PRELIMINARY DETERMINATION
ON PERMIT APPLICATION MAQP #5268-01

Date of Posting: March 28, 2025

Name of Applicant: Crusoe Energy Systems, Inc. – Altuve Pad

Facility Source: Natural Gas-Fired Generator

Location: Section 35, Township 26 North, Range 59 East

Proposed Action: The Montana Department of Environmental Quality (DEQ) proposes to issue a permit, with conditions, to the above-named applicant. The application was assigned Montana Air Quality Permit (MAQP) Application Number 5268-01.

Proposed Conditions: See attached Preliminary Determination of MAQP #5268-01.

Public Comment: Any member of the public desiring to comment must submit comments to DEQ-ARMB-Admin@mt.gov or to the address below. Comments may address DEQ's analysis and Preliminary Determination, Draft Environmental Assessment, or the information submitted in the application. All comments are due by April 14, 2025. Copies of the application and DEQ's analysis may be requested at https://deq.mt.gov (at the bottom of the home page, select *Request Public Records)*. For more information, you may contact DEQ at (406) 444-3490, or DEQ-ARMB-Admin@mt.gov.

Departmental Action: DEQ intends to make a Decision on the application following the Public Comment period. A copy of the Decision will be available on DEQ's website, https://deq.mt.gov/public/publicnotice (select *AIR)*. The permit shall become final on the date stated in the Decision, unless the Board of Environmental Review (Board) orders a stay on the permit.

Procedures for Appeal: Any person who is directly and adversely affected by DEQ's Decision may request a hearing before the Board. The appeal must be filed by the date that will be stated in the Decision. The request for a hearing must contain an affidavit setting forth the grounds for the request. The hearing will be held under the provisions of the Montana Administrative Procedures Act. Submit requests for a hearing to: Chairman, Board of Environmental Review, P.O. Box 200901, Helena, MT 59620, or the Board Secretary: DEQBERSecretary@mt.gov.

For DEQ,

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MONTANA AIR QUALITY PERMIT

Issued To:	Crusoe Energy Systems, Inc. Altuve Pad 1641 California St. Suite 400 Denver, CO 80202	MAQP: #5268-01 Application Complete: 02/19/2025 Preliminary Determination Issued: 03/28/2025 Department's Decision Issued: Permit Final:

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

This facility is to be located approximately 7.9 miles north of Fairview, Montana, in Section 35, Township 26 North, Range 59 East, in Richland County, 47.96799°N, latitude and -104.0596°W, longitude, and is known as the Altuve Pad.

B. Current Permit Action

On January 30, 2025, the Department of Environmental Quality (DEQ) received an application from Crusoe to modify Montana Air Quality Permit (MAQP) #5268-00. In the application, Crusoe is requesting that the emissions limits for Volatile Organic Compounds (VOCs) be changed from 0.010 grams per brake horsepower hour (g/bhp-hr) to 0.030 g/bhp-hr.

Section II: Conditions and Limitations

A. Emission Limitations

1. Crusoe shall not have on site more than ten (10) natural gas-fired generator engines (ARM 17.8.749).

2. Emissions from each individual Waukesha 9394 GSI engine at the Altuve Pad shall not exceed the following (ARM 17.8.752):

   NO_X – 0.15 g/bhp-hr
   CO – 0.30 g/bhp-hr
   VOC – 0.030 g/bhp-hr

3. Crusoe shall operate and maintain a non-selective catalytic reduction (NSCR) unit and an air/fuel ratio (AFR) controller within the parameters recommended by the equipment manufacturer on each Waukesha 9394 GSI engine (ARM 17.8.752).

4. 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).

5. 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).

6. 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 precaution limitation in Section II.A.4 (ARM 17.8.749).

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

8. 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. Crusoe shall demonstrate compliance with the NO_X, CO, and VOC limits in Section II.A.2 via source testing. 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 DEQ to demonstrate compliance with the emission limitations in Section II.A.1 (ARM 17.8.105 and ARM 17.8.749).

2. 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 DEQ. Future compliance demonstration shall be required at this same frequency for each engine 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).

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

4. DEQ may require further testing (ARM 17.8.105).

C. Operational Reporting Requirements

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

3. Crusoe shall annually certify that the Altuve 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 DEQ in writing of the date of commencement of operation of any emitting source within 30-days following the date of commencement.

SECTION III: General Conditions

A. Inspection – Crusoe shall allow 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 DEQ's decision may request, within 15 days after 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 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 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, DEQ's decision on the application is final 16 days after 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 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 (MAQP) Analysis
Crusoe Energy Systems, Inc. – Altuve Pad
MAQP #5268-01

I. Introduction/Process Description

This facility is to be located approximately 7.9 miles north of Fairview, Montana, in Section 35, Township 26 North, Range 59 East, in Richland County, 47.96799°N, latitude and -104.0596°W, longitude, and is known as the Altuve Pad.

A. Permitted Equipment

Crusoe Energy Systems, Inc. (Crusoe) is permitted to install up ten (10) 2,500 brake horsepower (bhp) Waukesha 9394 GSI generator engines at the Altuve Pad.

B. Source Description

Crusoe is permitted to install and operate Waukesha 9394 GSI generator engines for the purpose of generating electricity to power local data farms.

C. Permit History

On March 30, 2022, **Montana Air Quality Permit (MAQP) #5286-00** was issued to Crusoe.

D. Current Permit Action

On January 30, 2025, the Department of Environmental Quality (DEQ) received an application from Crusoe to modify Montana Air Quality Permit (MAQP) #5268-00. In the application, Crusoe is requesting the BACT-determined emissions limits for Volatile Organic Compounds (VOCs) be increased from 0.010 grams per brake horsepower hour (g/bhp-hr) to 0.030 g/bhp-hr. **MAQP #5286-01** replaces MAQP #5286-00.

E. Response to Public Comment (if received)

Person/Group Commenting	Permit Reference	Comment	DEQ Response

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 DEQ. Upon request, DEQ 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 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 DEQ.

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

4. ARM 17.8.110 Malfunctions. (2) 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 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.

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

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

b. 40 CFR 63, Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. 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 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 DEQ by each source of air contaminants holding an air quality permit (excluding an open burning permit) issued by 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.
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) and Carbon Monoxide (CO); 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 *January 18, 2025,* 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 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. 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 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 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 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 DEQ.

16. ARM 17.8.770 Additional Requirements for Incinerators. This rule specifies the additional information that must be submitted to 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 DEQ 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 #5268-01 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, Subparts A and JJJJ).

   e. This facility is subject to current NESHAP (40 CFR 63, Subparts A and ZZZZ).

   f. This source is not a Title IV affected source.

   g. This source is not a solid waste combustion unit.

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

   Based on these facts, DEQ determined that Crusoe will be a minor source of emissions as defined under Title V. However, if minor sources subject to NSPS are required to obtain a Title V Operating Permit, Crusoe will be required to obtain a Title V Operating Permit.

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.

With the current permit action, Crusoe is requesting the BACT-determined emissions limit for Volatile Organic Compounds (VOCs) be increased from 0.010 grams per brake horsepower hour (g/bhp-hr) to 0.030 g/bhp-hr. A BACT analysis was submitted by Crusoe in permit application MAQP #5268-01 addressing available methods of controlling VOC emissions from the Altuve Pad Site and demonstrating the proposed new emission limit constitutes BACT for the proposed action.

Step 1: Identify all available control technologies

The following technologies can reduce VOC emissions from natural gas-fired internal combustion engines:

- No add-on control. Pipeline quality natural gas used as fuel with good combustion practices, including maintaining proper air-to-fuel ratio
- Selective catalytic reduction (SCR)
- Selective non-catalytic reduction (SNCR)
- Non-selective catalytic reduction (NSCR)
- Oxidation catalyst
- EMx™ catalyst system

Step 2: Eliminate technically infeasible options

The following VOC control options are deemed technically infeasible for Crusoe's operations, as described.

- Pipeline quality natural gas fuel: Crusoe's generators consume stranded field gas that is unprocessed and generally goes through a minimum of one stage of separation. Crusoe typically operates on an adjacent surface location to the oil and gas well production facility generating the gas due to lack of infrastructure for the upstream operator to sell the gas via pipeline. With the lack of infrastructure, the stranded gas cannot be processed at a midstream facility to meet pipeline quality natural gas specifications. The average methane content of the stranded field gas is between 55 mole percent and 70 mole percent, depending on the location. This does not meet the pipeline quality specification for natural gas (i.e., 85 mole percent). Due to the lack of infrastructure in the areas which Crusoe operates these generators, utilizing pipeline quality natural gas is deemed technically infeasible for the proposed project.

- SCR: SCR requires specific exhaust temperatures for optimal VOC destruction efficiency. The exhaust temperatures for SCR's optimal effectiveness are between 600 degrees Fahrenheit (deg F) and 700 deg F. Crusoe's generators (Waukesha 9394 GSI) have an exhaust temperature ranging from 750 deg F to 1250 deg F, outside the optimal temperature range for SCR control of VOC

emissions. Therefore, the use of add-on SCR is deemed technically infeasible for the proposed project.

- SNCR: SNCR requires specific exhaust temperatures for optimal destruction efficiency for VOCs. The exhaust temperatures for SNCR's optimal effectiveness are between 1650 deg F and 1830 deg F without the use of urea and between 1740 deg F and 1920 deg F with the use of urea. Crusoe's generators (Waukesha 9394 GSI) have an exhaust temperature ranging from 750 deg F to 1250 deg F, outside the optimal temperature range for SNCR control of VOC emissions. Therefore, SNCR is deemed technically infeasible for the proposed project.

- Oxidation catalyst: Oxidation catalysts are best suited for lean-burn engines where there is more air than fuel in the combustion chamber. The oxidation catalyst uses the higher concentration of air in the combustion chamber to reduce air pollutants, including VOCs. Crusoe's generators (Waukesha 9394 GSI) are rich-burn engines where there is more fuel than air in the combustion chamber. Because there isn't enough air in the combustion chamber of a rich-burn engine, oxidation catalyst is deemed technically infeasible to control VOCs from the proposed project.

- EMx™ catalyst system: The EMxTM catalyst system requires specific exhaust temperatures for optimal destruction efficiency for VOCs. The exhaust temperatures for 's optimal effectiveness using the EMxTM catalyst system are between 300 deg F to 700 deg F. Crusoe's generators (Waukesha 9394 GSI) have an exhaust temperature ranging from 750 deg F to 1250 deg F, outside the temperature range for EMxTM catalyst systems to control VOCs. Therefore, the EMxTM catalyst system is deemed technically infeasible for the proposed project.

Step 3: Rank remaining control technologies by control effectiveness

The remaining control technologies, ranked by control effectiveness include the following:

- (1) NSCR. VOC source testing conducted for the same engine type owned and operated by Crusoe and located at nearby, previously permitted facilities demonstrate a range of VOC emissions from 0.001 g/bhp-hr to 0.006 g/bhp-hr have been achieved in practice. However, per the engine manufacturers specifications, the use of add-on NSCR control can reliably and consistently limit VOC emissions to 0.0124 g/bhp-hr when combusting pipeline quality natural gas or propane. Because of the variable nature of the field gas being combusted, the engine manufacturer cannot guarantee that an emission rate of 0.0124 g/bhp-hr for the affected engines operating with NSCR is consistently achievable in this case.

  With a maximum engine rating of 2,500 hp and an emission rate of 0.0124 g/bhp-hr, controlled VOC emissions would be 0.30 tons per year when combusting pipeline quality natural gas or propane, which was deemed technically infeasible for the proposed project. Compared to the base-case, the combustion of pipeline quality natural gas or propane and the use of a NSCR

has a VOC reduction efficiency between 93% and 94%, or a maximum reduction of 4.5 tons VOC per year/engine.

- (2) Good combustion practices including maintaining proper air-to-fuel ratio. Good combustion practices including maintaining proper air-to-fuel ratio constitutes the base case, with no add-on VOC control for the affected engines. Based on engine specifications provided in the application for the proposed permit modification, the Waukesha 9394 GSI base-case engine VOC emission rate is between 0.18 grams per horsepower-hour (g/hp-hr) and 0.20 g/hp-hr. With a maximum horsepower of 2,500, this equates between 4.3 tons VOC per year and 4.8 tons VOC per year.

Step 4: Evaluate the most effective controls and document results

- NSCR. The installation and operation of NSCR with an AFR controller on the affected engines constitutes a readily available VOC control option. The cost of NSCR is widely variable depending on the application. The EPA published a cost estimation method for NSCR with a capital cost of $24.9 x hp + $13,118 and an annual cost of $4.77 x hp + 5,679. Crusoe's generators (Waukesha 9394 GSI) have a maximum horsepower of 2,500 resulting in an estimated capital cost of $75,368 and estimated annual cost of operation at $17,604 (based on 2009 dollars).

  The lifetime for NSCR in the proposed application ranges from 1 to 3 years depending on regular maintenance and cleaning of the elements. Assuming a 3-year lifetime, the average annual cost for NSCR is $42,727 [$75,368 + 3 * $17,604) divided by 3 years]. Therefore, the cost of VOC reduced (4.3) is approximately $10,411/ton.

- Good combustion practices including maintaining proper air-to-fuel ratio. As this is the base-case, there are no additional environmental, economic, or energy impacts from good combustion practices. There are no perceived challenges from its implementation.

Step 5: Select BACT

Under MAQP #5268-00, BACT for VOC emissions was determined to be add-on NSCR with an AFR controller and an emission limit of 0.0100 g/bhp-hr. Because the proposed engines would burn field gas and not pipeline quality natural gas or propane, the previous BACT-determined VOC emission limit of 0.0100 g/bhp-hr may not be consistently achievable in practice and cannot be guaranteed by the manufacturer of the engines. Therefore, DEQ determined the previous BACT-determined VOC emission limit of 0.01 g/bhp-hr does not constitute BACT, in this case.

Due to the variable nature of the fuel and the associated lack of a manufacturers guarantee, DEQ determined an appropriate margin of error is appropriate in this case to ensure the BACT-determined emission limit for VOC's is consistently achievable in practice. This is supported by previous VOC BACT determinations of 0.03 g/bhp-hr for the same engine type operating with add-on NSCR and AFR at other, nearby Crusoe facilities combusting similar, variable field gas. Therefore, under the current permit action DEQ determined add-

on NSCR with an AFR controller and a VOC emission limit of 0.03 g/bhp-hr constitutes BACT for the proposed project.

With a maximum engine rating of 2,500 hp, and an emission rate of 0.03 g/bhp-hr, controlled VOC emissions would be 0.72 tons per year. Compared to the base-case, the use of a NSCR has a VOC reduction efficiency between 83% and 85%, or a maximum reduction of 4.1 tons per year.

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

CONTROLLED	**tons/year**							
Emission Source	**PM**	**PM_{10}**	**$PM_{2.5}$**	**NO_X**	**CO**	***VOC***	**SO_2**	**HAPs**
2,500 bhp Compressor Engine (combined)	16.64	16.64	16.64	36.21	72.42	*7.24*	3.50	10.51
Total Emissions	**16.64**	**16.64**	**16.64**	**36.21**	**72.42**	***7.24***	**3.50**	**10.51**

Calculations:

Waukesha Engine(s), 25000

Note: Emissions are based on the power output of the engine (10 hp).		
Operational Capacity of Engine = 10 engines	10	**engines**
Brake horsepower	25000	**bhp**
Pounds per gram	0.002204	**lb/gr**
Hours of Operation = 8,760.00 hr/yr	8760	**hr/yr**
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) * (0.38 lb/hr) * (8,760 hr/yr) * (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) * (0.38 lb/hr) * (8,760 hr/yr) * (ton/2000 lb) = 16.644 ton/yr	16.64	**ton/yr**
NOx Emissions:		
Emission Factor = 0.15 g/bhp-hr (BACT)	0.15	**g/bhp-hr**
Calculation: ((0.15 g/bhp-hr) * (25,000 hp) * (0.0022 lb/g) * (8,760 hr/yr) * (ton/2000 lb) = 36.21 ton/yr	36.21	**ton/yr**
CO Emissions:		
Emission Factor = 0.3 g/bhp-hr (BACT)	0.3	**g/bhp-hr**
Calculation: ((0.30 g/bhp-hr) * (25,000 hp) * (0.0022 lb/g) * (8,760 hr/yr) * (ton/2000 lb) = 72.42 ton/yr	72.42	**ton/yr**
VOC Emissions:		
Emission Factor = 0.03 g/bhp-hr (BACT)	*0.03*	***g/bhp-hr***

*Calculation: ((0.03 g/bhp-hr) * (25,000 hp) * (0.0022 lb/g) * (8,760 hr/yr) * (ton/2000 lb) = 2.41 ton/yr*	*7.24*	***ton/yr***

SO_X Emissions:		
Emission Factor = 0.08 lb/hr (BACT)	0.08	**lb/hr**
Calculation: ((10 engines) * (0.08 lb/hr) * (8,760 hr/yr) * (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) * (0.24 lb/hr) * (8,760 hr/yr) * (ton/2000 lb) = 10.51 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

DEQ determined, based on amount of allowable emission, that the impacts from this permitting action will be minor. DEQ 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, DEQ conducted a private property taking and damaging assessment. See *Item 21, Private Property Assessment*, on page 18 of the attached Environmental Assessment.

Based on this analysis, DEQ 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.

DRAFT ENVIRONMENTAL ASSESSMENT

Crusoe Energy Systems, Inc – Altuve Pad

Air Quality Bureau

Air, Energy, and Mining Division

Table of Contents

Project Overview

COMPANY NAME:	Crusoe Energy Systems, Inc.
EA DATE:	March 28, 2025
SITE NAME:	Altuve Pad
MAQP#:	5286-01
Application Received Date:	January 30, 2025
Application Complete Date:	February 19, 2025

Location

Township Section 35, Township 26 North, Range 59 East
County: Richland
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) proposes to change the emission factor for Volatile Organic Compounds (VOC) from 0.01 grams per brake horsepower-hour (g/bhp-hr) to 0.03 g/bhp-hr.

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 proposed action would change the emission factor for VOCs.
Duration and Timing	The duration of the proposed action would be effective as soon as the permit is issued as "Final" to Crusoe.
Estimated Disturbance	There will be no disturbances associated with the proposed action.
Equipment	There will be no equipment use associated with the proposed action.
Location	The location for the proposed action remains unchanged from the original application location.
Personnel on-site	None.
Location and Analysis Area	Section 35, Township 26 North, Range 59 East
Air Quality	County: Richland
Water Quality	Water quality will not be impacted as a result of the proposed action.
Erosion Control and Sediment Transport	No new disturbances for the proposed action are expected.
Solid Waste	The proposed action will not create any solid waste and continues operation of the Altuve Pad will not create any solid waste.

Cultural resources	The property is already in use as agricultural 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	There will be no changes to the aesthetics of the site with the proposed action.
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 agricultural property and would require minor reclamation at the end of the projects lifespan.

Cumulative Impact Considerations	
Past Actions	This is an existing site.
Present Actions	Change the emission factor for VOCs from 0.01 g/bhp-hr to 0.03 g/bhp-hr.
Related Future Actions	No future actions are foreseen at this site.

See Figure 1 below for the project location on the Altuve Site.

Figure 1. Approximate Location for the Generators

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 affected area consists primarily of agricultural and grazing lands with nearby, dispersed oil and gas operations. Soils in the affected area are made up primarily of Zahill loams with a 15-60 percent slopes. Characteristics of this soil classification include distance to water table of more than 80 inches. There is no prime farmland.

The proposed action changes the emission factor for VOCs from 0.01 g/bhp-hr to 0.03 g/bhp-hr and does not make any physical changes to the site.

Direct Impacts:
No direct construction or operational impacts to geology, soil quality, stability, and moisture are expected as a result of the proposed action.

Secondary Impacts:
No secondary construction or operational impacts to geology, soil quality, stability, and moisture are expected as a result of the proposed action.

Cumulative Impacts:
There will be no cumulative impacts to geology, soil quality, stability, or moisture associated with the proposed action.

2. Water Quality, Quantity, and Distribution

The proposed action changes the emission factor for VOCs from 0.01 g/bhp-hr to 0.03 g/bhp-hr and does not make any physical changes to the site.

Direct Impacts:
A limited amount of water may be required to control fugitive dust emissions from day-to-day activities and would likely be sourced on-site. Therefore, any adverse direct impacts to water quantity would be short-term and negligible.

Secondary Impacts:
No secondary impacts would be expected as a result of the proposed action because the action updates the permit and does not change the operational environment.

Cumulative Impacts:
No cumulative impacts are expected because of the proposed project.

3. Air Quality

Air quality in the area affected by the proposed project is currently unclassifiable or in compliance with applicable NAAQS. No significant point-sources of air pollution exist in the area affected by the proposed project. Existing sources of air pollution in the area are limited and generally include dispersed oil and gas facilities similar to the proposed project, fugitive dust associated with high wind events and exposed ground, vehicle

travel on paved and unpaved roads (fugitive dust), vehicle exhaust emissions, and various agricultural practices (vehicle exhaust emissions and fugitive dust).

The proposed action changes the emission factor for VOCs from 0.01 g/bhp-hr to 0.03 g/bhp-hr and does not make any physical changes to the site.

Applicants are required to comply with all laws relating to air, such as the Federal Clean Air Act, NAAQS set by the Environmental Protection Agency (EPA), and the Clean Air Act of Montana.

In addition, MAQP #5268-01 provides legally enforceable conditions regarding the emitting units themselves, pollution controls, and requires the applicant to take reasonable precautions to limit fugitive dust from this location.

Direct Impacts:

Fugitive dust emissions resulting from construction of the proposed facility may adversely impact air quality. However, Crusoe must use reasonable precautions to limit fugitive dust generated during normal facility operations. Further, no air quality restrictions exist for the affected area; therefore, the proposed project would not be expected to cause or contribute to a violation of the applicable NAAQS for particulate matter (fugitive dust). Therefore, any direct impacts would be short-term, negligible, consistent with existing impacts, and mitigated by implementation of enforceable reasonable precautions for dust.

Adverse air quality impacts would be minor because of the proposed project. See permit analysis for more information regarding air quality impacts. The majority of pollutants from the proposed project would be related to the combustion of field gases which are similar in composition to natural gas. This would result in the release of NO_X, CO, SO_X, VOCs, and particulate matter.

The proposed action changes the emission factor for VOCs from 0.01 g/bhp-hr to 0.03 g/bhp-hr, resulting in an increase in calculated emissions with no physical changes to the site. Any beneficial impacts to air quality from eliminating or limiting the flaring of field gas would be long-term and minor.

The emission inventory is for up to ten (10) 2,500 horsepower engines operating up to 8,760 hours per year (unlimited operation). The emission inventory, located in Section IV of the MAQP Analysis, is based on emission factors provided by the manufacturer.

Secondary Impacts:

Emissions from the proposed project would use BACT and would not be expected to cause or contribute to a violation of the health and welfare-based primary and secondary NAAQS. Secondary NAAQS provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. See permit analysis for more detailed information regarding air quality impacts. Any adverse

impacts would be long-term and minor. No beneficial secondary impacts would be expected because of the proposed project.

Cumulative Impacts:

Cumulative impacts from the operation of the Altuve Pad are restricted by conditions and limits contained in the MAQP; therefore, any expected air quality impacts would be minor. The Richland County area also has other stationary sources, many of which are similar power generators for data centers, and all contribute to the overall air quality in Richland County, Montana. The cumulative impacts of these other emitters and the proposed action would not have an adverse impact to air quality. Impacts from the Proposed Action are limited by enforceable conditions and limits contained in the MAQP and BACT must be used. There are other oil and gas operations within the same township and range but none within the same section and none within a mile linear distance. These other sites contribute to the release of VOCs from venting directly to atmosphere, combustion in flares, and also combustion as would occur in these engines. Collectively the VOCs released directly to atmosphere and the combustion of gases release other criteria pollutants and GHGs. Because emissions from the proposed project, and all other similar or related projects located in the affected area are regulated, any adverse cumulative impacts to air quality would be short- and long-term and minor. Further, the proposed project would generate electricity to power a data center through the combustion of field gas gathered from multiple well pads that would otherwise be flared from an existing oil and gas facility, thereby eliminating or limiting emissions associated with flaring activities. Any beneficial cumulative impacts to air quality from eliminating or limiting the flaring of field gas would be long-term and minor.

4. Vegetation Cover, Quantity, and Quality

The affected area consists primarily of agricultural and grazing lands with nearby, dispersed oil and gas operations.

The proposed action changes the emission factor for VOCs from 0.01 g/bhp-hr to 0.03 g/bhp-hr and does not make any physical changes to the site.

Direct Impacts:

No direct construction or operational impacts to vegetative cover, quantity, or quality are expected as a result of the proposed action.

Secondary Impacts:

No secondary construction or operational impacts to vegetative cover, quantity, or quality are expected as a result of the proposed action.

Cumulative Impacts:

There will be no cumulative impacts to vegetative cover, quantity, or quality associated with the proposed action.

5. Terrestrial, Avian, and Aquatic Life and Habitats

The affected area consists primarily of agricultural and grazing lands with nearby, dispersed oil and gas operations.

The proposed action changes the emission factor for VOCs from 0.01 g/bhp-hr to 0.03 g/bhp-hr and does not make any physical changes to the site.

Direct Impacts:
No direct construction or operational impacts to terrestrial, avian, or aquatic life and habitats are expected as a result of the proposed action.

Secondary Impacts:
No secondary construction or operational impacts to terrestrial, avian, or aquatic life and habitats are expected as a result of the proposed action.

Cumulative Impacts:
There will be no cumulative impacts to terrestrial, avian, or aquatic life and habitats associated with the proposed action.

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

DEQ did not conducted a search using the Montana Natural Heritage Program (MTNHP) because the proposed action changes the emission factor for VOCs from 0.01 g/bhp-hr to 0.03 g/bhp-hr and does not make any physical changes to the site.

The proposed project is not in core, general or connectivity sage grouse habitat, as designated by the Sage Grouse Habitat Conservation Program at: http://sagegrouse.mt.gov.

Direct Impacts:
No direct construction or operational impacts to unique, endangered, fragile, or limited environmental resources are expected as a result of the proposed action.

Secondary Impacts:
No secondary construction or operational impacts to unique, endangered, fragile, or limited environmental resources are expected as a result of the proposed action.

Cumulative Impacts:
There will be no cumulative impacts to unique, endangered, fragile, or limited environmental resources associated with the proposed action.

7. Historical and Archaeological Sites

The Montana State Historic Preservation Office (SHPO) was not notified of the application because the proposed action changes the emission factor for VOCs from 0.01 g/bhp-hr to 0.03 g/bhp-hr and does not make any physical changes to the site.

Direct Impacts:
No direct construction or operational impacts to historical or archaeological sites are expected as a result of the proposed action.

Secondary Impacts:
No secondary construction or operational impacts to historical or archaeological sites are expected as a result of the proposed action.

Cumulative Impacts:
There will be no cumulative impacts to historical or archaeological sites associated with the proposed action.

8. Aesthetics

The affected area consists primarily of agricultural and grazing lands with nearby, dispersed oil and gas operations.

Direct Impacts:
No direct construction or operational impacts to the aesthetics are expected as a result of the proposed action.

Secondary Impacts:
No secondary construction or operational impacts to the aesthetics are expected as a result of the proposed action.

Cumulative Impacts:
There will be no cumulative impacts to the aesthetics associated with the proposed action.

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

The proposed action changes the emission factor for VOCs from 0.01 g/bhp-hr to 0.03 g/bhp-hr and does not make any physical changes to the site.

Direct Impacts:
No direct construction or operational impacts on demands of environmental resources of land, water, air, or energy are expected as a result of the proposed action.

Secondary Impacts:
No secondary construction or operational impacts demands of environmental resources of land, water, air, or energy are expected as a result of the proposed action.

Cumulative Impacts:
There will be no cumulative impacts to the aesthetics associated with the proposed action.

10. Impacts on Other Environmental Resources

The proposed action changes the emission factor for VOCs from 0.01 g/bhp-hr to 0.03 g/bhp-hr and does not make any physical changes to the site.

Direct Impacts:
No direct construction or operational impacts on demands of environmental resources of land, water, air, or energy are expected as a result of the proposed action.

Secondary Impacts:
No secondary construction or operational impacts demands of environmental resources of land, water, air, or energy are expected as a result of the proposed action.

Cumulative Impacts:
No other environmental resources, beyond the resource areas already covered within this EA would result in any known additional cumulative impacts.

11. Human Health and Safety

The proposed action changes the emission factor for VOCs from 0.01 g/bhp-hr to 0.03 g/bhp-hr and does not make any physical changes to the site.

Direct Impacts:
No direct construction or operational impacts to human health and safety are expected as a result of the proposed action.

Secondary Impacts:
No secondary construction or operational impacts to human health and safety are expected as a result of the proposed action.

Cumulative Impacts:
No other environmental resources, beyond the resource areas already covered within this EA would result in any known additional cumulative impacts.

12. Industrial, Commercial, and Agricultural Activities and Production

The affected area consists primarily of agricultural and grazing lands with nearby, dispersed oil and gas operations. The proposed action changes the emission factor for VOCs from 0.01 g/bhp-hr to 0.03 g/bhp-hr and does not make any physical changes to the site.

Direct Impacts:
No direct construction or operational impacts to industrial, commercial, agricultural activities and production are expected as a result of the proposed action.

Secondary Impacts:
No secondary construction or operational impacts to industrial, commercial, agricultural activities and production are expected as a result of the proposed action.

Cumulative Impacts:
No other environmental resources, beyond the resource areas already covered within this EA would result in any known additional cumulative impacts.

13. Quantity and Distribution of Employment

There are already existing staff and resources employed by Crusoe in the area, and these resources would be used to operate this facility as well. The proposed action changes the emission factor for VOCs from 0.01 g/bhp-hr to 0.03 g/bhp-hr and does not make any physical changes to the site.

Direct Impacts:
Crusoe would use existing staff or contracted services to construct the proposed facility. Therefore, any direct impacts to the quantity and distribution of employment in the affected area would be short-term, negligible, and beneficial. No adverse direct impacts would be expected because of the proposed project.

Secondary Impacts:
Crusoe would use existing staff to operate the proposed facility. Therefore, any secondary impacts to the quantity and distribution of employment in the affected area would be long-term, negligible, and beneficial. No adverse secondary impacts would be expected because of the proposed project.

Cumulative Impacts:
No cumulative impact is expected on long-term employment from the proposed action because the new facility would not be expected to create any permanent new jobs.

14. Local and State Tax Base and Tax Revenues

The proposed action changes the emission factor for VOCs from 0.01 g/bhp-hr to 0.03 g/bhp-hr and does not make any physical changes to the site.

Direct Impacts:
No direct construction or operational impacts to local and state tax base and tax revenue are expected as a result of the proposed action. However, because the proposed project would be small by industrial standards any direct impacts to the local and state tax base and tax revenues would be long-term, negligible to minor, and beneficial. No adverse direct impacts would be expected because of the proposed project.

Secondary Impacts:
Local, state and federal governments would be responsible for appraising the property, setting tax rates, collecting taxes, from the companies, employees, or landowners benefitting from the proposed operation. Further, Crusoe would be responsible for accommodation of any increased taxes associated with operation of the proposed facility. Therefore, any secondary impacts would be negligible to minor, consistent with existing impacts in the affected area, and beneficial. No adverse secondary impacts would be expected because of the proposed project.

Cumulative Impacts:
Long-term beneficial negligible to minor impacts to local and state tax base and tax revenues are anticipated from this permitting action.

15. Demand for Government Services

Direct Impacts:
The air quality permit has been prepared by state government employees as part of their day-to-day, regular responsibilities. Therefore, any adverse direct impacts to demands for government services is consistent with existing impacts and negligible. No beneficial direct impacts would be expected because of the proposed project.

Secondary Impacts:
Ongoing compliance inspections of facility operations would be accomplished by state government employees as part of their typical, regular duties and required to ensure the facility is operating within the limits and conditions listed in the air quality permit. Therefore, any adverse secondary impacts to demands for government services would be consistent with existing impacts and negligible. No beneficial secondary impacts would be expected because of the proposed project.

Cumulative Impacts:
Minor cumulative impacts are anticipated on government services with the proposed action and a minimal increase in impact would occur but regulators would likely combine visits to cover regulatory oversight needs.

16. Locally Adopted Environmental Plans and Goals

DEQ has reviewed the Richland County website and found no locally adopted environmental plans and goals for the area.

Direct Impacts:
No locally adopted environmental plans and goals were identified. Therefore, no direct impacts would be expected because of the proposed project.

Secondary Impacts:
No locally adopted environmental plans and goals were identified.; therefore, no secondary impacts to locally adopted environmental plans and goals would be expected because of the proposed project.

Cumulative Impacts:
No cumulative impacts to the locally adopted environmental plans and goals are anticipated since no direct impacts or secondary impacts were identified.

17. Access to and Quality of Recreational and Wilderness Activities

The affected area consists primarily of agricultural and grazing lands with nearby, dispersed oil and gas operations. There are Bureau of Land Management parcels scattered across Eastern Montana. There is one such parcel located directly east of the proposed site but would likely be land-locked by private land and not accessible to the general public. The proposed action changes the emission factor for VOCs from 0.01 g/bhp-hr to 0.03 g/bhp-hr and does not make any physical changes to the site.

Direct Impacts:
No recreational or wilderness areas occur in the vicinity of the proposed project. Therefore, no direct impacts to access and quality of recreational and wilderness activities would be expected because of the construction phase of the proposed project.

Secondary Impacts:
The affected area consists primarily of agricultural and grazing lands with nearby, dispersed oil and gas operations. No recreational or wilderness areas occur in the immediate area; therefore, no secondary impacts to access and quality of recreational and wilderness activities would be expected because of proposed facility operations.

Cumulative Impacts:
No cumulative impacts to access and quality of recreational and wilderness activities are anticipated as a result of the proposed permitting action as there are no public recreational or wilderness activity sites with 10 miles of the proposed project.

18. Density and Distribution of Population and Housing

The affected area consists primarily of agricultural and grazing lands with nearby, dispersed oil and gas operations. The proposed action changes the emission factor for VOCs from 0.01 g/bhp-hr to 0.03 g/bhp-hr and does not make any physical changes to the site.

Direct Impacts:
Crusoe would employ existing staff and/or contracted services to construct the facility and the proposed project would not be expected to otherwise result in an increase or decrease in the local population. Therefore, no direct impacts to density and distribution of population and housing would be expected because of the proposed project.

Secondary Impacts:
Crusoe would employ existing staff to operate the facility and the proposed project would not be expected to otherwise result in an increase or decrease in the local population. Therefore, no secondary impacts to density and distribution of population and housing would be expected because of the proposed project.

Cumulative Impacts:
No cumulative impacts to density and distribution of population and housing are anticipated as a result of the proposed permitting. There are no impacts on the density and distribution of population and housing.

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.

The existing nature of the area affected by the proposed project is both agricultural and industrial based on the large number of oil and gas wells in Richland County.

Direct Impacts:
Construction and operation of the facility would not be expected to affect the existing customs and values of the affected population. Therefore, no direct impacts to the existing social structures and mores of the affected population would be expected because of the proposed project.

Secondary Impacts:
The existing nature of the area affected by the proposed project is agricultural and industrial (oil and gas); therefore, operation of the facility would not be expected to affect the existing customs and values of the affected population. Therefore, no secondary impacts to the existing social structures and mores of the affected population would be expected because of the proposed project.

Cumulative Impacts:
The addition of engines at a site with agricultural and industrial activities would have negligible to minor cumulative impacts on the existing social structures because this site would be just one of many sites already operating in the area.

20. Cultural Uniqueness and Diversity

The existing nature of the area affected by the proposed project is agricultural and industrial (oil and gas). It is not anticipated that this project would cause a shift in some unique quality of the area.

Direct Impacts:
Crusoe would employ existing staff and/or contracted services to construct the facility and thus the proposed project would not be expected to otherwise result in an increase or decrease in the local population. Therefore, no direct impacts to the existing cultural uniqueness and diversity of the affected population would be expected because of the proposed project.

Secondary Impacts:
The existing nature of the area affected by the proposed project is agricultural and industrial (oil and gas). Further, Crusoe would employ existing staff to operate the facility and thus the proposed project would not be expected to result in an increase or decrease in the local population. Therefore, no secondary impacts to the existing cultural uniqueness and diversity of the affected population are anticipated as a result of the proposed action.

Cumulative Impacts:
No cumulative impacts to cultural uniqueness and diversity are anticipated because the skills required by this project would be similar to other existing sites in the area and this project would be considered small by industrial standards.

21. Private Property Impacts

The proposed project would take place on privately owned land. DEQ's approval of MAQP #5268-01 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 #5268-01 would not have private property-taking or damaging implications.

As required by 2-10-105, MCA, 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

Direct Impacts:

DEQ is unaware of any other appropriate short-term social and economic circumstances in the affected area that may be directly impacted by the proposed project. Due to the nature of the proposed action, no further direct impacts would be expected because of the proposed project.

Secondary Impacts:

The proposed project would generate electricity to power a data center through the combustion of field gas gathered from multiple well pads that would otherwise be flared from an existing oil and gas facility, thereby eliminating or limiting emissions associated with uncontrolled field gas flaring activities. Further, the proposed operation would limit or eliminate economic expenditure necessary to operate the affected engines (i.e., fuel purchases). Any impacts to air quality from eliminating or limiting the flaring of field gas would be long-term, minor, and beneficial. Any impacts from limiting or eliminating economic expenditures to accommodate engine operations would be long-term, minor to moderate, and beneficial.

DEQ is unaware of any other appropriate long-term social and economic circumstances in the affected area that may be impacted by the proposed project. No further secondary impacts would be expected because of the proposed project.

Cumulative Impacts:

No cumulative impacts to any other appropriate social and economic circumstances are anticipated because no direct and secondary impacts were identified. The proposed project would take place on private land. 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 #5268-01 would not have private property-taking or damaging implications.

23. 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.

24. Greenhouse Gas Assessment

The proposed action changes the calculated emission factor for VOCs from 0.01 g/bhp-hr to 0.03 g/bhp-hr and does not make any physical changes to the site.

Direct Impacts:
There will be no increase in greenhouse gases associated with the current project, therefore, no direct impacts are expected as a result of the proposed action.

Secondary Impacts:
There will be no increase in greenhouse gases associated with the current project, therefore, no secondary impacts are expected as a result of the proposed action.

Cumulative Impacts:
No other environmental resources, beyond the resource areas already covered within this EA would result in any known additional cumulative impacts.

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 #5268-01. 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:
https://www.richlandcountysc.gov/

A review of the Richland County website, and listed department information did not indicate any specific planning documents that would be relative to this permitting action.

PUBLIC INVOLVEMENT

The public comment period for this permit action is from 03/28/2025 through 04/14/2025. Public comments may be submitted to DEQ through the DEQ website, email, written letter, or in person.

OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION

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

This environmental review analyzes the proposed project submitted by the Applicant. The project would be negligible and would be fully reclaimed to the permitted postmining land uses at the conclusion of the project and thus would not contribute to the long-term cumulative effects of mining in the area.

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 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

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

No significant adverse impacts would be expected because of the proposed project. As noted through the draft EA, 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 changes the emission factor for VOCs from 0.01 g/bhp-hr to 0.03 g/bhp-hr and does not make any physical changes to the site.

The proposed action changes the emission factor for VOCs from 0.01 g/bhp-hr to 0.03 g/bhp-hr and does not make any physical changes to the site. The site is permitted to operate the engines 8,760 hours per calendar year using BACT for the control of emissions from the proposed operations.

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 activities proposed by the Applicant would have any growth-inducing or growth-inhibiting aspects, or contribution to cumulative impacts. The proposed action changes the emission factor for VOCs from 0.01 g/bhp-hr to 0.03 g/bhp-hr and does not make any physical changes to the site.

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

There would be no impacts to view-shed aesthetics as he proposed action changes the emission factor for VOCs from 0.01 g/bhp-hr to 0.03 g/bhp-hr and does not make any physical changes to the site. Employees at the operation and nearby oil and gas operations would see and hear the engine operations when in the immediate area of the site.

Demands on the environmental resources of land, water, air, or energy would not be significant.

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 private land.

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 #5268-01 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 proposes to amend the permit, DEQ is not committed to issuing those revisions.

DEQ would conduct an environmental review for any subsequent permit modifications sought by the Applicant pursuant to MEPA. 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, no significant adverse impacts to the affected human environment would be expected because of the proposed project. Therefore, preparation of an Environmental Impact Statement or EIS is not required, and the draft EA is deemed the appropriate level of environmental review pursuant to MEPA.

Preparation and Approval

EA and Significance Determination prepared by:

John P. Proulx, Air Quality Engineering Scientist

Environmental Assessment Reviewed By:

Craig Jones, MEPA Coordinator, Department of Environmental Quality

Approved By:

Eric Merchant, Supervisor, Air Quality Permitting Services Section, Air Quality Bureau

REFERENCES

- 5268-01_2025_01_30_APP – Application received from Crusoe Energy Systems, Inc. on January 30, 2025. Complete application received February 19, 2025.

  https://www.richlandcountysc.gov/