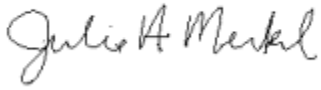
September 9, 2021

Ken Parker, VP, Facilities Engineering and Operations
Crusoe Energy Systems, Inc.
1641 California St, Suite 400
Denver, CO 80202

Dear Mr. Parker:

Montana Air Quality Permit #5262-00 is deemed final as of September 1, 2021, by the Department of Environmental Quality (Department). This permit is for a Natural Gas Compressor Station. All conditions of the Department's Decision remain the same. Enclosed is a copy of your permit with the final date indicated.

For the Department,



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JM:JPP
Enclosure

Montana Department of Environmental Quality
Air, Energy & Mining Division

Montana Air Quality Permit #5262-00

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

September 1, 2021

MONTANA AIR QUALITY PERMIT

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

MAQP: #5262-00
Application Complete: 6/2/2021
Preliminary Determination Issued: 7/9/2021
Department's Decision Issued: 8/16/2021
Permit Final: 9/1/2021

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. Permitted Equipment

Crusoe proposes to install and operate multiple Waukesha 9394 GSI engines, a Waukesha VGF H24SE engine, and a Solar Titan 130 turbine. These emitting units would not all operate simultaneously but rather run-in separate configurations as either Alternate Operating Scenario 1 (AOS1) or Alternate Operating Scenario 2 (AOS2).

Emitting Units (EU) in 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).

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

The engines and turbine would be used to generate electricity through the combustion of gas that would otherwise be flared from an existing oil and gas facility. All engines and turbine combust gas from a nearby oil and gas facility. Each engine utilizes an air fuel ratio controller and a three-way catalyst to reduce emissions. The turbine would utilize dry low-NOx combustion for minimizing NOx emissions. Crusoe will elect which operating scenario has been chosen and notify the Department prior to construction of the facility.

B. Plant Location

This facility is to be located approximately 15.2 miles northeast of Sidney, Montana, in Section 8, Township 25 North, Range 59 East, in Richland County, 47.9340°N, latitude and -104.103°W, longitude.

Section II: Conditions and Limitations

A. Emission Limitations

1. Crusoe may operate the Kraken Central Site under one of two operating scenarios, AOS1 or AOS2, as defined below. That facility shall only operate under one of these scenarios, as selected in Section II.D.1 (ARM 17.8.1204).

   a. AOS1 shall consist of no more than the following emitting units:

   i. Two Waukesha 9394 GSI engines (EU001) not to exceed 2,500 bhp each,
   ii. One Waukesha VGF H24SE engine (EU002) not to exceed 484 bhp, and
   iii. One Solar Titan 130 turbine (EU003) not to exceed 21,000 bhp.

   b. AOS2 shall consist of no more than the following emitting units:

   i. Ten Waukesha 9394 GSI engines (EU004) not to exceed 2,500 bhp each.

2. Emission limits for AOS1 shall not exceed the following (ARM 17.8.752):

   <u>EU001</u>
   Particulate Matter (PM, PM_{10}, and $PM_{2.5}$) – 0.38 pounds per hour (lb/hr)
   Sulfur Dioxide (SO_2) - 0.08 lb/hr
   Oxides of Nitrogen (NO_X) – 0.83 lb/hr
   Carbon Monoxide (CO) – 1.65 lb/hr
   Volatile Organic Compounds (VOC) – 0.06 lb/hr
   Hazardous Air Pollutants (HAPs) – 0.24 lb/hr

   <u>EU002</u>
   PM, PM_{10}, $PM_{2.5}$ – 0.09 lb/hr
   SO_2 – 0.01 lb/hr
   NO_X – 0.16 lb/hr
   CO – 0.32 lb/hr
   VOC – 0.02 lb/hr
   HAPS – 0.06

   <u>EU003</u>
   PM, PM_{10}, $PM_{2.5}$ – 1.05 lb/hr
   SO_2 – 0.45 lb/hr
   NO_X – 15.28 lb/hr
   CO – 0.32 lb/hr
   VOC – 0.02 lb/hr
   HAPS – 0.16 lb/hr

3. Emissions limits for AOS2 shall not exceed the following (ARM 17.8.752):

   <u>EU004</u>
   PM, PM_{10}, $PM_{2.5}$ – 0.38 lb/hr
   SO_2 – 0.08 lb/hr
   NO_X – 0.83 lb/hr

CO – 1.65 lb/hr
VOC – 0.06 lb/hr

4. Crusoe shall operate and maintain a non-selective catalytic reduction (NSCR) unit and an air/fuel ratio (AFR) controller on EU01, EU02, and EU04, within the parameters recommended by the equipment manufacturer (ARM 17.8.752).

5. Crusoe shall operate and maintain a dry low NO_X unit on EU03, within the parameters recommended by the equipment manufacturer (ARM 17.8.752).

6. 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).

7. 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).

8. 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.4 (ARM 17.8.749).

9. Crusoe shall comply with all applicable standards and limitations, and the reporting, recordkeeping and notification requirements contained in Title 40 Code of Federal Regulations (40 CFR) 60, Subpart A, Subpart JJJJ, and Subpart KKKK (ARM 17.8.340 and 40 CFR 60, Subpart(s) A, JJJJ, and KKKK).

10. 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 17.8.340 and 40 CFR 63, Subpart(s) A and ZZZZ).

B. Testing Requirements

1. For EUs in AOS1, Crusoe shall demonstrate compliance with the permit limits in Section II.A.2 via source testing within 180 days after equipment commencement. Source testing shall be conducted for NO_X, CO, and VOCs simultaneously. Compliance test results are determined by the average of three 1-hour or longer runs. Results shall be submitted to the Montana Department of Environmental Quality (Department) to demonstrate compliance with the emission limitations in Section II.A.2 (ARM 17.8.105 and ARM 17.8.749).

2. For EUs in AOS2, Crusoe shall demonstrate compliance with the permit limits in Section II.A.3 via source testing within 180 days after equipment commencement. Source testing shall be conducted for NO_X, CO, and VOCs simultaneously. Compliance test results are determined by the average of three 1-hour or longer runs. Results shall be submitted to the Department to demonstrate compliance

with the emission limitations in Section II.A.3 (ARM 17.8.105 and ARM 17.8.749).

3. Following the calendar date of the initial compliance demonstration for EU in AOS1 and AOS2, compliance with the applicable emission limits shall be demonstrated via source testing for NOx, 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 KKKK, or equivalent methods as approved in writing by the Department.
Future compliance demonstration shall be required at this same frequency for each model of EU on site from the date of the last compliance demonstration (ARM 17.8.105, ARM 17.8.749, ARM 17.8.340, 40 CFR 60 Subpart JJJJ, and 40 CFR 60 Subpart KKKK).

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

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

C. Operational Reporting Requirements

1. Crusoe shall notify the Department of any construction or improvement project conducted, pursuant to ARM 17.8.745, that would include ***the addition of a new emissions unit,*** change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation.

   The notice must be submitted to the Department, in writing, 10 days prior to startup or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.745(l)(d) (ARM 17.8.745).

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 Department, and must be submitted to the Department upon request. These records may be stored at a location other than the plant site upon approval by the Department (ARM 17.8.749).

3. Crusoe shall annually certify that the Kraken Central Site 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 emissions inventory information (ARM 17.8.749 and ARM 17.8.1204).

D. Notification

1. Crusoe shall notify the Department in writing of which operating scenario the Kraken Central Site will operate under, as described in Section II.A.1, prior to the operation of any permitted emitting units.

2. Crusoe shall notify the Department in writing of the date of commencement of operation of any EU within 30-days following the date of commencement and confirm the number and type of EU placed into service.

SECTION III: General Conditions

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

B. Waiver – The permit and the terms, conditions, and matters stated herein shall be deemed accepted if 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 Department's decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefor, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department's decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the effective date of the Department's decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, the Department's decision on the application is final 16 days after the Department's decision is made.

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

G. Permit Fee – Pursuant to Section 75-2-220, MCA, failure to pay the annual operation fee by 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 (MAQP) Analysis
Crusoe Energy Systems, Inc. – Kraken Central Site
MAQP #5262-00

I. Introduction/Process Description

Crusoe Energy Systems, Inc., (Crusoe) owns and operates a generator/natural gas compressor station. The facility is located 15.2 miles northeast of Sidney, Montana, in Section 8, Township 25 North, Range 59 East, in Richland County, 47.9340°N, latitude and -104.103°W, longitude, and is known as the Kraken Central Site.

A. Permitted Equipment

Crusoe proposes to install various emitting units at the Kraken Central Site which could include up to the following: twelve (12) 2,500 brake horsepower (bhp) Waukesha 9394 GSI generator engines, one (1) 484 bhp Waukesha VGF H24SE compressor engine, and one (1) 21,000 bhp Solar Titan 130 natural gas-fired compressor turbine.

B. Source Description

Crusoe plans to install and operate multiple generator engines, natural gas turbine, and one a compressor engine at the Kraken Central Site. The emitting units will be split up into two Alternate Operating Scenarios (AOS), AOS1 and AOS2. Crusoe would only construct and operate one of the two AOS.

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).

C. 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 Department of Environmental Quality (Department). Upon request, the Department will provide references for location of complete copies of all applicable rules and regulations or copies where appropriate.

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

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

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

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

   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 Department upon request.

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

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

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

1. ARM 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
5. ARM 17.8.213 Ambient Air Quality Standard for Ozone
6. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide
7. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
8. ARM 17.8.221 Ambient Air Quality Standard for Visibility
9. ARM 17.8.222 Ambient Air Quality Standard for Lead
10. ARM 17.8.223 Ambient Air Quality Standard for PM_{10}
11. ARM 17.8.230 Fluoride in Forage

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 KKKK Standards of Performance for Stationary Combustion Turbines. The proposed turbine is subject to this subpart because it has a heat input of 10 million British thermal units (Btu) per hour and will be installed after February 8, 2005.

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

a. 40 CFR 63, Subpart A – General Provisions apply to all equipment or facilities subject to an 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 40 CFR 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 Department. 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 Department by each source of air contaminants holding an air quality permit (excluding an open burning permit) issued by the Department. The air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions that prorate the required fee amount.

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 (NOx), Carbon Monoxide (CO) and Volatile Organic Compounds (VOC); therefore, an air quality permit is required.

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

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

5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements. (1) This rule requires that a permit application be submitted prior to installation, modification, or use of a source. 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 30, 2021 issue of the Sidney Herald, a newspaper of general circulation in the Town of Sidney in Richland County, as proof of compliance with the public notice requirements.

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

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

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

9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving 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 Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.

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

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

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

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

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

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

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 Department may establish by rule; or

   c. PTE > 70 tons/year of particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}) in a serious PM_{10} 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 #5262-00 for Crusoe, the following conclusions were made:

   a. The facility's PTE is less 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 PM_{10} nonattainment area.

   d. This facility is subject to current NSPS (40 CFR 60, Subpart(s) A, JJJJ, KKKK).

   e. This facility is subject to current NESHAP (40 CFR 63, Subpart 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 requested federally enforceable permit limitations to remain a minor source of emissions with respect to Title V. Based on these limitations, the Department determined that this facility is not subject to the Title V Operating Permit Program.

   However, in the event that the EPA makes minor sources that are subject to NSPS obtain a Title V Operating Permit, this source will be subject to the Title V Operating Permit Program.

   h. ARM 17.8.1204(3). The Department may exempt a source from the requirement to obtain an air quality operating permit by establishing federally enforceable limitations which limit that source's PTE.

i. In applying for an exemption under this section the owner or operator of the facility shall certify to the Department that the source's PTE does not require the source to obtain an air quality operating permit.

ii. Any source that obtains a federally enforceable limit on PTE shall annually certify that its actual emissions are less than those that would require the source to obtain an air quality operating permit.

3. ARM 17.8.1207 Certification of Truth, Accuracy, and Completeness. The compliance certification submittal required by ARM 17.8.1204(3)(a) shall contain certification by a responsible official of truth, accuracy, and completeness. This certification and any other certification required under this subchapter shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

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.

A BACT analysis was submitted by Crusoe in permit application #5262-00, addressing some available methods of controlling pollutant emissions from the Kraken Central Site. The following control options have been reviewed by the Department in order to make the following BACT determination,

NOx

The following options were reviewed for NOx 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
EMx catalyst system

Waukesha Engines – Both the water/steam injection and the dry low NO_X combustion are technologies that would require modifications to the existing engines and are considered technically infeasible for the proposed engines.
SCR and SNCR require specific exhaust temperatures for optimal destruction and the exhaust temperatures for the proposed engines are not within the required range for either SCR or SNCR. They are deemed technically infeasible since the exhaust temperature from the proposed engines would be below the recommended ranges. Oxidation catalyst is best suited for lean burn engines and therefore is also eliminated from consideration.

The two remaining identified technologies include NSCR and EMx catalyst. Each of these are considered feasible. EMx is able to operate at the exhaust temperature from the

proposed engines, but the costs associated with EMx are more than the costs associated with a non-selective catalyst.

The NSCR is estimated to provide up to 90 percent emission reduction. Therefore, NSCR with air fuel ratio controller (AFR) is selected as BACT for NOx for the Waukesha engines.

Solar Titan turbine – the water/steam injection, dry low NO_X, and EMx catalyst are technologies that are considered BACT for the turbine to reduce NO_X emissions. Water/steam would require modification to the existing turbine and are considered comparable to the dry low NO_X combustion but is considered economically practical. The exhaust temperatures from the turbine are not high enough to consider SCR or SNCR. EMx and dry low NO_X are the best option however the costs associated with EMx exceed the dry low NOx and while achieving similar NO_X reduction.

VOC and CO Emissions

VOC and CO emissions primarily occur as the result of incomplete combustion. Similar to NOx control, catalysts that react with CO and VOC's can be used to convert these pollutants to CO_2. Finding the optimum point in a slightly rich environment can produce very high destruction efficiencies for both CO and VOC's and NO_X at the same time. Just as for NOx, the use of an AFR is necessary to control the concentration in a slightly rich environment. Therefore, employing NSCR which uses a 3-way catalyst to treat CO, VOC's and NO_X is selected as BACT for the Waukesha engines.

Using a similar approach to the VOC and CO, employing the dry low NO_X option has been determined as BACT for the Solar Titan turbine.

Emission levels associated with NSCR and an AFR for the proposed Waukesha engine models for each pollutant are proposed as follows:

Waukesha 9394GSI Engine
PM, PM_{10}, $PM_{2.5}$ – 0.38 lb/hr
SO_X – 0.08 lb/hr
NO_X – 0.83 lb/hr
CO – 1.65 lb/hr
VOC – 0.06 lb/hr
HAPs – 0.24 lb/hr

Waukesha VGF H24SE

PM, PM_{10}, $PM_{2.5}$ – 0.41 lb/hr
SO_X – 0.05 lb/hr
NO_X – 0.70 lb/hr
CO – 1.40 lb/hr
VOC – 0.09 lb/hr
HAPs – 0.06 lb/hr

Emission levels associated with dry low NO_X for the proposed Solar Titan turbine model for each pollutant are proposed as follows:

Solar Titan 130

PM, PM_{10}, $PM_{2.5}$ – 1.05 lb/hr
SO_X – 0.45 lb/hr
NO_X – 0.15.28 lb/hr
CO – 18.25 lb/hr
VOC – 7.18 lb/hr
HAPs – 0.16 lb/hr

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

Alternate Operating Scenario 1

CONTROLLED	tons/year							
Emission Source	**PM**	**PM_{10}**	**$PM_{2.5}$**	**NO_X**	**CO**	**VOC**	**SO_2**	**HAPs**
2500 bhp Waukesha 9394 GSI	3.33	3.33	3.33	7.23	14.45	0.48	0.70	2.10
484 bhp Waukeshau VGF H24SE	0.39	0.39	0.39	0.70	1.40	0.09	0.04	0.26
21000 bhp Solar Titan	4.60	4.60	4.60	66.93	81.12	31.45	1.97	0.70
Total Emissions	**8.32**	**8.32**	**8.32**	**74.85**	**96.97**	**32.02**	**2.72**	**3.07**

Notes:
1. Values in table reflect "**BACT**" cells from subsequent worksheets

Waukesha Engine(s), AOS1

Note: Emissions are based on the power output of the engine (2 hp).		
Operational Capacity of Engine = 2 engines	2	**engines**
Hours of Operation = 8,760.00 hours	8760	**hours**
PM Emissions:		
PM Emissions = 3.33 ton/yr (Assume all PM < 1.0 um)	3.33	**ton/yr**
PM-10 Emissions:		
Emission Factor = 0.38 lb/hr (BACT)	0.38	**lb/hr**
Calculation: ((2 engines) * (8,760 hours) * (0.38 lb/hr) * (8,760 hours) * (ton/2000 lb) = 3.329 ton/yr	3.33	**ton/yr**
PM2.5 Emissions		
Emission Factor = 0.38 lb/hr (BACT)	0.38	**lb/hr**
Calculation: ((2 engines) * (8,760 hours) * (0.38 lb/hr) * (8,760 hours) * (ton/2000 lb) = 3.329 ton/yr	3.33	**ton/yr**
NOx Emissions:		
Emission Factor = 0.825 lb/hr (BACT)	0.825	**lb/hr**
Calculation: ((2 engines) * (8,760 hours) * (0.825 lb/hr) * (8,760 hours) * (ton/2000 lb) = 7.23 ton/yr	7.23	**ton/yr**
CO Emissions:		

Emission Factor = 1.65 lb/hr (BACT)	1.65	**lb/hr**
Calculation: ((2 engines) * (8,760 hours) * (1.65 lb/hr) * (8,760 hours) * (ton/2000 lb) = 14.45 ton/yr	14.45	**ton/yr**
VOC Emissions:		
Emission Factor = 0.055 lb/hr (BACT)	0.06	**lb/hr**
Calculation: ((2 engines) * (8,760 hours) * (0.06 lb/hr) * (8,760 hours) * (ton/2000 lb) = 0.482 ton/yr	0.48	**ton/yr**
SOx Emissions:		
Emission Factor = 0.08 lb/hr (BACT)	0.08	**lb/hr**
Calculation: ((2 engines) * (8,760 hours) * (0.08 lb/hr) * (8,760 hours) * (ton/2000 lb) = 0.701 ton/yr	0.70	**ton/yr**
HAPs Emissions		
Emission Factor = 0.24 lb/hr	0.24	**lb/hr**
Calculation: ((2 engines) * (8,760 hours) * (2.10 ton/yr) * (8,760 hours) * (ton/2000 lb) = 0.701 ton/yr	2.10	**ton/yr**

Waukesha Engine, AOS1

Note: Emissions are based on the power output of the engine (1 hp).		
Operational Capacity of Engine = 1 engines	1	**engines**
Hours of Operation = 8,760.00 hours	8760	**hours**
PM Emissions:		
PM Emissions = 0.39 ton/yr (Assume all PM < 1.0 um)	0.39	**ton/yr**
PM-10 Emissions:		
Emission Factor = 0.09 lb/hr (BACT)	0.09	**lb/hr**
Calculation: ((1 engines) * (8,760 hours) * (0.09 lb/hr) * (8,760 hours) * (ton/2000 lb) = 0.394 ton/yr	0.39	**ton/yr**
PM2.5 Emissions		
Emission Factor = 0.09 lb/hr (BACT)	0.09	**lb/hr**
Calculation: ((1 engines) * (8,760 hours) * (0.09 lb/hr) * (8,760 hours) * (ton/2000 lb) = 0.394 ton/yr	0.39	**ton/yr**
NOx Emissions:		
Emission Factor = 0.16 lb/hr (BACT)	0.16	**lb/hr**
Calculation: ((1 engines) * (8,760 hours) * (0.160 lb/hr) * (8,760 hours) * (ton/2000 lb) = 0.70 ton/yr	0.70	**ton/yr**
CO Emissions:		
Emission Factor = 0.32 lb/hr (BACT)	0.32	**lb/hr**
Calculation: ((1 engines) * (8,760 hours) * (0.32 lb/hr) * (8,760 hours) * (ton/2000 lb) = 1.40 ton/yr	1.40	**ton/yr**
VOC Emissions:		
Emission Factor = 0.02 lb/hr (BACT)	0.02	**lb/hr**
Calculation: ((1 engines) * (8,760 hours) * (0.02 lb/hr) * (8,760 hours) * (ton/2000 lb) = 0.088 ton/yr	0.09	**ton/yr**
SOx Emissions:		
Emission Factor = 0.01 lb/hr (BACT)	0.01	**lb/hr**
Calculation: ((1 engines) * (8,760 hours) * (0.01 lb/hr) * (8,760 hours) * (ton/2000 lb) = 0.044 ton/yr	0.04	**ton/yr**
HAPs Emissions		
Emission Factor = 0.06 lb/hr	0.06	**lb/hr**
Calculation: ((1 engines) * (8,760 hours) * (0.06 lb/hr) * (8,760 hours) * (ton/2000 lb) = 0.000 ton/yr	0.26	**ton/yr**

Solar Titan Turbine, 21000 hp (AOS1)

Note: Emissions are based on the power output of the engine (1 hp).		
Operational Capacity of Engine = 1 engines	1	**engines**
Hours of Operation = 8,760.00 hours	8760	**hours**
PM Emissions:		
PM Emissions = 4.60 ton/yr (Assume all PM < 1.0 um)	4.60	**ton/yr**
PM-10 Emissions:		
Emission Factor = 1.05 lb/hr (BACT)	1.05	**lb/hr**
Calculation: ((1 engines) * (8,760 hours) * (1.05 lb/hr) * (8,760 hours) * (ton/2000 lb) = 4.599 ton/yr	4.60	**ton/yr**
PM2.5 Emissions		
Emission Factor = 1.05 lb/hr (BACT)	1.05	**lb/hr**
Calculation: ((1 engines) * (8,760 hours) * (1.05 lb/hr) * (8,760 hours) * (ton/2000 lb) = 4.599 ton/yr	4.60	**ton/yr**
NOx Emissions:		
Emission Factor = 15.28 lb/hr (BACT)	15.28	**lb/hr**
Calculation: ((1 engines) * (8,760 hours) * (15.280 lb/hr) * (8,760 hours) * (ton/2000 lb) = 66.93 ton/yr	66.93	**ton/yr**
CO Emissions:		
Emission Factor = 18.52 lb/hr (BACT)	18.52	**lb/hr**
Calculation: ((1 engines) * (8,760 hours) * (18.52 lb/hr) * (8,760 hours) * (ton/2000 lb) = 81.12 ton/yr	81.12	**ton/yr**
VOC Emissions:		
Emission Factor = 7.18 lb/hr (BACT)	7.18	**lb/hr**
Calculation: ((1 engines) * (8,760 hours) * (7.18 lb/hr) * (8,760 hours) * (ton/2000 lb) = 31.448 ton/yr	31.45	**ton/yr**
SOx Emissions:		
Emission Factor = 0.45 lb/hr (BACT)	0.45	**lb/hr**
Calculation: ((1 engines) * (8,760 hours) * (0.45 lb/hr) * (8,760 hours) * (ton/2000 lb) = 1.971 ton/yr	1.97	**ton/yr**
HAPs Emissions		
Emission Factor = 0.16 lb/hr	0.16	**lb/hr**
Calculation: ((1 engines) * (8,760 hours) * (0.16 lb/hr) * (8,760 hours) * (ton/2000 lb) = 0.000 ton/yr	0.70	**ton/yr**

Alternate Operating Scenario 2

CONTROLLED	**tons/year**							
Emission Source	**PM**	**PM_{10}**	**$PM_{2.5}$**	**NO_X**	**CO**	**VOC**	**SO_2**	**HAPs**
1,680 bhp Compressor Engine (combined)	16.64	16.64	16.64	36.14	72.27	2.41	3.50	10.51
Total Emissions	**16.64**	**16.64**	**16.64**	**36.14**	**72.27**	**2.41**	**3.50**	**10.51**

Notes:

1. Values in table reflect "BACT" cells from subsequent worksheets

Waukesha Engine(s), 25000 (AOS 2)

Note: Emissions are based on the power output of the engine (10 hp).		
Operational Capacity of Engine = 10 engines	10	**engines**
Hours of Operation = 8,760.00 hours	8760	**hours**
PM Emissions:		
PM Emissions = 16.64 ton/yr (Assume all PM < 1.0 um)	16.64	**ton/yr**
PM-10 Emissions:		
Emission Factor = 0.38 lb/hr (BACT)	0.38	**lb/hr**
Calculation: ((10 engines) * (8,760 hours) * (0.38 lb/hr) * (8,760 hours) * (ton/2000 lb) = 16.644 ton/yr	16.64	**ton/yr**
PM2.5 Emissions		
Emission Factor = 0.38 lb/hr (BACT)	0.38	**lb/hr**
Calculation: ((10 engines) * (8,760 hours) * (0.38 lb/hr) * (8,760 hours) * (ton/2000 lb) = 16.644 ton/yr	16.64	**ton/yr**
NOx Emissions:		
Emission Factor = 0.825 lb/hr (BACT)	0.825	**lb/hr**
Calculation: ((10 engines) * (8,760 hours) * (0.825 lb/hr) * (8,760 hours) * (ton/2000 lb) = 36.14 ton/yr	36.14	**ton/yr**
CO Emissions:		
Emission Factor = 1.65 lb/hr (BACT)	1.65	**lb/hr**
Calculation: ((10 engines) * (8,760 hours) * (1.65 lb/hr) * (8,760 hours) * (ton/2000 lb) = 72.27 ton/yr	72.27	**ton/yr**
VOC Emissions:		
Emission Factor = 0.055 lb/hr (BACT)	0.06	**lb/hr**
Calculation: ((10 engines) * (8,760 hours) * (0.06 lb/hr) * (8,760 hours) * (ton/2000 lb) = 2.409 ton/yr	2.41	**ton/yr**
SOx Emissions:		
Emission Factor = 0.08 lb/hr (BACT)	0.08	**lb/hr**
Calculation: ((10 engines) * (8,760 hours) * (0.08 lb/hr) * (8,760 hours) * (ton/2000 lb) = 3.504 ton/yr	3.50	**ton/yr**
HAPs Emissions		
Emission Factor = 0.24 lb/hr	0.24	**lb/hr**
Calculation: ((10 engines) * (8,760 hours) * (0.24 lb/hr) * (8,760 hours) * (ton/2000 lb) = 0.000 ton/yr	10.51	**ton/yr**

V. Existing Air Quality

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

VI. Ambient Air Impact Analysis

The Department determined, based on amount of allowable emission, that the impacts from this permitting action will be minor. The Department believes it will not cause or contribute to a violation of any ambient air quality standard.

VII. Taking or Damaging Implication Analysis

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

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

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

VIII. Environmental Assessment

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

DEPARTMENT OF ENVIRONMENTAL QUALITY
Air, Energy & Mining Division
Air Quality Bureau
P.O. Box 200901, Helena, Montana 59620
(406) 444-3490

ENVIRONMENTAL ASSESSMENT (EA)

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

Montana Air Quality Permit number (MAQP): 5262-00

EA Draft: July 2, 2021
EA Final: August 16, 2021
Permit Final: September 1, 2021

1. *Legal Description of Site:* This facility is to be located approximately 15.2 miles northeast of Sidney, Montana, in Section 8, Township 25 North, Range 59 East, in Richland County, 47.9340°N, latitude and -104.103°W, longitude.

2. *Description of Project:* Crusoe proposes to install and operate multiple Waukesha 9394 GSI engines, a Waukesha VGF H24SE engine, and a Solar Titan turbine that would run separately as either Alternate Operating Scenario 1 (AOS1) and Alternate Operating Scenario 2 (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).

3. *Objectives of Project:* The objectives of the proposed project are to use otherwise flared gases as a fuel source for generator engines in order to provide electricity to data farms.

4. *Alternatives Considered:* In addition to the proposed action, the Department also considered the "no-action" alternative. Crusoe submitted all of the appropriate application documentation, fees, and public notices. Therefore, the "no-action" alternative was eliminated from further consideration.

5. *A Listing of Mitigation, Stipulations, and Other Controls:* A list of enforceable conditions, including a BACT analysis, would be included in MAQP #5262-00.

6. *Regulatory Effects on Private Property:* The Department considered alternatives to the conditions imposed in this permit as part of the permit development. The Department determined that the permit conditions are reasonably necessary to ensure compliance with applicable requirements and demonstrate compliance with those requirements and do not unduly restrict private property rights.

7. *SUMMARY OF COMMENTS ON POTENTIAL PHYSICAL AND BIOLOGICAL EFFECTS*: The following comments have been prepared by the Department.

A. *Terrestrial and Aquatic Life and Habitats*

The proposed project would have only minor effects on terrestrial life due to the location of the project being a vacant field. The proposed project would have no effect on aquatic life.

B. *Water Quality, Quantity and Distribution*

The proposed project would not have any additional effect on water quality, quantity, and distribution because the project is not on or near any usable sources of water.

C. *Geology and Soil Quality, Stability and Moisture*

The proposed project would have minor effects on geology, soil quality, stability, and moisture due to new construction and installation of the engines and turbine. The minor effects include ground preparation and some minor heavy equipment travel while installing the engines.

D. *Vegetation Cover, Quantity, and Quality*

The proposed project would have minor effects on vegetative cover, quantity, and quality because the project would be located in a vacant field that was used for agriculture.

E. *Aesthetics*

The proposed project would not have only minor effects on the aesthetics because the engines would be placed in a vacant field.

F. *Air Quality*

No significant impacts are expected to air quality.

G. *Unique Endangered, Fragile, or Limited Environmental Resources*

The amount of allowable emissions which would be permitted by MAQP #5262-00 would be small on an industrial scale. The site location is an existing oil and gas development site. No significant impacts to unique endangered, fragile, or limited environmental resources would be expected from the normal operations emissions from the facility.

In an effort to identify any unique endangered, fragile, or limited environmental resources in the area, the Department contacted the Montana Natural Heritage Program, Natural Resource Information System (NRIS) on the original permit application. The area was defined by the section, township, and range of the proposed location with an additional 1mile buffer zone.

The Species of Concern Data Report include one species occurrence of Whooping Crane, along with other observed species of Hayden's Shrew, Baird's Sparrow, Swift Fox, Sharp-tailed Grouse, Blue Sucker, Brook Stickleback, Burbot, Creek Chub, Iowa Darter, Northern Redbelly Dace, Paddlefish, Pallid Sturgeon, Sauger, Sicklefin Chub, and Sturgeon Chub. There were numerous other potential species identified which match the type of habitat in the selected area.

H. *Sage Grouse Executive Order*

The proposed site is not located within Sage Grouse Habitat as identified under the EO.

I. *Demands on Environmental Resource of Water, Air and Energy*

As discussed in Sections 7.B and 7.F above, no significant impacts to water or air quality is expected. Demand for energy in the form of electricity would be reduced by the generation of electricity from the proposed engines. Demands on water, air, and energy is not expected to be significant.

J. *Historical and Archaeological Sites*

The proposed project would not have any additional effect on historical and archaeological sites because the project would be located in a vacant field that was used for agriculture.

K. *Cumulative and Secondary Impacts*

This project would support data centers in the area. MAQP #5262-00 would require control of these emissions, with the resulting amount of allowable emissions being minor on an industrial scale. Any impacts as a result of air emissions which would be authorized in MAQP #5262-00 would be expected to be minor, if any discernable amount at all.

8. *SUMMARY OF COMMENTS ON POTENTIAL ECONOMIC AND SOCIAL EFFECTS:* The following comments have been prepared by the Department.

A. *Social Structures and Mores*

The project location is rural. No increase in employees is expected to be required as a result of this project. Impacts to social structures and mores, if any, would be expected to be minor.

B. *Cultural Uniqueness and Diversity*

The project location is rural. No increase in employees is expected to be required as a result of this project. Impacts to cultural uniqueness and diversity, if any, would be expected to be minor.

C. *Local and State Tax Base and Tax Revenue*

This project would provide electrical generation. It is unclear whether the resulting electricity would provide an impact on the tax base and tax revenue.

D. *Agricultural or Industrial Production*

Impacts to agricultural or industrial production at the project location would be expected to be minor due to loss of farmland.

E. *Human Health*

MAQP #5262-00 would be written in accordance with rules designed to protect human health. The amount of allowable emissions contained in MAQP #5262-00 would be small on an industrial scale. No significant impact to human health would be expected.

F. *Access to and Quality of Recreational and Wilderness Activities*

The project is not located at or nearby wilderness or recreational access route. Normal operation emissions would not be visible and would be in amounts that are minor on an industrial scale. Noise at the site would exist only at close range. Impacts to access of or quality of recreational and wilderness activities would be expected to be minor, if any.

G. *Quantity and Distribution of Employment*

No increase in the permanent number of people employed by Crusoe would be expected as the result of this project. Temporary construction would be required. Impacts to quantity and distribution of employment, if any, would be expected to be minor.

H. *Distribution of Population*

No increase in the number of people employed by Crusoe would be expected as the result of this project. Temporary construction would be required. Impacts to distribution of population, if any, would be expected to be minor.

I. *Demands for Government Services*

The project would require a Montana Air Quality Permit and the associated administration of that permit. The project would consist of a minor source of emissions. Minor impacts would be expected.

J. *Industrial and Commercial Activity*

Short term construction activities would occur. Once construction would be complete, any impacts to industrial or commercial activity would be expected to be minor, if any at all.

K. *Locally Adopted Environmental Plans and Goals*

The Department is not aware of any other locally adopted environmental plans and goals which this project would affect. MAQP #5255-00 would be issued in accordance with applicable state rules which are designed to protect public health.

L. *Cumulative and Secondary Impacts*

This project supports electricity generation which would be used by area oil and gas infrastructure sites. Using locally produced electricity may mitigate other impacts which might have been caused by getting fuel and electricity to the site.

Recommendation: No Environmental Impact Statement (EIS) is required.

If an EIS is not required, explain why the EA is an appropriate level of analysis: The current permitting action is for the construction and operation of Kraken Central Site. MAQP #5262-00 includes conditions and limitations to ensure the facility will operate in compliance with all applicable rules and regulations. In addition, there are no significant impacts associated with this proposal.

Other groups or agencies contacted, or which may have overlapping jurisdiction: Montana Historical Society – State Historic Preservation Office, Natural Resource Information System – Montana Natural Heritage Program – Montana Sage Grouse Conservation Program

Individuals or groups contributing to this EA: Department of Environmental Quality – Air Quality Bureau, Montana Historical Society – State Historic Preservation Office, Natural Resource Information System – Montana Natural Heritage Program

EA prepared by: John P. Proulx
Date: 6/17/2021