

September 3, 2024

Laura Pritchard
Crusoe Energy Systems, Inc.
Kraken Central Site
255 Fillmore Street
Denver, CO 80206

Sent via email: lpritchard@crusoeenergy.com

RE: Final Permit Issuance for MAQP #5262-03

Dear Ms. Pritchard

Montana Air Quality Permit (MAQP) #5262-03 is deemed final as of August 31, 2024, by DEQ. This permit is for the Kraken Central Site-Crusoe Energy Systems, Inc. All conditions of the Decision remain the same. Enclosed is a copy of your permit with the final date indicated.

Conditions: See attached

For DEQ,



Craig Henrikson
Interim APS Supervisor
Air Quality Bureau
(406) 444-6711

Montana Department of Environmental Quality
Air, Energy & Mining Division
Air Quality Bureau

Montana Air Quality Permit #5262-03

Crusoe Energy Systems, Inc.
Kraken Central Site
255 Fillmore Street
Denver, CO 80206

August 31, 2024



MONTANA AIR QUALITY PERMIT

Issued To: Crusoe Energy Systems, Inc.
1641 California St., Suite 400
Denver, CO 80202

MAQP: #5262-03
Application Complete: 06/27/2024
Preliminary Determination (PD): 07/30/2024
Departments Decision (DD) Issued: 08/15/2024
Permit Final: 08/31/2024

A Montana Air Quality Permit (MAQP), with conditions, is hereby granted to Crusoe Energy Systems, Inc. (Crusoe), 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. Plant Location

Crusoe Energy Systems, Inc. owns and operates the facility, identified as Kraken Central Site, located approximately 15.2 miles northeast of Sidney, Montana, in Section 8, Township 25 North, Range 59 East, in Richland County, 47.93400°N, latitude and -104.13700°W, longitude.

B. Current Permit Action

On May 28, 2024, the Department of Environmental Quality (DEQ) received an application modification request from Crusoe to add an additional seven (7) emitting units to the existing MAQP. The equipment includes two additional up to 500 kW EPA Tier II rated diesel engine/generators, and five (5) diesel storage tanks. The diesel storage tanks would include two (2), 2,000-gallon horizontal tanks and three (3), 1,000-gallon horizontal tanks. For the purposes of emission calculations, DEQ used an estimated horsepower (hp) of 671 hp for the 500 kW engines to match the original permit application. The two diesel generator units would be added to the existing EU06 emitting group which already contained three 500 kW diesel engine/generators, and the five diesel storage tanks would be added to the existing EU04 emitting group. DEQ issued an incompleteness letter on June 18, 2024, to request additional information. Crusoe responded with additional information on June 27, 2024.

Section II: Conditions and Limitations

A. Emission Limitations

1. Crusoe shall not have onsite more than seven (7) 2,500 brake horsepower (bhp) natural gas fired engines (ARM 17.8.749).
2. Emissions from each of the 2,500 bhp natural gas fired engines shall not exceed the following (ARM 17.8.749 and 17.8.752):

Total Particulate Matter (PM_{TOT}) – 0.01 grams per brake horsepower-hour (g/bhp-hr)

PM with an aerodynamic diameter of 10 microns or less (PM₁₀) – 0.01 g/bhp-hr
PM with an aerodynamic diameter of 2.5 microns or less (PM_{2.5}) – 0.01 g/bhp-hr
Sulfur Dioxide (SO₂) - 0.08 pounds per hour (lb/hr)
Oxides of Nitrogen (NO_x) – 0.83 lb/hr
Carbon Monoxide (CO) – 1.65 lb/hr
Volatile Organic Compounds (VOC) – 0.06 pound per hour (lb/hr)
Hazardous Air Pollutants (HAPs) – 0.24 lb/hr

3. Crusoe shall operate and maintain a non-selective catalytic reduction (NSCR) unit and an air/fuel ratio (AFR) controller on all 2,500 bhp engines, within the parameters recommended by the equipment manufacturer (ARM 17.8.752).

4. Crusoe shall not have onsite more than five (5) 500-kilowatt (kW) diesel-fired engines (ARM 17.8.749).

5. Emission from each of the 500-kW diesel fired engines shall not exceed the following (ARM 17.8.752):

PM_{TOT}, PM₁₀, PM_{2.5} – 0.03 g/bhp-hr
SO_x – 0.00152 pounds per million British thermal units (lb/MMBtu)
NO_x – 4.60 g/bhp-hr
CO – 0.60 g/bhp-hr
VOC – 0.03 g/bhp-hr
HAPs – 0.00136 lb/MMBtu

6. Hours of operation for each of the five (5) 500-kW diesel-fired engines shall not exceed 900 hours per calendar year (hr/yr) (ARM 17.8.749 and ARM 17.8.1204).

7. Crusoe shall not have onsite more than one (1) 1,099-kW diesel-fired engine (ARM 17.8.749).

8. Emissions from the 1,099-kW diesel-fired engine shall not exceed the following (ARM 17.8.752):

PM_{TOT}, PM₁₀, PM_{2.5} – 0.02 g/bhp-hr
SO_x – 0.00152 lb/MMBtu
NO_x – 6.09 g/bhp-hr
CO – 0.18 g/bhp-hr
VOC – 0.01 g/bhp-hr
HAPs – 0.00136 lb/MMBtu

9. Hours of operation for the 1,099-kW diesel fired engine shall not exceed 900 hr/yr (ARM 17.8.749 and ARM 17.8.1204).

10. Crusoe shall not have onsite more than 20, 200-gallon horizontal storage tanks for diesel storage (ARM 17.8.749).

11. Crusoe 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).
12. Crusoe 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).
13. Crusoe 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.12 (ARM 17.8.749).
14. Crusoe shall comply with all applicable standards and limitations, and the reporting, recordkeeping and notification requirements contained in 40 CFR 60, Subpart(s) A, IIII, and JJJJ (ARM 17.8.340 and 40 CFR 60, Subpart A, IIII, and JJJJ).
15. Crusoe shall comply with all applicable standards and limitations, and the reporting, recordkeeping and notification requirements contained in 40 CFR 63, Subpart A, Subpart ZZZZ (ARM 17.8.342 and 40 CFR 63, Subpart(s) A and ZZZZ).

B. Testing Requirements

1. Following the calendar date of the initial compliance demonstration, compliance with the applicable emission limits shall be demonstrated via source testing for NO_x, CO and VOCs simultaneously within 8,760 operating hours or 3 years, whichever comes first. Source testing shall follow the applicable methods defined in 40 CFR 60 Subpart JJJJ, or equivalent methods as approved in writing by the DEQ. Future compliance demonstrations shall be required at this same frequency for EU04. (ARM 17.8.105, ARM 17.8.749, ARM 17.8.340, 40 CFR 60 Subpart JJJJ).
2. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).
3. The DEQ may require further testing (ARM 17.8.105).

C. Operational Reporting Requirements

1. Crusoe shall notify the DEQ 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 DEQ, 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).

2. All records compiled in accordance with this permit must be maintained by Crusoe 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 DEQ, and must be submitted to the DEQ upon request. These records may be stored at a location other than the plant site upon approval by the DEQ (ARM 17.8.749).
3. Crusoe shall supply the DEQ with annual production information for all emission points, as required by the DEQ 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 DEQ by the date required in the emission inventory request. Information shall be in the units required by the DEQ. 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). Crusoe shall submit the following information annually to the DEQ by March 1 of each year; the information may be submitted along with the annual emission inventory (ARM 17.8.505).

4. Crusoe shall document, by month, the total hours operated for the engines listed in Section II.A.4 and Section II.A.7. By the 25th day of each month, Crusoe shall total the hours operated for the previous month. The monthly information will be used to verify compliance with the hourly limitations listed in Section II.A.6 and Section II.A.9. (ARM 17.8.749).
5. Crusoe shall annually certify that the Kraken Central Site actual emissions are less than those that would require the source to obtain an air quality operating permit as required by ARM 17.8.1204(3)(b). The annual certification shall comply with the certification requirements of ARM 17.8.1207.

The annual certification shall be submitted along with the annual emission inventory information (ARM 17.8.749 and ARM 17.8.1204).

D. Notification

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

Startup date of each of the two new 500 kW diesel/generators within 15 days of actual startup of each engine.

SECTION III: General Conditions

- A. Inspection – Crusoe shall allow the DEQ’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 Crusoe fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving Crusoe 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 DEQ’s decision may request, within 15 days after the DEQ 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 DEQ’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 DEQ’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 DEQ’s decision on the application is final 16 days after the DEQ’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 DEQ at the location of the source.
- G. Permit Fee – Pursuant to Section 75-2-220, MCA, failure to pay the annual operation fee by Crusoe 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 Analysis
Crusoe Energy Systems, Inc. – Kraken Central Site
MAQP #5262-03

I. Introduction/Process Description

Crusoe Energy Systems, Inc., (Crusoe) owns and operates a natural gas compressor station. The facility is located 15 miles northeast of Sidney, Montana, in Section 8, Township 25 North, Range 59 East, in Richland County, 47. 93400°N, latitude and -104. 13700°W, longitude, and is referred to as the Kraken Central Site.

A. Permitted Equipment

Crusoe operates seven (7) 2,500 brake horsepower (bhp) Waukesha 9394 GSI generator engines, five (5) 500-kilowatt (kW) diesel fired engines, one (1) 1,099-kW diesel fired engine, five (5) 2,000-gallon (gal) horizontal diesel storage tanks, five (5) 1,000-gal horizontal diesel storage tank, and one (1) 5,200-gal horizontal diesel storage tank. Crusoe also maintains a number of 200-gallon horizontal storage tanks for diesel storage.

B. Source Description

Crusoe owns and operates a natural gas generator station used to power small data centers on site. The site also contains diesel-fired engines for back-up generation.

C. Permit History

On September 1, 2021, Montana Air Quality Permit (MAQP) #5262-00 was deemed final by the DEQ. The permit was for a Natural Gas Compressor Station, known as Kraken Central Site. In this permit, Crusoe was given the option to operate under two operating scenarios AOS1 or AOS2.

AOS1 would consist of two (2) 2,500 brake horsepower (bhp) Waukesha 9394 GSI generator engines (EU001), one (1) 484 bhp Waukesha VGF H24SE compressor engine (EU002), and one (1) 21,000 bhp Solar Titan 130 natural gas-fired compressor turbine (EU003).

AOS2 would consist of ten (10) 2,500 bhp Waukesha 9394 GSI generator engines (EU004).

On August 18, 2021, Crusoe notified the DEQ in writing of their intent to operate under AOS2, rendering AOS1 no longer an option.

On June 6, 2023, the DEQ received an application from Crusoe Energy Systems, Inc. The application requested the removal of the removal of three (3) 2,500 natural gas engines.

In addition to the removal of the engines, Crusoe requested to add one (1) 1,099-kilowatt (kW) US EPA rated Tier II Caterpillar C32 back-up diesel generator. Two (2) 500-kW US

EPA Tier II Caterpillar C15 back-up diesel fire generators. One (1) 2,000-gallon (gal) horizontal diesel storage tanks, three (3) 1,000-gal horizontal diesel storage tanks. DEQ received an additional request on June 14, 2023, to add an additional (1) 500 kW Tier II Caterpillar C15 back-up diesel generator, one (1) 2,000-gal horizontal diesel storage tank, and one (1) 5,200-gal horizontal diesel storage tank. **MAQP #5262-01** replaced MAQP #5262-00.

On August 10, 2023, the DEQ received an Administrative Amendment request from Pinyon Environmental, Inc., on behalf of Crusoe Energy Systems, Inc., to correct units of measurement. **MAQP #5262-02** replaced MAQP #5262-01.

D. Current Permit Action

On May 28, 2024, the DEQ received an application modification request from Crusoe to add an additional seven (7) emitting units to the existing MAQP. The equipment includes two additional up to 500 kW Tier II diesel engine/generators, and five (5) new diesel storage tanks. The new diesel storage tanks would include two (2), 2,000-gallon horizontal tanks and three (3), 1,000-gallon horizontal tanks. The two C15 diesel units would be added to the existing EU06 emitting group, and the five diesel storage tanks would be added to the existing EU04 emitting group. **MAQP #5262-03** replaces MAQP #5262-02.

E. Response to Public Comments (None received)

F. Additional Information

Additional information, such as applicable rules and regulations, Best Available Control Technology (BACT)/Reasonably Available Control Technology (RACT) determinations, air quality impacts, and environmental assessments, is included in the analysis associated with each change to the permit.

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 DEQ. Upon request, the DEQ will provide references for the 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 DEQ, 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 DEQ.

3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the DEQ, 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).

Crusoe 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 DEQ upon request.

4. ARM 17.8.110 Malfunctions. (2) The DEQ 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 PM₁₀
11. ARM 17.8.230 Fluoride in Forage

Crusoe 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, Crusoe 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. This rule requires that no person shall burn liquid, solid, or gaseous fuel 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). Crusoe 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 JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines. The proposed engines will be ordered after June 12, 2006, and manufactured after either July 1, 2007, and July 2, 2008, as applicable based on horsepower. Therefore, the engines operated at this facility are subject to this regulation.

- c. 40 CFR 60, Subpart IIII – Standard of Performance for Stationary Compression Ignition Internal Combustion Engines. Owners and operators of stationary CI ICE that commence construction after July 11, 2005, where the stationary CI ICE are manufactured after April 1, 2006, and are not fire pump engines, and owners and operators of stationary CI ICE that modify or reconstruct their stationary CI ICE after July 11, 2005, are subject to this subpart. Based on the information submitted by Crusoe, the CI ICE equipment to be used under MAQP #5262-03 may be subject to this subpart if they remain stationary for longer than one calendar year.
 9. 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. Subpart ZZZZ applies to the new reciprocating engines but compliance with Subpart ZZZZ is demonstrated by compliance with 40CFR 60 Subpart JJJJ.
- D. 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 DEQ. Crusoe 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 DEQ by each source of air contaminants holding an air quality permit (excluding an open burning permit) issued by the DEQ. 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 DEQ 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.
- E. 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. Crusoe has a PTE greater than 25 tons per year of Oxides of Nitrogen (NO_x), Carbon Monoxide (CO), Volatile Organic Compounds (VOCs); 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. Crusoe 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. Crusoe submitted an affidavit of publication of public notice for the May 25, 2024, issue of the *Sidney Herald*, a newspaper of general circulation in the City of Sidney 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 DEQ 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. A BACT analysis was submitted by Crusoe in permit application #5262-03.
8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the DEQ 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 Crusoe 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 DEQ'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 DEQ'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 DEQ.
 16. ARM 17.8.770 Additional Requirements for Incinerators. This rule specifies the additional information that must be submitted to the DEQ for incineration facilities subject to 75-2-215, Montana Code Annotated (MCA).
 17. ARM 17.8.771 Mercury Emission Standards for Mercury-Emitting Generating Units. This rule identifies mercury emission limitation requirements, mercury control strategy requirements, and application requirements for mercury-emitting generating units.
- F. 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).

G. ARM 17.8, Subchapter 12 – Operating Permit Program Applicability, including, but not limited to:

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any source having:
 - a. PTE > 100 tons/year of any pollutant;
 - b. PTE > 10 tons/year of any one hazardous air pollutant (HAP), PTE > 25 tons/year of a combination of all HAPs, or lesser quantity as the DEQ may establish by rule; or
 - c. PTE > 70 tons/year of particulate matter with an aerodynamic diameter of 10 microns or less (PM₁₀) in a serious PM₁₀ nonattainment area.
2. 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 #5262-03 for Crusoe, the following conclusions were made:
 - a. The facility's PTE is greater than 100 tons/year for any pollutant.
 - b. The facility's PTE is less than 10 tons/year for any one HAP and less than 25 tons/year for all HAPs.
 - c. This source is not located in a serious PM₁₀ nonattainment area.
 - d. This facility is subject NSPS (40 CFR 60, Subparts A, III, JJJ).
 - e. This facility is subject to NESHAP standards (40 CFR 63, Subparts A and 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.

Crusoe requests federally enforceable permit limits to keep potential emissions below major source permitting thresholds. Therefore, the facility is not a major source and, thus a Title V operating permit is not required.

- h. As allowed by ARM 17.8.1204(3), the DEQ may exempt a source from the requirement to obtain an air quality operating permit by establishing federally enforceable limitations which limit that source's potential to emit.
 - i. In applying for an exemption under this section, the owner or operator of the source shall certify to the DEQ that the source's potential to emit does not require the source to obtain an air quality operating permit.
 - ii. Any source that obtains a federally enforceable limit on potential to emit shall annually certify that its actual emissions are less than those that would require the source to obtain an air quality operating permit.

Crusoe has taken legally enforceable permit limits to keep potential emissions below major source permitting thresholds. Therefore, the facility is not a major source and, thus a Title V operating permit is not required.

3. ARM 17.8.1207 Certification of Truth, Accuracy, and Completeness.

Crusoe shall annually certify that its actual emissions are less than those that would require the source to obtain an air quality operating permit as required by ARM 17.8.1204 (3)(b). The annual certification shall comply with requirements of ARM 17.8.1207. The annual certification shall be submitted along with the annual emission inventory information.

III. BACT Determination

A BACT determination is required for each new or modified source. Crusoe 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.

Two 500-kw diesel-fired diesel generators:

The two 500-kw diesel units would be identical to three units currently on site. Crusoe previously provided a BACT analysis for the original three 500-kw units and Crusoe included reference to the original BACT analysis within the application and the portion of that analysis that relates to the two 500-kw diesel units (the backup generators) is included here. The rest of the BACT analysis submitted with the earlier application was unrelated to the proposed action as the action adds two 500-kw diesel generators to the current permit.

The BACT analysis from the applications associated with MAQP #5262-00 and MAQP #5262-02 have not changed and is included below for completeness. EU-06 engines are EPA-certified for Tier II, respectively and are only used for back-up purposes. Any additional evaluation for controls for EU-06 would be financially infeasible due to the intermittent and infrequent operation of these units. The two additional units are limited to 900 hours per year each, similar to the existing 500-kw engines.

The following options were reviewed for NO_x control:

- Water/steam injection
- Dry low NO_x combustion
- Selective catalytic reduction (SCR)
- Selective non-catalytic reduction (SNCR)
- Non-selective catalytic reduction (NSCR)
- Oxidation catalyst
- EM_x catalyst system

The water/steam injection and dry low NO_x combustion options would both require modifications to any existing engines onsite and considered technically infeasible for the engines within this application. SCR and SNCR require specific exhaust temperatures in order for the optimal destruction, but since the engines within this application do not meet the required range for either NO_x control method, they are not technically feasible.

Oxidation catalysts are best for lean burn engines, which is not applicable to the engines within this application as they are all rich burn engines. Costs associated with EM_x, while able to operate at the exhaust temperature from the engines within this application, exceed those associated with a nonselective catalyst which is able to provide 90 percent emission reduction at a lower cost.

NSCR has been chosen as the BACT for the engines within this application in addition to the use of an air fuel ratio controller (AFR).

Using a similar approach to the VOC & CO combustion options as was done with the NO_x control analysis, NSCR has been chosen as the BACT for the engines within this application in addition to the use of an AFR.

Emission levels associated with NSCR and an AFR for the EU-06 500-kw engines previously permitted are the following:

- NO_x – 4.60 g/bhp-hr
- CO – 0.60 g/bhp-hr
- VOC – 0.030 g/bhp-hr

Additionally, the June 2, 2023, application also resulted in BACT limits on particulate matter of the following:

PM₁₀/PM_{2.5} – 0.030 g/bhp-hr

Diesel Storage Tanks

DEQ did not find any analysis of BACT for VOC emissions from the diesel storage tanks within the current application, and also did not find any in the previous applications. However, storage tanks in diesel service have very low emissions due to the vapor pressure of diesel, and no additional controls for minimizing diesel are typically required to control

and/or minimize VOC emissions. No additional controls are required for the new storage tanks in diesel service.

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.

IV. Emission Inventory

The two new engines and five diesel storage tanks would have emissions which would add to the existing emissions from the current equipment. The full emission inventory of existing and proposed equipment is shown in the table below. The increase in emissions for each pollutant for the proposed new equipment is shown in the very bottom of the table. The largest increase in emissions is for NO_x, at 6.1 tons per year with the next largest increase from CO at 0.8 tons per year. All other pollutant increases are less than 0.1 tons per year.

Source	NO _x		CO		VOC		SO ₂		PM/PM ₁₀ /PM _{2.5}		HAPs	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
EU04 - 7 x Waukesha 9394 GSI	5.79	25.35	11.57	50.7	0.39	1.69	0.56	2.43	0.39	1.69	1.67	7.31
EU05 - 1 x Caterpillar C32	19.79	8.9	0.58	0.26	0.032	0.015	0.014	0.0065	0.065	0.029	0.013	0.0058
EU06 - 5 x Caterpillar C15	34	15.3	4.45	2	0.22	0.1	0.037	0.0165	0.22	0.1	0.0335	0.015
EU07 - 11 x Diesel Storage Tanks	-	-	-	-	0.00051	0.00225	-	-	-	-	-	-
Requested Total Facility PTE	59.58	49.55	16.6	52.96	0.64	1.82	0.61	2.45	0.68	1.82	1.83	7.33
Permitted Facility PTE	45.97	43.43	14.82	52.16	0.55	1.77	0.59	2.45	0.58	1.78	1.7	7.32
Net Change in PTE		6.12		0.8		0.05		0		0.04		0.01

Emission Calculations

2,500 hp engines

Note: Emissions are based on the power output of the engine

Operational Capacity of Engine = 7 engines

7 engines

Hours of Operation = 8,760.00 hours

8760 hours

PM Emissions:

PM Emissions = 11.65 ton/yr (Assume all PM < 1.0 um)

11.65 ton/yr

PM-10 Emissions:		
Emission Factor = 0.38 lb/hr (BACT)	0.38	lb/hr
Calculation: ((7 engines) * (8,760 hours) * (0.38 lb/hr) * (8,760 hours) * (ton/2000 lb) = 11.651 ton/yr	11.65	ton/yr
PM2.5 Emissions		
Emission Factor = 0.38 lb/hr (BACT)	0.38	lb/hr
Calculation: ((7 engines) * (8,760 hours) * (0.38 lb/hr) * (8,760 hours) * (ton/2000 lb) = 11.651 ton/yr	11.65	ton/yr
NOx Emissions:		
Emission Factor = 0.825 lb/hr (BACT)	0.825	lb/hr
Calculation: ((7 engines) * (8,760 hours) * (0.825 lb/hr) * (8,760 hours) * (ton/2000 lb) = 25.29 ton/yr	25.29	ton/yr
CO Emissions:		
Emission Factor = 1.65 lb/hr (BACT)	1.65	lb/hr
Calculation: ((7 engines) * (8,760 hours) * (1.65 lb/hr) * (8,760 hours) * (ton/2000 lb) = 50.59 ton/yr	50.59	ton/yr
VOC Emissions:		
Emission Factor = 0.055 lb/hr (BACT)	0.06	lb/hr
Calculation: ((7 engines) * (8,760 hours) * (0.06 lb/hr) * (8,760 hours) * (ton/2000 lb) = 1.686 ton/yr	1.69	ton/yr
SOx Emissions:		
Emission Factor = 0.08 lb/hr (BACT)	0.08	lb/hr
Calculation: ((7 engines) * (8,760 hours) * (0.08 lb/hr) * (8,760 hours) * (ton/2000 lb) = 2.453 ton/yr	2.45	ton/yr
HAPs Emissions		
Emission Factor = 0.24 lb/hr	0.24	lb/hr
Calculation: ((7 engines) * (8,760 hours) * (7.36 ton/yr) * (8,760 hours) * (ton/2000 lb) = 2.453 ton/yr	7.36	ton/yr

671 hp engine (500-kW)

Note: Emissions are based on the power output of the engine

Operational Capacity of Engine = 671 hp	5	engines
Hours of Operation = 900.00 hours	900	hours
Engine Horsepower Rating	671	hp
Conversion of grams to pounds	0.002205	lbs
MMBtu per Gallon of Diesel fuel	19300	Btu/gal
Gallons per hour for each engine	35.7	gal/hr

PM Emissions:		
PMTOT Emissions = 0.05 ton/yr (Assume all PM < 1.0 um)	0.1	ton/yr
Calculation: ((5 engines) * (0.03 g/bhp-hr) * (671 hp) * (900.00 hours) * (1 lb/453.53 g) * (1 ton/2000 lb) = 0.09 ton/yr		
PM-10 Emissions:		
Emission Factor = 0.03 g/bhp-hr (BACT)	0.03	g/bhp-hr
Calculation: ((5 engines) * (0.03 g/bhp-hr) * (671 hp) * (900.00 hours) * (1 lb/453.53 g) * (1 ton/2000 lb) = 0.09 ton/yr	0.1	ton/yr
PM-2.5 Emissions		
Emission Factor = 0.03 g/bhp-hr (BACT)	0.03	g/bhp-hr
Calculation: ((5 engines) * (0.03 g/bhp-hr) * (671 hp) * (900.00 hours) * (1 lb/453.53 g) * (1 ton/2000 lb) = 0.09 ton/yr	0.1	ton/yr
NOx Emissions:		

Emission Factor = 4.6 g/bhp-hr (BACT) 4.6 **g/bhp-hr**
 Calculation: ((5 engines) * (4.60 g/bhp-hr) * (671 hp) * (900.00 hours) * (1 lb/453.53 g) * (1 ton/2000 lb) = 13.6 ton/yr 15.3 **ton/yr**

CO Emissions:

Emission Factor = 0.6 g/bhp-hr (BACT) 0.6 **g/bhp-hr**
 Calculation: ((5 engines) * (0.60 g/bhp-hr) * (671 hp) * (900.00 hours) * (1 lb/453.53 g) * (1 ton/2000 lb) = 1.8 ton/yr 1.8 **ton/yr**

VOC Emissions:

Emission Factor = 0.03 g/bhp-hr (BACT) 0.03 **g/bhp-hr**
 Calculation: ((5 engines) * (0.03 g/bhp-hr) * (671 hp) * (900.00 hours) * (1 lb/453.53 g) * (1 ton/2000 lb) = 0.09 ton/yr 0.1 **ton/yr**

SOx Emissions:

Emission Factor = 0.014 lb/hr (BACT) 0.00152 **lb/MMBtu**
 Calculation: ((5 engines) * (0.00152 lb/hr) * (900 hours) * (ton/2000 lb) = 0.00 ton/yr 0.007 **ton/yr**

HAPs Emissions

Emission Factor = 0.00133 lb/mmbtu 0.00136 **lb/MMBtu**
 Calculation: ((5 engines) * (0.00136 lb/MMBtu) * (671 hp) * (900.00 hours) * (1 lb/453.53 g) * (1 ton/2000 lb) = 2.4 ton/yr 2.4 **ton/yr**

1497 hp engine (1,099-kW)

Note: Emissions are based on the power output of the engine (1 hp).

Operational Capacity of Engine = 1 engine 1 **engine**
 Hours of Operation = 900.00 hours 900 **hours**
 Engine Horsepower Rating 1497 **hp**
 Conversion of grams to pounds 0.002205 **lbs**
 MMBtu per Gallon of Diesel fuel 19300 **Btu/gal**
 Gallons per hour 69.4 **gal/hr**

PM Emissions:

PMTOT Emissions = 0.04 ton/yr (Assume all PM < 1.0 um) 0.04 **ton/yr**

PM-10 Emissions:

Emission Factor = 0.03 g/bhp-hr (BACT) 0.03 **g/bhp-hr**
 Calculation: ((1 engine) * (0.03 g/bhp-hr) * (1,497 hp) * (900.00 hours) * (1 lb/453.53 g) * (1 ton/2000 lb) = 0.045 ton/yr 0.04 **ton/yr**

PM-2.5 Emissions

Emission Factor = 0.03 g/bhp-hr (BACT) 0.03 **g/bhp-hr**
 Calculation: ((1 engine) * (0.03 g/bhp-hr) * (1,497 hp) * (900.00 hours) * (1 lb/453.53 g) * (1 ton/2000 lb) = 0.045 ton/yr 0.04 **ton/yr**

NOx Emissions:

Emission Factor = 4.6 g/bhp-hr (BACT) 4.6 **g/bhp-hr**
 Calculation: ((1 engine) * (4.60 g/bhp-hr) * (1,497 hp) * (900.00 hours) * (1 lb/453.53 g) * (1 ton/2000 lb) = 6.833 ton/yr 6.83 **ton/yr**

CO Emissions:

Emission Factor = 0.6 g/bhp-hr (BACT) 0.6 **g/bhp-hr**
 Calculation: ((1 engine) * (0.60 g/bhp-hr) * (1,497 hp) * (900.00 hours) * (1 lb/453.53 g) * (1 ton/2000 lb) = 0.891 ton/yr 0.89 **ton/yr**

VOC Emissions:

Emission Factor = 0.03 g/bhp-hr (BACT) 0.03 **g/bhp-hr**

Calculation: $((1 \text{ engine}) * (0.03 \text{ g/bhp-hr}) * (1,497 \text{ hp}) * (900.00 \text{ hours}) * (1 \text{ lb}/453.53 \text{ g}) * (1 \text{ ton}/2000 \text{ lb})) = 0.045 \text{ ton/yr}$ 0.04 **ton/yr**

SOx Emissions:

Emission Factor = 0.014 lb/hr (BACT) 0.00152 **lb/MMBtu**

Calculation: $((1 \text{ engine}) * (0.00152 \text{ lb/MMBtu}) * (900 \text{ hours}) * (\text{ton}/2000 \text{ lb})) = 0.006 \text{ ton/yr}$ 6.84E-4 **ton/yr**

HAPs Emissions

Emission Factor = 0.00133 lb/mmbtu 0.00136 **lb/MMBtu**

Calculation: $((1 \text{ engine}) * (0.00163 \text{ lb/MMBtu}) * (1,497 \text{ hp}) * (900.00 \text{ hours}) * (1 \text{ lb}/453.53 \text{ g}) * (1 \text{ ton}/2000 \text{ lb})) = 0.891 \text{ ton/yr}$ 0.91 **ton/yr**

Storage Tank Calculations

Diesel emissions from storage tanks are insignificant due to the vapor pressure of diesel fuel and are not shown here.

V. Existing Air Quality

Richland County is currently designated as attainment/unclassifiable for all pollutants.

VI. Air Quality Impacts

This permit contains conditions and limitations that would protect air quality for the site and surrounding area.

VII. Ambient Air Impact Analysis

The DEQ determined, based on MAQP #5262-03, that the impacts from this permitting action will be minor. The DEQ believes it will not cause or contribute to a violation of any ambient air quality standard.

VIII. Taking or Damaging Implication Analysis

As required by 2-10-105, MCA, the DEQ conducted a private property taking and damaging assessment which is included in the Environmental Assessment.

IX. Environmental Assessment

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



FINAL ENVIRONMENTAL ASSESSMENT

Crusoe Energy Systems, Inc.

Kraken Central Site

08/15/2024

Air Quality Bureau

Air, Energy, and Mining Division

Montana Department of Environmental Quality

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Project Overview

COMPANY NAME: Crusoe Energy Systems, Inc
EA DATE: July 02, 2024
SITE NAME: Kraken Central Site
MAQP#: 5262-03
Application Received Date: May 28, 2024
Additional Information Received: June 27, 2024

Location

Section 8, Township 25 North, Range 59 East, in Richland County

PROPERTY OWNERSHIP: FEDERAL STATE PRIVATE X

Compliance with the Montana Environmental Policy Act

Under the Montana Environmental Policy Act (MEPA), Montana agencies are required to prepare an environmental review for state actions that may have an impact on the human environment. The proposed action is considered to be a state action that may have an impact on the human environment and, therefore, the Department of Environmental Quality (DEQ) must prepare an environmental review. This Environmental Assessment (EA) will examine the proposed action and alternatives to the proposed action and disclose potential impacts that may result from the proposed and alternative actions. DEQ will determine the need for additional environmental review based on consideration of the criteria set forth in Administrative Rules of Montana (ARM) 17.4.608. DEQ may not withhold, deny, or impose conditions on the Permit based on the information contained in this EA (§ 75-1- 201(4), MCA).

Proposed Action

Crusoe Energy Systems, Inc. (Crusoe) has applied for a Montana Air Quality permit modification under the Clean Air Act of Montana to add two (2) backup diesel engine/generators and five (5) horizontal diesel storage tanks. The state law that regulates air quality permitting in Montana is the Clean Air Act of Montana, §§ 75-2-101, et seq., (CAA) 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 CAA of Montana and the administrative rules adopted thereunder, ARMs 17.8.101 et. seq. The proposed action would be located on privately owned land, near the town of Sidney in Richland County, Montana. All information included in this EA is derived from the permit application, discussions with the applicant, analysis of aerial photography, topographic maps, and other research tools.

Purpose and Need

Under MEPA, Montana agencies are required to prepare an environmental review for state actions that may have an impact on the human environment. The Proposed Action is considered to be a state action that may have an impact on the human environment and, therefore, DEQ must prepare an environmental review. This EA will examine the proposed action and alternatives to the proposed action and disclose potential impacts that may result from the proposed and alternative actions. DEQ will determine the need for additional environmental review based on consideration of the criteria set forth in ARM 17.4.608.

TABLE 1: SUMMARY OF ACTIVITIES PROPOSED IN APPLICATION

Table 1. Summary of Proposed Activities in Application	
General Overview	The project would add two (2) backup diesel-fired engine/generator sets each rated at approximately 671 horsepower, and five (5) horizontal diesel storage tanks with two (2) tanks at 1,000 gallons each and three (3) tanks at 2,000 gallons each. Annual operating limits of 900 hours per year are proposed for the two new backup diesel engines/generators.
Duration and Timing	Construction: Installation and set-up of the two (2) diesel/generator sets and five (5) diesel storage tanks would be completed over a few weeks time, as these are units that would arrive fully assembled, ready to complete final tie-ins and be put into operation. Operation: The two (2) backup diesel engines/generators would operate up to 900 hours per calendar year for the life of the facility. The five (5) new diesel storage tanks would provide fuel for the diesel engines. Any future site shutdown would require removal of all engines, and removal of the diesel storage tanks.
Estimated Disturbance	The applicant has indicated there will be no new disturbance for the proposed equipment because the ground was disturbed under previous permitting actions and was removed from agricultural production at that time. All new equipment would be set within this previously disturbed area. To provide some estimate of equipment footprint, DEQ has estimated ground coverage for the new equipment based on the manufacturer’s drawing for the two engines and tank dimensions based on the tank volumes. Equipment pad sizing for each engine is approximated at 16 feet long by 6 feet wide. Tank ground coverage for the five tanks is estimated at approximately 800 ft ² . Therefore, total ground coverage is approximated at less than 1,000 ft ² for the new equipment. Some additional small acreage of mobilization for equipment and storage prior to placement would be likely. DEQ estimates less than 1 acre for permanent siting and temporary mobilization area.
Equipment	Two backup diesel/generator engine sets and five small diesel storage tanks. Cranes and trucks would be on site for approximately 24 hours to unload and set the equipment.
Location	The new equipment would be located on the existing Crusoe site which is identified as Section 8, Township 25 North, Range 59 East, in Richland County, 47.93400°N, latitude and -104.13700°W, longitude. See Figure 1 and Figure 2 below.
Personnel on-site	Construction: Mobilization would be limited to engine and tank unloading and setting on support pads. Operation: No new personnel are expected to operate the new equipment on a permanent basis. Limited construction workers would be needed to complete setup of the new equipment and make physical connections which is estimated at two to three weeks duration.
Location and Analysis Area	The analysis area for this permit action is the area shown in Figures 1 and 2, and the immediate area surrounding the site.
Air Quality	The Applicant is required to comply with the applicable local, county, state, and federal requirements pertaining to air quality.

Water Quality	This project would not affect water quality. The Applicant would be required to comply with the applicable local, county, state, and federal requirements pertaining to water quality.
Erosion Control and Sediment Transport	This project is on property currently permitted for the same purpose. This project would not contribute to additional erosion or sediment transport. The Applicant is required to comply with the applicable local, county, state, and federal requirements pertaining to erosion control and sediment transport.
Cultural resources	The property is already in use as industrial property, and there would be no effects on cultural resources. The Applicant is required to comply with the applicable local, county, state, and federal requirements pertaining to cultural resources.
Aesthetics	The property is already in use as industrial property, and there would be negligible effects on aesthetics. The Applicant is required to comply with the applicable local, county, state, and federal requirements pertaining to aesthetics.
Hazardous Substances	This project does not contribute any hazardous substances to the facility. The Applicant is required to comply with the applicable local, county, state, and federal requirements pertaining to hazardous substances.
Weed Control	The Applicant is required to comply with the applicable local, county, state, and federal requirements pertaining to weed control.
Reclamation Plans	The property is already in use as industrial property, so no reclamation is necessary.
Solid Waste	This project would have no effect on solid waste in the area. The purpose of the two diesel/generator sets and diesel storage tanks would be to provide additional power as needed to produce electricity on site. The Applicant is required to comply with the applicable local, county, state, and federal requirements pertaining to solid waste.

Cumulative Impact Considerations	
Past Actions	The most recent air quality permitting action at this Crusoe site was an administrative amendment to clarify the units of reporting measurement for emitting units. Previous actions have all been related to bringing equipment on site to provide for the generation of electricity for the purpose of electricity production for small data centers. There are numerous oil and gas facilities both permitted and registered thru DEQ surrounding the existing site.
Present Actions	This is the only Montana Air Quality Permit action in the immediate vicinity at the current time.
Related Future Actions	DEQ is aware a different company is preparing to submit an official air quality permit application which would likely involve the addition of well-head gas-fired refrigeration mobile engines. DEQ is in the process of providing preliminary comments on that draft permit application for that future application.

Project Location (47.93400°N, latitude and -104.13700°W longitude)

Figure 1. Approximate Site Location (Montana Air quality Permit/Registered Oil and Gas Sites)

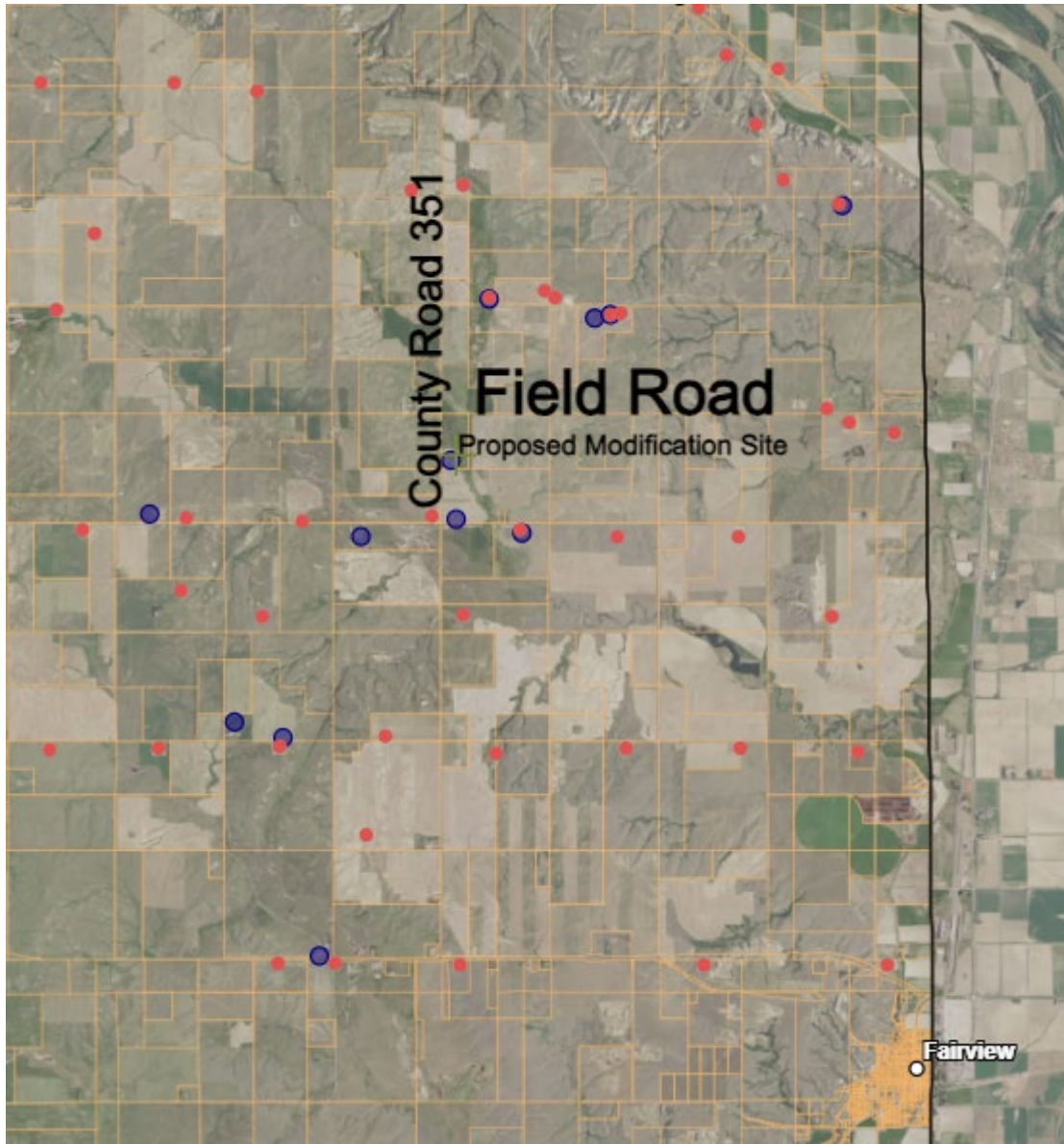


Figure 2. Zoomed in Site Location



EVALUATION OF AFFECTED ENVIRONMENT AND IMPACT BY RESOURCE:

The impact analysis will identify and evaluate whether the impacts are direct or secondary impacts to the physical environment and human population in the area to be affected by the proposed project. Direct impacts occur at the same time and place as the action that causes the impact. Secondary impacts are 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 would occur, the impacts will be described.

Cumulative impacts are the collective impacts on the human environment within the borders of Montana that could result from 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 impacts must also be considered when these actions are under concurrent consideration by any state agency through pre-impact statement studies, separate impact statement evaluation, or permit processing procedures. The activities identified in Table 1 were analyzed as part of the cumulative impacts assessment for each resource.

The duration is quantified as follows:

- Construction Impacts (short-term): These are impacts to the environment during the construction period. When analyzing duration, please include a specific range of time.
- Operation Impacts (long-term): These are impacts to the environment during the operational period. When analyzing duration, please include a specific range of time.

The intensity of the impacts 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. Geology and Soil Quality, Stability, and Moisture

The Applicant proposes to complete this project on property owned by the Kittleson Family Partnership, LP., which currently is operating with similar equipment to produce electricity for small data centers. The site is located within the boundaries of a parcel size 80.31 acres still listed as grazing acres in the Montana Cadastral Database. The Crusoe site has been developed within the 80.31 acres and DEQ estimates the discolored area of disturbance from aerial satellite photos as approximately 18 acres (See figure 2). The 18 acres represents the disturbance which has occurred to date from previously permitted actions. The proposed equipment installation including mobilization would occur within the area shown as already disturbed, estimated as less than 1 acre.

Direct Impacts:

The proposed project is on land currently used for electrical generation for small data centers. It would continue to be considered industrial use property. There are no known direct impacts on the geology and soil.

Secondary Impacts:

There are no predicted secondary impacts to geology and soil quality, stability and moisture associated with this project.

Cumulative Impacts:

Since there are no direct or secondary impacts, there are also no cumulative impacts to geology and soil quality, stability and moisture anticipated from this project.

2. Water Quality, Quantity, and Distribution

This project would not impact any surface or groundwater in the area. The project is proposed on property that is already in use for similar equipment and it would not impact the surrounding property.

Direct Impacts:

There are no direct impacts expected to water quality, quantity, and distribution from this project.

Secondary Impacts:

There are no secondary impacts to water quality, quantity, and distribution expected from this project.

Cumulative Impacts:

There are no cumulative impacts to water quality, quantity, and distribution expected from this project.

3. Air Quality

Applicants are required to comply with all laws relating to air, such as the Federal Clean Air Act, National Ambient Air Quality Standards set by the Environmental Protection Agency

(EPA), and the Clean Air Act of Montana. In addition, the MAQP #5262-03 permit requires that the Applicant take reasonable precautions to control airborne particulate matter any time the opacity is 10% or greater.

Direct Impacts:

The air quality impacts would be minor for this project. The majority of pollutants from the proposed project would be related to the combustion of process gas in the two new diesel-fired engines. The combustion of the process gas would result in the formation of NO_x, CO, SO₂, VOCs, and particulate matter. The backup diesel/generator sets would be limited to 900 hours each per calendar year so the impacts to air quality are minor as demonstrated by the emissions in the Air Quality section of the permit. There would also be VOC emissions associated with the five new diesel storage tanks. Emission increases for the proposed action would be as follows:

Source	(Potential to Emit Increases in Tons Per Year)					
	NO _x	CO	VOC	SO ₂	PM/PM10/PM2.5	HAPS
Two New Engines	6.12	0.80	0.05	0.00	0.04	0.01
New Diesel Tanks	na	na	negligible	na	na	na

Secondary Impacts: No secondary impacts to air quality are expected as a result of this project.

Cumulative Impacts:

No secondary impacts to air quality are expected as a result of this project.

4. Vegetation Cover, Quantity, and Quality

There are no known rare or sensitive plants or cover types present within the proposed analysis area. No known fragile or unique resources or values, or resources of statewide or societal importance, are present within the proposed analysis area. The property is already in use for industrial purposes. The area where the new equipment will be located has been used for similar activities resulting in an area devoid of natural vegetation so the new equipment would not disturb any native vegetation.

Direct Impacts:

Since the property is already used for similar industrial purposes and was already cleared for previous permitting activities, there would be no additional impacts to vegetation.

Secondary Impacts:

No secondary impacts to vegetation are expected as a result of this project.

Cumulative Impacts:

No cumulative impacts are expected to vegetation as a result of this project.

5. Terrestrial, Avian, and Aquatic Life and Habitats

The project is proposed on property that is currently in use as a private industrial property. There are no additional impacts to terrestrial, avian, or aquatic life habitats on the property in question.

Direct Impacts:

There are no direct impacts to terrestrial, avian, and aquatic life and habitats expected from this project on these habitats.

Secondary Impacts:

No secondary impacts to terrestrial, avian and aquatic life and habitats would be expected.

Cumulative Impacts:

There are no cumulative impacts to terrestrial, avian, and aquatic life and habitats expected from this project.

6. Unique, Endangered, Fragile, or Limited Environmental Resources

DEQ conducted a search using the Montana Natural Heritage Program (MTNHP) webpage with file downloads saved to the AQB project file. The polygon selected was the immediate area surrounding the previously disturbed area approximated as 18 acres with up to 1 acre for placement of the new diesel engines and tanks and mobilization.

The proposed project is not in core, general, or connectivity sage grouse habitat, as designated by the Sage Grouse Habitat Conservation Program (Program) at: <http://sagegrouse.mt.gov>. Impacts to sage grouse would not be expected.

Species of concern from the MTNHP report indicate the following: Whooping Crane, Sharp Tailed Grouse, Blue Sucker, Iowa Darter, Northern Red Belly Dace, Paddlefish, Pallid Sturgeon, Sauger, Sicklefin Chub, and Sturgeon Chub. There are other potential species of concern including but not limited to the Plains Hog-nosed Snake, *Psilocarphus brevissimus*, *Triodanis leptocarpa*, Black Billed Cuckoo, Bobolink, Laugerhead Shrike, Eastern Red Bat, Baird's Sparrow, Chestnut-collared Longspur, Sprague's Pipit, Little Brown Myotis, Long eared Myotis, Snapping Turtle, Elodea Bifoliata, Hoary Bat, American Bittern, American White Pelican, and Burrowing Owl.

Direct Impacts:

The project would not occur in Sage Grouse Habitat. Therefore, impacts to sage grouse would not occur. Some of the other species of concern appear related to water bodies, and the project would occur on a very small existing industrial site not within the larger area in which the MTNHP also includes. The other species of concern including the Whooping Crane and Sharp Tailed-Grouse would not be expected to be impacted beyond the activity which already occurs at the site.

Secondary Impacts:

No secondary impacts to sage grouse or sage grouse habitat would be expected as this site is not in sage grouse habitat. No secondary impacts to unique, endangered, fragile, or limited environmental resources would be expected.

Cumulative Impacts:

No cumulative impacts to unique, endangered, fragile, or limited environmental resources would be expected.

7. Historical and Archaeological Sites

This project is proposed on land that was previously disturbed under previous permitting activities. The new equipment would not require any new disturbance beyond the disturbed area which has already occurred. No additional impacts to history, culture, and archeological uniqueness are expected.

It is SHPO’s position that any structure over fifty years of age is considered historic and is potentially eligible for listing on the National Register of Historic Places. If any structures are within the Area of Potential Effect, and are over fifty years old, SHPO recommends that they be recorded, and a determination of their eligibility be made prior to any disturbance taking place.

No underground disturbance would be required for the proposed action as the new equipment would just sit on top of the existing disturbed site.

Direct Impacts:

No direct impacts to historical and archaeological sites are expected from this project.

Secondary Impacts:

No secondary impacts to historical and archaeological sites are anticipated.

Cumulative Impacts:

No cumulative impacts to historical and archeological sites would be expected.

8. Aesthetics

The site is located in an area on previously disturbed land which is industrial in nature. The new equipment is similar in function to existing equipment on site. The nearest residents are approximately 3400 feet to the southeast from the proposed site. There is also a registered oil and gas site approximately 2600 feet to the south.

Direct Impacts:

No aesthetic impacts are anticipated off the immediate area. The new equipment would be located within the existing disturbed area shown in Figures 1 and 2. Noise from the two new engines would be minor in comparison to existing engines already operating on site. Further the two new engines would only operate up to a maximum of 900 hours per year.

Secondary Impacts:

No secondary impacts to aesthetics are anticipated.

Cumulative Impacts:

No cumulative impacts to aesthetics would be expected from this project.

9. Demands on Environmental Resources of Land, Water, Air, or Energy

There are minor expected impacts to the demands on environmental resources of land, water, air, or energy resulting from this project. The Applicant is required to comply with all applicable federal, state, county, and local regulations and ordinances, permits, licenses, and approvals for the operation of the site, and therefore the impacts are limited by the permit requirements listed in MAQP #5262-03.

Direct Impacts:

Based on the analysis of available data and certifications made by the Applicant, DEQ does not foresee any unusual or excessive demands on land, water, air, or energy from this project. Therefore, limited direct impacts would be anticipated.

Secondary Impacts:

No secondary impacts to demands on environmental resources of land, water, air, or energy would be anticipated.

Cumulative Impacts:

No cumulative impacts to demands on environmental resources of land, water, air, or energy would be expected.

10. Impacts on Other Environmental Resources

The site is currently being utilized for similar activities and equipment. No impacts to other environmental resources are anticipated.

Direct Impacts:

Based on the analysis of available data and on the certifications made by the Applicant, DEQ does not foresee any impacts on other environmental resources from this project. Therefore, no direct impacts are anticipated.

Secondary Impacts:

No secondary impacts to other environmental resources are anticipated as a result of the proposed project.

Cumulative Impacts:

No cumulative impacts to other environmental resources would be expected.

11. Human Health and Safety

The diesel-fired engines being installed must comply with the permit conditions included in MAQP #5262-03, which are protective of human health and safety.

Direct Impacts:

Direct impacts to human health and safety are expected to be negligible for this project. The operating hours of the new diesel-fired engines are limited to 900 hours per year. Since the new equipment would be operated within the current disturbed industrial boundary, the noise would not disturb any offsite properties. The nearest residents from the proposed site

are approximately 3400 feet to the southeast.

Secondary Impacts:

No secondary impacts to human health and safety are expected from the siting of the new diesel-fired engines and diesel storage fuel tanks.

Cumulative Impacts:

Negligible cumulative impacts to human health and safety are expected from this project.

12. Industrial, Commercial, and Agricultural Activities and Production

This proposed project area has been in use as for similar equipment and activities and it is anticipated that there will be no additional impacts to industrial, commercial, and agricultural activities from this project.

Direct Impacts:

There are no anticipated direct impacts to industrial, commercial, or agricultural activities as a result of this project.

Secondary Impacts:

No secondary impacts to industrial, commercial, and agricultural activities and production would be expected.

Cumulative Impacts:

No cumulative impacts to industrial, commercial, and agricultural activities and production are expected as a result of this project.

13. Quantity and Distribution of Employment

Existing employees would likely be utilized for the permanent operation of the new equipment. Construction employees will be only for unloading and setup of the new equipment lasting only a few weeks.

Direct Impacts:

New employment opportunities would be limited. No lasting positive or negative impacts to employment would be expected from this project.

Secondary Impacts:

No secondary impacts to quantity and distribution of employment are anticipated as a result this project.

Cumulative Impacts:

No cumulative impacts to the quantity and distribution of employment would be expected.

14. Local and State Tax Base and Tax Revenues

The addition of the two diesel-fired engines would allow some operation and generation of electricity. A minor impact is anticipated to local and state tax base or tax revenues.

Direct Impacts:

Negligible direct impacts to the tax base or revenues are anticipated as a result of this project.

Secondary Impacts:

No secondary impacts to local and state tax base and tax revenues would be expected.

Cumulative Impacts:

No cumulative impacts to local and state tax base and tax revenues would be expected.

15. Demand for Government Services

The proposed project would add two diesel-fired generators and diesel storage tanks. This equipment would become part of ongoing equipment regulated by entities such as DEQ.

Direct Impacts:

Negligible direct impacts to demand for government services would be expected as a result of regulating the additional equipment associated with this project. However, additional regulated equipment would be added requiring additional reporting under the existing permit.

Secondary Impacts:

No secondary impacts to the demand for government services are anticipated as a result of the proposed project.

Cumulative Impacts:

No cumulative impacts the demand for government services are anticipated as a result of this project.

16. Locally-Adopted Environmental Plans and Goals

The proposed operation would occur within Richland County in an area of other oil and gas operations. The project would be required to comply with any local zoning regulations that may have authority in the area.

Direct Impacts:

DEQ is not aware of any other locally-adopted environmental plans or goals that would be impacted by this proposed project or in the project area. Impacts from or to locally-adopted environmental plans and goals would not be expected as a result of this project.

Secondary Impacts:

No secondary impacts to locally-adopted environmental plans and goals are anticipated as a result of the proposed work.

Cumulative Impacts:

No cumulative impacts to locally-adopted environmental plans and goals would be expected.

17. Access to and Quality of Recreational and Wilderness Activities

The proposed project would not limit access to wilderness or recreational areas nearby. The proposed activities would occur on federal land already in use as an Air Force base. The nearest recreational areas from the Base are Benton Lake and Sand Coulee, each of which is approximately 10 miles away.

Direct Impacts:

Based on the information provided by the Applicant and DEQ's review of the surrounding area, DEQ does not anticipate that any wilderness or recreational areas would be impacted by the proposed project. Access to wilderness or recreation areas is not an issue at this site.

Secondary Impacts:

No secondary impacts to access to, and quality of, wilderness or recreational areas are anticipated.

Cumulative Impacts:

No cumulative impacts to access to, and quality of, recreational and wilderness activities would be expected.

18. Density and Distribution of Population and Housing

The proposed project is not expected to add or remove any housing in the area.

Direct Impacts:

It is unlikely this project would add to the population. No direct impacts are anticipated.

Secondary Impacts:

No secondary impacts to density and distribution of population and housing are anticipated as a result of the proposed project.

Cumulative Impacts:

No cumulative impacts to density and distribution of population and housing are anticipated as a result of this project.

19. Social Structures and Mores

DEQ is not aware of any Native American cultural concerns that would be affected by the proposed activity. Based on the information provided by the Applicant, it is not anticipated that this project would disrupt traditional lifestyles or communities.

Direct Impacts:

No direct impacts to social structures and mores are anticipated as a result of the proposed project.

Secondary Impacts:

No secondary impacts to social structures and mores are anticipated as a result of the proposed project.

Cumulative Impacts:

No cumulative impacts to social structures and mores would be expected.

20. Cultural Uniqueness and Diversity

Based on the information provided by the Applicant, DEQ is not aware of any unique qualities of the area that would be affected by the proposed activity. The site is currently located on private land being used for similar purposes

It is not anticipated that this project would cause a shift in some unique quality of the area.

Direct Impacts:

No impacts to cultural uniqueness and diversity are anticipated from this project.

Secondary Impacts:

No secondary impacts to cultural uniqueness and diversity are anticipated as a result of the proposed project.

Cumulative Impacts:

No cumulative impacts to cultural uniqueness and diversity would be expected.

21. Private Property Impacts

The proposed project would take place on privately owned land. DEQ’s approval of MAQP #5262-03 permit would not affect the applicant’s real property. DEQ has determined that the permit conditions are reasonably necessary to ensure compliance with applicable requirements under the Montana Clean Air Act. Therefore, DEQ’s approval of MAQP #5262-03 would not have private property-taking or damaging implications.

As required by 2-10-105, MCA, the DEQ 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?

YES	NO	
	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)

22. Other Appropriate Social and Economic Circumstances

Due to the nature and scope of the proposed project activities, no further direct or secondary impacts would be anticipated from this project.

23. Greenhouse Gas Assessment

Issuance of this permit would authorize use of two (2) new diesel-fired engines and five (5) additional diesel-fuel storage tanks. On a permanent basis, the two new diesel-fired engines would be the dominant source of GHG emissions combusting diesel fuel for up to 900 hours each year. Crusoe provided engine specification sheets for the proposed engines and this includes hourly diesel consumption when in operation. The diesel storage tanks would not be a source of GHG emissions as they would only have fugitive releases of VOCs.

The analysis area for this resource is limited to the activities regulated by the issuance of MAQP #5262-03 permit which is the mobilization phase, and operation of two diesel-fired engines and the five diesel storage tanks. The amount of diesel fuel utilized at this site is limited by the 900 hour per limit for each engine. To account for these factors DEQ has calculated the emissions using information provided by in the Applicant's air quality permit application. The GHG emissions were calculated from the estimated gallons of diesel fuel per hour of operation based on application information. Since Crusoe provided the hourly consumption of diesel fuel, the volume of diesel fuel per year has been calculated for the engines and input into the GHG calculator.

For the purpose of this analysis, DEQ has defined greenhouse gas emissions as the following gas species: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and many species of fluorinated compounds. The range of fluorinated compounds includes numerous chemicals which are used in many household and industrial products. Other pollutants can have some properties that also are similar to those mentioned above, but the EPA has clearly identified the species above as the primary Greenhouse Gases (GHGs). Water vapor is also technically a greenhouse gas, but its properties are controlled by the temperature and pressure within the atmosphere, and it is not considered an anthropogenic species.

The combustion of diesel fuel at the site would release GHGs primarily being carbon dioxide (CO₂), nitrous oxide (N₂O) and much smaller concentrations of uncombusted fuel components including methane (CH₄) and other volatile organic compounds (VOCs).

DEQ has calculated GHG emissions using the EPA Simplified GHG Calculator version May 2023, for the purpose of totaling GHG emissions. This tool totals carbon dioxide (CO₂), nitrous oxide (N₂O), and methane (CH₄) and reports the total as CO₂ equivalent (CO₂e) in metric tons CO₂e. If there are also fluorinated compounds associated with the project those may also be input into the GHG calculator. The calculations in this tool are widely accepted to represent reliable calculation approaches for developing a GHG inventory.

Direct Impacts

Operation of two new diesel-fired engines throughout the life of the proposed project would produce combustion exhaust fumes containing GHGs.

For the maximum 900 hours per year each, diesel fuel for the two engines is estimated at 64,260 gallons. This amount of diesel fuel is equivalent to 658 metric tons of CO₂e each year. Construction emissions for the 24 hours of crane operation and hooking up the engines and storage tanks is estimated at no more than 500 gallons of diesel fuel. This amount of diesel fuel is equivalent to 6 metric tons of CO₂e.

Secondary Impacts

GHG emissions contribute to changes in atmospheric radiative forcing, resulting in climate change impacts. GHGs act to contain solar energy loss by trapping longer wave radiation emitted from the Earth's surface and act as a positive radiative forcing component (BLM 2021). The impacts of climate change throughout the Northern Great Plains of Montana include changes in flooding and drought, rising temperatures, and the spread of invasive species (BLM 2021).

Cumulative Impacts

Montana recently used the EPA State Inventory Tool (SIT) to develop a greenhouse gas inventory in conjunction with preparation of a possible grant application for the Community Planning Reduction Grant (CPRG) program. This tool was developed by EPA to help states develop their own greenhouse gas inventories, and this relies upon data already collected by the federal government through various agencies. The inventory specifically deals with carbon dioxide, methane, and nitrous oxide and reports the total as CO₂e. The SIT consists of eleven Excel based modules with pre-populated data that can be used as default settings or in some cases, allows states to input their own data when the state believes their own data provides a higher level of quality and accuracy. Once each of the eleven modules is filled out, the data from each module is exported into a final "synthesis" module which summarizes all of the data into a single file. Within the synthesis file, several worksheets display the output data in a number of formats such as emissions by sector and emissions by type of greenhouse gas.

DEQ has determined the use of the default data provides a reasonable representation of the greenhouse gas inventory for the various sectors of the state, and an estimated annual greenhouse gas inventory by year. The SIT data is currently only updated through the year 2021, as it takes several years to validate and make new data available within revised

modules.

This project may contribute up to 658 metric tons per year of CO₂e. Comparison to the statewide GHG total (47.77 million metric tons CO₂e) for the project on an annual basis (2021) would be only 0.0014 percent. GHG contributions are limited to 658 metric tons per year but may be less if the engines do not operate at their maximum limit of 900 hours per year.

PROPOSED ACTION ALTERNATIVES

No Action Alternative: In addition to the proposed action, DEQ must also considered a "no action" alternative. The "no action" alternative would deny the approval of MAQP #5262-03. 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 required for approval, the "no action" alternative would not be appropriate.

Other Reasonable Alternative(s): No other alternatives were considered.

CONSULTATION

DEQ engaged in internal and external efforts to identify substantive issues and/or concerns related to the proposed project. Internal scoping consisted of internal review of the environmental assessment document by DEQ staff. External scoping efforts also included queries to the following websites/databases/personnel:

MAQP #5262-02, MAQP #5262-03 Application and previous permit applications for this site, EPA State Inventory Tool, and the EPA GHG Calculator Tool.

PUBLIC INVOLVEMENT

The public comment period for this permit action is from 7/26/2024 through 8/9/2024. Public comments may be submitted to the DEQ through the DEQ website, email, written letter, or in person.

OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION

The proposed project would be located on private property. All applicable state and federal rules must be adhered to, which, at some level, may also include other state, or federal agency jurisdiction.

NEED FOR FURTHER ANALYSIS AND SIGNIFICANCE OF POTENTIAL IMPACTS

When determining whether the preparation of an environmental impact statement is needed, DEQ is required to consider the seven significance criteria set forth in ARM 17.4.608, which are as follows:

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

- Growth-inducing or growth-inhibiting aspects of the impact, including the relationship or contribution of the impact to cumulative impacts – identify the parameters of the proposed action;
- The quantity and quality of each environmental resource or value that would be affected, including the uniqueness and fragility of those resources and values;
- The importance to the state and to society of each environmental resource or value that would be affected.
- Any precedent that would be set as a result of an impact of the proposed action that would commit the DEQ to future actions with significant impacts or a decision in principle about such future actions; and
- Potential conflict with local, state, or federal laws, requirements, or formal plans.

CONCLUSIONS AND FINDINGS

The DEQ finds that this action results in negligible impacts to air quality and GHG emissions in Richland County, Montana.

The severity, duration, geographic extent and frequency of the occurrence of the impacts associated with the proposed air quality project would be limited. The proposed action would result in the disturbance up to about 1 acre on the existing disturbed parcel. The Applicant is proposing to add two new diesel-fired engines to the existing site for similar purposes currently occurring at the site. The site would be permitted to operate the two new engines up to 900 hours per calendar year. The site selected for operation is currently bare land previously disturbed for previous permitting actions.

As discussed in this EA, DEQ has not identified any significant impacts associated with the proposed actions for any environmental resource. DEQ does not believe that the proposed activities by the Applicant would have any growth-inducing or growth-inhibiting aspects, or contribution to cumulative impacts. The proposed site does not appear to contain known unique or fragile resources.

There are no unique or known endangered fragile resources in the project area. No underground disturbance would be required for this project.

There would be negligible impacts to view-shed aesthetics as the new equipment operation would not be visible to residents off the existing parcel. The new engines would add to existing engines and any noise already occurring at the site.

Demands on the environmental resources of land, water, air, or energy would not be significant. When the equipment were no longer needed, they would be removed from the site and likely located to other similar operations.

Impacts to human health and safety would not be significant as access roads would be closed to the public and because the site is on privately owned land. The public is not expected to have access to the privately operated facility.

As discussed in this EA, DEQ has not identified any significant impacts associated with the

proposed activities on any environmental resource.

Issuance of a Montana Air Quality Permit to the Applicant does not set any precedent that commits DEQ to future actions with significant impacts or a decision in principle about such future actions. If the Applicant submits another modification or amendment, DEQ is not committed to issuing those revisions. DEQ would conduct an environmental review for any subsequent permit modifications sought by the Applicant that require environmental review. DEQ would make permitting decisions based on the criteria set forth in the Clean Air Act of Montana.

Issuance of the Permit to the Applicant does not set a precedent for DEQ's review of other applications for Permits, including the level of environmental review. The level of environmental review decision is made based on case-specific consideration of the criteria set forth in ARM 17.4.608.

Finally, DEQ does not believe that the proposed air quality permitting action by the Applicant would have any growth-inducing or growth inhibiting impacts that would conflict 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 operation is not predicted to significantly impact the quality of the human environment. Therefore, preparation of an EA is the appropriate level of environmental review for MEPA.

PREPARATION AND APPROVAL

EA and Significance Determination prepared by:

Craig Henrikson

Environmental Engineer, PE

Environmental Assessment Reviewed by:

John P. Proulx

Air Quality Engineer

Approved by: Craig Henrikson

REFERENCES

- MAQP #5262-02
- MAQP #5262-03 Application received from Crusoe on May 28, 2024.
- Additional Information received from Crusoe on June 27, 2024.
- EPA GHG Calculator Tool <https://www.epa.gov/statelocalenergy/state-inventory-and-projection-tool>. Version dated May 2023 in the Introduction Tab.
- EPA State Inventory Tool, <https://www.epa.gov/statelocalenergy/state-inventory-and-projection-tool> Version 2024.1.
- Montana NRIS Data downloaded on 06/06/2024.
- Results of State Inventory Tool model run for Version 2024.1. Model results run by AQB staff on March 7, 2024, and available from DEQ.
- Caterpillar Performance Handbook, December 2022.
- 2021 BLM Specialist Report on Annual Greenhouse Gas Emissions and Climate Trends, <https://www.blm.gov/>