS), in its *Utility Air Regulatory Group v. EPA* decision on June 23, 2014, ruled that the Clean Air Act neither compels nor permits EPA to require a source to obtain a PSD or Title V permit on the sole basis of its potential emissions of GHG. SCOTUS also ruled that EPA lacked the authority to tailor the Clean Air Act's unambiguous numerical thresholds of 100 or 250 TPY to accommodate a CO2e threshold of 100,000 TPY. SCOTUS upheld that EPA reasonably interpreted the Clean Air Act to require sources that would need PSD permits based on their emission of conventional pollutants to comply with BACT for GHG. As such, sources that must undergo PSD permitting due to pollutant emissions other than GHG may still be required to comply with BACT for GHG emissions. The Laurel Generating Station does not trigger PSD permitting as a new major source of emissions, therefore; no BACT analysis is required for GHGs for this application. Startup and shutdown events described as "transient events" include all shutdown, and various types of startups. These can include "cold" startups, "warm" startups, and "hot" startups. Each of these unique events has different emission profiles because of the nature of how the emission control equipment is impacted when the engines are not at steady state. Therefore, the best way to restrict emissions during these events, is to limit the total number of transient events consistent with the proposed emissions for the project. The definitions for these transient events has been included in the permit in Section II.A.1. Further, enforceable total transient events are limited by permit condition Section II.A.5 and compliance reporting for these totals are required by Section II.C.3.

	More fundamentally, MDEQ must consider feasible alternatives to meet NWE's purpose to "add electrical generating capacity . . . to help meet customer load requirements."[131] Available alternatives are numerous, including clean, renewable energy resources that could cost-effectively meet NWE's electrical generation needs while avoiding the environmental harm that would be caused by the proposed gas plant. In particular, wind and solar energy resources, when paired with battery storage, can provide flexible generating capacity to help meet NWE customer needs during peak demand events, similar to NWE's proposed gas plant.[132] While NWE has dismissed such alternatives in its own self-serving analysis of need, MDEQ must conduct an independent analysis to determine the feasibility of such alternatives. MDEQ's failure to disclose or analyze alternatives to the project renders the Draft EA deficient and unlawful under MEPA.[133]"	
Environmental Assessment	The Draft EA fails to consider the cumulative impacts of noise, air pollution, and industrialization in an already-impacted Laurel Area	The Final EA has been updated based on the comments received on the Draft EA. The EA discloses the cumulative impacts of the Proposed Action. The Final EA has been updated to include the required analysis from the application and has been verified by the Department. Please see the Final EA, Sections #3 Air Quality, #9

		Aesthetics, and #16 Locally Adopted Environmental Plans and Goals.

II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the Administrative Rules of Montana (ARM) and are available, upon request, from the Department of Environmental Quality (Department). Upon request, the Department will provide references for location of complete copies of all applicable rules and regulations or copies where appropriate.

A. ARM 17.8, Subchapter 1 – General Provisions, including but not limited to:

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment (including instruments and sensing devices) and shall conduct tests, emission or ambient, for such periods of time as may be necessary using methods approved by the Department.

3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq.*, Montana Code Annotated (MCA).

   NWE shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual, including, but not limited to, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.

4. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation or to continue for a period greater than 4 hours.

5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means that, without resulting in reduction of the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner as to create a public nuisance.

B. ARM 17.8, Subchapter 2 – Ambient Air Quality, including, but not limited to the following:

1. ARM 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
5. ARM 17.8.213 Ambient Air Quality Standard for Ozone
6. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide
7. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
8. ARM 17.8.221 Ambient Air Quality Standard for Visibility

9. ARM 17.8.222 Ambient Air Quality Standard for Lead
10. ARM 17.8.223 Ambient Air Quality Standard for PM_{10}
11. ARM 17.8.230 Fluoride in Forage

NWE must maintain compliance with the applicable ambient air quality standards.

C. ARM 17.8, Subchapter 3 – Emission Standards, including, but not limited to:

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.

2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of less than 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate matter. (2) Under this rule, NWE shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.

3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this rule.

4. ARM 17.8.310 Particulate Matter, Industrial Process. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter in excess of the amount set forth in this rule.

5. ARM 17.8.316 Incinerators. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any incinerator, particulate matter in excess of 0.10 grains per standard cubic foot of dry flue gas, adjusted to 12% carbon dioxide and calculated as if no auxiliary fuel had been used. Further, no person shall cause or authorize to be discharged into the outdoor atmosphere from any incinerator emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes.

6. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. Sulfur Oxide Emissions-Sulfur in Fuel. This rule requires that no person shall cause, allow or permit to be discharged into the atmosphere particulate matter in excess of the amount set forth in this rule.

7. ARM 17.8.324 Hydrocarbon Emissions--Petroleum Products. (3) No person shall load or permit the loading of gasoline into any stationary tank with a capacity of 250 gallons or more from any tank truck or trailer, except through a permanent submerged fill pipe, unless such tank is equipped with a vapor loss control device as described in (1) of this rule.

8. ARM 17.8.340 Standard of Performance for New Stationary Sources and Emission Guidelines for Existing Sources. This rule incorporates, by reference, 40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS). NWE is considered an NSPS affected facility under 40 CFR Part 60 and is subject to the requirements of the following subparts.

   a. 40 CFR 60, Subpart A – General Provisions apply to all equipment or facilities subject to an NSPS Subpart as listed below:

b. 40 CFR 60, Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines Fossil Fuel-Fired Steam Generators.

c. 40 CFR 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines.

9. ARM 17.8.341 Emission Standards for Hazardous Air Pollutants. This source shall comply with the standards and provisions of 40 CFR Part 61, as appropriate.

a. 40 CFR 61, Subpart A – General Provisions apply to all equipment or facilities subject to a NESHAP Subpart as listed below:

10. ARM 17.8.342 – Emission Standards for Hazardous Air Pollutants for Source Categories. The source, as defined and applied in 40 CFR Part 63, shall comply with the requirements of 40 CFR Part 63, as listed below:

a. 40 CFR 63, Subpart A – General Provisions apply to all equipment or facilities subject to a NESHAP Subpart as listed below:

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

D. ARM 17.8, Subchapter 4 – Stack Height and Dispersion Techniques, including, but not limited to:

1. ARM 17.8.401 Definitions. This rule includes a list of definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.402 Requirements. NWE must demonstrate compliance with the ambient air quality standards with a stack height that does not exceed Good Engineering Practices (GEP). The proposed height of the new or modified stack for NWE is below the allowable 65-meter GEP stack height.

E. ARM 17.8, Subchapter 5 – Air Quality Permit Application, Operation, and Open Burning Fees, including, but not limited to:

1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. NWE submitted the appropriate permit application fee for the current permit action.

2. ARM 17.8.505 Air Quality Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit (excluding an open burning permit) issued by the Department. The air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, described above, shall take place

on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions that prorate the required fee amount.

F. ARM 17.8, Subchapter 7 – Permit, Construction, and Operation of Air Contaminant Sources, including, but not limited to:

1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain an air quality permit or permit modification to construct, modify, or use any air contaminant sources that have the potential to emit (PTE) greater than 25 tons per year of any pollutant. NWE has a PTE greater than 25 tons per year of PM, PM_{10}, $PM_{2.5}$, NOx, CO and VOC, therefore an air quality permit is required.

3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit program.

4. ARM 17.8.745 Montana Air Quality Permits--Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the Montana Air Quality Permit Program.

5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements. (1) This rule requires that a permit application be submitted prior to installation, modification, or use of a source. NWE submitted the required permit application for the current permit action. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. NWE submitted an affidavit of publication of public notice for the May 12, 2021, of the Billings Gazette, a newspaper of general circulation in the City of Billings in Yellowstone County, as proof of compliance with the public notice requirements.

6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.

7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The required BACT analysis is included in Section III of this permit analysis.

8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.

9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving NWE of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq*.

10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.

11. ARM 17.8.760 Additional Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those applications that require an environmental impact statement.

12. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or modified source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.

13. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).

14. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.

15. ARM 17.8.765 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of intent to transfer, including the names of the transferor and the transferee, is sent to the Department.

16. ARM 17.8.770 Additional Requirements for Incinerators. This rule specifies the additional information that must be submitted to the Department for incineration facilities subject to 75-2-215, Montana Code Annotated (MCA).

G. ARM 17.8, Subchapter 8 – Prevention of Significant Deterioration of Air Quality, including, but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.

2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications--Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through ARM 17.8.827 shall apply to any major stationary source and any major modification, with respect to each pollutant

subject to regulation under the FCAA that it would emit, except as this subchapter would otherwise allow.

This facility is not a major stationary source because this facility is not a listed source and the facility's PTE is below 250 tons per year of any pollutant (excluding fugitive emissions).

H. ARM 17.8.1204 Air Quality Operating Permit Program. (1) Title V of the FCAA amendments of 1990 requires that all sources, as defined in ARM 17.8.1204(1), obtain a Title V Operating Permit. In reviewing and issuing MAQP #5261-00 for NWE, the following conclusions were made:

a. The facility's PTE is greater than 100 tons/year.

b. The facility's PTE is greater than 10 tons/year for any one HAP and greater than 25 tons/year for all HAPs.

c. This source is not located in a serious PM_{10} nonattainment area.

d. This facility is subject to NSPS 40 CFR 60, Subpart A, Subpart IIII and Subpart JJJJ.

e. This facility is subject to NESHAP 40 CFR 63, Subpart A, and Subpart ZZZZ.

f. This source is not a Title IV affected source, or a solid waste combustion unit.

g. This source is not an EPA designated Title V source.

Based on these facts, the Department determined that NWE is subject to the Title V operating permit program.

II. BACT Determination

A BACT determination is required for each new or modified source. NWE shall install on the new or modified source the maximum air pollution control capability, which is technically practicable and economically feasible, except that BACT shall be utilized.

A BACT analysis was submitted by NWE in permit application #5261-00 addressing methods of controlling NOx, CO, VOC, PM, PM_{10}, $PM_{2.5}$ and SO_2 emissions from the RICE. The Department reviewed these methods, as well as previous BACT determinations. The following control options have been reviewed by the Department in order to make the following BACT determinations.

RICE BACT

Startup and Shutdown Operation

Startup emissions are a more frequent occurrence for "dispatchable" capacity than for baseload facilities as the engines will need to start-up and shutdown frequently. Available controls during startup include good combustion practices and minimizing the length of the start-up time. Start-ups are either identified as a warm or hot start-up or as a cold start-up. Warm and hot start-ups can take as little as 8 minutes to start and cold start-ups may take as long as 30 minutes. The SCR is programmed to begin controlling emissions as soon as ten minutes have elapsed into the start-up,

but optimum emission reduction does not occur until steady state operation is achieved. For this reason, NWE is proposing that BACT for start-up conditions as well as for shutdown conditions are good combustion practices and minimizing start-up times and shutdown times. Expected emission rates during startup and shutdown are based on the manufacturer's testing of the engines in laboratory settings.

NOx BACT

NOx is primarily formed in combustion processes in three ways: thermal NOx, prompt NOx, and fuel NOx. Thermal NOx is formed by the combination of elemental nitrogen with oxygen in the combustion air within the high-temperature environment of the combustor. Prompt NOx is formed by reactions of nitrogen with hydrocarbon radicals from the fuel. Fuel NOx is formed by the oxidation of nitrogen contained in the fuel. Natural gas contains negligible amounts of fuel-bound nitrogen and hydrocarbon radicals, although some molecular nitrogen is present. It is assumed that NOx emissions from the engines primarily originate as thermal NOx. The rate of formation of thermal NOx is a function of residence time and free oxygen and increases exponentially with peak flame temperature. NOx emissions control techniques are aimed at controlling one or more of these variables during combustion. Controlling the air-to-fuel ratio can also reduce the amount of NOx.

Step 1 – Identify All Available NOx Control Technologies

Methods to control NOx from RICE include both intrinsic emissions control as well as add-on control. The intrinsic emissions control for NOx includes good combustion practices and proper operation, which falls into the category of lean-burn combustion. Add-on controls for NOx emissions from RICE include Non-Selective Catalytic Reduction (NSCR) and Selective Catalytic Reduction (SCR).

Lean-burn engines are designed to operate with excess oxygen, which means a lean fuel mixture. The proposed project includes Caterpillar lean-burn, four-stroke engines. In the lean-burn combustion process, natural gas and air are premixed in a low fuel/air ratio before being fed into the cylinders. The lean-burn process efficiently reduces NOx emissions due to a lower combustion temperature. The Caterpillar RICE are also equipped with turbo chargers which increase the volume of air in the combustion chamber. Lean-burn engines have inherently low NOx emissions upstream of any add-on NOx controls.

Other control methods utilize add-on equipment to remove NOx from the exhaust gas stream after its formation. The most common control techniques involve the injection of urea or ammonia into the gas stream to reduce the NOx to molecular nitrogen and water. Urea/ammonia is either injected into the engine combustion chamber (in the case of NSCR) or injected with the use of a catalyst (SCR).

Step 2 - Eliminate Technically Infeasible Options

Lean Burn Combustion

The proposed RICE are lean-burn, four-stroke engines. Lean-burn engines may operate up to the lean flame extinction limit, with exhaust oxygen levels of 12 percent or greater. The air-to-fuel ratios of lean-burn engines range from 20:1 to 50:1 and are typically higher than 24:1. The Caterpillar lean-burn engines can also be characterized as "clean- burn" engines. Engines operating at high air-to-fuel ratios (greater than 30:1) may require combustion modification to promote stable combustion

with the high excess air. The RICE are designed with a turbocharger which is used to force more air than normally aspirated engines into the combustion chamber. Lean-burn combustion is technically feasible for application to the RICE.

NSCR

NSCR is an add-on/post-combustion technology that uses the residual hydrocarbons and CO in rich-burn engine exhaust as a reducing agent for NOx. In an NSCR, hydrocarbons and CO are oxidized by oxygen (O_2) and NOx. The excess hydrocarbons, CO and NOx, pass over a catalyst (usually a noble metal such as platinum, rhodium, or palladium) that reduces NOx to N_2. The NSCR technique is effectively limited to engines with normal exhaust oxygen levels of four percent or less. This includes four-stroke rich- burn naturally aspirated engines and some four-stroke rich-burn turbo-charged engines. Engines operating with NSCR require tight air-to-fuel control to maintain high reduction effectiveness without high hydrocarbon emissions. To achieve effective NOx reduction performance, the engine may need to be run with a richer fuel adjustment than normal. This exhaust excess oxygen level would probably be closer to one percent. The proposed lean-burn engines could not be retrofitted with NSCR control because of the reduced exhaust temperatures. NSCR is not considered to be technically feasible for application to the lean-burn RICE and is eliminated from further consideration.

SCR

SCR is an add-on/post-combustion technology that has been shown to be effective in reducing NOx in exhaust from RICE. An SCR system consists of an ammonia or urea storage, feed, and injection system, and a catalyst and catalyst housing. SCR systems selectively reduce NOx emissions by injecting ammonia or urea into the exhaust gas stream upstream of the catalyst. NOx, NH_3, and O_2 react on the surface of the catalyst to form N_2 and H_2O. For the SCR system to operate properly, the exhaust gas must be within a particular temperature range (typically between 450°F and 850°F). The temperature range is dictated by the catalyst (typically made from noble metals, base metal oxides such as vanadium and titanium, and zeolite-based material). Exhaust gas temperatures greater than the upper limit (850°F) will pass the NOx and NH_3 unreacted through the catalyst prior to the reaction.

SCR represents state-of-the-art controls for lean-burn four-stroke engine NOx removal. Because SCRs are commercially available and have been used on engines of this size and type, SCR is technically feasible for application to the RICE.

Step 3 - Rank Control Technologies by NOx Control Effectiveness

The table below shows the NOx reductions rates for both SCR and lean burn combustion. The designed NOx removal efficiency for SCR is approximately 90 to 94% depending on NOx inlet. Ranking of the control technologies was based on an emission rate in terms of lb/hr and grams per horsepower-hour (g/hp-hr). Ranking the control technologies in this manner provides a comparison to levels in the EPA RACT/BACT/LAER Clearinghouse (RBLC).

Table: Ranked NOx Control Technology Effectiveness

Control Technology	NOx Reduction (% control)	NOx Emission Rate (lb/hr)	NOx Emission Rate (g/bhp-hr)
SCR	90-94%	1.70	0.059
Lean-Burn Combustion	Baseline	27.22	0.948

Step 4 - Evaluate Most Effective NOx Controls and Document Results

The next step in the top-down BACT analysis is to review each of the technically feasible control options for environmental, energy, and economic impacts. First, all technically feasible controls will be discussed for environmental and energy impacts. Next, if the top control is not chosen, an economic analysis to determine capital and annual control costs in terms of cost-effectiveness (i.e., dollars per ton of pollutant removed) of each control system would be conducted. Because NWE has selected the top control (SCR), the following information is presented for informational purposes only.

SCR

Energy Impacts

As with all add-on controls, operation of an SCR system results in a loss of energy (also referred to as "parasitic load") due to the pressure drop across the SCR catalyst. To compensate for the energy loss in the SCR system, additional fuel combustion is required to maintain the net energy output, which also results in additional air pollutant emissions. The extra fuel required for the controls does not outweigh the benefit of reducing emissions of NOx.

Environmental Impacts

Ammonia will be used in the SCR. The SCR system consists of an ammonia injection system and a catalytic reactor. Unreacted ammonia may escape through to the exhaust gas. This is commonly called "ammonia slip." It is estimated that ammonia slip from an SCR on these engines could be up to 5 ppm, volumetric dry (ppmvd); this may be considered as an environmental impact (per the manufacturer's specifications). The ammonia that is released may also react with other pollutants in the exhaust stream to create fine PM in the form of ammonium salts, which is accounted for in the PM emissions estimate. SCR catalysts must also be replaced on a routine basis, and appropriately disposed of either in a landfill or by being recycled back to the manufacturer.

None of these impacts outweighs the benefit of reducing emissions of NOx because of the environmental and health benefits of reducing NOx emissions.

Economic Impacts

As SCR is being chosen and is the top control technology listed, no further economic discussion is necessary.

Lean-Burn Combustion

Energy Impacts

Lean-burn combustion is usually accompanied by an efficiency penalty (typically two to three percent) and an increase in power output (typically five to six percent). The increase in power output results from the increase in mass flow required to maintain engine inlet temperature at manufacturer's specifications. Because the associated power output increase offsets the efficiency penalty, no net energy impacts are associated with lean-burn combustion.

Environmental Impacts

Lean-burn combustion may increase CO and VOC emissions. However, this increase does not outweigh the advantage of decreased NOx emissions. CO and VOC emissions are addressed later in this BACT analysis.

Economic Impacts

Lean-burn combustion is intrinsic to the design of the Caterpillar RICE. Because lean-burn combustion is standard on the engines, no further economic analysis is necessary.

Step 5 – Select NOx BACT

Based on the information and analysis above, NOx BACT for the Caterpillar RICE is lean-burn combustion and the addition of SCR, the most effective available control. NWE proposed a maximum NOx emission limit of 1.70 lb/hr from each engine firing natural gas as steady-state BACT for this application based on a one-hour average. This rate is equivalent to 0.059 g/hp-hr for natural gas based on nominal hp ratings. RBLC entries for RICE are shown below. BACT determinations shown in the RBLC for engines that are in the 500 hp and greater size range located in attainment areas were in the range of 0.05 to 2.0 g/bhp-hr using lean-burn combustion and/or SCR for natural gas-fired engines. The proposed NOx emission limits for the RICE would be among the lowest emission rates listed in the RBLC.

RBLC ID	PERMIT DATE	CORPORATE/COMPANY NAMEFACILITY NAME	DESCRIP-TION	NOx POLLU-TION CONTROL	NOx EMISSION LIMIT (g/bhp-hr)	AVG PERIOD
KS-0035	01/24/2014	TRADEWIND ENERGY INC LACEYRANDALL GENERATINGSTATION	12,526 hp RICE	SCR	0.05	---
KS-0020	03/31/2016	MID-KANSAS ELECTRIC COMPANY,LLC - RUBART STATION	13,410 hp RICE	SCR	0.072	---
TX-0692	12/20/2013	SOUTH TEXAS ELECTRIC COOPERATIVE, INC. – RED GATEPOWER PLANT	18 MW RICE	SCR	0.084	---
CA-1222	9/22/2011	KYOCERA AMERICA INC;	2,328 hp RICE	SCR with process control NOx monitor	0.1	--

RBLC ID	PERMIT DATE	CORPORATE/COMPANY NAMEFACILITY NAME	DESCRIP-TION	NOx POLLU-TION CONTROL	NOx EMISSION LIMIT (g/bhp-hr)	AVG PERIOD
PA-0287	9/27/2011	MARKWEST LIBERTY MIDSTREAM &RESOURCES – WELLING COMPRESSOR STATION	1,980 hp RICE	3-way catalyst	0.2	--
LA-0292	01/22/2016	CAMERON INTERSTATE PIPELINELLC - HOLBROOK COMPRESSOR STATION	5,000 hp RICE	None	0.45	---
TX-0755	05/21/2015	DELAWARE BASIN MIDSTREAM LLC – RAMSEY GAS PLANT	41,229 MMBtu/ hrRICE	None	0.5	---
PA-0301	03/31/2014	MARKWEST LIBERTY MIDSTREAM &RESOURCES, LLC - CARPENTER COMPRESSOR STATION	3,550 hp RICE	AFR controller	0.5	---
MI-0440	05/22/2019	MICHIGAN STATE UNIVERSITY	16,500 hp RICE	SCR	0.5	---
TX-0680	06/04/2013	WTG SONORA GAS PLANT LLCSONORA GAS PLANT	1,380 hp RICE	ULNB	0.5	---
PA-0297	05/23/2013	KELLY IMG ENERGY LLC/KELLY IMGPLT	3.11 MW RICE	None	0.5	---
OK-0153	05/23/2013	KELLY IMG ENERGY LLC/KELLY IMGPLT	1,775 hp RICE	None	0.5	3-hour avg
MI-0393	10/14/2010	CONSUMERS ENERGY RAYCOMPRESSOR STATION	4,735 hp RICE	None	0.5	--
OK-0148	09/12/2012	MARKWEST BUFFALO CREEK GAS CO – BUFFALO CREEK PROCESSINGPLANT	2,370 hp RICE	None	0.55	---
LA-0257	12/06/2011	SABINE PASS LNG, LP – SABINEPASS LNG TERMINAL	2,012 hp RICE	Comply withNSPS JJJJ	2.0	--

The selection of these emissions values as BACT is justified via the vendor-provided emissions estimates and comparisons to the RBLC. The proposed NOx BACT conforms to previous BACT determinations made by MDEQ for RICE combusting natural gas.

CO BACT

CO emissions are a product of incomplete combustion. CO results when insufficient residence time at high temperature results in lack of completion of the final step in hydrocarbon oxidation. In RICE, CO emissions may indicate early quenching of combustion gases on cylinder walls or valve surfaces. CO emissions from engines are a function of oxygen availability (excess air), flame temperature, residence time at flame temperature, combustion zone design, and turbulence. Control of CO is normally accomplished by providing adequate fuel residence time and a high temperature in the combustion zone to ensure complete combustion. As previously mentioned, lean-burn engines typically have higher CO emissions and lower NOx emissions due to the air-to-fuel ratios at which they operate.

Step 1 – Identify All Available CO Control Technologies

Methods to control CO from RICE include both combustion control to prevent CO formation as well as add-on control. Available combustion emissions control for CO includes good combustion practices/proper operation (i.e., controlling the combustion process to suppress CO formation and monitoring that process through the air-to-fuel ratio). Add-on control for CO emissions from RICE involves the use of catalytic oxidation.

Step 2 - Eliminate Technically Infeasible Options

Good Combustion Practices/Control

Good combustion practices/control include operational and engine design elements to control the amount and distribution of excess air in the flue gas to ensure that there is enough oxygen present for complete combustion (controlling the air-to-fuel ratio). Good combustion practices are technically feasible for controlling CO emissions from the RICE.

Catalytic Oxidation

Oxidation catalysts are a post-combustion technology that does not rely on the introduction of additional chemicals for a reaction to occur. The oxidation of CO to CO_2 utilizes excess air present in the engine exhaust; the activation energy required for the reaction to proceed is lowered in the presence of a catalyst. Products of combustion are introduced into a catalytic bed, with the optimum temperature range for these systems being between 700°F and 1,100°F. At higher temperatures, catalyst sintering may occur, potentially causing permanent damage to the catalyst. The addition of a catalyst bed onto the engine exhaust will create a pressure drop, resulting in back pressure to the engine. This has the effect of reducing the efficiency of the engine and power generating capabilities. Catalytic oxidation is a technically feasible CO control technology for RICE.

Step 3 - Rank Control Technologies by CO Control Effectiveness

The table below lists the CO control technologies and emission rates for the technically feasible CO control options. Technically feasible control alternatives that remain are catalytic oxidation and good combustion practices. The designed CO removal efficiency for catalytic oxidation is 90-95% depending on the CO inlet for natural gas combustion. Ranking of the control technologies was based on an emission rate in terms of lb/hr and g/hp-hr (provided only for the purpose of comparing to emission levels in the RBLC).

Control Technology	**CO Reduction (% control)**	**CO Emission Rate (lb/hr)**	**CO Emission Rate (g/bhp-hr)**
Catalytic Oxidation	90-95%	1.59	0.055
Good Combustion Practices/Control (baseline)	Baseline	22.60	0.788

Step 4 - Evaluate Most Effective CO Controls and Document Results

The next step in the top-down BACT analysis is to review each of the technically feasible control options for environmental, energy, and economic impacts. First, all technically feasible controls will be discussed for environmental and energy impacts. Next, if the top control is not chosen, an economic analysis to determine capital and annual control costs in terms of cost-effectiveness (i.e., dollars per ton of pollutant removed) of each control system would be conducted. Because NWE has selected the top control (catalytic oxidation) in addition to good combustion practices/control, the following information is presented for informational purposes only.

Catalytic Oxidation

Energy Impacts

The addition of a catalyst bed onto the engine exhaust for the oxidation catalyst will create additional pressure drop, resulting in increased back pressure to the engine. This has the effect of reducing the efficiency of the engine and the power generating capabilities (parasitic load). These effects are considered minor compared to the reduction in CO (and VOC, see further discussion below) emissions from the use of an oxidation catalyst.

Environmental Impacts

The oxidation catalyst oxidizes CO to CO_2 which is released to the atmosphere. In addition, as with all controls that utilize catalysts for removal of pollutants, the catalyst must be disposed of after it is spent. The catalyst may be considered hazardous waste and require special treatment or disposal; even if it is not hazardous, it will add minor waste volume to landfills. The health and environmental benefits of reducing CO emissions outweigh these other environmental impacts.

Economic Impacts

As catalytic oxidation is being chosen and is the top control technology listed, no further economic discussion is necessary.

Good Combustion Practices/Control

Energy, Environmental, and Economic Impacts

Combustion controls are an intrinsic control designed to reduce pollution and increase efficiency of the engines. There are no energy, environmental, or economic impacts from this process. There is no "add-on" equipment associated with this control technology, and there is no capital cost associated with this control.

Step 5 – Select CO BACT

Based on the information and analysis above, CO BACT for the Caterpillar RICE is good combustion control and the addition of an oxidation catalyst, the most effective available control. RBLC entries for CO are shown in the below table.

RBLC ID	PERMIT DATE	CORPORATE/COMPANY NAME FACILITY NAME	DESCRIPTION	CO POLLUTION CONTROL	CO EMISSION LIMIT (g/bhp-hr)	AVG PERIOD
PA-0297	05/23/2013	KELLY IMG ENERGY LLC/KELLY IMG PLT	3.11 MW RICE	CO Catalyst	0.08	---
TX-0755	05/21/2015	DELAWARE BASIN MIDSTREAM LLC – RAMSEY GAS PLANT	41,229 MMBtu/hr RICE	Oxidation Catalyst	0.083	---
KS-0035	01/24/2014	TRADEWIND ENERGY INC LACEYRANDALL GENERATING STATION	12,526 hp RICE	Oxidation Catalyst	0.10	---
PA-0287	9/27/2011	MARKWEST LIBERTY MIDSTREAM & RESOURCES – WELLING COMPRESSOR STATION	1,980 hp RICE	Oxidation Catalyst	0.12	--
KS-0030	03/31/2016	MID-KANSAS ELECTRIC COMPANY, LLC - RUBART STATION	13,410 hp RICE	Oxidation Catalyst	0.13	---
TX-0680	06/04/2013	WTG SONORA GAS PLANT LLC SONORA GAS PLANT	1,380 hp RICE	Oxidation Catalyst	0.252	---
TX-0692	12/20/2013	SOUTH TEXAS ELECTRIC COOPERATIVE, INC. – RED GATE POWER PLANT	18 MW RICE	Oxidation Catalyst	0.30	---
MI-0440	05/22/2019	MICHIGAN STATE UNIVERSITY	16,500 hp RICE	Oxidation Catalyst	0.3	---
OK-0153	03/01/2013	SEMGAS LP – ROSE VALLEY PLANT	1,775 hp RICE	Oxidation Catalyst	0.36	3-hour avg
OK-0148	09/12/2012	MARKWEST BUFFALO CREEK GAS CO – BUFFALO CREEK PROCESSING PLANT	2,370 hp RICE	Oxidation Catalyst	0.55	---
LA-0257	12/06/2011	SABINE PASS LNG, LP – SABINE PASS LNG TERMINAL	2,012 hp RICE	Comply with NSPS JJJJ	4.4	--

NWE proposes that a maximum CO emission limit of 1.59 lb/hr per engine firing natural gas is steady-state BACT for this application based on a one-hour average. This rate is equivalent to 0.055 g/hp-hr for natural gas based on nominal hp ratings. The proposed CO BACT conforms to previous BACT determinations for RICE and is consistent with the RBLC. BACT determinations shown in the RBLC for engines that are in the 500 hp and greater size range located in attainment areas were in the range of 0.08 g/bhp-hr to 4.4 g/bhp- hr using either lean-burn combustion and/or oxidation catalyst/CO catalyst for natural gas-fired engines. During start-up and shutdown, higher levels of CO would occur and minimizing the number of startup and shutdown events will reduce emissions during these transient periods when the oxidation catalyst and other conditions are not optimum for CO control. Therefore, in addition to good combustion practices, restricting the total number of startup and shutdown events would represent BACT. The proposed CO steady state emission limits for the RICE would be the lowest emission rate as compared to those listed in the RBLC.

VOC BACT

Like CO, VOC emissions are a product of incomplete combustion. VOC emissions occur when some gas remains unburned or is only partially burned during the combustion process. With natural gas, some organics are unreacted trace constituents of

the gas, while others may be products of the heavier hydrocarbon constituents. Partially burned hydrocarbons result from inadequate air-to-fuel mixing before or during combustion or inefficient air-to-fuel ratios in the cylinder during combustion due to engine settings of the fuel system. Lean-burn engines typically have higher VOC emissions than rich-burn engines due to the respective air-to-fuel ratios at which they operate. The VOC emissions and BACT analysis are inclusive of formaldehyde.

Step 1 – Identify All Available VOC Control Technologies

The technologies identified for reducing VOC emissions from the RICE are the same as those identified for CO control: an oxidation catalyst and good combustion practices/control. The standard technology for reducing VOC emissions is to maintain "good combustion" through proper control and monitoring of the combustion process through the air-to-fuel ratio. An RBLC review indicates that oxidation catalysts are the predominant control listed as BACT for VOC.

Step 2 - Eliminate Technically Infeasible Options

Good Combustion Practices/Control

"Good combustion practices/control" include operational and engine design elements to control the amount and distribution of excess air in the flue gas to ensure that there is enough oxygen present for complete combustion (controlling the air-to-fuel ratio). Good combustion practices are technically feasible for controlling VOC emissions from the RICE.

Catalytic Oxidation

Oxidation catalysts are a post-combustion technology that do not rely on the introduction of additional chemicals for a reaction to occur. The oxidation of VOC to H_2O and CO_2 utilizes excess air present in the engine exhaust; the activation energy required for the reaction to proceed is lowered in the presence of a catalyst. Products of combustion are introduced into a catalytic bed, with an optimum temperature range for these systems of 700°F to 1,100°F. At higher temperatures, catalyst sintering may occur, potentially causing permanent damage to the catalyst. The addition of a catalyst bed onto the engine exhaust will create a pressure drop, resulting in back pressure to the engine. This has the effect of reducing the efficiency of the engine and power generating capabilities.

Catalytic oxidation is a technically feasible control technology for controlling VOC emissions from the RICE.

Step 3 - Rank Control Technologies by VOC Control Effectiveness

The table below lists the VOC control technologies and emission rates for the technically feasible VOC control options. Technically feasible control alternatives that remain are catalytic oxidation and good combustion practices/control. The designed VOC removal efficiency for catalytic oxidation is approximately 22 to 50% (90-95% for formaldehyde) depending on the VOC (and formaldehyde) inlet for natural gas combustion. Ranking of the control technologies was based on an emission rate in terms of lb/hr and g/hp-hr (provided only for the purpose of comparing to emission

levels in the RBLC).

Control Technology	VOC Reduction (% control)	VOC Emission Rate (lb/hr)	VOC Emission Rate (g/bhp-hr)
Catalytic Oxidation	22-55% for VOC 90-95% for formaldehyde	2.44	0.085
Good Combustion Practices/Control (baseline)	Baseline	6.97	0.244

Step 4 - Evaluate Most Effective VOC Controls and Document Results

The next step in the top-down BACT analysis is to review each of the technically feasible control options for environmental, energy, and economic impacts. First, all technically feasible controls will be discussed for environmental and energy impacts. Next, if the top control is not chosen, an economic analysis to determine capital and annual control costs in terms of cost-effectiveness (i.e., dollars per ton of pollutant removed) of each control system would be conducted. Because NWE has selected the top control (catalytic oxidation) in addition to good combustion practices/control, the following information is presented for informational purposes only.

Catalytic Oxidation

Energy Impacts

The addition of a catalyst bed onto the engine exhaust for the oxidation catalyst will create additional pressure drop, resulting in increased back pressure to the engine. This has the effect of reducing the efficiency of the engine and the power generating capabilities (parasitic load). These effects are considered minor compared to the reduction in VOC emissions (see further discussion below) from the use of an oxidation catalyst.

Environmental Impacts

The oxidation catalyst oxidizes VOC to H_2O and CO_2 which is released to the atmosphere. In addition, as with all controls that utilize catalysts for removal of pollutants, the catalyst must be disposed of after it is spent. The catalyst may be considered hazardous waste and require special treatment or disposal; even if it is not hazardous, it will add minor waste volume to landfills. The health and environmental benefits of reducing VOC emissions outweigh these other environmental impacts. In addition, the oxidation catalyst is also effective at reducing formaldehyde emissions at a level similar to that of VOCs. Formaldehyde is also regulated for this facility under 40 CFR 63, Subpart ZZZZ. The RICE will be subject to a formaldehyde emissions limit of either 14 ppmvd or a minimum of 93% reduction at 15% O_2 in CO emissions as a surrogate under that standard.

Impacts

As catalytic oxidation is being chosen and is the top control technology listed, no

further economic discussion is necessary.

Good Combustion Practices/Control

Energy, Environmental, and Economic Impacts

Combustion controls are designed to reduce the formation of pollutants and increase efficiency of the engines. There are no energy, environmental, or economic impacts resulting from improved combustion controls. There is no "add-on" equipment associated with this control technology, and there is no capital cost associated with this control.

Step 5 – Select VOC BACT

Based on the information and analysis above, VOC BACT for the Caterpillar RICE is good combustion practices/control and the addition of oxidation catalyst (representing the highest level of control). NWE proposes a steady state maximum VOC emission limit of 2.44 lb/hr for VOCs including formaldehyde per engine firing natural gas is steady-state BACT for this application based on a one-hour average. This rate is equivalent to 0.085 g/hp-hr for full load operation (based on nominal hp ratings). During start-up and shutdown, higher levels of VOCs would occur and minimizing the number of startup and shutdown events will reduce emissions during these transient periods when the oxidation catalyst and other conditions are not optimum for VOC control. Therefore, in addition to good combustion practices, restricting the total number of startup and shutdown events would represent BACT. RBLC entries for RICE are shown below.

RBLC ID	PERMIT DATE	CORPORATE/COMPANY NAME FACILITY NAME	DESCRIPTION	VOC POLLUTION CONTROL	VOC EMISSION LIMIT (g/bhp-hr)	AVG PERIOD
TX-0755	05/21/2015	DELAWARE BASIN MIDSTREAM LLC – RAMSEY GAS PLANT	41,229 MMBtu/hr RICE	Oxidation Catalyst	0.091	---
KS-0035	01/24/2014	TRADEWIND ENERGY INC LACEYRANDALL GENERATING STATION	12,526 hp RICE	Oxidation Catalyst	0.10	---
LA-0292	01/22/2016	CAMERON INTERSTATE PIPELINE INC – HOLBROOK COMPRESSOR STATION	5,000 hp RICE	Oxidation Catalyst	0.11	---
PA-0287	9/27/2011	MARKWEST LIBERTY MIDSTREAM & RESOURCES – WELLING COMPRESSOR STATION	1,980 hp RICE	Oxidation Catalyst	0.12	--
OK-0153	03/01/2013	SEMGAS LP – ROSE VALLEY PLANT	1,775 hp RICE	Oxidation Catalyst	0.13	3-hour avg
CA-1222	9/22/2011	KYOCERA AMERICA INC	2,328 hp RICE	Oxidation Catalyst	0.15	--
PA-0297	05/23/2013	KELLY IMG ENERGY LLC/KELLY IMG PLT	3.11 MW RICE	CO Catalyst	0.176	---

RBLC ID	PERMIT DATE	CORPORATE/COMPANY NAME FACILITY NAME	DESCRIPTION	VOC POLLUTION CONTROL	VOC EMISSION LIMIT (g/bhp-hr)	AVG PERIOD
MI-0393	10/14/2010	CONSUMERS ENERGY – RAY COMPRESSOR STATION	4,735 hp RICE	Oxidation Catalyst	0.19	--
KS-0030	03/31/2016	MID-KANSAS ELECTRIC COMPANY, LLC - RUBART STATION	13,410 hp RICE	Oxidation Catalyst	0.20	---
TX-0680	06/04/2013	WTG SONORA GAS PLANT LLC SONORA GAS PLANT	1,380 hp RICE	Oxidation Catalyst	0.245	---
PA-0301	03/31/2014	MARKWEST LIBERTY MIDSTREAM & RESOURCES, LLC - CARPENTER COMPRESSOR STATION	3,550 hp RICE	Oxidation Catalyst	0.25	---
TX-0692	12/20/2013	SOUTH TEXAS ELECTRIC COOPERATIVE, INC. – RED GATE POWER PLANT	18 MW RICE	Oxidation Catalyst	0.30	---
MI-0440	05/22/2019	MICHIGAN STATE UNIVERSITY	16,500 hp RICE	Oxidation Catalyst	0.7	---

The selection of these emissions values as BACT is justified via the vendor-provided emissions estimates and the RBLC entries. The proposed VOC BACT conforms to previous BACT determinations made by MDEQ for natural gas combustion units and conforms to the RBLC search as shown in the table below. As previously mentioned, the VOC BACT includes control of formaldehyde emissions. BACT determinations shown in the RBLC above for engines that are in the 500 hp and greater size range located in attainment areas were in the range of 0.091 g/bhp-hr to 0.7 g/bhp-hr using catalytic oxidation for natural gas-fired engines. The proposed VOC (with formaldehyde) emission limits for the RICE would be the lowest emission rate as compared to those listed in the RBLC.

SO_2 BACT

SO_2 emissions from natural gas combustion are directly attributed to fuel sulfur content: either sulfates from fuel sulfur or mercaptans used as odorants. No additional sulfur originates from the process. The total potential emissions for SO_2 are 0.79 tpy per unit and 14.2 tpy for all 18 Caterpillar RICE.

Because of the extremely low sulfur concentrations and resulting large costs per ton of SO_2 removed, post-combustion controls, such as flue gas desulfurization units ("scrubbers"), have not been applied to commercial natural gas engines. In addition, no vendors of the RICE considered for meeting NWE's dispatchable power needs have identified any similar engines that have SO_2 control devices. The RBLC search includes no additional control, use of pipeline quality natural gas, and good combustion practices. The use of add-on SO_2 control such as scrubbers is both technically infeasible and does not represent available control technology.

NWE proposes that the use of proper combustion practices coupled with the use of pipeline quality natural gas is steady-state BACT. This is expected to provide a maximum SO_2 emission limit of 0.17 lb/hr per engine based on a one- hour average. The proposed SO_2 BACT conforms to previous BACT determinations made by MDEQ for natural gas combustion units.

$PM/PM_{10}/PM_{2.5}$ BACT

Particulate matter (PM) (including total particulate, PM_{10} and $PM_{2.5}$) emissions from natural gas combustion sources consist of several components. These can include inert contaminants in natural gas, sulfates from fuel sulfur or mercaptans used as odorants, dust drawn in from the ambient air, and particulate of carbon and hydrocarbons resulting from incomplete combustion. Units firing fuels with low ash content (such as pipeline quality natural gas) and high combustion efficiency exhibit correspondingly low particulate emissions.

Because of their extremely low particulate concentrations and resulting large costs per ton of particulate matter removed, post-combustion controls, such as electrostatic precipitators (ESPs) or baghouses, have not been applied to commercial gas-fired engines. In addition, no vendors of the RICE considered for meeting NWE's dispatchable power needs have identified any similar engines that have particulate control devices. No add-on controls for PM were found in the RBLC search. The use of add-on particulate control such as ESPs or baghouses is both technically infeasible and does not represent available control technology in use for these types of units.

NWE proposes that a maximum PM/PM_{10} emission limit of 0.96 lb/hr per engine and a maximum $PM_{2.5}$ emission limit of 0.36 lb/hr per engine, achieved through the use of proper generating unit design and operation coupled with the use of pipeline quality natural gas, is steady-state BACT for this application based on a one-hour average. This limitation includes both filterable and condensable $PM/PM_{10}/PM_{2.5}$ emissions. The proposed $PM/PM_{10}/PM_{2.5}$ BACT conforms to previous BACT determinations made by MDEQ for natural gas combustion units.

Emergency Generator

NWE is proposing to use minimum EPA Tier II and III rated engines (for the backup emergency generator and the emergency fire pump engine, respectively). Therefore, both engines are subject to the EPA Tier/nonroad standards as well as the backup emergency generator being subject to NSPS Subpart IIII for RICE. In addition, the two engines would both be limited in use (maximum of 300 hours per year) based on their emergency status.

BACT for these engines is compliance with those applicable requirements. The proposed BACT conforms to previous BACT determinations made by MDEQ for similar-sized diesel engines.

Dew Point Heater

The Dew Point Heater is a small natural gas-fired heater, rated at 1.11 MMBtu/hr. The highest criteria pollutant emission rates for this heater are 0.38 tpy of CO and 0.46 tpy of NOx. Based on the small size of the heater and the minimal emissions generated, no add-on control technology would be economically feasible. Emissions of all criteria pollutants will be minimized through the combustion of natural gas and by following good combustion practices for this unit.

The combustion of pipeline quality natural gas and following good combustion practices is proposed as BACT for the Dew Point Heater. The proposed BACT conforms to previous BACT determinations made by MDEQ for similar sized natural gas heaters.

The control options selected have controls and control costs comparable to other recently permitted similar sources and are capable of achieving the appropriate emission standards.

III. Emission Inventory

Laurel Generating Station Potential to Emit							
	Total PM (tpy)	Total PM_{10} (tpy)	Total $PM_{2.5}$ (tpy)	NO_X (tpy)	SO_2 (tpy)	CO (tpy)	VOC[a] (tpy)
Engines (Total)	75.5	75.5	28.3	217.3	14.1	243.4	214.8
Emergency Generator	0.1	0.1	0.1	4.3	0.0	2.3	0.3
Firepump Engine	0.0	0.0	0.0	0.3	0.0	0.3	0.1
Dew Point Heater	0.0	0.0	0.0	0.5	0.0	0.4	0.0
Fugitive Road Dust	0.3	0.1	0.0	-	-	-	-
Totals	75.9	75.7	28.4	222.4	14.1	246.4	215.2
a VOC emissions include formaldehyde							

Total PM_{10} emissions include PM10(fil) + PM(cond)
Total $PM_{2.5}$ emissions include PM10(fil) + PM(cond)
Total Particulate Matter emissions include PM(fil) + PM(cond)
CO = carbon monoxide
(fil) = filterable
HAPs = hazardous air pollutants
hp = horsepower
lb = pound
NO_X = oxides of nitrogen
PM = particulate matter
PM_{10} = particulate matter with an aerodynamic diameter of 10 microns or less
$PM_{2.5}$ = particulate matter with an aerodynamic diameter of 2.5 microns or less
SO_2 = sulfur dioxide
TPH = tons per hour
TPY = tons per year
VOC = volatile organic compounds
yr = year

Footnotes:

Inventory for the RICE reflects maximum allowable emissions for all pollutants based on maximum production and year-round operation (8,760 hours). The facility did not take limits on production or hours of operation. There are assumptions built into the 8,760 hours regarding the number of start-up and shutdown events for each engine on an annual basis. Hours of normal operation per year is 8,515 hours of normal operation with 245 hours of startup and shutdown each year. Emission calculations are based on normal operation plus emissions from both startup and shutdown events. Startup events are divided into cold startups and warm startups. The emergency generator and fire-pump engine are each expected to operate up to 300 hours per year.

Fuel Characteristics

Natural Gas

Higher Heating Value	22421	btu/lb
	1086	btu/scf
Sulfur Content	0.005	grains/scf
Carbon Content	70	% wt

40 CFR 98 Table C-1 Emission Factors		
CO2	53.06	kg /mmBtu
	117.0	lb/mmBtu
CH4	1.0E-03	kg /mmBtu
	0.0022	lb/mmBtu
N2O	1.0E-04	kg /mmBtu
	0.00022	lb/mmBtu

Source and Performance Parameters

max hours of operation	8760	hours/year
Hours of Operation - NG	8515	hours/year
Hours of Startup/Shut Down	245	hours/year
Startup/Shut Down per Unit (total)	1825	events/year
Number of Units	18	
Performance Safety Margin	0%	
Horsepower rating (per unit)	13008	hp

Emissions Summary - Baseload

Pollutant	Description		Max Emissions	Converted to g/bhp-hr
Total PM/PM_{10} (Filterable + Condensible)	Vendor	lb/mmBtu		
	Cat Guarantee	**lb/hr**	0.96	0.033
Total $PM_{2.5}$ (Filterable + Condensible)	Cat. Guarantee	**lb/mmBtu**		
	Cat Guarantee	**lb/hr**	0.36	0.013
NOx as NO_2	Vendor	lb/mmBtu		
	Cat Guarantee	**lb/hr**	1.70	0.059
SO_2	Vendor	lb/mmBtu		
	Cat Guarantee	**lb/hr**	0.17	0.006
CO	Vendor	lb/mmBtu		
	Cat Guarantee	**lb/hr**	1.59	0.055
VOC	Vendor	lb/mmBtu		
	Cat Guarantee	**lb/hr**	2.00	0.070
Formaldehyde	Vendor	**lb/hr**	0.44	
	Calculated	lb/MMBtu		0.015
CO_2	Vendor	lb/MWh gross		
	Vendor	**lb/hr**		
	calculated from power output	lb/hr		
	40 CFR 98 Table C-1	lb/hr		

	Maximums	lb/hr	9753	
	calculated from heat input	lb/MMBtu		
CH_4	40 CFR 98 Table C-1	lb/hr	0.18	
N_2O	40 CFR 98 Table C-1	lb/hr	0.018	

Annual emissions			
	Max mass emissions rate	Max PTE w/SUSD Case	18 engines
Pollutant	(lb/hr)	(tpy)	(tpy)
Total PM PM10 (Filterable + Condensible)	0.96	4.2	75.5
Total PM2.5 (Filterable + Condensible)	0.36	1.6	28.3
NOx as NO2	1.70	12.1	217.3
SO_2	0.17	0.8	14.1
CO	1.59	13.5	243.4
VOC	2.00	9.2	165.4
Formaldehyde	0.44	2.7	49.4

Backup emergency generator

Diesel S content =	0.015	%
Horsepower =	2682	bhp
Hours of Operation =	300	hr/yr
Max. Fuel Combustion Rate =	18.774	MMBtu/hr
Fuel Heating Value=	1000	MMBtu/MMscf
Avg BSFC =	7000	Btu/hp-hr

Pollutant	**Emission Factor**	**Units**	**Emission Factor Reference**	**Potential Emissions (ton/yr)**
PM/PM10/PM2.5	0.15	g/bhp-hr	EPA Tier II	0.13
NOx	4.8	g/bhp-hr	EPA Tier II	4.26
CO	2.6	g/bhp-hr	EPA Tier II	2.31
SOx	0.000012	lb/bhp-hr	AP-42 Table 3.4-1 (10/96)	0.0049
VOC	7.05E-04	lb/bhp-hr	AP-42 Table 3.4-1 (10/96)	0.28
CO_2	1.160000	lb/bhp-hr	AP-42 Table 3.4-1 (10/96)	466.67
CH_4	0.000705	lb/bhp-hr	AP-42 Table 3.4-1 (10/96)	0.28
N_2O	0.000600	kg/MMBtu	40 CFR 98, Subpart C, Table C-2	0.00
CO_{2e}	-			474.87
HAPs	See table below			0.01

Hazardous Air Pollutants (HAPs)

Pollutant	CAS No.	Emission Factor	Units	Emission Factor Reference	Potential Engine Emissions (ton/yr)
Benzene	71-43-2	7.76E-04	lb/MMBtu	AP-42, Table 3.4-3	2.19E-03
Toluene	87-86-5	2.81E-04	lb/MMBtu	AP-42, Table 3.4-3	7.91E-04
Xylenes	1330-20-7	1.93E-04	lb/MMBtu	AP-42, Table 3.4-3	5.44E-04
Propylene	115-07-1	2.79E-03	lb/MMBtu	AP-42, Table 3.4-3	7.86E-03
Formaldehyde	50-00-0	7.89E-05	lb/MMBtu	AP-42, Table 3.4-3	2.22E-04
Acetaldehyde	91-20-3	2.52E-05	lb/MMBtu	AP-42, Table 3.4-3	7.10E-05
Acrolein	107-02-8	7.88E-06	lb/MMBtu	AP-42, Table 3.4-3	2.22E-05
				Totals	**1.17E-02**

Backup emergency fire pump engine

Diesel S content	0.015	%
Horsepower =	315	bhp
Hours of Operation =	300	hr/yr
Max. Fuel Combustion Rate =	2.21	MMBtu/hr
Fuel Heating Value=	1000	MMBtu/MMscf
Avg BSFC =	7000	Btu/hp-hr

Pollutant	Emission Factor	Units	Emission Factor Reference	Potential Emissions (ton/yr)
PM/PM10/PM2.5	0.15	g/bhp-hr	EPA Tier III	0.02
NOx	3	g/bhp-hr	EPA Tier III	0.31
CO	2.6	g/bhp-hr	EPA Tier III	0.27
Sox	0.000012	lb/bhp-hr	AP-42 Table 3.4-1 (10/96)	0.00057
VOC	1	g/bhp-hr	EPA Tier III	0.10
CO_2	1.080000	lb/bhp-hr	AP-42 Table 3.4-1 (10/96)	51.03
CH_4	0.000705	lb/bhp-hr	AP-42 Table 3.4-1 (10/96)	0.03
N_2O	0.000600	kg/MMBtu	40 CFR 98, Subpart C, Table C-2	0.00
CO_{2e}	-			51.99
HAPs	See table below			0.00

Hazardous Air Pollutants (HAPs)

Pollutant	CAS No.	Emission Factor	Units	Emission Factor Reference	Potential Engine Emissions (ton/yr)
Benzene	71-43-2	9.33E-04	lb/MMBtu	AP-42, Table 3.3-2	3.09E-04

Toluene	87-86-5	4.09E-04	lb/MMBtu	AP-42, Table 3.3-2	1.35E-04
Xylenes	1330-20-7	2.85E-04	lb/MMBtu	AP-42, Table 3.3-2	9.43E-05
Propylene	115-07-1	2.58E-03	lb/MMBtu	AP-42, Table 3.3-2	8.53E-04
1,3- Butadiene	106-99-0	3.91E-05	lb/MMBtu	AP-42, Table 3.3-2	1.29E-05
Formaldehyde	50-00-0	1.18E-03	lb/MMBtu	AP-42, Table 3.3-2	3.90E-04
Acetaldehyde	91-20-3	7.67E-04	lb/MMBtu	AP-42, Table 3.3-2	2.54E-04
Acrolein	107-02-8	9.25E-05	lb/MMBtu	AP-42, Table 3.3-2	3.06E-05
Polycyclic aromatic hydrocarbons (PAH)	110-54-3	1.68E-04	lb/MMBtu	AP-42, Table 3.3-2	5.56E-05
				Totals	**2.13E-03**

Dew Point Heater

Max. Fuel Combustion Rate =	1.11	MMBtu/hr
Fuel Usage =	9.16	MMscf/yr
Hours of Operation =	8,760	hr/yr
Fuel High Heating Value=	1,061	MMBtu/MMscf
Conversions:	453.59	grams/lb
	2000	lbs/ton

Criteria Pollutants (HAPs)

Pollutant	Emission Factor	Units	Emission Factor Reference	Emissions (lbs/hr)	Emissions (tons/yr)
PM	7.6	lb/MMscf	AP-42 Table 1.4-2 (07/98)	7.95E-03	0.03
NOx	100	lb/MMscf	AP-42 Table 1.4-1 (07/98)	1.05E-01	0.46
CO	84	lb/MMscf	AP-42 Table 1.4-1 (07/98)	8.79E-02	0.38
VOC	5.5	lb/MMscf	AP-42 Table 1.4-2 (07/98)	5.75E-03	0.03
SO_2	5.71	lb/MMscf	Calculated, 2 gr/100 scf	5.97E-03	0.03
CO_2	148774.0	lb/MMscf	AP-42 Table 1.4-2 (07/98)	1.56E+02	681.72
CH_4	0.001	kg/MMBtu	40 CFR 98, Subpart C, Table C-2	2.45E-03	0.01
N_2O	0.0001	kg/MMBtu	40 CFR 98, Subpart C, Table C-2	2.45E-04	0.00

Hours of Operation =	300	hr/yr
Max. Fuel Combustion Rate =	2.21	MMBtu/hr
Fuel Heating Value=	1000	MMBtu/MMscf
Avg BSFC =	7000	Btu/hp-hr

Pollutant	Emission Factor	Units	Emission Factor Reference	Potential Emissions (ton/yr)
PM/PM10/PM2.5	0.15	g/bhp-hr	EPA Tier III	0.02

NOx	3	g/bhp-hr	EPA Tier III	0.31
CO	2.6	g/bhp-hr	EPA Tier III	0.27
Sox	0.000012	lb/bhp-hr	AP-42 Table 3.4-1 (10/96)	0.00057
VOC	1	g/bhp-hr	EPA Tier III	0.10
CO_2	1.080000	lb/bhp-hr	AP-42 Table 3.4-1 (10/96)	51.03
CH_4	0.000705	lb/bhp-hr	AP-42 Table 3.4-1 (10/96)	0.03
N_2O	0.000600	kg/MMBtu	40 CFR 98, Subpart C, Table C-2	0.00

V. Existing Air Quality

The air quality classification for the immediate area is "Unclassifiable or Better Than National Standards" (40 CFR 81.327) for all pollutants, apart from sulfur dioxide (SO_2). The site location is within the Laurel SO_2 nonattainment area (NAA) for the 1971 primary SO_2 National Ambient Air Quality Standards (NAAQS). This NAA is a 2-kilometer (km) (1.2 miles, mi) radius circle centered on the geographic center of the CHS Laurel Refinery. The proposed facility does not constitute a significant increase in SO_2 due to the use of clean burning natural gas as the primary fuel for the RICE. The Department expects that a future redesignation effort will show compliance with the 1971 SO_2 standard.

VI. Ambient Air Impact Analysis

Bison Engineering (Bison) conducted air quality modeling for the proposed facility as part of NWE's Laurel Generating Station (LGS) air quality permit application. This ambient air impact analysis was conducted, pursuant to the requirements of ARM 17.8.749, to demonstrate that the proposed modification would not cause or contribute to a violation of any state or federal ambient air quality standard. The proposed project is not categorized as a major Prevention of Significant Deterioration (PSD) application.

The new LGS proposed emission PTEs are above the modeling thresholds listed in Montana's draft Modeling Guideline for PM_{10}, $PM_{2.5}$, NO_2, and CO, and warrant further analyses. Emission increases were first modeled to determine if any model receptors exceeded the Class II Significant Impact Levels (SILs), presented in Table VI-1. For those pollutant and averaging times that exceed the applicable SILs, NWE demonstrated compliance with NAAQS, MAAQS, and PSD Increments, also presented in Table VI-1. For this project, PM_{10} 24-hour, PM_{10} annual, $PM_{2.5}$ 24-hour, $PM_{2.5}$ annual, NO_2 1-hour and NO_2 annual Class II SILs were exceeded, which then warranted NAAQS, MAAQS and analyses for applicable pollutant/time periods. Additionally, compliance was shown for Class II Increment, and a Class I SIL analysis was performed to ensure that the project would not adversely affect the closest Class I area, the North Absaroka Wilderness Area.

Table VI-1 Applicable standards

Pollutant	Averaging Period	Class I SIL ($\mu g/m^3$)	Class II SIL ($\mu g/m^3$)	Primary NAAQS ($\mu g/m^3$)	MAAQS ($\mu g/m^3$)	Class I Increment ($\mu g/m^3$)	Class II Increment ($\mu g/m^3$)
PM_{10}	24-hour	0.3	5	150	150	8	30
	Annual	0.2	1	-	50	4	17
$PM_{2.5}$	24-hour	0.27	1.2	35	-	2	9
	Annual	0.051	0.2	12	-	1	4
NO_2	1-hour	-	7.5	188	564	-	-
	Annual	0.1	1	100	94	2.5	25
CO	1-hour	-	2,000	40,000	26,000	-	-
	8-hour	-	500	10,000	10,000	-	-
O_3	8-hour	-	1.96	137	-	-	-

The SIL, Increment, and MAAQS/NAAQS compliance demonstrations were conducted using the latest available version of EPA-approved American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) and associated preprocessors. Specifically:

- AERMOD version 19191: Air dispersion model.
- AERMET version 19191: processes NWS meteorological data for input to AERMOD.
- AERMINUTE version 15272: processes 1-minute NWS wind data to generate hourly average winds for input to AERMET.
- AERSURFACE version 20060: processes 1992 National Land Cover Data surface characteristics for input to AERMET.
- AERMAP version 18081: Processes National Elevation Data from the USGS to determine elevation of sources and receptors for input into AERMOD.
- BPIPPRM version 04274: characterizes building downwash for input to AERMOD.
- Oris Solution's BEEST Graphical User Interface, Version 12.05.

Regulatory default options were used for all model runs. Rural dispersion coefficients were applied, as all of Montana currently meets this criterion. All buildings at the site were evaluated for building downwash on each modeled point source, using BPIPPRM.

Five years of metrological data (2015-2019) ready for use in AERMOD was constructed using representative surface and upper air data. Surface air data was obtained from the closest National Weather Service (NWS) station, which is located approximately 14 miles to the northeast of the project site, at the Billings Logan International Airport (KBIL – WBAN 24033). This NWS station also provided the automated surface observing system (ASOS) one-minute data used with AERMINUTE. The Great Falls Upper Air station (KGTF – WBAN 24143) was used for upper air data. The ADJ_U* option was employed in AERMET to account for stable, low wind speeds.

A series of nested receptor grids were used in the model to calculate the ambient air impacts around the project location. Discrete receptors were placed at 25 m spacing along the site's ambient air boundary, 50 m spacing from the site's ambient air boundary to 500 m from the site, 100 m spacing from 500 m to 1 km from the site, 250 m spacing from 1 km to 3 km from the site, 500 m spacing from 3 km to 10 km, and 1000 m spacing from 10 km to 50 km, totaling 13,965 receptor locations. Significantly impacted receptors (receptors with modeled concentrations equal to or greater than their respective Class II SILs) were used for the NAAQS/MAAQS and applicable Increment analyses.

The source and building elevations at the site were based on the existing graded elevation. Receptor elevations and regional inventory source elevations were determined using the terrain preprocessor AERMAP and elevation data based on 1/3 arc-second (approximately 10 m resolution) National Elevation Dataset (NED) from the United States Geological Survey (USGS).

Background monitors were selected from Montana's Air Quality Monitoring Network Plan (May 2019), based on the closest and most representative sites with available data. The following applicable $PM_{2.5}$, PM_{10}, and NO_2 monitoring sites were identified for use for background concentrations. For PM_{10} (24-hour and annual) design values calculated from the monitor at Lewistown (30-027-0006) were used. For NO_2, design values were also calculated from the Lewistown site (30-027-0006). For $PM_{2.5}$ (24-hour and annual), data was stitched

together from two sites in Billings, the St. Lukes monitor (30-111-0085) from January 2016 through December 2017, and the Lockwood monitor (30-111-0087) from December 2017 through December 2018. When applicable, the background concentrations were calculated both including and excluding exceptional events to illustrate the impacts of wildfires on the background levels and are displayed in Table VI-2.

Table VI-2 Applicable Background concentrations

Pollutant	Averaging Time	Background Conc. ($\mu g/m^3$)[(1)]	Basis	Site	Background Conc. ($\mu g/m^3$)[(2)]
$PM_{2.5}$	24-hour	16.1	Maximum 24-hour avg.	Billings – St. Lukes (30-111-0085) and Lockwood (30-111-0087) (years: 2016-2018)	24.2
	Annual	6.5	3-year Annual avg.		7.5
PM_{10}	24-hour	32	Avg. of yearly 2nd max 24-hour value	Lewistown (30-027-0006) (years: 2016-2018)	65
	Annual	8.5	3-year Annual avg.		10
NO_2	1-hour	18.8 (10 ppb)	Avg 98% of daily 1-hour max	Lewistown (30-027-0006) (years: 2017-2019)	-
	Annual	1.1 (0.59 ppb)	3-year Annual avg.		-

[(1)]Data excludes all exceptional event data in the calculations.
[(2)]Data includes all exceptional event data in the calculations.

Data with exceptional events removed was used for all purposes in this analysis. The background concentrations are added to the modeled concentrations in the NAAQS/MAAQS analyses.

For the NO_2 modeling analyses, Tier 2 (Ambient Ratio Method, ARM2) was employed in AERMOD, with the EPA default minimum and maximum ambient ratios of 0.5 and 0.9, respectively (ratio of NO_2/NO_x).

Source parameters were provided by NWE; all were modeled as "point" sources in AERMOD and their descriptions are displayed in Table VI-3.

Table VI-3 Onsite Source Descriptions

Source ID	Source Description	Source Category	Source Type
RICE10_1	9.7 MW NG 100 (G)	New Source	POINT
RICE10_2	9.7 MW NG 100 (G)	New Source	POINT
RICE10_3	9.7 MW NG 100 (G)	New Source	POINT
RICE10_4	9.7 MW NG 100 (G)	New Source	POINT
RICE10_5	9.7 MW NG 100 (G)	New Source	POINT
RICE10_6	9.7 MW NG 100 (G)	New Source	POINT
RICE10_7	9.7 MW NG 100 (G)	New Source	POINT
RICE10_8	9.7 MW NG 100 (G)	New Source	POINT
RICE10_9	9.7 MW NG 100 (G)	New Source	POINT
RICE10_10	9.7 MW NG 100 (G)	New Source	POINT
RICE10_11	9.7 MW NG 100 (G)	New Source	POINT
RICE10_12	9.7 MW NG 100 (G)	New Source	POINT
RICE10_13	9.7 MW NG 100 (G)	New Source	POINT
RICE10_14	9.7 MW NG 100 (G)	New Source	POINT
RICE10_15	9.7 MW NG 100 (G)	New Source	POINT
RICE10_16	9.7 MW NG 100 (G)	New Source	POINT
RICE10_17	9.7 MW NG 100 (G)	New Source	POINT
RICE10_18	9.7 MW NG 100 (G)	New Source	POINT
DPHTR	Dew Point Heater	New Source	POINT
EDG	Emergency Diesel Generator	New Source	POINT
FIREPUMP	Fire Pump Generator	New Source	POINT

Class II SIL Air Quality Analysis

Modeling was performed to identify receptors at which the proposed facility creates a modeled impact higher than the respective SIL concentration for each pollutant and averaging period. For this analysis, all new source emissions were considered. Four load profile operating scenarios (100% Load Guaranteed, "100G"; 100% Load Annual Average, "100A"; 75% Load, "75"; and Minimum Environmental Compliance Load, "MECL") plus startup-shutdown (SUSD) emissions were modeled to capture the highest ambient impacts. SUSD were evaluated for NO_x and CO, whose emission rates were greater than steady-state emissions (8.38 lb/hr NO_x; 13.13 lb/hr CO). The new sources were modeled at their hourly peak potential emissions for short term averaging periods, and their annual emissions for the annual averaging periods, based on 8,760 hours per year per engine, 8,760 hours per year per heater, and 300 hours per year for emergency fire pump generator and diesel-fired generator. The steady-state emission rates which produced the highest impacts are displayed in Table VI-4 (scenario 100A for CO, and scenario 100G for other pollutants). The receptors which exceeded the SIL for each pollutant and averaging period were retained for further analyses. Additionally, SIL receptors that exceeded the SIL levels for all operating scenario runs (per pollutant) were retained for the respective full impact analyses, to ensure that the analysis covered all locations that could be cause for concern.

To address the ambient ozone impacts from the project, EPA's Modeled Emission Rates for Precursors (MERPs) tool was employed. The hypothetical source in Yellowstone County was chosen, with 500 tpy emissions of both NO_x and VOC precursors, and a 10 m stack height, as it has the closest resemblance to the applicant's source. The results for each precursor were scaled to the applicant's emission rates (222 tpy NOx and 215 tpy VOC). This results in a 0.68 ppb increase in ozone, which is less than the O_3 Class II SIL of 1 ppb (1.96 $\mu g/m^3$).

Table VI-4 SIL Modeled Emissions Increases

Source ID	PM_{10} 24-hour (lb/hr)	PM_{10} Annual (tpy)	$PM_{2.5}$ 24-hour (lb/hr)	$PM_{2.5}$ Annual (tpy)	NO_2 1-hour (lb/hr)	NO_2 Annual (tpy)	CO 1 & 8-hour (lb/hr)
RICE10_1	0.96	4.20	0.36	1.58	1.70	12.08	1.59
RICE10_2	0.96	4.20	0.36	1.58	1.70	12.08	1.59
RICE10_3	0.96	4.20	0.36	1.58	1.70	12.08	1.59
RICE10_4	0.96	4.20	0.36	1.58	1.70	12.08	1.59
RICE10_5	0.96	4.20	0.36	1.58	1.70	12.08	1.59
RICE10_6	0.96	4.20	0.36	1.58	1.70	12.08	1.59
RICE10_7	0.96	4.20	0.36	1.58	1.70	12.08	1.59
RICE10_8	0.96	4.20	0.36	1.58	1.70	12.08	1.59
RICE10_9	0.96	4.20	0.36	1.58	1.70	12.08	1.59
RICE10_10	0.96	4.20	0.36	1.58	1.70	12.08	1.59
RICE10_11	0.96	4.20	0.36	1.58	1.70	12.08	1.59
RICE10_12	0.96	4.20	0.36	1.58	1.70	12.08	1.59
RICE10_13	0.96	4.20	0.36	1.58	1.70	12.08	1.59
RICE10_14	0.96	4.20	0.36	1.58	1.70	12.08	1.59
RICE10_15	0.96	4.20	0.36	1.58	1.70	12.08	1.59
RICE10_16	0.96	4.20	0.36	1.58	1.70	12.08	1.59
RICE10_17	0.96	4.20	0.36	1.58	1.70	12.08	1.59
RICE10_18	0.96	4.20	0.36	1.58	1.70	12.08	1.59
DPHTR	0.01	0.03	0.01	0.03	0.11	0.46	0.09
EDG	0.89	0.13	0.89	0.13	NA	4.26	15.37
FIREPUMP	0.10	0.02	0.10	0.02	NA	0.31	1.81
Total:		**75.78**		**28.56**		**222.47**	

Modeled PM_{10}, $PM_{2.5}$, NO_2, and CO Class II SIL results are presented in Table VI-5. $PM_{2.5}$ impacts exceeded the 24-hour and Annual SILs, PM_{10} impacts exceed the 24-hour and Annual SILs, and NO_2 1-hour and Annual SILs were exceeded, therefore applicable NAAQS, MAAQS, and Class II Increment analyses were performed. For the pollutants and averaging periods exceeding the SIL, the radius of impact was determined, which was the furthest distance of the modeled SIL-exceeded receptor from the source.

Table VI-5 Class II Significant Impact Analysis Results

Pollutant	Avg. Period	Model Conc. ($\mu g/m^3$)	SIL ($\mu g/m^3$)	Exceed SIL?
PM_{10}	24-hour[1]	14.58	5.0	Yes
	Annual[2]	1.17	1.0	Yes
$PM_{2.5}$	24-hour[3]	8.2	1.2	Yes
	Annual[4]	0.414	0.2	Yes
NO_2	1-hour[5] (Steady-State)	41.97	7.5	Yes
	1-hour[5] (SUSD)	137.39	7.5	Yes
	Annual[2]	4.12	1.0	Yes
CO	1-hour[6] (Steady-State)	571.39	2,000	No
	1-hour[6] (SUSD)	571.27	2,000	No
	8-hour[7] (Steady-State)	209.56	500	No
	8-hour[7] (SUSD)	218.7	500	No

[1]The receptor with the maximum 24-hour concentration in the 5-year period.
[2]The receptor with the maximum annual concentration in the 5-year period.
[3]The receptor with the maximum 5-year average 24-hour concentration.
[4]The receptor with the maximum 5-year average annual concentration.
[5]The receptor with the maximum 5-year average of the maximum daily 1-hour concentration.
[6]The receptor with the maximum 1-hour concentration in the 5-year period.
[7]The receptor with the maximum 8-hour concentration in the 5-year period.

NAAQS/MAAQS Air Quality Analysis

For NAAQS and Increment analyses, all onsite sources were modeled at their peak emissions, which are displayed in Table VI-4. Offsite/competing source emissions were also included in these analyses. Nearby facilities were included based on their emissions and proximity to the SIL modeling radius of impact for each pollutant. The identified facilities are displayed in Table VI-6.

Table VI-6 Competing Source Facility List

Facility Name	Distance from LGS (km)
CHS INC REFINERY LAUREL	1.71
EXXONMOBIL BILLINGS REFINERY	29.73
GRAIN CRAFT	22.09
MONTANA SULPHUR & CHEMICAL	30.04
BILLINGS LANDFILL GAS PRODUCTION FACILITY	16.44

BILLINGS REFINERY – Phillips 66	24.07
WESTERN SUGAR COOPERATIVE	22.76
YELLOWSTONE POWER PLANT	29.85

For the NAAQS/MAAQS analyses, the nearby sources were modeled at PTE emissions, based on permit limits and/or emission inventory analyses in their respective Montana Air Quality Permits. These are detailed in the current permit application and supporting materials. All offsite facilities and annual emissions are shown in Table VI-7 below sources.

Table VI-7 Competing Sources Modeled Annual Emissions

Facility	PM_{10} Annual Emissions - NAAQS (tpy)	PM_{10} Emissions - Increment (tpy)	$PM_{2.5}$ Annual Emissions - NAAQS (tpy)	$PM_{2.5}$ Emissions - Increment (tpy)	NO_2 Annual Emissions - NAAQS (tpy)	NO_2 Emissions - Increment (tpy)
CHS	219.56	196.00	219.56	184.15	857.14	440.29
Exxon	147.61	147.61	147.61	147.61	501.51	501.51
Grain Craft	1.99	1.99	1.99	1.99	NA	NA
MDU	23.52	23.52	23.52	23.52	146.55	146.55
Montana Sulphur	39.07	39.07	39.07	39.07	11.69	11.69
P66	111.95	111.95	111.95	111.95	572.11	572.11
Western Sugar	13.67	13.67	13.67	13.67	253.78	253.78
YELP	2.54	2.54	2.54	2.54	361.53	361.53

Sources descriptions, and AERMOD source types are shown in Table VI-8 below.

Table VI-8 Offsite Source Descriptions

Source ID	**Source Description**	**Source Type**
CHS_F1	Coker Drum Steam Vent	VOLUME
CHS_F2	Coke Handling	VOLUME
CHS_F3	Coke Storage Pile	VOLUME
CHS_F4 – CHS_F30	Coke Haul Road Paved Segment 1 – 27	VOLUME
CHS_F31 – CHS_F58	Coke Haul Road Unpaved Segment 1 – 28	VOLUME
CHS_F59 – CHS_F81	Asphalt Haul Road Segment 1 – 23	VOLUME
CHS_F82 – CHS_F113	Gasoline Haul Road Segment 1 – 32	VOLUME
CHS_F114 – CHS_F149	Propane Haul Road Segment 1 – 36	VOLUME
CHS_P1	CHS - #3 Hydrogen Plant Reformer	POINT
CHS_P2	CHS - FCC Process	POINT
CHS_P3	CHS - H-102 Reformer Heater	POINT

CHS_P4	CHS - Main Crude Heater (RFG)	POINT
CHS_P5	CHS - Crude Preheater (Petrochem)	POINT
CHS_P6	CHS - No. 1 Vacuum Heater	POINT
CHS_P7	CHS - NHT Charge Heater	POINT
CHS_P8	CHS - No. 1 Naphtha Unifiner Stripper Reboiler	POINT
CHS_P9	CHS - NHT Splitter Reboiler	POINT
CHS_P10	CHS - NHT No. 2 Stripper Reboiler	POINT
CHS_P11	CHS - Platformer Heater Four Sections	POINT
CHS_P12	CHS - Platformer Debutanizer Heater	POINT
CHS_P13	CHS - Platformer Splitter Reboiler	POINT
CHS_P14	CHS - New FCC Feed Preheater	POINT
CHS_P15	CHS - H-201 Charge Heater	POINT
CHS_P16	CHS - H-202 Charge Heater	POINT
CHS_P17	CHS - ULSD Heater H-901	POINT
CHS_P18	CHS - ULSD Heater H-902	POINT
CHS_P19	CHS - Alky Oil Heater	POINT
CHS_P20	CHS - Coker Charge Heater	POINT
CHS_P21	CHS - Zone A SRU-TGTU-TGI	POINT
CHS_P22	CHS - Zone D	POINT
CHS_P23	CHS - Coker Unit SRU through TGI	POINT
CHS_P24	CHS - Railcar Light Product Loading VCU	POINT
CHS_P25	CHS - H2 Plant H-1001 Heater	POINT
CHS_P26	CHS - Coker Unit Flare	POINT
CHS_P27	CHS - No. 11 Boiler	POINT
CHS_P28	CHS - Truck Light Product Loading VCU	POINT
CHS_P29	CHS - Coker Unit Cooling Tower - Cell #1	POINT
CHS_P30	CHS - Coker Unit Cooling Tower - Cell #2	POINT
CHS_P31	CHS - No. 12 Boiler	POINT
CHS_P32	CHS - #1 Asphalt/RO Loading Heater	POINT
CHS_P33	CHS - No. 2 Crude Heater (new location)	POINT
CHS_P34	CHS - No. 10 Boiler	POINT
CHS_P35	CHS - New Flare	POINT
CHS_P36	CHS - NH3 Incinerator	POINT
CHS_P37	CHS - H-101 Reformer Heater	POINT
CHS_P38	CHS - Cooling Tower #1 - Cell #1	POINT
CHS_P39	CHS - Cooling Tower #1 - Cell #2	POINT
CHS_P40	CHS - Cooling Tower #1 - Cell #3	POINT
CHS_P41	CHS - Cooling Tower #1 - Cell #4	POINT
CHS_P42	CHS - Cooling Tower #2 - Cell #1	POINT
CHS_P43	CHS - Cooling Tower #2 - Cell #2	POINT
CHS_P44	CHS - Cooling Tower #2 - Cell #3	POINT
CHS_P45	CHS - Cooling Tower #3 - Cell #1	POINT
CHS_P46	CHS - Cooling Tower #3 - Cell #2	POINT

CHS_P47	CHS - Cooling Tower #5 - Cell #1	POINT
CHS_P48	CHS - Cooling Tower #5 - Cell #2	POINT
CHS_P49	CHS - No. 2 CU Vacuum Heater	POINT
CHS_P50	CHS - Coker Charge Heater #2	POINT
CHS_P51	CHS - New Boiler (Boiler No. 13)	POINT
GC1	GRAIN CRAFT - 111-0006 - WHITE FLOUR MILLING	POINT
GC2	GRAIN CRAFT - 111-0006 - WHEAT TRANSFER/CONVEY	POINT
GC3	GRAIN CRAFT - 111-0006 - WHEAT CLEANING #1	POINT
GC4	GRAIN CRAFT - 111-0006 - WHEAT CLEANING #2	POINT
GC5	GRAIN CRAFT - 111-0006 - FLOUR BAGGING/SHIPPING	POINT
GC6	GRAIN CRAFT - 111-0006 - WHOLE WHEAT MILLING	POINT
WS1	WESTERN SUGAR COOPERATIVE - BOILER #1 - NATRL GAS	POINT
WS2	WESTERN SUGAR COOPERATIVE - BOILERS #2, 3, AND 4 - RILEY COAL	POINT
WS3	WESTERN SUGAR COOPERATIVE - EAST PULP DRYER	POINT
WS4	WESTERN SUGAR COOPERATIVE - WEST PULP DRYER	POINT
WS5	WESTERN SUGAR COOPERATIVE - PELLETIZER-COOLER	POINT
WS6	WESTERN SUGAR COOPERATIVE - COAL UNLOAD/HANDLE FUGTVS	POINT
WS7	WESTERN SUGAR COOPERATIVE - LIMESTONE UNLOAD/HNDL FUG	POINT
WS8	WESTERN SUGAR COOPERATIVE - EXPOSED AREA - WIND EROS	POINT
WS9	WESTERN SUGAR COOPERATIVE - BEET UNLOAD/HANDLE FUGTVS	POINT
WS10	WESTERN SUGAR COOPERATIVE - LIMESTONE CONVEY	POINT
P66_1	P66 - Alky Heater (H-21)	POINT
P66_2	P66 - Boiler House (B-1, B-2, B-5, & B-6) Stack	POINT
P66_3	P66 - Backup Coke Crusher Diesel Engine	POINT
P66_4	P66 - Boiler House Backup Air Compressor Engine	POINT
P66_5	P66 - Coker Backup Air Compressor Engine	POINT
P66_6	P66 - Flare Drum Backup Pump Engine	POINT
P66_7	P66 - No. 2 HDS Heater (H-10)	POINT
P66_8	P66 - No. 2 HDS Debutanizer Reboiler (H-11)	POINT
P66_9	P66 - No. 2 HDS Main Fractionator Reboiler (H-12)	POINT
P66_10	P66 - Catalytic Reforming Unit #2 (H-13)	POINT
P66_11	P66 - Catalytic Reforming Unit #2 (H-14)	POINT
P66_12	P66 - Sat Gas Stabilizer Reboiler (H-16)	POINT
P66_13	P66 - Butamer Heater (H-20)	POINT

P66_14	P66 - Catalytic Reforming Unit #2 (H-23)	POINT
P66_15	P66 - Coker Furnace (H-3901)	POINT
P66_16	P66 - Cooling Tower - Combination Unit	POINT
P66_17	P66 - Cooling Tower - Condensate Unit	POINT
P66_18	P66 - P400 E Diesel Firewater Pump at Ponds	POINT
P66_19	P66 - P491 Cooling Tower Water to Fire Water	POINT
P66_20	P66 - P4701 W Diesel Firewater Pump at Ponds	POINT
P66_21	P66 - Boilerhouse Emergency Diesel Generator	POINT
P66_22	P66 - MCC7 Emergency Diesel Generator	POINT
P66_23	P66 - P510 Storm Water Sump to Holding Pond	POINT
P66_24	P66 - Blender Research Octane Knock Engine	POINT
P66_25	P66 - Blender Motor Octane Knock Engine	POINT
P66_26	P66 - Main Lab Research Octane Knock Engine	POINT
P66_27	P66 - Main Lab Motor Octane Knock Engine	POINT
P66_28	P66 - Small Crude Unit Heater (H-1)	POINT
P66_29	P66 - FCCU Preheater (H-18)	POINT
P66_30	P66 - Large Crude Unit Heater (H-24)	POINT
P66_31	P66 - FCCU Stack	POINT
P66_32	P66 - No. 4 HDS Recycle Hydrogen Heater (H-8401)	POINT
P66_33	P66 - No. 4 HDS Fractionator Feed Heater (H-8402)	POINT
P66_34	P66 - No. 1 H2 Plant Reformer Heater (H-9401)	POINT
P66_35	P66 - Coke Handling	POINT
P66_36	P66 - No. 5 HDS Charge Heater (H-9501)	POINT
P66_37	P66 - No. 5 HDS Stabilizer Reboiler Heater (H-9502)	POINT
P66_38	P66 - No. 2 H2 Plant Reformer Heater (H-9701)	POINT
P66_39	P66 - Delayed Coking Unit - Vent and Coke Cutting	POINT
P66_40	P66 - Cooling Tower (CWT-5)	POINT
P66_41	P66 - Jupiter Cooling Tower (CT-615A/B/C)	POINT
P66_42	P66 - Jupiter Cooling Tower (CT-120)	POINT
P66_43	P66 - Vacuum Furnace (H-17) - NEW	POINT
P66_44	P66 - Jupiter Main Stack No. 1 - Average	POINT
P66_45	P66 - Jupiter Cooling Tower (CT-602)	POINT
YELP1	Yellowstone Power Plant	POINT
MSCC1	Montana Sulphur	POINT
EXX1	Exxon (worst case stk)	POINT
MDU_BL1	Billings Landfill Flare	POINT
MDU_BL2	Billings Landfill 349 bhp Engine 1	POINT
MDU_BL3	Billings Landfill 349 bhp Engine 2	POINT

The NO_2 1-hr analysis was performed for both steady-state (worst case operating scenario) and startup-shutdown conditions, to ensure that NWE does not cause or contribute to a violation of the NO_2 1-hour NAAQS. The emissions for the NAAQS/MAAQS analyses are discussed previously and displayed in Table VI-4.

The results of the NAAQS analyses are shown in Table VI-9, which show that the modeled emissions comply with $PM_{2.5}$, PM_{10}, and NO_2 NAAQS standards.

Table VI-9 NAAQS Analysis Results

Pollutant	Avg. Period	Model Design Value (µg/m³)	Monitor Design Value (µg/m³)	Total Conc. (µg/m³)	Primary NAAQS (µg/m³)	% of NAAQS
PM_{10}	24-hour[(1)]	12.5	32	44.5	150	30%
$PM_{2.5}$	24-hour[(2)]	5.6	16.1	21.7	35	62%
	Annual[(3)]	0.72	6.5	7.2	12	60%
NO_2	1-hour[(4)] (Steady-State)	124.1	18.8	142.9	188	76%
	1-hour[(4)] (SUSD)	124.2	18.8	143.0	188	76%
	Annual[(3)]	4.6	1.1	5.7	100	6%

[(1)]The receptor with the 6th-highest 24-hr concentration over 5 years.

[(2)]The receptor with the 8th-highest 24-hr concentration per year, averaged over 5 years.

[(3)]The receptor with the maximum annual concentration averaged over 5 years.

[(4)]The receptor with the 8th-highest daily 1-hr max concentration averaged over 5 years.

A demonstration of compliance with applicable MAAQS (ARM 17.8 Subchapter 2), displayed in Table V1-1, was performed for the 1-hour and Annual NO_2 standard, due to the modeled exceedance of the NO_2 SILs. Compliance with the PM_{10} 24-hour MAAQS was demonstrated above, because the form of the standard is the same as the NAAQS. Since the form of the NO_2 1-hour MAAQS is not to be exceeded more than once per year, it was assessed as the highest-second-high from the 1-hour daily max concentrations to demonstrate that the project will not cause or contribute to an exceedance of the 1-hour NO_2 MAAQS. The results of the NO_2 Annual analysis above was also compared to the NO_2 Annual MAAQS. The results are displayed in Table VI-10. NWE provided a qualitative argument to demonstrate compliance with the PM MAAQS.

Table VI-10 MAAQS Analysis Results

Pollutant	Avg. Period	Model Design Value (µg/m³)	Monitor Design Value (µg/m³)		Total Conc. (µg/m³)	Primary MAAQS (µg/m³)	% of MAAQS
PM_{10}	Annual[(1)]	1.5	8.5		10.0	50	20%
NO_2	1-hour[(2)] (Steady-State)	126.5	18.8		145.3	564	26%
	1-hour[(2)] (SUSD)	133.6	18.8		152.4	564	27%
	Annual[(1)]	4.6	1.1		5.7	94	6%

[(1)]The receptor with the maximum annual concentration averaged over 5 years.

[2]The receptor with the second highest daily maximum 1-hour concentration averaged over 5 years.

Class II Increment Air Quality Analysis

The proposed Laurel Generating Station is not a PSD-major facility, but after discussion with the Department, NWE provided a Class II PSD Increment evaluation, due to the minor-source baseline dates being triggered in the area for PM_{10}, $PM_{2.5}$, and NO_2. The analysis was performed for those pollutants and averaging periods exceeding the Class II SIL. The same offsite sources were evaluated from the NAAQS/MAAQS analysis. In this analysis, the reported two-year average emissions (2019-2020) were used for CHS sources and PTE emissions were used at all other facilities. All source emissions were assumed to consume increment compared to each pollutant's baseline period. The results are displayed in Table VI-11.

Table VI-11 Class II Increment Analysis Results

Pollutant	Avg. Period	Model Conc. ($\mu g/m^3$)	Class II PSD Increment ($\mu g/m^3$)	% of Increment
PM_{10}	24-hour[1]	9.49	30	32%
$PM_{2.5}$	24-hour[1]	3.89	9	43%
	Annual[2]	0.709	4	18%
NO_2	Annual[2]	3.62	25	15%

[1]The receptor with the maximum second highest 24-hour concentration in the 5-year period.
[2]The receptor with the maximum annual concentration in the 5-year period.

Class I Air Quality Analysis

The closest federally mandated Class I Area is the North Absaroka Wilderness area, which is 113 km southwest. NWE evaluated impacts on Class I Areas utilizing a Q/d analysis, which is generally requested by federal land managers when a Class I Area is greater than 50 km from the project site. The emissions (Q) is the sum of SO_2 (14.14 tpy), NO_x (222.4 tpy), PM_{10} (75.6 tpy), and H_2SO_4 (0 tpy), and the distance (d, in kilometers) is the distance from the project site to the Class I Area. The Q/d results are displayed in Table VI-12 for the three nearest Class I Areas. Q/d less than 10 is generally where federal land managers consider the impacts at the Class I Area as negligible.

Table VI-12 Class I Q/d Analysis Results

Class I Area	Distance (km)	Q/d
North Absaroka Wilderness Area	113	2.77
Yellowstone National Park	121	2.59
Northern Cheyenne Indian Reservation	135	2.31

The Department determined that the project related PM_{10}, $PM_{2.5}$, NO_2, and CO emissions (with offsite facility emissions) will not cause or contribute to a violation of a federal or state ambient air quality standard. This decision was based on the air dispersion modeling with qualitative/quantitative analyses. The full modeling analysis submitted with the MAQP application is on file with the Department.

The Department determined the proposed ambient air impact analysis submitted with the application demonstrates compliance with the MAAQS and NAAQS and that the impacts from this permitting action will be minor. The Department believes it will not cause or contribute to a violation of any ambient air quality standard.

VII. Taking or Damaging Implication Analysis

As required by 2-10-105, MCA, the Department conducted the following private property taking and damaging assessment.

YES	NO	
X		1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?
	X	2. Does the action result in either a permanent or indefinite physical occupation of private property?
	X	3. Does the action deny a fundamental attribute of ownership? (ex.: right to exclude others, disposal of property)
	X	4. Does the action deprive the owner of all economically viable uses of the property?
	X	5. Does the action require a property owner to dedicate a portion of property or to grant an easement? [If no, go to (6)].
		5a. Is there a reasonable, specific connection between the government requirement and legitimate state interests?
		5b. Is the government requirement roughly proportional to the impact of the proposed use of the property?
	X	6. Does the action have a severe impact on the value of the property? (consider economic impact, investment-backed expectations, character of government action)
	X	7. Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public generally?
	X	7a. Is the impact of government action direct, peculiar, and significant?
	X	7b. Has government action resulted in the property becoming practically inaccessible, waterlogged or flooded?
	X	7c. Has government action lowered property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question?
	X	Takings or damaging implications? (Taking or damaging implications exist if YES is checked in response to question 1 and also to any one or more of the following questions: 2, 3, 4, 6, 7a, 7b, 7c; or if NO is checked in response to questions 5a or 5b; the shaded areas)

Based on this analysis, the Department determined there are no taking or damaging implications associated with this permit action.

VIII. Environmental Assessment

An environmental assessment, required by the Montana Environmental Policy Act, was completed for this project. A copy is attached.

Analysis Prepared By: Craig Henrikson
Date: August 23, 2021

DEPARTMENT OF ENVIRONMENTAL QUALITY
Air, Energy & Mining Division
Air Quality Bureau
P.O. Box 200901, Helena, Montana 59620
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NorthWestern Energy – Laurel Generating Station

Final Environmental Assessment for the

Department Decision on Montana Air Quality Permit #5261-00

Montana Department of Environmental Quality
Air Quality Bureau
Air Permitting Services Section
FINAL ENVIRONMENTAL ASSESSMENT

APPLICANT: NorthWestern Energy (hereafter referred to as NWE)			
SITE NAME: NWE – Laurel Generating Station			
PROPOSED PERMIT NUMBER: Montana Air Quality Permit Number 5261-00			
APPLICATION DATE: Initially received on 05/10/2021, Revised Application on 06/09/2021			
LOCATION: Lat/Long 45.659706, -108.745954		**COUNTY: Yellowstone**	
PROPERTY OWNERSHIP:	**FEDERAL ____ STATE ____ PRIVATE _X___**		
EA PREPARER:	**Craig Henrikson**	**EA DATE:**	**08/23/2021**

COMPLIANCE WITH THE MONTANA ENVIRONMENTAL POLICY ACT

The Montana Department of Environmental Quality (DEQ) prepared this Environmental Assessment (EA) in accordance with requirements of the Montana Environmental Policy Act (MEPA). An EA functions to determine the need to prepare an EIS through an initial evaluation and determination of the significance of impacts associated with the proposed action. However, an agency is required to prepare an EA whenever statutory requirements do not allow sufficient time for the agency to prepare an EIS. This document may disclose impacts over which DEQ has no regulatory authority.

COMPLIANCE WITH THE CLEAN AIR ACT OF MONTANA

The state law that regulates air quality permitting in Montana is the Clean Air Act of Montana, §§ 75-2-101, *et seq*., Montana Code Annotated (MCA). DEQ may not approve a proposed project contained in an application for an air quality permit unless the project complies with the requirements set forth in the Clean Air Act of Montana and the administrative rules adopted thereunder, ARMs 17.8.101 *et. seq*. The project is subject to approval by the DEQ Air Quality Bureau as the potential project emissions exceed 25 tons per year for regulated pollutants. DEQ's approval of an air quality permit application does not relieve NWE from complying with any other applicable federal, state, or county laws, regulations, or ordinances. NWE is responsible for obtaining any other permits, licenses, or approvals (from DEQ or otherwise) that are required for any part of the proposed project. Any action DEQ takes at this time is limited to the pending air quality permit application currently before DEQ's Air Quality Bureau (AQB) and the authority granted to DEQ under the Clean Air Act of Montana—it is not indicative of any other action DEQ may take on any future (unsubmitted) applications made pursuant to any other authority (*e.g.* Montana's Water Protection Act). DEQ will decide whether to issue the pending air quality permit pursuant to the requirements of the Clean Air Act of Montana alone. DEQ may not withhold, deny, or impose conditions on the permit based on the information contained in this Environmental Assessment. § 75-1-201(4), MCA.

SUMMARY OF THE PROPOSED ACTION: NWE has applied for a Montana air quality permit under the Clean Air Act of Montana for eighteen (18) 9.7-megawatt-electrical (MWe) reciprocating internal combustion engines (RICE), one 2,682 brake horsepower (bhp) emergency diesel-fired engine generator set. Another component of the proposed project would be one 315-bhp diesel-fired fire pump engine and a 1.11 MMBtu/hr natural gas line heater and fugitive road dust from a new road. The proposed action would be located on private land, 1.5 miles southeast of Laurel, Montana. All information included in the EA is derived from the permit application, discussions with the applicant, analysis of aerial photography, topographic maps, and other research tools.

PURPOSE AND BENEFIT FOR PROPOSED ACTION: DEQ's purpose in conducting this environmental review is to act upon NWE's air quality permit application to authorize the eighteen (18) 9.7-megawatt-electrical (MWe) reciprocating internal combustion engines (RICE), one 2,682 - bhp emergency diesel-fired engine generator set, one 315-bhp diesel-fired fire pump engine and a 1.11 MMBtu/hr natural gas line heater and the air contaminants in connection with the above-mentioned equipment.

The benefits of the proposed action include: If approved, the permit will allow NWE to construct and operate the proposed equipment at the proposed site. Authority to operate the proposed action would continue until the permit was revoked, either at the request of NWE or by DEQ because of non-compliance with the conditions within the air quality permit.

REGULATORY RESPONSIBILITIES: In accordance with ARM 17.4.609(3)(c), DEQ must list any federal, state, or local, authorities that have concurrent or additional jurisdiction or environmental review responsibility for the proposed action and the permits, licenses, and other authorizations required.

NWE must conduct its operations according to the terms of its permit, the Clean Air Act of Montana, §§ 75-2-101, *et seq*., MCA, and ARMs 17.8.101, *et seq*.

NWE will also be required to apply for and obtain a Title V Operating Permit and must submit the complete application to the DEQ AQB within 12 months after commencing operation of the proposed action. Requirements set forth in the Montana Air Quality Permit would be incorporated into the Title V Operating Permit.

No other permit applications have been submitted by NWE to DEQ at the time of this EA. Without the details that would be contained in those future permit applications, DEQ cannot at this time predict which additional permits may be required from DEQ pursuant to any other authority. For example, it is likely that NWE will need a stormwater discharge permit associated with construction activity, but DEQ would need more information (contained in a future application) to determine whether NWE will need a Montana Pollution Discharge Elimination System (MPDES) permit.

The Laurel Generating Station would be identified as a power plant by EPA, and would be required to report under the Acid Rain Program and also to the EPA Greenhouse Gas Reporting Program.

NWE must cooperate fully with, and follow the directives of any federal, state, or local entity that may have authority over NWE's Laurel Generating Station operations. These permits, licenses, and other authorizations may include: City of Laurel, Montana Planning Department (zoning), Yellowstone County Weed Control Board, OSHA (worker safety), DEQ AQB (air quality) and Water Protection Bureau groundwater and surface water discharge; stormwater), DNRC (water rights), and MDT and Yellowstone County (road access).

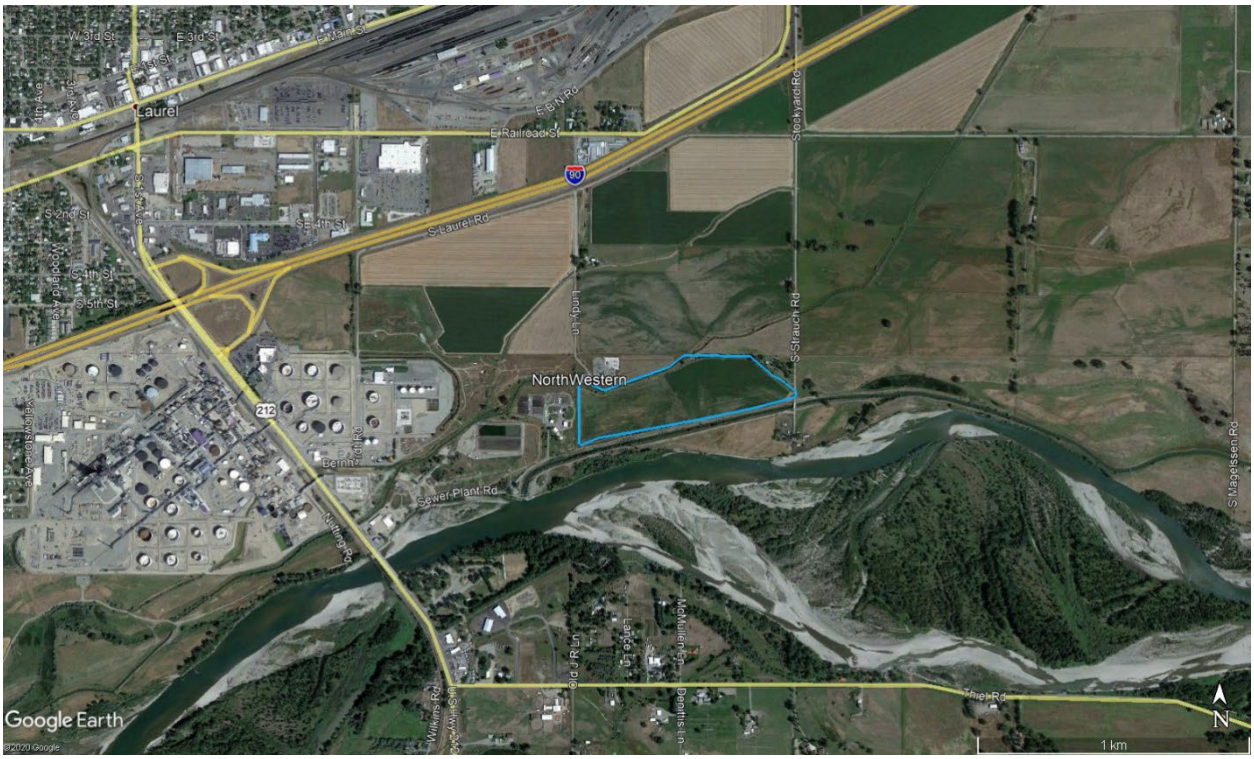
NWE has requested the parcel zoning be changed from its current zoning designation for the proposed project. The western quarter of the parcel is currently designated Heavy Industrial and the next easterly ¼ parcel is designated as Ag Open Space. The easterly ½ parcel is currently not zoned. When rezoned, the entire 36 acre parcel would be zoned Heavy Industrial.

Table 1: Proposed Action Details

Summary of Proposed Action	
General Overview	NWE's air quality permit application consists of the following equipment: • eighteen (18) 9.7-megawatt-electrical (MWe) reciprocating internal combustion engines (RICE), • one 2,682 -bhp emergency diesel-fired generator, • one 315-bhp diesel-fired fire pump engine, • 1.11 MMBtu/hr natural gas line heater. • fugitive road dust.

	The facility would be permitted to emit from this equipment until NWE requested permit revocation or until the permit were revoked by DEQ due to gross non-compliance with the permit conditions.
Proposed Action Estimated Disturbance	
Disturbance	Operational disturbance would be approximately 10.4 acres including the access road. Construction disturbance would be approximately 20.4 to 25.4 acres.
Proposed Action	
Duration	**Construction:** Construction or commencement would start within three years of issuance of the final air quality permit. **Construction Period:** The construction period could begin as soon as the air quality permit (and any other required permits) were in place. The application estimates construction would begin in April 2022. The construction period is expected to last approximately 12 months and be completed in May 2023. Startup and commissioning would run from approximately June 2023 through December 2023. **Operation Life:** The project specification used by NWE for bids for this project were stated as a minimum of a 30-year life.
Construction Equipment	Cranes, backhoes, graders/dozers, passenger trucks, delivery trucks, cement trucks, various other types of smaller equipment
Personnel Onsite	**Construction:** Approximately 150 Contract Personnel **Operations:** Twelve to fifteen permanent staff during operation
Location and Analysis Area	**Location**: Lat/Long 45.659706, -108.745954 **Analysis Area**: The area being analyzed as part of this environmental review includes the immediate project area (Figure 1), as well as neighboring lands surrounding the analysis area, as reasonably appropriate for the impacts being considered.
Air Quality	This EA will be attached to the Air Quality Permit which would include all enforceable conditions for operation of the emitting units
Conditions incorporated into the Proposed Action	The conditions developed in the Preliminary Determination of the Montana Air Quality Permit dated July 9, 2021, set forth in Sections II.A-D and updated in the Decision Air Quality Permit dated August 20, 2021

Figure 1: Map of general location of the proposed project.



EVALUATION AND SUMMARY OF POTENTIAL IMPACTS TO THE PHYSICAL AND HUMAN ENVIRONMENT IN THE AREA AFFECTED BY THE PROPOSED PROJECT:

The impact analysis will identify and evaluate direct and secondary impacts. Direct impacts are those that occur at the same time and place as the action that triggers the effect. Secondary impacts means "a further impact to the human environment that may be stimulated or induced by or otherwise result from a direct impact of the action." ARM 17.4.603(18). Where impacts are expected to occur, the impacts analysis estimates the duration and intensity of the impact.

The duration of an impact is quantified as follows:

- **Short-term**: Short-term impacts are defined as those impacts that would not last longer than the proposed operation of the site.
- **Long-term**: Long-term impacts are defined as impacts that would remain or occur following shutdown of the proposed facility.

The severity of an impact is measured using the following:

- **No impact**: There would be no change from current conditions.
- **Negligible**: An adverse or beneficial effect would occur but would be at the lowest levels of detection.
- **Minor**: The effect would be noticeable but would be relatively small and would not affect the function or integrity of the resource.

- **Moderate**: The effect would be easily identifiable and would change the function or integrity of the resource.
- **Major**: The effect would alter the resource.

1. TOPOGRAPHY, GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE:

The site is located on a relatively flat valley plain at an elevation of approximately 3,270 feet. The Yellowstone River is approximately 300 feet to the south. The climatology of the area is considered semi-arid with average rainfall of less than 15 inches per year. The project would require site grading, foundation supports for equipment and road construction. Five soil borings were performed in the area of the proposed project. The borings generally encountered a similar profile consisting of a 1 to 1 1/2-foot cultivated zone of clay soils mixed with organics. Beneath the cultivated zone, intermixed layers of lean clay, sandy silt, and silty sand were encountered to depths ranging from about 2 to 6 1/2 feet. Gravel alluvium was then generally encountered to depths ranging from 13 1/2 to 18 feet. The gravel alluvium consisted of poorly graded gravel with sand and cobbles and poorly graded gravel with sand, silt, and cobbles. Shale bedrock was encountered beneath gravel alluvium and extended to the termination depths of the borings, which ranged from 19 1/2 to 29 1/2 feet. Groundwater was encountered in all five borings at depths ranging from 5.0 to 6.9 feet, or from elevation 3261 1/2 to 3264 1/2 (William. 2021).

The geology of the site indicates the project is located in the second youngest alluvial terrace of the Yellowstone River. The subsurface soils consist of Quaternary alluvial terrace deposits overlying Mowry or Belle Fouche shale bedrock.

Direct Impacts:

Proposed Action: The information provided above is based on the information that DEQ had available to it at the time of completing this EA and provided by the applicant (William 2021). Available information includes the permit application, analysis of aerial photography, topographic maps, and other research tools. During construction of proposed action approximately 20.4 to 25.4 acres would be disturbed. Once operational the disturbed acreage is estimated at 10.4 acres including the access road. The access design route to the site has not been finalized. If the access road is built from the north-northwest side of the parcel, a bridge crossing would be needed to cross the Canyon Creek Ditch. The alternate access route would come from the east using South Strauch Road. The road surface (gravel versus paved) has also not been finalized. To reduce settlement and increase bearing pressures, the fine-grained silty and clayey soils would likely be sub-excavated from beneath all foundations and slabs down to the gravel alluvium and replaced with more load bearing materials. For deeper excavations on the site, dewatering of excavation holes may be required to facilitate the work. Soil quality of the disturbances during construction and operations would change from a cultivated soils to an industrial site for the proposed action. Impacts to topography would be minor and long-term.

Secondary Impacts:

Proposed Action: No secondary impacts to topography, geology, stability, and moisture would be expected.

2. WATER QUALITY, QUANTITY, AND DISTRIBUTION:

The Yellowstone River is approximately 300 feet to the south. No wetlands have been identified

on the site.

Direct Impacts:
Proposed Action: The information provided above is based on the information that DEQ had available to it at the time of completing this EA and provided by the applicant for the purpose of obtaining the pending air quality permit (William 2021). NWE has not submitted any water quality or MPDES permit applications to DEQ. Available information includes the permit application, analysis of aerial photography, topographic maps, and other research tools. Based on this information, DEQ does not anticipate an impact to surface water features and water quality, quantity, and distribution management. No decision has been made on whether the primary access road would cross the Canyon Creek Ditch on the north side of the parcel, or whether an easterly route would be used.

Surface water that may leave the site during a heavy storm event could carry sediment just as may occur today with the undeveloped site. The proposed site is largely bordered by irrigation ditches to the north and south which would likely be where accumulated surface water would migrate. The proposed project would not change the direction of surface water migration from the site.

Precipitation and surface water would generally be expected to infiltrate into the subsurface, however, any surface water that may leave the site could carry sediment from the disturbed site. Soil disturbances and storm water during construction would be managed under the Montana Pollutant Discharge Elimination System (MPDES) General Permit for Storm Water Discharges associated with construction activity as NWE would be required for construction and potentially during operations. The applicant would need to obtain authorization to discharge under the General Permit for Storm Water Discharges associated with construction activity prior to ground disturbance. NWE would manage erosion control using a variety of Best Management Practices (BMP) including but not limited to non-draining excavations, containment, diversion and control of surface run off, flow attenuation, revegetation, earthen berms, silt fences, and gravel packs. This plan would minimize any stormwater impacts to surface water in the vicinity of the project. The proposed action would require NWE to obtain a stormwater discharge plan during construction and potentially during operations. This plan would minimize any stormwater impacts to surface water in the vicinity of the project.

No fragile or unique water resources or values are present. Impacts to water quality and quantity, which are resources of significant statewide and societal importance.

Secondary Impacts:

Proposed Action:
No secondary impacts to water quality, quantity and distribution would be expected.

3. AIR QUALITY:

The air quality classification (baseline air quality) for the immediate area is "Unclassifiable or Better Than National Standards" (40 CFR 81.327) for all pollutants, apart from sulfur dioxide (SO_2). The site location is within the Laurel SO_2 nonattainment area (NAA) for the 1971 primary SO_2 National Ambient Air Quality Standards (NAAQS). Further information on the air quality is contained in the Permit Analysis Section V. Existing Air Quality and Section VI. Ambient Air

Impacts Analysis.

Direct Impacts:

Proposed Action:
Dust particulate would be produced or become airborne during site preparation and construction. Air quality standards, set by the federal government, DEQ AQB and enforced by the AQB, allow for pollutants at the levels permitted within the air quality permit. During construction, heavy equipment and site preparation would occur. The current construction plan would have contractors working Monday through Friday, with some Saturday work-days but only during daylight hours. Once the site is fully constructed, emissions from the combustion of natural gas used to run the engines (RICE) would occur. Combustion products including particulate matter (PM) species, oxides of nitrogen (NOx), carbon monoxide (CO), sulfur dioxide (SO_2), carbon dioxide (CO_2) and hazardous air pollutants such as formaldehyde would be released. Residual volatile organic compounds (VOCs) would be present in the exhaust streams. Due to the use of aqueous ammonia for the control of NOx, small concentrations of ammonia within the exhaust discharges from the RICE are likely. This phenomenon is common whenever aqueous ammonia is injected to reduce the NOx to molecular nitrogen (N_2) and water. The residual ammonia may also react with other species and may form fine particulate matter. Ammonia is not regulated by the DEQ AQB. When the emergency diesel-fired generator and diesel-fired fire pump are in operation, short term emissions from the combustion of diesel fuel would occur. Each diesel-fired engine would be limited to 300 hours of annual operation. Emission limitations and the required operation of air pollution control equipment minimize emissions and would ensure permit compliance. Air pollution control equipment must be operated at the maximum design for which it is intended. Limitations would be placed on the allowable emissions for NOx, VOC and CO with associated ongoing compliance demonstrations in place for the BACT limits. The number of transient events including cold start-ups, warm and hot start-ups, and shutdowns would be limited by the permit for compliance demonstrations.

NWE would receive routine deliveries of 19% aqueous ammonia to the site for NOx control on the RICE. These tanker truck deliveries would likely occur up to one tanker truck every three days. This would require travel to the site for unloading into two 10,000-gallon storage tanks, and then travel off the site. Some fugitive road dust may occur on the access road to and from the site.

Pursuant to ARM 17.8.304(2), fugitive dust emissions would need to meet an operational visible opacity of standard or 20 percent or less averaged over 6 consecutive minutes. Pursuant to ARM 17.8.308(1), NWE is required to take reasonable precautions to control emissions of airborne particulate matter from all phases of operation including material transport. Reasonable precautions would include items such the use of water during construction periods to minimize dust emissions. If the access road is not paved, water spray on the road would also serve to minimize fugitive dust. Air quality standards are regulated by the federal Clean Air Act, 42 U.S.C. 7401 *et seq.* (1970) and Montana's Clean Indoor Air Act, Mont. Code Ann. § 50-40-101 *et seq.*, and are implemented and enforced by DEQ's Air Quality Bureau (AQB). As stated above, NWE is required to comply with all applicable state and federal laws. For the proposed project, impacts to air quality are anticipated to be short-term and minor.

Secondary Impacts:

Proposed Action:
With the use of aqueous ammonia, low residual concentrations of unreacted ammonia would remain in the exhaust streams on the RICE. A secondary reaction of this excess ammonia with other species such as NOx and SO_2 can form particulate matter such as ammonium sulfate and ammonium nitrate. The residual concentration of ammonia in this exhaust stream would be in the range of a 1 to 10 parts per million (ppm) so the resulting formation of particulate matter is limited by the availability of the residual ammonia, along with temperature and humidity dependencies. All fossil fuel combustion processes emit pollutants as described earlier within this Air Quality Section. Releases of these pollutants disperses into the atmosphere and travel with the wind direction, decreasing in concentration as the pollutants are diluted with ambient air. Concentrations of these pollutants are evaluated at ground level, from the boundary where the public would be able to reside at and out to 50 km from the facility. For this proposed project, particulate matter and NOx concentrations were modeled (along with nearby source emissions and background concentrations) to demonstrate that there would be no violations of any ambient air quality standards associated with these pollutants. The proposed project would only have an increase of a maximum of 14.3 tons per year of SO_2, this level of emissions increase was not required to undergo an SO_2 modeling demonstration. Negligible formation and deposition of sulfur would occur from the RICE as they are required to use low sulfur content natural gas. The emergency engine generator set and fire pump would combust diesel fuel but these engines intermittently for actual emergencies and testing. Fossil fuel power plants are also known to contribute to deposition which is formed by the presence of combustion species in the exhaust stream with other species in the exhaust stream and in the atmosphere. Natural gas power plants emit significantly less pollutants due to the makeup of natural gas which is primarily methane.

4. VEGETATION COVER, QUANTITY AND QUALITY:

There are no known rare or sensitive plants or cover types present in the site area. No fragile or unique resources or values, or resources of statewide or societal importance, are present.

The site has previously been used for cultivated agricultural purposes in the past.

Direct Impacts:

Proposed Action:
The information provided above is based on the information that DEQ had available to it at the time of completing this EA and provided by the applicant (William 2021). Available information includes the permit application, analysis of aerial photography, topographic maps, geologic maps, soil maps, and other research tools. As reported by the Geology and Soil study for the proposed project, excavation would need to occur with replacement with more load bearing materials. Therefore, any existing vegetation on the site where facility structures are required would be removed to accommodate the proposed action footprint. As highlighted earlier, the construction schedule would last from approximately April 2022 thru May 2023.

Secondary Impacts:

Proposed Action: Land disturbance at the site may result in propagation of noxious weeds.

5. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:

Although the area has previously primarily been used for agricultural purposes based on available information and as inferred from aerial imagery, it also likely supports populations of a number of animal populations. Also, the area is near an industrial facility, the Laurel Wastewater Treatment Plant and the CHS Refinery are to the west as well as an existing electrical substation.

Direct Impacts:

Proposed Action: Elk, deer, moose and livestock are known to reside in the area. Although some wildlife and wildlife habitat may be impacted with the fenced area of the parcel and new physical equipment, they would not be displaced by the proposed action as the site was formerly cultivated land and adjacent to industrial uses. Even if suitable habitat did exist on this site, the disturbance area would be small and large areas of similar or identical habitat surrounds the site. The potential impact (including cumulative impacts) to terrestrial, avian and aquatic life and habitats would be negligible.

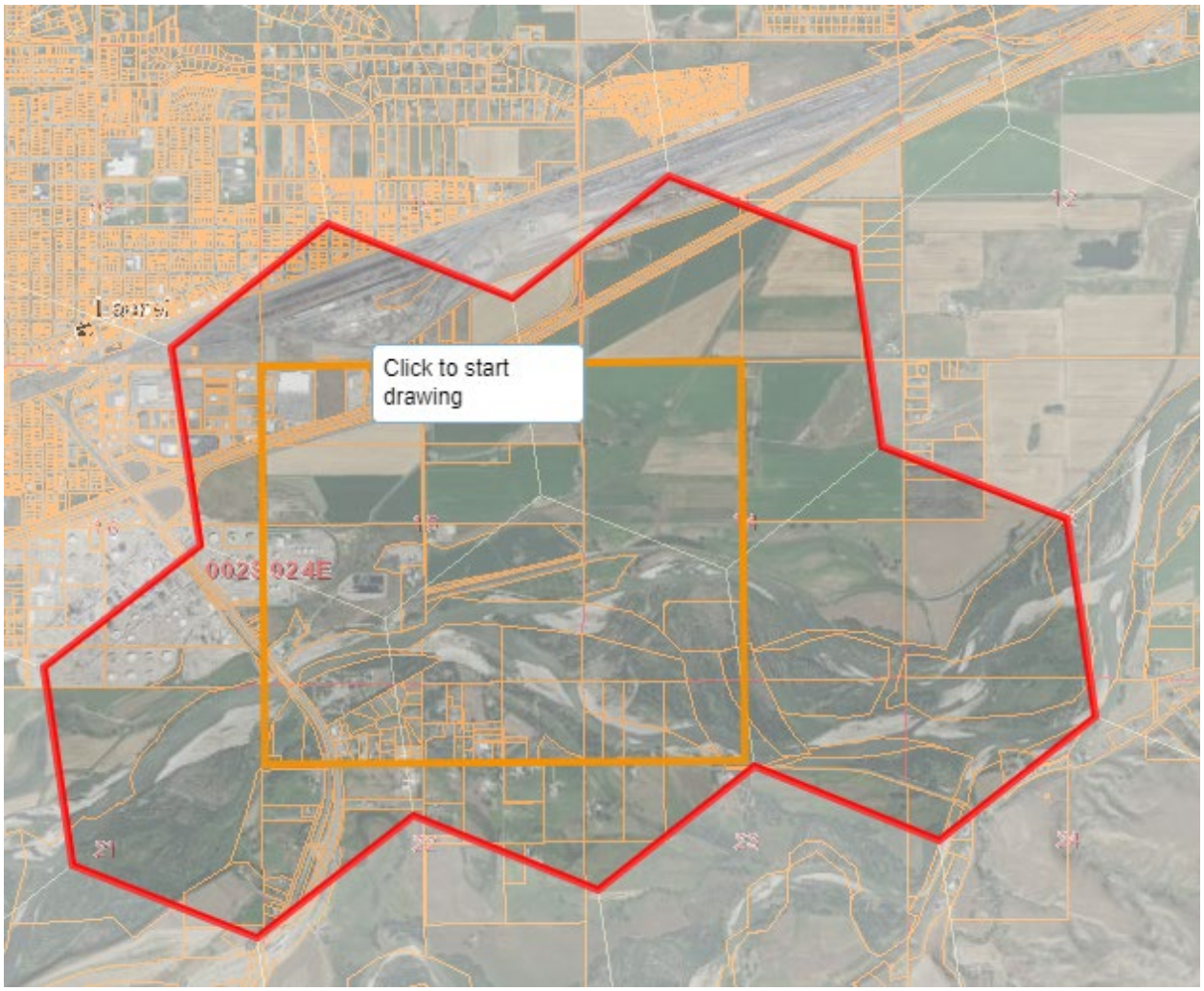
A list of species of concern is also identified within the next section on unique and endangered resources.

Secondary Impacts:

Proposed Action: No secondary impacts to terrestrial, avian and aquatic life and habitats stimulated or induced by the direct impacts analyzed above would be expected.

6. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES:

DEQ conducted several searches using the Montana Natural Heritage Program webpage. By default, the MNHP model expands this selected area to include two connected hexagons which are each one square mile. An expanded search based on MNHP guidance to include a larger buffer around the project site, resulted in a 2.25 square mile selection, which then defaulted to five hexagons each covering one square mile. The latter polygon is represented by the Figure directly below.



Species of concern from the Montana Natural Heritage Program (MNHP) identified the following species: Spiny Softshell, Bald Eagle, Great Blue Heron, and the Alberta Snowfly. There are other species within the selected polygon including the Snapping Turtle, Sauger, Yellow-billed Cuckoo, Grizzly Bear and the Bat Roost that also are either species of concern, special status species, or important animal habitat but these have not been observed. Other Observed Species identified from the MNHP report identifies the North American Porcupine, Northern Leapord Frog, Common Poorwill, Plumbeous Vireo, Red Headed Woodpecker, Golden Eagle, White-faced Ibis, and American White Pelican.

Direct Impacts: *Proposed Action:* The project area is located near industrial facilities, a wastewater treatment plant and other agricultural properties. The species of concern from the MNHP list are associated with the riverine habitat on the Yellowstone River, which is approximately 300 feet to the south of proposed action. These species would not be displaced by the proposed action as the site was formerly cultivated land and adjacent to industrial uses. Even if suitable habitat did exist on this site, the disturbance area would be small and large areas of similar or identical habitat surrounds the site. The potential impact (including cumulative impacts) to species present would be negligible.

Secondary Impacts: *Proposed Action:* The proposed action would not have secondary impacts to

endangered species because the permit conditions are protective of human and animal health. Air quality modeling that was conducted demonstrated compliance with ambient air quality standards.

7. **HISTORICAL AND ARCHAEOLOGICAL SITES:**

The Montana State Historic Preservation Office (SHPO) was notified of the application. SHPO conducted a file search and provided a letter dated May 12, 2021.

Direct Impacts: *Proposed Action:* A search by SHPO has indicated there have been a few previously recorded sites within the designated search location. Site 24YL0161 is the historic BBWA canal, and 24YL0171 is the historic Canyon Creek Ditch, both of which border the proposed project area. As long as there is no disturbance or alteration to the historic ditches, there is a low likelihood cultural that properties would be impacted.
However, should structures need to be altered, or if cultural materials are inadvertently discovered during this project, SHPO recommends their office be contacted for further investigation. If resources were discovered during operations resources, it would be NWE's responsibility to determine next steps as required by law. No impacts to historical and archeological sites would be expected.

Secondary Impacts: *Proposed Action:* No secondary impacts to historical and archaeological sites are anticipated.

8. **SAGE GROUSE EXECUTIVE ORDER:**
The project would not be in core, general or connectivity sage grouse habitat, as designated by the Sage Grouse Habitat Conservation Program (Program) at: http://sagegrouse.mt.gov.

Direct Impacts: The proposed action is not located within Sage Grouse habitat, no direct impacts would occur.

Secondary Impacts: No secondary impacts to sage grouse or sage grouse habitat would be expected.

9. AESTHETICS:
The site is located in an area mostly surrounded by agricultural and industrial private property area. The project would occur on private land. There are two nearby residents. When measuring from the center of the east side of the engine hall these residences are approximately 1,030 feet and 1,230 feet away from the engine hall. The exhaust stacks are on the west side of the engine hall and are further away from the residences.

Direct Impacts: *Proposed Action:* There would be temporary construction with building activities including noise and dust. Equipment planned for construction would likely include cranes, backhoes, graders/dozers, passenger trucks, delivery trucks, cement trucks, and various other types of smaller equipment. The use of the various types of equipment would be spread out over the duration of the expected year-long construction schedule. Once the proposed action is constructed, a baseline level of noise would occur from the 18 RICE. This project is considered to be short-term with far field-noise specification estimates less than or equal to 65 A-weighted decibels (dBa) at 600 feet west of the radiators and 555 feet east of the east exterior

wall of the engine hall. Noise estimates would also not exceed 65 dBa at 600 feet to the north and south. All reported noise estimates are within the NWE property boundaries and noise beyond these distances would drop.

The proposed project would incorporate noise mitigation measures:

- Combustion air inlet 45 dB silencer
- Exhaust gas 45 dB silencer
- Low noise radiators
- Building noise attenuation panels, including treatment for HVAC systems

The backup diesel generator and fire pump could also result in some intermittent noise due to operation for emergency situations as well as periodic testing of these engines to test their functionality. The backup generator and fire pump engines are each limited to 300 hours of operation per year. During operation of these two engines (which use diesel fuel), visible emissions from the engines exhaust is likely but are limited by permit opacity conditions. Each of the 18 RICE have their own exhaust stack at approximately 77 feet in height and 4.3 feet in diameter. The backup generator stack height would approximately be 16 feet tall and the emergency fire pump engine stack height is approximately 13 feet tall. The dew point heater also has its own stack estimated at 20 feet in height. The tallest stacks located on the site could be visible from the surrounding properties, intermittently from recreationalists on the Yellowstone River to the south, and visible from the Laurel Riverside Park. Since the facility would operate 24/7 365 days per year, some external lighting would exist at the facility and may be visible from the immediate surrounding properties.

Secondary Impacts: *Proposed Action:* There would be secondary impacts to places with previously unobstructed views of the facility. No other secondary impacts to aesthetics and noise are anticipated.

10. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY:

The site is located in an area characterized by agricultural and industrial activities and new disturbance is to be a minor increase the demands on environmental resources.

Direct Impacts: *Proposed Action:* During construction of the proposed action there would be minor increase in energy use to construct the proposed action. See the Air Quality and Water Quality sections of the EA to see the potential impacts from the proposed action regarding Air and Water resources.

Secondary Impacts: *Proposed Action:* During operations, the proposed action would deliver electricity to the electrical grid to provide maximum flexibility for on-demand capacity, ancillary services and critical electrical grid regulation services (NWE AQP Application, dated June 2021 - Revision). Adjacent electrical substations and structures would have to be improved to place the electricity produced from the proposed action on the electrical grid.

11. IMPACTS ON OTHER ENVIRONMENTAL RESOURCES:

The site is immediately surrounded by agricultural and industrial properties.

Direct Impacts: *Proposed Action:* Based on the required information provided by NWE, DEQ is not aware of any activities nearby that would affect the proposed project.

Secondary Impacts: *Proposed Action:* No secondary impacts to other environmental resources are anticipated as a result of the proposed project.

12. HUMAN HEALTH AND SAFETY:

The applicant would be required to adhere to all applicable state and federal safety laws. Industrial work that involves combustion equipment, natural gas and diesel fuels bring certain risks. The Occupational Safety and Health Administration (OSHA) has developed rules and guidelines to reduce the risks associated with this rotating equipment, combustion devices and chemical storage and handling of aqueous ammonia. The access to the public would be restricted to this property with fencing. Secure access to the site would be maintained with the use of the planned fencing, security cameras, and badging access. The Occupational Safety and Health Administration (OSHA) has developed rules and guidelines to reduce the risks associated with this rotating equipment, combustion devices and chemical storage and handling of aqueous ammonia. The access to the public would be restricted to this property with fencing.

Direct Impacts: *Proposed Action:* Impacts to human health and safety are anticipated to be short-term and minor as a result of this project. Control of NOx emissions on the 18 RICE utilizes a 19% percent aqueous solution of ammonia also known as ammonium hydroxide. The 19% solution represents the weight of ammonium hydroxide with the balance of the solution being water. The ammonia would be stored in two 10,000-gallon storage tanks at the facility. Approximately 129 truck deliveries would be required every year to provide the necessary ammonia to control the NOx emissions to satisfy the NOx emission limits with the air quality permit. Chemical tanker truck deliveries would be made at a rate of approximately 129 trips per year to deliver the aqueous ammonia to the site. This would result in increased tanker traffic on the route to the site. Noise estimates were provided earlier within the EA and do not exceed any OSHA exposure limits at the property boundary with the mitigations which are identified that would be incorporated onto the equipment creating the noise. When the facility would shutdown in the future, the direct impacts would cease to exist.

Secondary Impacts: *Proposed Action:* No secondary impacts to human health and safety are anticipated as a result of the proposed work.

13. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION:

Direct Impacts: *Proposed Action:* As the current property parcel is approximately 36 acres, a minor decrease in agricultural property could occur with approximately 10.4 acres of disturbance for the proposed action during operations. Impacts on the industrial, commercial, and agricultural activities and production in the area would be minor and long-term. The aqueous ammonia quantities required for the 18 RICE would create additional demand on producers of aqueous ammonia. The anticipated source of the aqueous ammonia is likely be based on the lowest delivered cost to the site.

Secondary Impacts: *Proposed Action:* No secondary impacts to industrial, commercial, water conveyance structures, and agricultural activities and production are anticipated as a result of the proposed project.

14. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:

There currently are no known jobs at the site as it is agricultural land and currently has no commercial crop being cultivated.

Direct Impacts: *Proposed Action:* New employment opportunities would occur with this project. The proposed project would be expected to have only minor impacts on the distribution of employment. During construction approximately 150 temporary contractor jobs would be created and after construction approximately 12 to 15 permanent jobs would remain. Due to the aqueous ammonia deliveries required to control NOx emissions, contract tanker deliveries to the site would provide additional employment.

Secondary Impacts: *Proposed Action*: Minor increases in in distribution of employment are anticipated as a result of the proposed project. This would be the result of employment created for tanker truck deliveries of aqueous ammonia and other less frequent maintenance including catalyst changes on the RICE.

15. LOCAL AND STATE TAX BASE AND TAX REVENUES:

The proposed action would be expected to have minor impacts on the local and state tax base and tax revenue. The construction project would provide approximately 150 temporary contractor jobs after which approximately12 to 15 permanent jobs would be created.

Direct Impacts: *Proposed Action:* Local, state and federal governments would be responsible for appraising the property, setting tax rates, collecting taxes, from the companies, employees, or landowners benefitting from this operation.

Secondary Impacts: *Proposed Action:* No secondary impacts to local and state tax base and tax revenues are anticipated as a result of the proposed action.

16. DEMAND FOR GOVERNMENT SERVICES:

The proposed action is in an existing area of rural and industrial area. **Direct Impacts:** *Proposed Action:* Compliance review and assistance oversight by DEQ AQB would be conducted in concert with other area activity when in the vicinity. Occasional increases in construction-related traffic would occur but this would only last for the duration of the construction project estimated for about 12 months.

Secondary Impacts: *Proposed Action:* Local traffic would likely increase with the new permanent employees and aqueous ammonia deliveries. Impacts would be long-term and minor.

17. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS:

A review was also conducted of the Laurel 2020 Growth Management Plan which appears to have been adopted in December of 2020. This document captures the vision for the area relative to nearly all aspects of community growth and the vision identified for the area. The plan also identifies the types of infrastructure projects that could be funded through a number grant/loan programs that could bring capital funds to the area. Currently, the zoning of the

proposed action is partially zoned heavy industrial and partially zoned agricultural by the City of Laurel (Ishkanian. 2021). These would conceivably include water and wastewater projects for public projects within the immediate area.

Direct Impacts: *Proposed Action:*. NWE has submitted the rezoning application to the City of Laurel to change from agricultural to heavy industrial (Ishkanian. 2021). The proposed action would then be conformity with the local plan.

Secondary Impacts: *Proposed Action:* No secondary impacts to the locally-adopted environmental plans and goals are anticipated as a result of the proposed action.

18. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES:

The current site of the proposed action is in an area of industrial and rural interface. Recreation opportunities are located to the south of the proposed action. The Yellowstone River and Riverside Park are both to the south. No wilderness areas or other recreational sites are in the vicinity.

Direct Impacts: *Proposed Action*: There would be no impacts to the access to wilderness activities as none are in the vicinity of the proposed action. Recreationalists on the Yellowstone River and at Riverside Park could be able to see the stacks of the RICE intermittently and would likely hear a steady noise from the RICE operation including noise from the velocity of discharge exhaust running flowing through the stack ductwork. The noise would be similar in nature to the existing CHS Refinery nearby. If a receptor were to increase their distance from the proposed action, noise and visual impacts would decrease.

Secondary Impacts: *Proposed Action:* No secondary impacts to access and quality of recreational and wilderness activities are anticipated as a result of the proposed work.

19. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:

The approximate of the proposed action to the largest urban area in Montana would easily be able to handle all housing needs for temporary workers.

Direct Impacts: *Proposed Action:* The project would not add to the population or require additional housing, therefore, no impacts to density and distribution of population and housing are anticipated. The 150 temporary construction workers would use the existing housing in the surrounding communities for the duration of the construction schedule. The 12 to 15 permanent workers would not be expected to create a housing shortage in the surrounding communities. As identified elsewhere, the construction schedule is estimated to last approximately 12 months from April 2022 thru May 2023

Secondary Impacts: *Proposed Action:* No secondary impacts to density and distribution of population and housing are anticipated as a result of the proposed action.

20. SOCIAL STRUCTURES AND MORES:

Based on the required information provided by NWE, DEQ is not aware of any native cultural concerns that would be affected by the proposed activity.

Direct Impacts: *Proposed Action:* The proposed operation would occur entirely on private land. Due to the low population density nearby, no disruption of native or traditional lifestyles would be expected, therefore, no impacts to social structure and mores are anticipated.

Secondary Impacts: *Proposed Action:* No secondary impacts to social structures and mores are anticipated as a result of the proposed operations.

21. CULTURAL UNIQUENESS AND DIVERSITY:

Based on the required information provided by NWE, DEQ is not aware of any unique qualities of the area that would be affected by the proposed activity.

Direct Impacts: *Proposed Action:* No impacts to cultural uniqueness and diversity are anticipated from this project.

Secondary Impacts: *Proposed Action:* No secondary impacts to cultural uniqueness and diversity are anticipated as a result of the proposed work.

22. PRIVATE PROPERTY IMPACTS:

The proposed project would take place on privately-owned land. The analysis done in response to the Private Property Assessment Act indicates no impact. DEQ does not plan to deny the application or impose conditions that would restrict the regulated person's use of private property so as to constitute a taking. (See Attached Private Property Assessment Act (PPAA) Checklist. Further, if the application is complete, DEQ must take action on the permit pursuant to § 75-2-218(2), MCA. Therefore, DEQ does not have discretion to take the action in another way that would have less impact on private property—its action is bound by a statute.

There are private residences in the area of the proposed project. The closest residence is located approximately 1030 feet from the north-side center of the east side of the engine hall in an easterly direction. The second residence is located southeast at a distance of approximately 1230 feet. The nearest other residences are generally located straight south of the proposed site, across the Yellowstone River. The closest of these residences to the south is approximately 2300 feet. The area already includes industrial tenants including the Laurel wastewater treatment plant, CHS refinery and an existing NWE substation.

23. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:

Due to the nature of the proposed action, no further direct or secondary impacts are anticipated from this project.

ADDITIONAL ALTERNATIVES CONSIDERED:

No Action Alternative: In addition to the proposed action, DEQ is considering a "no action" alternative. The "no action" alternative would deny the approval of the proposed action. The applicant would lack the authority to conduct the proposed activity. Any potential impacts that would

result from the proposed action would not occur. The no action alternative forms the baseline from which the impacts of the proposed action can be measured.

If the applicant demonstrates compliance with all applicable rules and regulations as required for approval, the "no action" alternative would not be appropriate. Pursuant to, § 75-1-201(4)(a), (MCA) DEQ "may not withhold, deny, or impose conditions on any permit or other authority to act based on" an environmental assessment.

CUMULATIVE IMPACTS:

Cumulative impacts are the collective impacts on the human environment within the borders of Montana of the proposed action when considered in conjunction with other past and present actions related to the proposed action by location and generic type. Related future actions must also be considered when these actions are under concurrent consideration by any state agency through preimpact statement studies, separate impact statement evaluation, or permit processing procedures. There are currently no other permit applications for this facility pending before DEQ. Although additional permits may be necessary for this facility in the future, without a pending permit application containing the requisite information, DEQ cannot speculate about which permits may be necessary or which permits may be granted or denied. For example, at this time DEQ does not have sufficient information to determine whether or not a MPDES permit will be required—and therefore cannot predict whether there will be a discharge associated with this facility. There may, therefore, be additional cumulative impacts (*e.g.* to water) associated with this facility in the future, but those impacts will be analyzed by future environmental reviews associated with those later permitting actions. (For example, if NWE applies for a MPDES permit DEQ will analyze the cumulative impacts of the already issued air quality permit and the then-pending MPDES permit.) This environmental review analyzes only the proposed action submitted by NWE, which is the air quality permit regulating the emissions from the equipment as listed in the "proposed action" section, above.

There are other sources of industrial emissions in the vicinity. The CHS refinery is known to have emissions including CO, VOCs, SO_2, NOx and particulate matter and currently has a Montana Air Quality Permit. Emissions from area competing sources were included in the Ambient Air Quality analysis. This was covered in the Permit Analysis Section VI. Ambient Air Impact Analysis. These emissions are limited thru enforceable conditions within their air quality permit. There is also the Laurel Wastewater Treatment facility which like any treatment plant would have emissions. These may include VOCs, CO_2, methane, and nitrous oxide (N_2O). The Laurel Wastewater Treatment Plant does not hold a Montana Air Quality Permit. Collectively, these two sources and the proposed action can all contribute to the ambient air quality and when future permit actions occur at either CHS or the proposed site, these actions may require future analysis. There are not expected to be cumulative issues with either BLM or USFS projects due to the low ownership of property within the immediate area. BLM does own property approximately 0.85 mile to the southeast but any actions on BLM property would not likely have impacts on air emissions other than fugitive dust concerns. No Forest Service Property is in the vicinity of the proposed action.

A review was also conducted of the Laurel 2020 Growth Management Plan which appears to have been adopted in December of 2020. This document captures the vision for the area relative to nearly all aspects of community growth and the vision identified for the area. The plan also identifies the types of infrastructure projects that could be funded through a number grant/loan

programs that could bring capital funds to the area. These would conceivably include water and wastewater projects for public projects within the immediate area.

DEQ considered potential impacts related to this project and potential secondary impacts. Due to the limited activities in the analysis area, cumulative impacts related to this project would be minor and short-term.

PUBLIC INVOLVEMENT:

Scoping for this proposed action consisted of internal efforts to identify substantive issues and/or concerns related to the proposed operation. Internal scoping consisted of internal review of the environmental assessment document by DEQ Air Permitting staff.

Internal efforts also included queries to the following websites/ databases/ personnel:
- Montana State Historic Preservation Office
- Montana Department of Environmental Quality (DEQ)
- Yellowstone County
- Montana Natural Heritage Program
- Montana Cadastral Mapping Program

OTHER GOVERNMENTAL AGENCIES WITH JURSIDICTION:

The proposed project would be fully located on privately-owned land. All applicable local, state, and federal rules must be adhered to, which, at some level, may also include other local, state, federal, or tribal agency jurisdiction. Other Governmental Agencies which May Have Overlapping or Sole Jurisdiction include, but may not be limited to: City of Laurel, Yellowstone County Commission or County Planning Department (zoning), Yellowstone County Weed Control Board, OSHA (worker safety), DEQ AQB (air quality) and Water Protection Bureau (groundwater and surface water discharge; stormwater), DNRC (water rights), and MDT and Yellowstone County (road access).

NEED FOR FURTHER ANALYSIS AND SIGNIFICANCE OF POTENTIAL IMPACTS

Under ARM 17.4.608, DEQ is required to determine the significance of impacts associated with the proposed action. This determination is the basis for the agency's decision concerning the need to prepare an environmental impact statement and also refers to DEQ's evaluation of individual and cumulative impacts. DEQ is required to consider the following criteria in determining the significance of each impact on the quality of the human environment:

1. The severity, duration, geographic extent, and frequency of the occurrence of the impact;

   "Severity" is analyzed as the density of the potential impact while "extent" is described as the area where the impact is likely to occur. An example could be that a project may propagate ten noxious weeds on a surface area of 1 square foot. In this case, the impact may be a high severity over a low extent. If those ten noxious weeds were located over ten acres there may be a low severity over a larger extent.

   "Duration" is analyzed as the time period in which the impact may occur while "frequency" is analyzed as how often the impact may occur. For example, an operation that occurs

throughout the night may have impacts associated with lighting that occur every night (frequency) over the course of the one season project (duration).

2. The probability that the impact will occur if the proposed action occurs; or conversely, reasonable assurance in keeping with the potential severity of an impact that the impact will not occur;

3. Growth-inducing or growth-inhibiting aspects of the impact, including the relationship or contribution of the impact to cumulative impacts;

4. The quantity and quality of each environmental resource or value that would be affected, including the uniqueness and fragility of those resources and values;

5. The importance to the state and to society of each environmental resource or value that would be affected;

6. Any precedent that would be set as a result of an impact of the proposed action that would commit the department to future actions with significant impacts or a decision in principle about such future actions; and

7. Potential conflict with local, state, or federal laws, requirements, or formal plans.

The significance determination is made by giving weight to these criteria in their totality. For example, impacts with moderate or major severity may be determined to be not significant if the duration of the impacts is considered to be short-term. As another example, however, moderate or major impacts of short-term duration may be considered to be significant if the quantity and quality of the resource is limited and/or the resource is considered to be unique or fragile. As a final example, moderate or major impacts to a resource may be determined to be not significant if the quantity of that resource is high or the quality of the resource is not unique or fragile.

Pursuant to ARM 17.4.607, preparation of an environmental assessment is the appropriate level of environmental review under MEPA if statutory requirements do not allow sufficient time for an agency to prepare an environmental impact statement. An agency determines whether sufficient time is available to prepare an environmental impact statement by comparing statutory requirements that establish when the agency must make its decision on the proposed action with the time required to obtain public review of an environmental impact statement plus a reasonable period to prepare a draft environmental review and, if required, a final environmental impact statement.

SIGNIFICANCE DETERMINATION

The severity, duration, geographic extent and frequency of the occurrence of the impacts associated with the proposed action would be limited. NWE proposes to construct and operate the proposed action on a 36-acre site located on private land, two miles southeast of Laurel**,** Montana. The estimated construction disturbance would be about 20.4 to 25.4 acres. Once operational, the disturbed acreage is estimated at 10.4 acres.

DEQ has not identified any significant impacts associated with the proposed action for any environmental resource. Approving NWE's Air Quality Application would not set precedent that commits DEQ to future actions with significant impacts or a decision in principle about such future actions. If NWE submits another permit application, DEQ is not committed to approve those applications. DEQ would conduct a new environmental review for any subsequent air quality permit applications sought by NWE. DEQ would make a decision on NWE's subsequent application based on the criteria set forth in the Clean Air Act of Montana.

DEQ's issuance of an Air Quality Permit to NWE for this proposed operation does not set a precedent for DEQ's review of other applications, including the level of environmental review. The level of environmental review decision is made based on a case-specific consideration of the criteria set forth in ARM 17.4.608.

DEQ does not believe that the proposed action has any growth-inducing or growth-inhibiting aspects or that it conflicts with any local, state, or federal laws, requirements, or formal plans. Based on a consideration of the criteria set forth in ARM 17.4.608, the proposed state action is not predicted to significantly impact the quality of the human environment. Therefore, at this time, preparation of an environmental assessment is determined to be the appropriate level of environmental review under the Montana Environmental Protection Act.

Environmental Assessment and Significance Determination Prepared By:

Craig Henrikson	**Environmental Engineer, P.E.**
Name	**Title**

EA Reviewed By:

Julie Merkel	**Permitting Services Section Supervisor**
Name	**Title**

Responses to Substantive Comments are located in the Permit Analysis Section of the Air Quality Permit.

References

Air Quality Permit Application Received May 10, 2021
Revised Air Quality Permit Application Received June 9, 2021
Montana State Historical Preservation Office (SHPO) Report Received May 12, 2021
Montana Natural Heritage Program (Website Search Downloads) Last Download Aug 13, 2021
Montana Cadastral GIS Layer – Through-Out Project Up Until Decision Issuance
Laurel 2020 Growth Plan
DEQ Draft Modeling Guidance Document November 2007
NWE Project Site Geotechnical Report Dated: February 22, 2021

Ishkanian. 2021. Email communication about Supplemental MEPA information for LGS EA, R. Ishkania, NorthWestern Energy to C. Jones, MEPA Coordinator, Montana DEQ. August 12.

William. 2021. Email communication about Supplemental MEPA information for LGS EA, B. William, NorthWestern Energy to C. Jones, MEPA Coordinator, Montana DEQ. August 19