

May 22, 2024

Tina Volek, City Administrator
City of Billings
Billings Regional Landfill
4848 Midland Road
Billings, MT 59101

Sent via email: maddoxw@ci.billings.mt.us

RE: Final for MAQP #5176-01

Dear Ms. Volek:

Montana Air Quality Permit (MAQP) #5176-01 is deemed final as of May 17, 2024, by DEQ. This permit is for the City of Billings – Billings Regional Landfill. All conditions of the Decision remain the same. Enclosed is a copy of your permit with the final date indicated.

For DEQ,



Craig P. Henrikson
Interim Permitting Services Section Supervisor
Air Quality Bureau
(406) 444-6711



John P. Proulx
Air Quality Engineer
Air Quality Bureau
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Montana Department of Environmental Quality
Air, Energy & Mining Division
Air Quality Bureau

Montana Air Quality Permit #5176-01

City of Billings
Billings Regional Landfill
Sections 29 & 30, Township 1 South, Range 26 East
4848 Midland Road
Billings, MT 59101

May 17, 2024



MONTANA AIR QUALITY PERMIT

Issued To: City of Billings -
Billings Regional Landfill
4848 Midland Road
Billings, MT 59101

MAQP: #5176-01
Application Received: 02/16/2024
Application Complete: 02/16/2024
Preliminary Determination Issued: 03/26/2024
Department's Decision Issued: 05/01/2024
Permit Final: 05/17/2024

A Montana Air Quality Permit (MAQP), with conditions, is hereby granted to City of Billings – Billings Regional Landfill (BRL), 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

The BRL open flare will be located at Section 29 & 30, Township 1 South, and Range 26 East, Latitude 45.7245, Longitude -108.5450. The physical address of BRL is 5240 Jellison Road, Billings, MT.

B. Current Permit Action

On February 16, 2024, the Department of Environmental Quality, Air Quality Bureau (DEQ) received an application from BRL to correct and specify language in the permit related to the new flare that will be installed and used to flare landfill gas. The new flare will provide redundancy in the event the gas plant flare associated with the landfill gas capture collection system is inoperable.

Section II: Conditions and Limitations

A. Emission Limitations

1. BRL shall install and process instrumentation to demonstrate that a flame is present and is being maintained whenever landfill gas is being combusted in the open flare (ARM 17.8.749 and ARM 17.8.752).
2. BRL shall install an open flare with design specifications for no less than 98.0 percent destruction efficiency (ARM 17.8.749 and ARM 17.8.752).
3. BRL shall install, calibrate, and continuously operate a flowmeter and hour-meter, or any other equivalent device, on the open flare system to determine the total flow of landfill gas to the open flare. The flow rate measuring device shall record flow at least every 15 minutes (ARM 17.8.749).
4. BRL shall operate the emergency generator only when commercially supplied electric power is not available or during times of planned maintenance (ARM 17.8.749).

5. BRL shall not cause or authorize emissions to be discharged into the outdoor atmosphere from the open flare that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes (ARM 17.8.316).
6. BRL 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. BRL 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. BRL shall treat all unpaved portions of the haul roads, access roads, and the general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precautions limitation in Section II.A.7 (ARM 17.8.749).
9. BRL shall comply with all applicable standards and limitations, and the reporting, recordkeeping, and notification requirements contained in 40 CFR 60, Subpart Cc and JJJJ (ARM 17.8.340 and 40 CFR 60, Subpart Cc and JJJJ).
10. BRL shall comply with all applicable standards and limitations, and the reporting, recordkeeping, and notification requirements contained in 40 CFR 61, Subpart M (ARM 17.8.341 and 40 CFR 61, Subpart M).
11. BRL shall comply with all applicable standards and limitations, and the reporting, recordkeeping, and notification requirements contained in 40 CFR 62, Subpart A and OOO (ARM 17.8.341 and 40 CFR 62, Subpart A and OOO).
12. BRL shall comply with all applicable standards and limitations, and the reporting, recordkeeping, and notification requirements contained in 40 CFR 63, Subpart A, AAAA and ZZZZ (ARM 17.8.342 and 40 CFR 63, Subpart A, AAAA and ZZZZ).

B. Testing Requirements

1. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).
2. BRL shall conduct observations while the flare is in operation for visible opacity of the open flare. If visible opacity is observed, BRL shall conduct an EPA Method 22 Visual Determination of Fugitive Emissions to confirm opacity limits in Section II.A.5 (ARM 17.8.749).
3. DEQ may require further testing (ARM 17.8.105).

C. Operational Reporting Requirements

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

Production information shall be gathered on a calendar-year basis and submitted to DEQ by the date required in the emission inventory request. Information shall be in the units required by DEQ. This information may be used to calculate operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505). BRL shall submit the following information annually to DEQ by March 1 of each year; the information may be submitted along with the annual emission inventory (ARM 17.8.505).

- a. Flare presence during operation as specified in Section II.A.1.
 - b. Weekly opacity observations as specified in Section II.B.2.
 - c. EPA Method 22 Test results if visible emissions are observed.
2. BRL 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 the DEQ, in writing, 10 days prior to startup or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change and must include the information requested in ARM 17.8.745(l)(d) (ARM 17.8.745).

3. All records compiled in accordance with this permit must be maintained by BRL 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).

D. Notifications

BRL shall provide DEQ with written notification of the start-up date of the open flare within 15 working days of the start-up date (ARM 17.8.749).

SECTION III: General Conditions

- A. Inspection – BRL 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 BRL fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving BRL 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 BRL may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.
- H. Duration of Permit – Construction or installation must begin, or contractual obligations entered into that would constitute substantial loss within 3 years of permit issuance and proceed with due diligence until the project is complete or the permit shall expire (ARM 17.8.762).

Montana Air Quality Permit Analysis
City of Billings
Billings Regional Landfill
MAQP #5176-01

I. Introduction/Process Description

City of Billings – Billings Regional Landfill (BRL) proposes to install and operate an open flare. The legal address of the facility is Section 29 & 30, Township 1 South, and Range 26 East, Latitude 45.7245, Longitude -108.5450. The physical address is 5240 Jellison Rd, Billings, MT.

A. Permitted Equipment

BRL proposes to install and operate an 1,800 standard cubic foot per minute (scfm) open flare and associated equipment along with natural gas fired emergency generator.

B. Source Description

The City of Billings – Billings Regional Landfill (BRL) receives and landfills municipal solid waste (MSW). The facility is permitted under Montana Solid Waste License #113. The gas extraction system consists of gas extraction wells drilled in the existing landfill area. Each of the extraction wells is connected to an underground piping system that transports the landfill gas to a processing plant where it is purified and then injected into a high-pressure pipeline. In the event that the gas cannot be treated, or the gas processing plant is not in operation, it is sent to the open flare.

C. Permit History

MAQP #5176-00 was issued to the City of Billings – Billings Regional Landfill on October 27, 2023. The proposed open flare is considered an incinerator, therefore a MAQP was required.

D. Current Permit Action

On February 16, 2024, the Department of Environmental Quality, Air Quality Bureau (DEQ) received an application from BRL to correct and specify language in the permit related to the new flare that will be installed and used to flare landfill gas emissions. The new flare will provide redundancy in the event the gas plant flare associated with the landfill gas capture collection system is inoperable. DEQ also updated the compliance and reporting requirements for the flare. **MAQP #5176-01** replaces MAQP #5176-00.

E. Response to Public Comment

Person/Group Commenting	Permit Reference	Comment	DEQ Response
City of Billings	MAQP, Section II.A.1	“The consultant stated that a minimum temperature set point is not applicable for an open flare due in part to environmental influences such as wind speed and direction would have on achieving accurate temperature readings.” Remove the 1500 F requirement (section II.A.1).	DEQ removed the minimum temperature requirement from Section II.A.1.
City of Billings	MAQP, Section I.B and MAQP Analysis, Section I.D	Replace the “primary flare” reference with “gas plant” in the following sections: Section I B., and I. Introduction/Process Control D.	DEQ made the requested changes to the MAQP and MAQP Analysis.

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

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

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of 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).

BRL 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 PM₁₀
11. ARM 17.8.230 Fluoride in Forage

BRL 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, BRL 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). BRL is considered an NSPS affected facility under 40 CFR, Subpart 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 Cc – Emissions Guidelines and Compliance Times for Municipal Solid Waste Landfills. The designated facility to which this subpart applies is each existing municipal solid waste landfill for which construction, reconstruction or modification commenced before July 17, 2014. Because BRL first started operation before 1980 and has a capacity greater than 2.5 million megagrams, this subpart is applicable.

- c. 40 CFR 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engine (SI ICE). This subpart does not apply to the emergency SI ICE. However, if the SI ICE functions in a nonemergency capacity this subpart may become applicable.
 - 9. ARM 17.8.341 Emission Standards for Hazardous Air Pollutants. This source shall comply with the standards and provisions of 40 CFR Part 61, as appropriate.
 - a. 40 CFR 61, Subpart A – General Provisions apply to all equipment or facilities subject to a NESHAP Subpart as listed below:
 - b. 40 CFR 61, Subpart M – National Emissions Standards for Asbestos. This subpart applies to BRL because are an active waste disposal that accepts asbestos containing waste material.
 - 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 AAAA – National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills. This subpart applies to landfills which are, or are co-located with, a major source of hazardous air pollutant, or is an area source with a design capacity greater than 2.5 million megagrams and 2.5 million cubic meters and has uncontrolled emissions equal to or greater than 50 megagrams per year of non-methane organic compounds. The BRL has a capacity greater than 2.5 million megagrams, therefore, this subpart applies.
 - c. 40 CFR 63, Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants (HAPs) for Stationary Reciprocating Internal Combustion Engines (RICE). An owner or operator of a stationary reciprocating internal combustion engine (RICE) at a major or area source of HAP emissions is subject to this rule except if the stationary RICE is being tested at a stationary RICE test cell/stand. An area source of HAP emissions is a source that is not a major source. BRL operates RICE equipment and may be subject to this subpart when operated as a stationary source.
- 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. BRL 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. BRL does not have a PTE greater than 25 tons per year for any criteria pollutant, however, the open flare is considered an incinerator. 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. BRL 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. DEQ submitted the affidavit of publication of public notice on behalf of BRL for the February 16, 2024, issues of the *Billings Gazette*, a newspaper of general circulation in the City of Billings in Yellowstone County, as proof of compliance with the public notice requirements.
6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by 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 BRL 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 (PM₁₀) in a serious PM₁₀ nonattainment area.
2. ARM 17.8.1204 Air Quality Operating Permit Program. (1) Title V of the FCAA amendments of 1990 requires that all sources, as defined in ARM 17.8.1204(1), obtain a Title V Operating Permit. In reviewing and issuing MAQP #5176-01 for BRL, 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 PM₁₀ nonattainment area.

- d. This facility is subject to NSPS (40 CFR 60, Subparts A, Cc, and JJJJ).
- e. This facility is subject NESHAP standards (40 CFR 61, Subpart(s) A and M, 40 CFR 62, Subpart(s) A and OOO, and 40 CFR 63, Subpart(s) A, AAAA, and ZZZZ).
- f. This source is not a Title IV affected source, or a solid waste combustion unit.
- g. This source is an EPA designated Title V source.
- h. As allowed by ARM 17.8.1204(3), DEQ may exempt a source from the requirement to obtain an air quality operating permit by establishing federally enforceable limitations which limit that source's potential to emit.
 - i. In applying for an exemption under this section, the owner or operator of the source shall certify to DEQ that the source's potential to emit, does not require the source to obtain an air quality operating permit.
 - ii. Any source that obtains a federally enforceable limit on potential to emit shall annually certify that its actual emissions are less than those that would require the source to obtain an air quality operating permit.

BRL is a Title V source and has a current Title V Operating Permit, #OP5176-03.

III. BACT Determination

A BACT determination was submitted with MAQP #5176-00. Since there is no change in emissions and this modification clarifies existing flare language issued with MAQP #5176-00, the BACT determination for MAQP #5176-00 is still valid.

BRL 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 BRL in permit application #5176-00, addressing some available methods of controlling emissions from landfill gases. DEQ reviewed these methods, as well as previous BACT determinations. The following control options have been reviewed by DEQ in order to make the following BACT determination.

Control of Volatile Organic Compounds

Open Flare - A open flare converts VOCs to the oxidation byproducts of CO₂ and water in a combustion chamber. Since the inlet waste gas stream temperature is generally much lower than that required for combustion, energy must be supplied to the open flare to raise the waste gas temperature. Auxiliary fuel, such as natural gas, is used to ensure complete combustion of waste gases. Enclosed flares are typically designed to meet a minimum of 98% VOC destruction efficiency.

Control of PM_{Tot}, PM₁₀, & PM_{2.5}

Total Particulate Matter (PM_{Tot}), Particulate Matter with an aerodynamic diameter of 10 microns or less (PM₁₀), PM with an aerodynamic diameter of 2.5 microns or less that are filterable and condensable (PM_{2.5Fil} and PM_{2.5Cond}), and Sulfur Dioxide (SO₂) are also generated as byproducts of combustion in the proposed open flare natural gas burners.

The following control technologies are identified for control of PM_{Tot}, PM₁₀ and PM_{2.5}, and SO₂ emissions from similar natural gas combustion sources.

Good Combustion Practices – Good combustion practices refer to the operation of the proposed thermal oxidizers at high combustion efficiency, which reduces the products of incomplete combustion. The thermal oxidizers are designed to achieve maximum combustion efficiency. The manufacturer has provided operation and maintenance manuals that detail the required methods to achieve the highest levels of combustion efficiency. BRL will operate and maintain the thermal oxidizers in accordance with the manufacturer provided instructions and best industry practices.

Fugitive Emissions from Road Traffic

Two types of emission controls are readily available and used for dust suppression of fugitive emissions at the site. These two control methods are water and/or chemical dust suppressant. Chemical dust suppressant could be used on service roads for the landfill. However, because water is more readily available, is more cost effective, is often equally effective as chemical dust suppressant, and is more environmentally friendly, water has been identified as the most appropriate method of pollution control of particulate emissions.

Conclusion - DEQ has reviewed the selected control options and compared them to other recently permitted, similar sources and concur that the open flare along with good combustion practices combined with pipeline quality natural gas for the control of VOCs and HAPs and the use of water/chemical dust suppressions for fugitive emissions from road traffic constitutes BACT.

IV. Emission Inventory

CONTROLLED Emission Source	tons/year							
	PM	PM ₁₀	PM _{2.5}	NO _x	CO	VOC	SO ₂	HAPs
Flare	3.55	3.55	3.55	9.21	10.88	0.03	1.99	0.01
Pilot Light	0.012	0.008	0.003	0.214	0.123	0.016	0.002	0.003
Emergency Generator	0.011	0.000	0.011	0.520	1.042	0.251	0.001	0.016
Haul Roads	12.424	6.467	1.242	--	--	--	--	--
Total Emissions	15.99	10.02	4.80	9.94	12.05	0.29	2.00	0.03

Notes:

1. Values in table reflect "controlled" cells from subsequent worksheets
2. The Flare calculations represent landfill gas emissions with no refinement
3. Vehicle Miles Traveled is based on 2040 hours per year
4. Emergency Generator hours of operation are based on EPA Guidance

Open Flare – Landfill Gas

Hours of Operation = 8,760 hours	8760	hours
pounds per ton = 0.0005 lb/ton	0.0005	lb/ton
Control Efficiency	98%	percent reduction
PM Emissions:		
PM Emissions = 3.548 ton/yr (AP-42, Table 2.4-4)	3.55	ton/yr
PM-10 Emissions:		
Emission Factor = 0.81 lb/hr BACT	0.8	lb/hr
Calculation: $((0.810 \text{ lb/hr}) * (8,760 \text{ hours}) * (\text{ton}/2000 \text{ lb})) = 3.548 \text{ ton/yr}$	3.55	ton/yr
PM2.5 Emissions		
Emission Factor = 0.81 lb/hr BACT	0.81	lb/hr
Calculation: $((0.810 \text{ lb/hr}) * (8,760 \text{ hours}) * (\text{ton}/2000 \text{ lb})) = 3.548 \text{ ton/yr}$	3.55	ton/yr
NOx Emissions:		
Emission Factor = 2.103 lb/hr BACT	2.103	lb/hr
Calculation: $((2.103 \text{ lb/hr}) * (8,760 \text{ hours}) * (\text{ton}/2000 \text{ lb})) = 9.211 \text{ ton/yr}$	9.21	ton/yr
CO Emissions:		
Emission Factor = 2.484 lb/hr BACT	2.484	lb/hr
Calculation: $((2.484 \text{ lb/hr}) * (8,760 \text{ hours}) * (\text{ton}/2000 \text{ lb})) = 10.880 \text{ ton/yr}$	10.88	ton/yr
VOC Emissions:		
Emission Factor = 0.297 lb/hr BACT	0.3	lb/hr
Calculation: $((0.297 \text{ lb/hr}) * (8,760 \text{ hours}) * (\text{ton}/2000 \text{ lb}) * (1-.98)) = 0.026 \text{ ton/yr}$	0.03	ton/yr
SOx Emissions:		
Emission Factor = 0.455 lb/hr BACT	0.46	lb/hr
Calculation: $((0.455 \text{ lb/hr}) * (8,760 \text{ hours}) * (\text{ton}/2000 \text{ lb})) = 1.993 \text{ ton/yr}$	1.99	ton/yr
HAPs Emissions:		
Emission Factor = 0.096 lb/hr BACT	0.096	lb/hr
Calculation: $((0.096 \text{ lb/hr}) * (8,760 \text{ hours}) * (\text{ton}/2000 \text{ lb}) * (1-.98)) = 0.01 \text{ ton/yr}$	0.01	ton/yr

Pilot Light - Propane

Hours of Operation = 8,760 hours	8760	hours
pounds per ton = 0.0005 lb/ton	0.0005	lb/ton
SCF per hour	28.00	scf/hr
SCF per gallon	0.134	gal/scf
PM _{Tot} Emissions:		
PM Emissions = 0.012 lb/mmscf (Assume all PM _{Tot} is PM _{Filt} + PM _{Cond})	1.15E-02	lb/mmscf
PM _{Cond} Emissions:		
Emission Factor = 0.0005 lb/gal AP-42, Table 1.5-1	5.00E-04	lb/gal
Calculation: $((28 \text{ scf/hr}) * (0.1340 \text{ gal/scf}) * (0.0005 \text{ lb/gal}) * (8,760 \text{ hours}) * (\text{ton}/2000 \text{ lb})) = 0.008 \text{ ton/yr}$	8.22E-03	ton/yr

PM_{File} Emissions		
Emission Factor = 0.0002 lb/gal AP-42, Table 1.5-1	2.00E-04	lb/gal
Calculation: ((28 scf/hr) * (0.1340 gal/scf) * (0.0002 lb/gal) * (8,760 hours) * (ton/2000 lb) = 0.003 ton/yr	3.29E-03	ton/yr
NOx Emissions:		
Emission Factor = 0.013 lb/gal AP-42, Table 1.5-1	1.30E-02	lb/gal
Calculation: ((28 scf/hr) * (0.1340 gal/scf) * (0.0130 lb/gal) * (8,760 hours) * (ton/2000 lb) = 0.214 ton/yr	2.14E-01	ton/yr
CO Emissions:		
Emission Factor = 0.0075 lb/gal AP-42, Table 1.5-1	7.50E-03	lb/gal
Calculation: ((28 scf/hr) * (0.1340 gal/scf) * (0.0075 lb/gal) * (8,760 hours) * (ton/2000 lb) = 0.123 ton/yr	1.23E-01	ton/yr
TOC Emissions:		
Emission Factor = 0.001 lb/gal AP-42, Table 1.5-1	1.00E-03	lb/gal
Calculation: ((28 scf/hr) * (0.1340 gal/scf) * (0.0010 lb/gal) * (8,760 hours) * (ton/2000 lb) = 0.016 ton/yr	1.64E-02	ton/yr
SOx Emissions:		
Emission Factor = 0.0001 lb/gal AP-42, Table 1.5-1	1.00E-04	lb/gal
Calculation: ((28 scf/hr) * (0.1340 gal/scf) * (0.0001 lb/gal) * (8,760 hours) * (ton/2000 lb) = 0.002 ton/yr	1.64E-03	ton/yr
HAPs Emissions:		
Emission Factor = 0.0002 lb/gal AP-42, Table 1.5-1	2.00E-04	lb/gal
Calculation: ((28 scf/hr) * (0.1340 gal/scf) * (0.0002 lb/gal) * (8,760 hours) * (ton/2000 lb) = 0.003 ton/yr	3.29E-03	ton/yr

Emergency Generator – Natural Gas

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

Operational Capacity of Engine = 1 engines	1	engines
Hours of Operation = 500.00 hours	500	hours

PM Emissions:		
PMTOT Emissions = 0.01 ton/yr (Assume all PM < 1.0 um)	0.011	ton/yr

PM-10 Emissions:		
Emission Factor = 0.000344637 lb/hr (BACT)	3.45E-04	lb/hr
Calculation: ((0.000345 lb/hr) * (500 hours) * (1 ton/2000 lb) = 0.000 ton/yr	0.0001	ton/yr

PM-2.5 Emissions		
Emission Factor = 0.0447 lb/hr (BACT)	4.47E-02	lb/hr
Calculation: ((0.044700 lb/hr) * (500 hours) * (1 ton/2000 lb) = 0.011 ton/yr	0.01	ton/yr

NOx Emissions:		
Emission Factor = 2.08 lb/hr (BACT)	2.08	lb/hr
Calculation: ((2.08 lb/hr) * (500 hours) * (1 ton/2000 lb) = 0.520 ton/yr	0.52	ton/yr

CO Emissions:		
Emission Factor = 4.16730977002624 lb/hr (BACT)	4.17	lb/hr
Calculation: ((4.17 lb/hr) * (500 hours) * (1 ton/2000 lb) = 1.042 ton/yr	1.04	ton/yr

VOC Emissions:

Emission Factor = 1.00324124093224 g/bhp-hr (BACT) 1.00 g/bhp-hr
 Calculation: $((0.000345 \text{ lb/hr}) * (0) * (1 \text{ ton}/2000 \text{ lb})) = 0.251 \text{ ton/yr}$ 0.25 ton/yr

SOx Emissions:

Emission Factor = 0.0026 lb/hr (BACT) 2.60E-03 lb/hr
 Calculation: $((0.000345 \text{ lb/hr}) * (0) * (1 \text{ ton}/2000 \text{ lb})) = 0.001 \text{ ton/yr}$ 0.001 ton/yr

HAPs Emissions

Emission Factor = 0.064 lb/hr 0.064 lb/hr
 Calculation: $((0.06 \text{ lb/hr}) * (500 \text{ hours}) * (1 \text{ ton}/2000 \text{ lb})) = 0.016 \text{ ton/yr}$ 0.016 ton/yr

Haul Roads

Vehicle Miles Traveled (VMT) per Day = 199 VMT/day (Estimate) 199 VMT/day
 VMT per hour = $(198.98904109589 \text{ VMT/day}) * (\text{day}/24 \text{ hrs}) = 8.29 \text{ VMT/hr}$ 8.29 VMT/hr
 Hours of Operation = 2,080 hrs/yr 2,080 hrs/yr

PM Emissions:

Predictive equation for emission factor for unpaved roads at industrial sites provided per AP 42, Ch. 13.2.2, 11/06.

Emission Factor = $k * (s / 12)^a * (W / 3)^b = 2.88 \text{ lb/VMT}$ 2.88 lb/VMT

Where: k = constant = 1.5 lbs/VMT (Value for PM30/TSP, AP 42, Table 13.2.2-2, 11/06) 1.5 lbs/VMT

s = surface silt content = 6.4 % (Mean value, sand/gravel processing, material storage area, AP 42, Table 13.2.2-1, 11/06) 6.4 %

W = mean vehicle weight = 45 tons (1994 average loaded/unloaded or a 40-ton truck) 45 tons

a = constant = 0.9 (Value for PM30/TSP, AP 42, Table 13.2.2-2, 11/06) 0.9

b = constant = 0.45 (Value for PM30/TSP, AP 42, Table 13.2.2-2, 11/06) 0.45

Control Efficiency = 50% (Water spray or chemical dust suppressant) 50 %

Calculation: $(2080 \text{ hrs/yr}) * (8.29 \text{ VMT/hr}) * (2.88 \text{ lb/VMT}) * (\text{ton}/2000 \text{ lb}) = 24.85 \text{ tons/yr}$ (Uncontrolled Emissions) 24.85 tons/yr

Calculation: $(2080 \text{ hrs/yr}) * (8.29 \text{ VMT/hr}) * (2.88 \text{ lb/VMT}) * (\text{ton}/2000 \text{ lb}) * (1-50/100) = 12.42 \text{ tons/yr}$ (Apply 50% control efficiency) 12.42 tons/yr

PM10 Emissions:

Predictive equation for emission factor for unpaved roads at industrial sites provided per AP 42, Ch. 13.2.2, 11/06.

Emission Factor = $k * (s / 12)^a * (W / 3)^b = 1.50 \text{ lb/VMT}$ 1.50 lb/VMT

Where: k = constant = 1.5 lbs/VMT (Value for PM10, AP 42, Table 13.2.2-2, 11/06) 1.5 lbs/VMT

s = surface silt content = 6.4 % (Mean value, sand/gravel processing, material storage area, AP 42, Table 13.2.2-1, 11/06) 6.4 %

W = mean vehicle weight = 45 tons (1994 average loaded/unloaded or a 40-ton truck) 45 tons

a = constant = 0.9 (Value for PM10, AP 42, Table 13.2.2-2, 11/06) 0.9

b = constant = 0.45 (Value for PM10, AP 42, Table 13.2.2-2, 11/06) 0.45

Control Efficiency = 50% (Water spray or chemical dust suppressant) 50 %

Calculation: $(2080 \text{ hrs/yr}) * (8.29 \text{ VMT/hr}) * (1.50 \text{ lb/VMT}) * (\text{ton}/2000 \text{ lb}) = 12.93 \text{ tons/yr}$ (Uncontrolled Emissions) 12.93 tons/yr

Calculation: $(2080 \text{ hrs/yr}) * (8.29 \text{ VMT/hr}) * (1.50 \text{ lb/VMT}) * (\text{ton}/2000 \text{ lb}) * (1-50/100) = 6.47 \text{ tons/yr}$ (Apply 50% control efficiency) 6.47 tons/yr

PM2.5 Emissions

Predictive equation for emission factor for unpaved roads at industrial sites provided per AP 42, Ch. 13.2.2, 11/06.

Emission Factor = $k * (s / 12)^a * (W / 3)^b = 0.29 \text{ lb/VMT}$ 0.29 lb/VMT

Where: k = constant = 0.15 lbs/VMT (Value for PM2.5, AP 42, Table 13.2.2-2, 11/06) 0.15 lbs/VMT

s = surface silt content = 6.4 % (Mean value, sand/gravel processing, material storage area, AP 42, Table 13.2.2-1, 11/06) 6.4 %

W = mean vehicle weight = 45 tons (1994 average loaded/unloaded or a 40-ton truck) 45 tons

a = constant = 0.9 (Value for PM2.5, AP 42, Table 13.2.2-2, 11/06) 0.9

b = constant = 0.45 (Value for PM2.5, AP 42, Table 13.2.2-2, 11/06) 0.45

Control Efficiency = 50% (Water spray or chemical dust suppressant) 50 %

Calculation: (2080 hrs/yr) * (8.29 VMT/hr) * (0.29 lb/VMT) * (ton/2000 lb) = 2.48 tons/yr (Uncontrolled Emissions)	2.48 tons/yr
Calculation: (2080 hrs/yr) * (8.29 VMT/hr) * (0.29 lb/VMT) * (ton/2000 lb) * (1-50/100) = 1.24 tons/yr (Apply 50% control efficiency)	1.24 tons/yr

V. Existing Air Quality

The BRL facility is located within an area of Yellowstone County that is designated as an Unclassifiable/Attainment area for the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants.

The limitations and conditions in MAQP #5176-01 ensure the facility would not cause or contribute to a violation of the National Ambient Air Quality Standards (NAAQS).

VI. Ambient Air Impact Analysis

DEQ determined, based on the information provided by BRL, and the attached Environmental Assessment, 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. Health Risk Assessment

A health risk assessment was conducted for MAQP 5176-00, using AERSCREEN, an EPA approved screening model using indicated inputs for landfill gas analysis to determine if the proposed open flare complies with the negligible risk requirement of MCA 75-2-215. The emission inventory did not contain sufficient quantities of any pollutant on DEQ's list of pollutants for which non-inhalation impacts must be considered; therefore, DEQ determined that inhalation risk was the only necessary pathway to consider.

Only those hazardous air pollutants for which there were established emission factors were considered in the emission inventory.

DEQ determined that the risks estimated in the risk assessment for the open flare are in compliance with the requirement to demonstrate negligible risk to human health and the environment. As documented in the health risk assessment, and in accordance with the negligible risk requirement, no single HAP concentration results in Cancer Risk greater than 1.00E-06 and the sum of all HAPs results in a Cancer Risk of less than 1.00E-05. Further, the sum of Chronic Noncancer Reference Exposure Level (CNCREL) hazard quotient is less than 1.0 as required to demonstrate compliance with the negligible risk requirement.

Modeled Impact from AERSCREEN 0.0798 (ug/m3)/(tpy)

CAS Nbr.	Pollutant	Combustion	Landfill	Total from Flare	Modeled Impact (ug/m3)	Table 1	Table 2	Table 2	Passes	Passes	Passes	
		Emission Rates (tpy)	Emission Rates (tpy)	Emission Rates (tpy)		Cancer Annual (ug/m3)	Noncancer Chronic Annual (ug/m3)	Noncancer Acute Annual (ug/m3)	Cancer Annual (ug/m3)	Noncancer Chronic Annual (ug/m3)	Noncancer Acute Annual (ug/m3)	
71556	1,1,1-Trichloroethane (methyl chloroform)		1.55E-03	1.55E-03	1.23E-04			3.20E+00		1.90E+03	Pass	Pass
79345	1,1,2,2- Tetrachloroethane		4.46E-03	4.46E-03	3.56E-04	1.72E-03			Pass			
75343	1,1-Dichloroethane (ethylidene dichloride)		5.73E-03	5.73E-03	4.57E-04							
75354	1,1-Dichloroethene (vinylidene chloride)		4.68E-04	4.68E-04	3.73E-05	2.00E-03	3.20E-01		Pass	Pass		
107062	1,2-Dichloroethane (ethylene dichloride)		9.79E-04	9.79E-04	7.81E-05	3.85E-03			Pass	Pass		
78875	1,2-Dichloropropane (propylene dichloride)		4.91E-04	4.91E-04	3.92E-05		4.00E-02			Pass		
106467	1,4-Dichlorobenzene (para-)		7.45E-04	7.45E-04	5.95E-05	9.09E-03	8.00E+00		Pass	Pass		
91576	2-Methylnaphthalene	2.24E-05		2.24E-05	1.79E-06							
56495	3-Methylcholanthrene	4.21E-07		4.21E-07	3.36E-08							
57977	7,12-Dimethylbenz(a)anthracene	3.74E-06		3.74E-06	2.99E-07							
83329	Acenaphthene	2.55E-05		2.55E-05	2.04E-06							
203968	Acenaphthylene	1.65E-06		1.65E-06	1.31E-07							
107131	Acrylonitrile -		8.07E-03	8.07E-03	6.44E-04	1.47E-03			Pass			
120127	Anthracene	2.57E-06		2.57E-06	2.05E-07							
7440382	Arsenic	1.38E-02		1.38E-02	1.10E-03	2.33E-03	5.00E-03		Pass	Pass		
71432	Benzene	4.91E-04	3.58E-03	4.07E-03	3.25E-04	1.20E-02	7.10E-01		Pass	Pass	Pass	
56553	Benzo(a)anthracene	4.21E-07		4.21E-07	3.36E-08	5.88E-05			Pass			
50328	Benzo(a)pyrene	2.81E-07		2.81E-07	2.24E-08	5.88E-05			Pass			
205992	Benzo(b)fluoranthene	4.21E-07		4.21E-07	3.36E-08	5.88E-05			Pass			
191242	Benzo(g,h,i)perylene	2.81E-07		2.81E-07	2.24E-08							
205823	Benzo(k)fluoranthene	4.21E-07		4.21E-07	3.36E-08	5.88E-05			Pass			
7440417	Beryllium	2.81E-06		2.81E-06	2.24E-07	4.17E-05	4.80E-05		Pass	Pass		
7440439	Cadmium	3.35E-04		3.35E-04	2.67E-05	5.56E-05	3.50E-02		Pass	Pass		
75150	Carbon disulfide -		1.07E-03	1.07E-03	8.50E-05		7.00E+00			Pass		
56235	Carbon tetrachloride	1.49E-05		1.49E-05	1.19E-06	6.67E-03	2.40E-02		Pass	Pass		
	Carbonyl sulfide		7.10E-04	7.10E-04	5.67E-05							
108907	Chlorobenzene	6.79E-04		6.79E-04	5.42E-05		7.00E-01			Pass		
75003	Chloroethane (ethyl chloride)	2.02E-03		2.02E-03	1.62E-04		1.00E+02			Pass		
67663	Chloroform		8.64E-05	8.64E-05	6.90E-06		3.50E-01			Pass		
7440473	Chromium, total	1.09E-03		1.09E-03	8.67E-05							
18540-29-9	Chromium Hex	2.83E-06		2.83E-06	2.26E-07	8.33E-06	2.00E-05		Pass	Pass		
218019	Chrysene	1.52E-06		1.52E-06	1.22E-07							
7440484	Cobalt	1.97E-05		1.97E-05	1.57E-06							
53703	Dibenzo(a,h)anthracene	2.81E-07		2.81E-07	2.24E-08	5.88E-05			Pass			
75092	Dichloromethane (methylene chloride)		2.87E-02	2.87E-02	2.29E-03	2.13E-01	3.00E+01		Pass	Pass		
100414	Ethyl benzene		1.18E-02	1.18E-02	9.41E-04		1.00E+01			Pass		
106934	Ethylene dibromide		4.53E-06	4.53E-06	3.62E-07		4.60E-02			Pass		
206440	Fluoranthene	3.28E-06		3.28E-06	2.61E-07							
86737	Fluorene	6.65E-05		6.65E-05	5.30E-06							
50000	Formaldehyde	4.14E-02		4.14E-02	3.31E-03	7.69E-03	3.60E-02	3.70E+00	Pass	Pass	Pass	
110543	Hexane	4.21E-01	1.37E-02	4.35E-01	3.47E-02		2.00E+00			Pass		
7647010	Hydrogen Chloride (HCl)	3.77E-04		3.77E-04	3.01E-05		2.00E-01	3.00E+01		Pass		Pass
7664393	Hydrogen Fluoride (HF)	5.03E-02		5.03E-02	4.02E-03		45.95-2	5.80E+00		Pass		Pass
193395	Indeno(1,2,3-cd)pyrene	4.21E-07		4.21E-07	3.36E-08	5.88E-05			Pass			
7439921	Lead	1.17E-04		1.17E-04	9.34E-06		1.50E-02			Pass		
7439965	Manganese	6.83E-04		6.83E-04	5.45E-05		5.00E-04			Pass		
7439976	Mercury	6.08E-05	7.02E-05	1.31E-04	1.05E-05		3.00E-03			Pass		
	Methyl isobutyl ketone		4.59E-03	4.59E-03	3.67E-04							
91203	Naphthalene	4.10E-05		4.10E-05	3.27E-06		1.40E-01			Pass		
7440020	Nickel	3.35E-04		3.35E-04	2.67E-05	3.85E-04	2.40E-03	1.00E-02	Pass	Pass	Pass	
127184	Perchloroethylene (tetrachloroethylene)		1.48E-02	1.48E-02	1.18E-03	1.69E-02	3.50E-01	6.80E+01	Pass	Pass	Pass	
85018	Phenanthrene	2.31E-04		2.31E-04	1.84E-05							
129000	Pyrene	7.11E-06		7.11E-06	5.68E-07							
7782492	Selenium	5.62E-06		5.62E-06	4.48E-07		5.00E-03	2.00E-02		Pass		Pass
108883	Toluene	7.96E-04	8.67E-02	8.75E-02	6.98E-03		4.00E+00			Pass		
79016	Trichloroethylene (trichloroethene)		8.88E-03	8.88E-03	7.09E-04		6.40E+00			Pass		
75014	Vinyl chloride		1.10E-02	1.10E-02	8.79E-04		2.60E-01			Pass		
1330207	Xylenes		3.07E-02	3.07E-02	2.45E-03		3.00E+00	4.40E+01		Pass		Pass

VIII. Taking or Damaging Implication Analysis

As required by 2-10-105, MCA, DEQ conducted a private property taking and damaging assessment which is located in the attached environmental assessment.

IX. Environmental Assessment

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



**City of Billings
Billings Regional Landfill**

**Final Environmental Assessment for
Montana Air Quality Permit #5176-01**

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

APPLICANT: City of Billings		
SITE NAME: Billings Regional Landfill		
PROPOSED PERMIT NUMBER: Montana Air Quality Permit Number 5176-01		
APPLICATION DATE: February 16, 2024		
ADDITIONAL INFORMATION RECEIVED:		
APPLICATION COMPLETE DATE: February 16, 2024		
LOCATION: Section 29 & 30, Township 1 South, Range 26 East		COUNTY: Yellowstone
PROPERTY OWNERSHIP:	FEDERAL ___ STATE ___ PRIVATE <u>X</u> (City of Billings)	
EA PREPARER:	John P. Proulx – Air Quality Engineering Scientist	
EA Draft Date	EA Final Date	Permit Final Date
March 26, 2024	May 1, 2024	May 17, 2021

COMPLIANCE WITH THE MONTANA ENVIRONMENTAL POLICY ACT

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

COMPLIANCE WITH THE CLEAN AIR ACT OF MONTANA

The state law that regulates air quality permitting in Montana is the Clean Air Act of Montana (§ 75-2-201, et seq., Montana Code Annotated (MCA)). DEQ may not approve a proposed project contained in an application for an air quality permit unless the project complies with the requirements set forth in the Clean Air Act of Montana and the administrative rules adopted thereunder. DEQ's approval of an air quality permit application does not relieve the City of Billings – Billings Regional Landfill (BRL) from complying with any other applicable federal, state, or county laws, regulations, or ordinances. BRL is responsible for obtaining any other permits, licenses, approvals, that are required for any part of the proposed project. DEQ will decide whether to approve the permit in accordance with the requirements of the Clean Air Act of Montana. DEQ may not withhold, deny, or impose conditions on the permit based on the information contained in this Environmental Assessment. § 75-1-201(4), MCA.

SUMMARY OF THE PROPOSED ACTION: BRL has applied for a modification to a Montana Air Quality Permit under the Clean Air Act of Montana for the installation of one (1) open flare. The proposed action would be located in Section 29 & 30, Township 1 South, Range 26 East, Yellowstone County. All information included in the EA is derived from the permit application, discussions with the applicant, analysis of aerial photography, topographic maps, and other research tools.

Prior to the new proposed open flare, the landfill gases are normally routed through a third-party operated treatment train designed to purify landfill gas to recover methane and destroy residual off-gases in either an existing flare, or in a thermal oxidizer. The new open flare will only operate when the third-party treatment system is not available for service and would ensure that landfill gases are always combusted rather than potentially be vented directly to atmosphere.

The proposed action is visually presented in the below block flow diagram where the proposed action covers the new open flare (compliance flare) as shown. The remainder of the diagram is existing equipment.

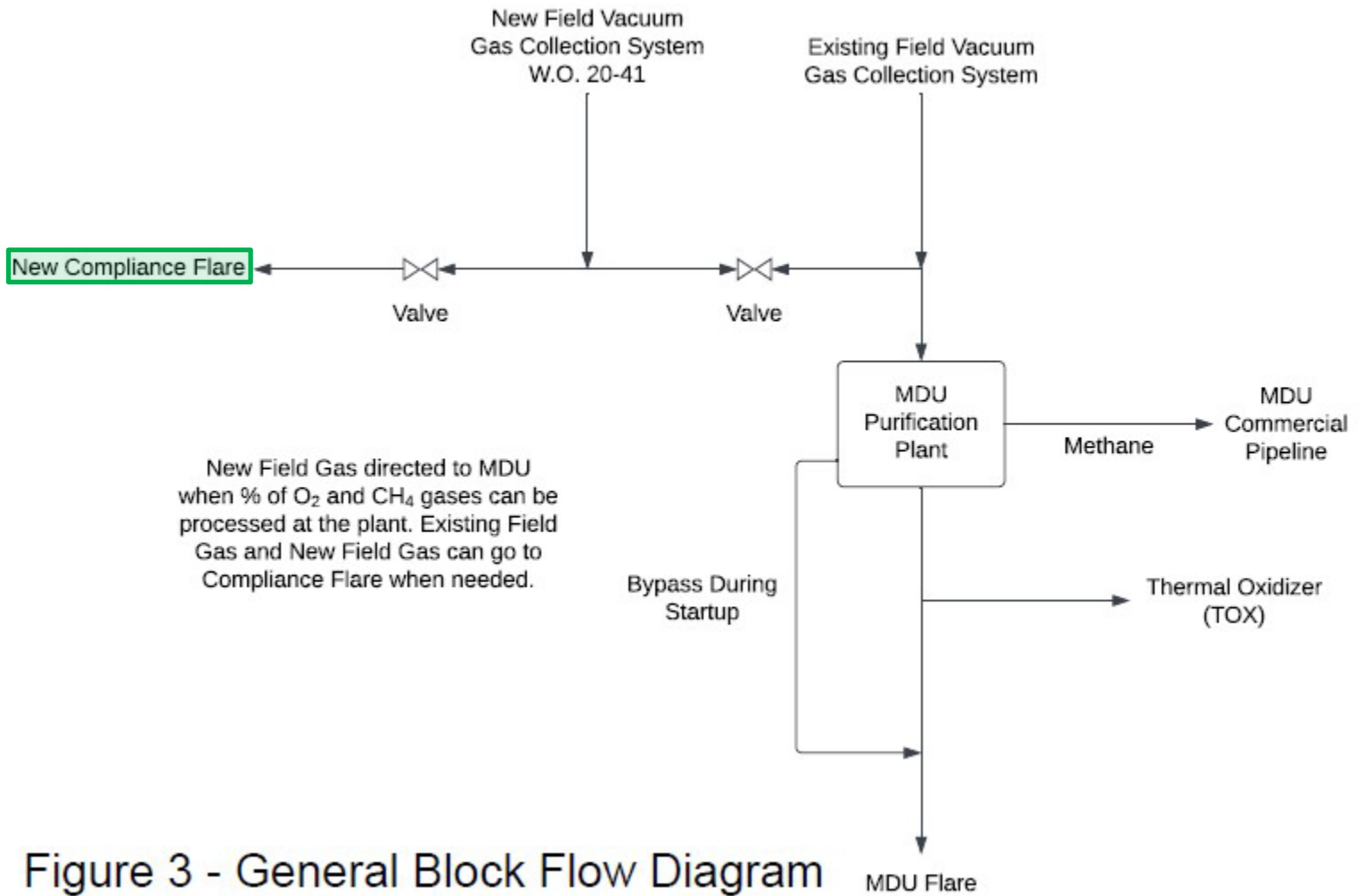


Figure 3 - General Block Flow Diagram

PURPOSE AND BENEFIT FOR PROPOSED ACTION: DEQ's purpose in conducting this environmental review is to act upon BRL air quality permit application to authorize one (1) open flare and the associated air emissions. DEQ's action on the permit application is governed by the Clean Air Act of Montana, § 75-2-201, et seq., MCA and the Administrative Rules of Montana (ARM) 17.8.740, *et seq.*

The benefits of the proposed action would add redundancy to the existing process flare with a new open flare to destroy Hazardous Air Pollutants (HAPs) and Volatile Organic Compounds (VOCs) that are produced from the decomposition of organic matter from the existing BRL landfill that are not processed through an onsite natural gas processing plant. The proposed open flare would not in itself authorize an expansion of the municipal landfill.

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

BRL must conduct its operations according to the terms of its permit. BRL further agrees to be legally bound by the permit, The Clean Air Act of § 75-2-201, et seq., MCA and ARM 17.8.740, *et seq.*

BRL must cooperate fully with, and follow the directives of any federal, state, or local entity that may have authority over BRL's landfill operations. These permits, licenses, and other authorizations may include: Yellowstone County, DEQ Air Quality Bureau (AQB), and DEQ Solid Waste. For this permit, since the air quality permit being issued is a minor source with a Title V Operating Permit, Montana DEQ has jurisdiction to issue this permit.

Table 1: Proposed Action Details

Summary of Proposed Action	
General Overview	<p>The BRL air quality permit application consists of the following equipment:</p> <p style="text-align: center;">One (1) open flare and associated equipment</p> <p>The facility would be permitted to operate until BRL requested permit revocation or until the permit were revoked by DEQ due to gross non-compliance with the permit conditions.</p>
Proposed Action Estimated Disturbance	
Disturbance	<p>The project requires the installation of the open flare and emergency generator. The disturbance is within a parcel currently owned by the City of Billings. The disturbance area for the open flare is approximately 10 feet by 30 feet after it is installed.</p>
Proposed Action	
Duration	<p>Construction: Construction or commencement would start within three years of issuance of the final air quality permit.</p> <p>Construction Period: The construction period could begin as soon as the air quality permit (and any other permits identified in this EA) were in place.</p> <p>Operation Life: Until permit is either revoked at the request of the permittee or DEQ has determined the need for revocation.</p>

Construction Equipment	Cranes, delivery trucks, various other types of smaller equipment
Personnel Onsite	Construction: Various numbers of installation personnel depending on which piece of equipment is being installed. Operations: No new employees
Location and Analysis Area	Location: The new processing equipment would be located in Section 29 & 30, Township 1 South, and Range 26 East. Analysis Area: The area being analyzed as part of this environmental review includes the immediate project area (Figure 1), as well as neighboring lands surrounding the analysis area, as reasonably appropriate for the impacts being considered.
Air Quality	This EA will be attached to the Air Quality Permit which would include all enforceable conditions for operation of the emitting units
Conditions incorporated into the Proposed Action	The conditions developed in the Preliminary Determination of the Montana Air Quality Permit dated March 26, 2024, set forth in Sections II.A-D,.

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



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

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

The duration of an impact is quantified as follows:

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

The severity of an impact is measured using the following:

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

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

The site is located on flat terrain at an elevation of approximately 3360 ft above sea level. The climatology is a cold semi-arid climate with very cold and often long snowy winters. The area has an average annual rainfall of 13.5 inches per year and 46 inches of snowfall. The project would take place on privately owned land that is already developed for use as a municipal solid waste landfill.

The geology of the site is coarse, well-rounded gravel restricted mainly to Pryor Creek and Yellowstone River drainages. Most sediment in tributary drainages is sand, silt, and clay derived from local Cretaceous sandstone and shale bedrock. Colluvium (Holocene and Pleistocene): Locally derived slope-wash deposits mainly of sand, silt, and clay.

The information provided above is based on the information that DEQ had available to it at the time of completing this EA and provided by the applicant (City of Billings, 2023).

Direct Impacts:

Proposed Action:

This action would authorize a new open flare and associated collection system piping to control landfill gases in the event the gas capture and collection system (GCCS) and gas treatment and purification system (GTPS) operated by a third-party entity for methane control is not operational. Construction activities, which are expected to take no more than 6 months, would involve vehicle travel and some grading.

The operation of this redundant flare would serve to reduce potential emissions when the third-party GCCS

and GTPS is out of service. This proposed action would not be expected to impact topography, geology and soil quality, stability, and moisture. Impacts to topography, geology, soil quality, soil stability, and soil moisture would be negligible and short-term.

Secondary Impacts:

Proposed Action: No secondary impacts to topography, geology, stability, and moisture are anticipated with the proposed action.

2. WATER QUALITY, QUANTITY, AND DISTRIBUTION:

Landfill gas is extracted from the landfill body and sent directly to the open flare.

The new proposed open flare would not require the use of water during construction or while in operation. The operation of the existing municipal landfill would not be impacted by the proposed flare.

Direct Impacts:

Proposed Action: No primary impacts to water quality, quantity, and distribution would be expected because the proposed project does not involve the use of water in any of the processes.

Secondary Impacts:

Proposed Action: No secondary impacts are anticipated with the proposed action.

3. AIR QUALITY:

Landfill gas is extracted from the landfill body and sent directly to a landfill gas extraction and purification facility owned and operated by a third-party entity under an existing MAQP which was issued final on December 18, 2009. After the gas is purified, it is injected into a high-pressure pipeline for consumer use. The new open flare provides redundant functionality to ensure landfill gases are combusted rather than being vented to the atmosphere. Along with the landfill gas, fugitive emissions in the form of road dust will also be generated from the use of vehicles on the landfill.

Direct Impacts:

Proposed Action: In the event that the gas processing plant is not operating, the landfill gas is bypassed to an existing third-party flare, and if the third-party system is completely inoperable, the gases are then diverted to the new open flare. Installation of the equipment listed in this EA would route the landfill gas directly to the open flare when the third-party treatment system is inoperable. The new open flare provides redundant functionality to ensure landfill gases are combusted rather than being vented to the atmosphere. Along with the landfill gas, fugitive emissions in the form of road dust will also be generated from the use of vehicles on the landfill. A detailed emission inventory is included in Section IV of the permit analysis. Regulated emissions from BRL include CO, PM_{Total}, PM₁₀, PM_{2.5}, NO_x, SO₂ and VOCs. BRL would also release hazardous air pollutants (HAPs) and remains a minor source of HAPs. Fugitive emissions would be produced through vehicle use in the landfill, water and/or chemical dust suppressions would be utilized to reduce fugitive emissions from road traffic. Nearly identical levels of emissions are currently emitted from the third-party treatment process when the landfill gases are combusted in the existing third-party flare. Stated again, this new open flare provides redundancy should the third-party flare be out of service.

Secondary Impacts:

Proposed Action: Negligible impacts could be expected with the proposed action.

4. **VEGETATION COVER, QUANTITY AND QUALITY:**

As the landfill continues to grow, new wells will need to be bored into the landfill body. These wells are small in diameter and will not present a large impact on vegetative cover that may be present on the landfill. Review of satellite imagery shows minimal vegetative cover on the landfill body. This permitting action for the proposed open flare would not in itself authorize an expansion of the municipal landfill but authorizes collection piping as the physical size of the landfill is regulated under their landfill permit.

Direct Impacts:

Proposed Action: Minor primary impacts to vegetative cover, quantity, and quality would be expected because the proposed project is located in an already existing and fully developed municipal landfill. No new areas of disturbance within the landfill boundary are associated with the new open flare with the exception of the open flare itself which would have an approximate footprint area of 10 feet by 30 feet.

Secondary Impacts:

Proposed Action: Negligible impacts to land disturbance at the site may result in propagation of noxious weeds.

5. **TERRESTRIAL, AVIAN, AND AQUATIC LIFE AND HABITATS:**

Direct Impacts:

Proposed Action: No direct impacts to terrestrial, avian, and aquatic habitats would be expected because the proposed project is located in an already existing and fully developed site. Operation of the open flare would be on a limited, as needed basis and only occupy 300 square feet.

Secondary Impacts:

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

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

According to a Montana Natural Heritage Program, there are seventeen (17) species of concern;

Bird – Bald Eagle, Great Blue Heron, Veery, Pinyon Jay, Evening Grosbeak, Sage Thrasher, and Burrowing Owl.

Fish – Sauger

Invertebrate – Monarch butterfly

Mammals – Spotted Bat, Long-eared Myotis

Other – Bat Roost (Non-cave)

Reptiles – Western Milksnake, Snapping Turtle, Plains Hog-nosed Snake, Spiny Softshell, and the Greater Short-horned Lizard

Direct Impacts:

Proposed Action: No direct impacts to unique, endangered, fragile, or limited environmental resources would be expected because the proposed project is located in an already existing and fully developed site with

minimal possible new disturbances occurring. Operation of the open flare would be on a limited, as needed basis and only occupy 300 square feet.

Secondary Impacts:

Proposed Action: No secondary impacts to unique, endangered, fragile, or limited environmental resources are anticipated for the proposed action.

7. HISTORICAL AND ARCHAEOLOGICAL SITES:

The Montana State Historic Preservation Office (SHPO) was notified of the application. SHPO conducted a file search and provided a letter dated July 31, 2023. This letter is still considered valid as the elapsed time is less than a year ago from this revised EA associated with Montana Air Quality Permit MAQP #5176-00, which was deemed final on October 27, 2023.

Montana State Historical Preservation investigation records show that there are two previously recorded sites within the designated search locale.

Site #24YL0996 – Fossil Marine Reptile, owned by the Bureau of Land Management, undermined National Register of Historic Places status.

Site 24YL1868 – Historic Trash Dump, owned by a Municipality, undetermined National Register of Historic Places status.

Direct Impacts:

Proposed Action: It is SHPO’s position that any structure over fifty years of age is considered historic and is potentially eligible for listing on the National Register of Historic Places. If any structures are within the Area of Potential Effect, and are over fifty years old, we would recommend that they be recorded, and a determination of their eligibility be made prior to any disturbance taking place. The BRL facility is more than 50 years old and there is no disturbance outside the landfill property boundary or alteration to structures over fifty years of age.

Secondary Impacts:

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

8. SAGE GROUSE EXECUTIVE ORDER:

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

Direct Impacts:

Proposed Action: The proposed action is not located within Sage Grouse habitat; no direct impacts would occur.

Secondary Impacts:

Proposed Action: No secondary impacts to sage grouse or sage grouse habitat would be expected.

9. AESTHETICS:

The approximate equipment footprint is 10 feet by 30 feet with an exhaust stack that is approximately 20 feet tall.

Direct Impacts:

Proposed Action: Minor impacts are expected with the installation of the proposed equipment because the site already has an operative flare at the third-party operation.

The area is located along Jellison Road approximately 2 miles from the city of Billings.

The nearest residential facility is located directly across the street from the landfill.

The addition of the open flare in the same general location as the compliance flare would be visible to the immediate surrounding areas while the landfill is partially shielded from view by vegetative cover growing along the Yellowstone River and existing building located on the facility.

Secondary Impacts:

Proposed Action: No secondary impacts to aesthetics and noise are anticipated with the proposed action.

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

The open flare would use landfill gas as an energy source and propane as a supplementary fuel source. No water requirements would exist with the proposed flare and the footprint for the flare would be limited to approximately 10 by 30 feet.

Direct Impacts:

Proposed Action: No primary impacts on environmental resources of land, water, or air. Minor impacts to energy would be expected due to the open flare utilizing pipeline quality natural gas as a fuel source.

Secondary Impacts:

Proposed Action: No secondary impacts to land, water, air or energy resources are anticipated with the proposed action.

11. IMPACTS ON OTHER ENVIRONMENTAL RESOURCES:

Direct Impacts:

Proposed Actions: The open flare would be located in an existing, fully developed facility and the current permit action would not have any impacts on environmental resources outside those already identified in this EA.

Secondary Impacts:

Proposed Action: No secondary impacts to other environmental resources are anticipated as a result of the proposed action.

12. HUMAN HEALTH AND SAFETY:

A complete human health risk assessment was conducted for the open flare and is included in the MAQP Analysis, Section VII.

Direct Impacts:

Proposed Action: Impacts to human health and safety are anticipated to be short-term and minor as a result of this project as discussed in Section VII of the MAQP- Analysis.

Secondary Impacts:

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

13. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION:

Direct Impacts:

Proposed Action: Minor impacts are expected with the proposed permit action. The BRL facility will be located in an existing, fully developed area and the proposed action would not impact agricultural activities as the landfill grows. Minor industrial and commercial impacts would be expected due to well boring and casing and installation of the well gas transmission lines and open flare unit.

Secondary Impacts:

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

14. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:

The open flare would not require any additional personnel to operate.

Direct Impacts:

Proposed Action: No change to quantity and distribution of employment are anticipated for the proposed action because the site is not staffed by permanent personnel, and this would not change with the new open flare.

Secondary Impacts:

Proposed Action: Negligible increases in the distribution of employment are anticipated as a result of the proposed action.

15. LOCAL AND STATE TAX BASE AND TAX REVENUES:

Direct Impacts:

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

Secondary Impacts:

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

16. DEMAND FOR GOVERNMENT SERVICES:

Direct Impacts:

Proposed Action: Minor impacts are anticipated for demand for government services. The air quality permit

and physical site associated with the current permit action would require inspections from state government representatives to ensure the facility is operating within the limits and conditions listed in the air quality permit. The facility would be available for inspection at the same time as the currently permitted municipal solid waste landfill by both State and County officials.

Secondary Impacts:

Proposed Action: No secondary impacts are anticipated with the proposed action.

17. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS:

Direct Impacts:

Proposed Action: No direct impacts to the locally adopted environmental plans and goals are anticipated as a result of the proposed action.

Secondary Impacts:

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

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

Direct Impacts:

Proposed Action: No direct impacts to access and quality of recreational and wilderness activities are anticipated as a result of the proposed action. The BRL facility is surrounded on all sides by undeveloped, single-owner private land.

Secondary Impacts:

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

19. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:

Direct Impacts:

Proposed Action: No primary impacts to density and distribution of population and housing are anticipated as a result of the current permit action.

Secondary Impacts:

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

20. SOCIAL STRUCTURES AND MORES:

Direct Impacts:

Proposed Action: No direct impacts anticipated to social structures and mores are anticipated as a result of the current permit action.

Secondary Impacts:

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

21. CULTURAL UNIQUENESS AND DIVERSITY:

Direct Impacts:

Proposed Action: No direct impacts anticipated to cultural uniqueness and diversity are anticipated from the current permit action.

Secondary Impacts:

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

22. PRIVATE PROPERTY IMPACTS:

The proposed action will not impact any local private property.

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

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)

23. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:

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

24. GREENHOUSE GAS ASSESSMENT

The proposed project would add a new open flare, operated by the City of Billings, as a redundant process to the existing flare operated by a third-party entity that operates the gas capture collection system (GCCS) and gas purification treatment system (GPTS) for methane recovery and an emergency generator that would operate during times where power to the landfill has been interrupted.

The open flare burns unprocessed landfill gas using propane gas as a fuel source for the pilot light. The open flare would have greenhouse gas (GHG) emissions from both the combustion of the pilot gas fuel (propane) and from the combustion of landfill gas within the open flare in the event that the GCCS and GPTS are inoperable. For the GHG inventory, the equipment being evaluated is the new open flare and its propane fired pilot light along with the emergency generator.

The flare, also known as a candlestick flare, is an open flare used as a control device to reduce Hazardous Air Pollutants (HAPs) and Volatile Organic Compounds (VOCs) and has a destruction factor of 98.0% and is considered Best Available Control Technology (BACT) for this project. A more detailed description is available in Section III of the MAQP Analysis.

The main source of the existing landfill is emissions from anaerobic decomposition of material within the landfill body. Additional sources of existing emissions are the natural gas fired shop heater and onsite vehicle operations. The existing GHG emissions are not summarized as they are outside the scope of the air quality permitting action.

The emergency generator is a 4-stroke lean-burn natural gas fired emergency generator engine with a power rating of 350 kilowatts and a heat input of 4.47 MMBtu/hr. The engine is for emergency operations and up to 500 hours per year of emergency operation per EPA Guidance dated September 6, 1995.

For the purpose of this assessment, DEQ has defined GHG emissions as the following gas species: carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O).

Direct Impacts:

DEQ has calculated GHG emissions using the EPA Simplified GHG Calculator version May 2023, for the purpose of totaling GHG emissions according to the EPA Scope 1 Inventory Guidance methodology. This tool totals CO₂, N₂O, and CH₄ and reports the total as CO₂ equivalent (CO₂e) in metric tons of CO₂e. The calculations in this tool are widely accepted to represent reliable calculation approaches for developing a GHG inventory. The EPA calculator tool uses Global Warming Potentials of 25 and 298 for methane and nitrous oxide, respectively. Scope 1 emissions for this project are limited to the direct release of GHGs from the combustion of propane from the open flare pilot system, combustion of landfill gases in the open flare itself, and combustion of natural gas from the emergency generator.

Mobile emissions associated with this action are limited to construction of the flare. This amount is insignificant and not included in the assessment. Additionally, there are no compressed gases, fire suppressants or refrigerants/air conditioning associated with this project which would have been considered

Scope 1 emissions.

The GHG inventory is based on the maximum physical design of the open flare/pilot light gas train and the emergency generator. It is common practice for municipal landfills to use an EPA supported modeling program called LandGEM to predict the emissions generated in landfills. LandGEM information was submitted by the applicant to help determine the appropriate design of the proposed open flare. The design selected for this project was a flare designed for 1,800 standard cubic feet per minute. Maximum emissions from this flare are calculated assuming operation of 8,760 hours per year with a minimum design destruction efficiency of 98.0%. These emissions would only occur when the GCCS and GPTS are inoperable. Therefore, the GHG emissions stated here are already effectively occurring because these emissions would normally be combusted in the existing flare on the existing GCCS.

GHG Inventory

Source of Emission	Amount of CO ₂ /CO ₂ e Emissions
Landfill, LandGEM 2024	CO ₂ , 11,485.1 metric tons per year CH ₄ , 0.70 metric tons CO ₂ e per year N ₂ O, 0.14 metric tons CO ₂ e per year
Pilot Flare, propane	CO ₂ , 38.8 metric tons per year CH ₄ , 0.002 metric tons CO ₂ e per year N ₂ O, 0.0004 metric tons CO ₂ e per year
Emergency Generator Natural Gas	CO ₂ , 118.6 metric tons per year CH ₄ , 0.002 metric tons CO ₂ e per year N ₂ O, 0.0002 metric tons CO ₂ e per year
Total Metric Tons CO ₂ e	11,643.35 metric tons CO ₂ e per year

Using the LandGEM predicted amount of CH₄ (1.26x10⁰⁷ m³ CH₄) for the year 2024, and EPA Calculator tool, while assuming GCCS and GPTS are inoperable, the amount of CO₂ produced from sending 100% the gas to the open flare with a flare destruction efficiency of 98.0%, would be 11,485.1 metric tons per year of CO₂e based on a heating value of 505 British thermal units (Btu) for the landfill gas, 2,572 Btu for propane while the emergency generator would produce 118.6 metric tons per year of CO₂e.

The pilot light for the flare likely an overestimate of potential emissions. During normal function, the pilot light would ignite when the flare would need to operate and only be operational for 3 to 5 minutes. For this assessment, emissions from the pilot light were calculated using the hourly pilot light consumption rate of 28 standard cubic feet per hour (SCF/hr) for 8,760 hours per year.

Secondary Impacts:

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

Cumulative Impacts:

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

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

GHG emissions from operations such as this site would be represented with the Carbon Dioxide Emissions from Fossil Fuel Combustion module. Using the most current available data, 2021, the state accounts for 47.77 million metric tons of CO₂e annually. The estimated emission of 0.0115459 million metric tons of CO₂e from this project will contribute 0.0242% of Montana's annual CO₂e emissions.

ADDITIONAL ALTERNATIVES CONSIDERED:

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

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

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

CUMULATIVE IMPACTS:

Cumulative impacts are the collective impacts on the human environment within the borders of Montana of the proposed action when considered in conjunction with other past and present actions related to the proposed action by location and generic type. Related future actions must also be considered when these actions are under concurrent consideration by any state agency through preimpact statement studies, separate impact statement evaluation, or permit processing procedures.

This environmental review analyzes the proposed action submitted by BRL.

DEQ considered potential impacts related to this project and potential secondary impacts. Due to the limited activities in the assessment area, cumulative impacts related to this project would be minor and short-term. A table of cumulative impacts for any direct and secondary impacts is located at the very end of this EA in Table III.

PUBLIC INVOLVEMENT:

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

Internal efforts also included queries to the following websites/ databases/ personnel:

- Montana State Historic Preservation Office
- Montana Department of Environmental Quality (DEQ)
- Montana Natural Heritage Program

OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION:

The proposed project would be fully located on privately-owned land. All applicable local, state, and federal rules must be adhered to, which, at some level, may also include other local, state, federal, or tribal agency jurisdiction. Other governmental agencies which may have overlapping, or sole jurisdiction include, but may not be limited to: Yellowstone County, OSHA (worker safety), DEQ AQB (air quality) and Water Protection Bureau (groundwater and surface water discharge; stormwater), DNRC (water rights), and MDT (road access).

NEED FOR FURTHER ANALYSIS AND SIGNIFICANCE OF POTENTIAL IMPACTS

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

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

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

“Duration” is analyzed as the time period in which the impact may occur while “frequency” is analyzed as how often the impact may occur. For example, an operation that occurs throughout the night may have impacts associated with lighting that occur every night (frequency) over the course of the one season project (duration).

2. The probability that the impact will occur if the proposed action occurs; or conversely, reasonable assurance in keeping with the potential severity of an impact that the impact will not occur;
3. Growth-inducing or growth-inhibiting aspects of the impact, including the relationship or contribution of the impact to cumulative impacts;
4. The quantity and quality of each environmental resource or value that would be affected, including the uniqueness and fragility of those resources and values;
5. The importance to the state and to society of each environmental resource or value that would be affected;
6. Any precedent that would be set as a result of an impact of the proposed action that would commit DEQ to future actions with significant impacts or a decision in principle about such future actions; and
7. Potential conflict with local, state, or federal laws, requirements, or formal plans.

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

As a final example, moderate or major impacts to a resource may be determined to be not significant if the quantity of that resource is high or the quality of the resource is not unique or fragile.

Pursuant to ARM 17.4.607, preparation of an environmental assessment is the appropriate level of environmental review under MEPA if statutory requirements do not allow sufficient time for an agency to

prepare an environmental impact statement. An agency determines whether sufficient time is available to prepare an environmental impact statement by comparing statutory requirements that establish when the agency must make its decision on the proposed action with the time required to obtain public review of an environmental impact statement plus a reasonable period to prepare a draft environmental review and, if required, a final environmental impact statement.

SIGNIFICANCE DETERMINATION

The severity, duration, geographic extent and frequency of the occurrence of the impacts associated with the proposed action would be limited. BRL proposes to construct and operate the proposed action on private land located in Section 29 & 30, Township 1 South, and Range 26 East, in Yellowstone County, Montana.

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

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

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

Environmental Assessment and Significance Determination Prepared By:

John P. Proulx Air Quality Engineer
Name Title

EA Reviewed By:

Craig P. Henrikson, P.E. Permitting Services Section Supervisor
Name Title

References

Montana Air Quality Permit MAQP #5176-00

Montana Air Quality Permit Application 5176-01_2024_02_16_APP

Operating Permit Application OP5176-00_2017_03_14_APP

Operating Permit #OP5176-03

AP 42, <https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors-stationary-sources>

EPA calculator tool, <https://www.epa.gov/climateleadership/simplified-ghg-emissions-calculator>

EPA State Inventory Tool, <https://www.epa.gov/statelocalenergy/state-inventory-and-projection-tool>

EPA Memorandum, Subject: Calculating Potential to Emit (PTE) for Emergency Generators.
<https://www.epa.gov/title-v-operating-permits/calculating-potential-emit-pte-emergency-generators>

2021 BLM Specialist Report on Annual Greenhouse Gas Emissions and Climate Trends,
<https://www.blm.gov/>

Table III: Summary of Potential Impacts that could Result from the City of Billings - Billings Regional Landfill (Facility) MAQP #5176-01 Permit Action.

Potential Impact	Affected Resource and Section Reference	Severity ¹ , Extent ² , Duration ³ , Frequency ⁴ , Uniqueness and Fragility (U/F)	Probability ⁵ impact would occur	Cumulative Impacts	Measures to reduce impact as proposed by applicant	Significance (yes/no)
Soil Disturbance/ Fugitive Dust	I. TOPOGRAPHY , GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE. II. WATER QUALITY, QUANTITY, AND DISTRIBUTION III. AIR QUALITY	S -none: There is no new proposed disturbances for the current project. E -none: D -The entire construction project would occur within approximately one half year. There is no existing vegetation on the site. F -During occasional moisture events or high wind events. U/F -Not unique or particularly fragile.	Unlikely	The construction period of approximately one-half year limits the possible duration and extent of erosion or fugitive dust. The majority of the site is currently developed as a municipal solid waste landfill with existing structures. The latest changes under MAQP #5176-01 would not have any physical changes to the current facility and are intended to identify what type of flare is being installed.	BRL would be required to follow reasonable precautions for storm run-off and fugitive dust.	No
VOC, NO _x , CO, PM emission release as well as fugitive dust	II. AIR QUALITY	S -low: Emissions released from BRL would be minimal due to the gas capture collection system (GCCS) and flare destruction efficiency. A third-party entity has already installed infrastructure to collect, process, and distribute the landfill gas resulting in minimal emissions from the landfill body. E -none: There will be no new surface area disturbances. D - The entire construction project would occur within approximately one-half years. Emissions from combustion processes would be intermittent as a result from a GCCS failure or scheduled maintenance for the duration of the facility's life.	Certain	The emissions from the proposed permitting action are minor in nature due to the GCCS, GPTS, and destruction efficiency of the open flare. The latest changes under MAQP #5176-01 would not have any physical changes to the current facility and are intended to identify what type of flare is being installed.	The open flare that is proposed has a destruction efficiency associated with it of 98% or better and constitutes BACT for this project.	No

Potential Impact	Affected Resource and Section Reference	Severity ¹ , Extent ² , Duration ³ , Frequency ⁴ , Uniqueness and Fragility (U/F)	Probability ⁵ impact would occur	Cumulative Impacts	Measures to reduce impact as proposed by applicant	Significance (yes/no)
		F-Intermittent based on GCCS failure or scheduled maintenance. U/F-Not unique or particularly fragile.				
Impacts to Historical and Archaeological Sites	III. HISTORICAL AND ARCHAEOLOGICAL SITES:	S -low: All areas proposed for disturbance have been previously disturbed. No new impacts would be anticipated. E – low: Site has been a municipal solid waste landfill since 1960's. D – long-term, any disturbance to archaeological sites would be permanent F- Once U/F-Not unique or particularly fragile.	Unlikely	Impacts to historical and archaeological sites associated with the project would add to the cumulative impacts associated with any other future developments around the area. The latest changes under MAQP #5176-01 would not have any physical changes to the current facility and are intended to identify what type of flare is being installed.	SHPO recommendations would be followed by BRL upon discovery of any historical site significance.	No
Noise increases and visual changes	IV. AESHETICS	S-none: No changes in noise or visuals are expected with the proposed action. E-small: The equipment would be installed on the interior of an existing parcel. Not readily accessible to the public. D- The entire construction project would occur within approximately one half years. Noise and visual changes are not expected outside of normal operating scenarios. F-Daily: During life of the BRL facility U/F-Not unique or particularly fragile.	Possible	No discernable changes in noise would likely not occur. Visual differences would not change the fact the site is already a municipal solid waste landfill. The latest changes under MAQP #5176-01 would not have any physical changes to the current facility and are intended to identify what type of flare is being installed.	Currently permitted equipment is located on the back side of the property and not readily visible to the public.	No

Energy use increase onsite and transportation energy use increases	V. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY	<p>S-none: No increases in environmental resources are expected.</p> <p>E-none: The landfill is an already developed site with no new infrastructure requiring land, water, air, or energy.</p> <p>D- The flare would use processed landfill gas as the pilot light.</p> <p>F-Daily during the life of the BRL facility.</p> <p>U/F-Not unique or particularly fragile.</p>	Certain	No impacts to energy use are expected with the current project. The landfill utilizes a GCCS and GPTS that is already installed and operated by a third-party entity.	None proposed	No
Potential Impact	Affected Resource and Section Reference	Severity¹, Extent², Duration³, Frequency⁴, Uniqueness and Fragility (U/F)	Probability⁵ impact will occur	Cumulative Impacts	Measures to reduce impact as proposed by applicant	Significance (yes/no)
Traffic Increases and employee exposure to new equipment	VI. HUMAN HEALTH AND SAFETY	<p>S-none: No new human health and safety concerns are associated with the current permit action.</p> <p>E-low:</p> <p>D- there is no proposed increase in vehicle traffic or employee exposure due to new equipment.</p> <p>F-Daily during life of the BRL facility</p> <p>U/F-Not unique or particularly fragile.</p>	Possible	Overall traffic and personnel impacts are not expected. The latest changes under MAQP #5176-01 are not expected to increase traffic and the new open flare would be operated by third-party entity staff. The latest changes under MAQP #5176-01 would not have any physical changes to the current facility and are intended to identify what type of flare is being installed.	None proposed.	No
None	VII. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION	<p>S - medium: The 572-acre site is an already developed site with no new disturbance.</p> <p>E – none: Total surface disturbance would be 0 acres.</p> <p>D – none</p> <p>F - none</p> <p>U/F - Not unique or particularly fragile.</p>	Unlikely	Any future projects would be limited by remaining physical space to install new equipment without the demolition of existing equipment. The latest changes under MAQP #5176-01 would not have any physical changes to the current facility and are intended to identify what type of flare is being installed.	None proposed.	No

Tax base increase and employment gains	VIII. QUANTITY AND DISTRIBUTION OF EMPLOYMENT	<p>S -Minor; Construction workers employed during construction period. No increase is permanent employees.</p> <p>E – low: Relatively low increase in permanent employees for area.</p> <p>D – Duration of the life of the flare installation.</p> <p>F- Daily</p> <p>U/F-Not unique or particularly fragile</p>	Certain	No increase in permanently employed workers is expected with the current permit action. The latest changes under MAQP #5176-01 would not have any physical changes to the current facility and are intended to identify what type of flare is being installed.	None proposed.	No
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Definitions are quantified as follows:

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

The severity of an impact is measured using the following:

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

1. Severity describes the density at which the impact may occur. Levels used are low, medium, high.
2. Extent describes the land area over which the impact may occur. Levels used are small, medium, and large.
3. Duration describes the time period over which the impact may occur. Descriptors used are discrete time increments (day, month, year, and season).
4. Frequency describes how often the impact may occur.
5. Probability describes how likely it is that the impact may occur without mitigation. Levels used are: impossible, unlikely, possible, probable, certain