

November 20, 2020

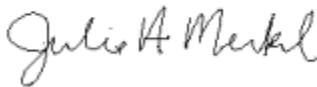
Mr. Kevin Weichert
ONEOK Elk Creek Pipeline, L.L.C. and ONEOK Bakken Pipeline, L.L.C
Wibaux I Pump Station and Wibaux II Pump Station
100 West Fifth Street
Tulsa, OK 74103

Sent via email: Kevin.Weichert@oneok.com

Dear Mr. Weichert:

Montana Air Quality Permit #5254-00 is deemed final as of November 20,2020, by the Department of Environmental Quality (Department). This permit is for a two adjacent natural gas liquids pump stations. All conditions of the Department's Decision remain the same. Enclosed is a copy of your permit with the final date indicated.

For the Department,



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



Julie Ackerlund
Air Quality Engineer
Air Quality Bureau
(406) 444-4267

JM:JA
Enclosure

Montana Department of Environmental Quality
Air, Energy & Mining Division

Montana Air Quality Permit #5254-00

ONEOK Elk Creek Pipeline, L.L.C. and ONEOK Bakken Pipeline, L.L.C
Wibaux I Pump Station and Wibaux II Pump Station
100 West Fifth Street
Tulsa, OK 74103

November 20, 2020



MONTANA AIR QUALITY PERMIT

Issued To:	MAQP: #5254-00
ONEOK Elk Creek Pipeline, LLC and	Application Complete: September 9, 2020
ONEOK Bakken Pipeline, LLC	Preliminary Determination Issued:
100 West Fifth Street	October 1, 2020
Tulsa, OK, 74103	Department's Decision Issued: November 4, 2020
	Permit Final: November 20, 2020
	AFS#: 011-0003

A Montana Air Quality Permit (MAQP), with conditions, is hereby granted to ONEOK Elk Creek Pipeline, LLC and ONEOK Bakken Pipeline, LLC (ONEOK), pursuant to Sections 75-2-204, 211, and 215 of the Montana Code Annotated (MCA), as amended, and Administrative Rules of Montana (ARM) 17.8.740, *et seq.*, as amended, for the following:

Section I: Permitted Facilities

A. Permitted Equipment

ONEOK operates two adjacent natural gas liquids (NGL) pump stations. Wibaux I Pump Station (Wibaux I) and Wibaux II Pump Station (Wibaux II) which will be referred to as the "facility." Wibaux I operates three (3) electric pumps and one (1) flare to support the ONEOK Bakken Pipeline and started operation around January 2015. ONEOK proposes to install and operate three (3) electric pumps and one (1) flare at Wibaux II to support the ONEOK Elk Creek Pipeline.

Emissions from this facility consist mainly of fugitive emissions and a very small amount of combustion products from the flares used to control emissions. Because the pumps are electric, this facility does not have the emissions or permit conditions typically associated with compressor engines.

B. Plant Location

This facility is to be located approximately 11 miles northeast of Wibaux, Montana, in Section 9, Township 16N, Range 60E, in Wibaux County. Wibaux I is on 4 acres of property and Wibaux II is immediately west of Wibaux I on 10 acres.

Section II: Conditions and Limitations

A. Conditions

1. Each valve, flange or other connection, pump seal, and other such source of fugitive volatile organic compound (VOC) emissions from leaks shall be inspected quarterly for leaks, and all leaks repaired as soon as reasonably practicable. Inspection methods may include utilizing sight, sound, or smell, soap bubble methods, Method 21 organic vapor analyzers, or optical gas-imaging cameras, to actively inspect for and detect leaks. For any two consecutive quarters with no leaks detected, the inspections may thereafter be conducted every 6 months beginning with the next quarter, until a leak is observed. No less than 30 days shall separate each inspection. Inspections

shall be recorded in a log including noting the inspection method(s) utilized, results of the inspection, the date the inspection was made, and the individual performing the inspection. The same log shall be used to record the date of repair and a description of the repair. (ARM 17.8.752).

2. The facility shall be designed and operated such that VOCs from the maintenance blowdowns (pumps blowdowns, pump strainer blowdowns and valve blowdowns) and seal flush filter changes are either recovered with 95% or greater efficiency, or directed to and combusted in a flare. (ARM 17.8.752).
3. The flare shall be designed and operated for no visible emissions, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours. (ARM 17.8.752). Within 180 days of permitting the Wibaux I flare, ONEOK shall perform a Method 22 test while the flare is operating. Within 180 days of commencement of operation, or at the first use of the Wibaux II flare, whichever is later, ONEOK shall perform a Method 22 test while the flare is operating. Thereafter, ONEOK shall perform Method 22 tests upon request. (ARM 17.8.105, ARM 17.8.749).
4. ONEOK shall perform a final component count for Wibaux I and Wibaux II respectively, and submit a report of the final component counts, within 180 days of finalizing construction of the facility. This information will be used to ensure the MAQP did not underestimate potential emissions, and for use in estimating actual emissions, as will be required by Section II.C.1. (ARM 17.8.749, ARM 17.8.505).

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

C. Operational Reporting Requirements

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

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

2. ONEOK shall notify the Department of any construction or improvement project conducted, pursuant to ARM 17.8.745, that would include the addition of a new emissions unit, change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation. The notice must be submitted to the Department, in writing, 10 days prior to startup or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.745(l)(d) (ARM 17.8.745).
3. All records compiled in accordance with this permit must be maintained by ONEOK as a permanent business record for at least 5 years following the date of the measurement, must be available at the facility for inspection by the Department, and must be submitted to the Department upon request. These records may be stored at a location other than the facility upon approval by the Department (ARM 17.8.749).

D. Notification

1. ONEOK shall notify the Department in writing of the date construction commenced of the first Wibaux II emitting unit at the facility within 15 days of commencement of construction.
2. ONEOK shall notify the Department in writing of the date operation commenced of Wibaux II within 15 days of commencement of operation.

SECTION III: General Conditions

- A. Inspection – ONEOK shall allow the Department’s representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment such as Continuous Emission Monitoring Systems (CEMS) or Continuous Emission Rate Monitoring Systems (CERMS), or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.
- B. Waiver – The permit and the terms, conditions, and matters stated herein shall be deemed accepted if ONEOK fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving ONEOK of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.* (ARM 17.8.756).
- D. Enforcement – Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties, or other enforcement action as specified in Section 75-2-401, *et seq.*, MCA.
- E. Appeals – Any person or persons jointly or severally adversely affected by the Department’s decision may request, within 15 days after the Department renders its

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

- F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by the Department at the location of the source.
- G. Permit Fee – Pursuant to Section 75-2-220, MCA, failure to pay the annual operation fee by ONEOK 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
ONEOK Elk Creek Pipeline, LLC and
ONEOK Bakken Pipeline, LLC
Wibaux I Pump Station and Wibaux II Pump Station
MAQP #5254-00

I. Introduction/Process Description

ONEOK Elk Creek Pipeline, LLC has owned and operated Wibaux I Pump Station (Wibaux I) since 2015. ONEOK Bakken Pipeline, LLC proposes to construct and operate Wibaux II Pump Station (Wibaux II). Wibaux I sits on 4 acres of land and Wibaux II sits immediately to the northwest on 10 acres. Wibaux I and Wibaux II will be known as the “facility.” ONEOK Elk Creek Pipeline, LLC and ONEOK Bakken Pipeline, LLC (ONEOK) uses this facility to maintain the pressure of the natural gas liquids (NGL) in the pipelines.

Wibaux I operates three (3) electric pumps, one (1) flare, and associated piping. Wibaux II is proposed to operate a similarly with three (3) electric pumps, one (1) flare, and associated piping. Emissions from this facility consist mainly of fugitive emissions from various piping components and a very small amount of combustion products from the flare used to control emissions. Because the pumps are electric, this facility does not have the emissions or permit conditions typically associated with engines.

This facility is to be located approximately 11.5 miles northeast of Wibaux, Montana, in Section 9, Township 16 North, Range 60 East, in Wibaux County, at latitude 47.1519°N, longitude -104.126°W.

No comments were received during the public comment period on this initial permit action.

II. Applicable Rules and Regulations

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

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

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment (including instruments and sensing devices) and shall conduct tests, emission or ambient, for such periods of time as may be necessary using methods approved by the Department.

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

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

4. ARM 17.8.110 Malfunctions. In (2) of this rule, the Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation or to continue for a period greater than 4 hours.
5. ARM 17.8.111 Circumvention. In (1) of this rule, 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. In (2) of this rule, 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

ONEOK must not cause or contribute to a violation of any ambient air quality standard.

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. In (1), this 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. As required in (2) of this rule, ONEOK 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 17.8.322 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.
6. ARM 17.8.324 Hydrocarbon Emissions--Petroleum Products. In (3) of this rule, 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.
7. 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). ONEOK shall comply with any applicable NSPS. The Department is not aware of any subpart of 40 CFR 60 currently applicable to this facility.
 - a. 40 CFR 60, Subpart OOOOa:

This regulation applies to affected sources that commenced construction, modification or reconstruction after August 23, 2011, and on or before September 18, 2015. NSPS Subpart OOOO does not apply to Wibaux I or Wibaux II since the stations are in natural gas liquids service, and do not include any equipment which is an affected facility under these rules.
 - b. 40 CFR 60, Subpart OOOO:

NSPS Subpart OOOOa seeks to control CH₄, VOC and SO₂ emissions from the crude oil and natural gas source category that commence construction, modification or reconstruction after September 18, 2015. NSPS Subpart OOOOa fugitive emission requirements do not apply to Wibaux I or Wibaux II since the facility is in natural gas liquids service, which is not an affected source under these rules.
8. 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. The Department is not aware of any subpart of 40 CFR 61 currently applicable to this facility.

9. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. This rule incorporates, by reference, 40 CFR Part 63, Emission Standards for Hazardous Air Pollutants. The Department is not aware of any subpart of 40 CFR 63 currently applicable to this facility.
- D. ARM 17.8, Subchapter 5 – Air Quality Permit Application, Operation, and Open Burning Fees, including, but not limited to:
1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. ONEOK submitted the appropriate permit application fee for the current permit action.
 2. ARM 17.8.505 Air Quality Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit (excluding an open burning permit) issued by the Department. The air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions that prorate the required fee amount.
- E. ARM 17.8, Subchapter 7 – Permit, Construction, and Operation of Air Contaminant Sources, including, but not limited to:
1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
 2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain an air quality permit or permit modification to construct, modify, or use any air contaminant sources that have the potential to emit (PTE) greater than 25 tons per year of any pollutant. ONEOK has a PTE greater than 25 tons per year of Volatile Organic Compounds; 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. In (1) of this rule, it requires that a permit application be submitted prior to installation, modification, or use of a source. ONEOK submitted the required permit application for the current permit action. In (7) of this rule, it 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. ONEOK submitted an affidavit of publication of public notice for the August 13, 2020 issue of the *The Wibaux Pioneer-Gazette*, a newspaper of general circulation in the Town of Wibaux in Wibaux County, as proof of compliance with the public notice requirements.
6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.
7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The required BACT analysis is included in Section III of this permit analysis.
8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.
9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving ONEOK of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.*
10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.
11. ARM 17.8.760 Additional Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those applications that require an environmental impact statement.
12. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or modified source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.

13. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).
14. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.
15. ARM 17.8.765 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of intent to transfer, including the names of the transferor and the transferee, is sent to the Department.
16. ARM 17.8.770 Additional Requirements for Incinerators. This rule specifies the additional information that must be submitted to the Department for incineration facilities subject to 75-2-215, Montana Code Annotated.

A health risk assessment was conducted to determine if the two proposed flares comply with the negligible risk requirement of 75-2-215, MCA. The environmental effects unrelated to human health were not considered in determining compliance with the negligible risk standard, but were evaluated as required by the Montana Environmental Policy Act, in determining compliance with all applicable rules or other requirements requiring protection of public health, safety, and welfare and the environment.

The proposed Wibaux I and Wibaux II flares each have a stack height of 6.096 meters (m) with a vertical discharge, a stack exit temperature of 1,873 °F, and a flow rate of 386 actual cubic feet per minute (ACFM) with a stack diameter of 0.3048 m. Ambient air dispersion modeling was accomplished using SCREEN3 software, an EPA approved ambient air dispersion modeling software used for conservative modeling. Ambient air impacts were modeled for the non-criteria pollutants identified in the potential to emit calculations.

Pursuant to ARM 17.8.770(1)(c), pollutants may be excluded from the human health risk assessment if the Department determines that exposure from inhalation is the only appropriate pathway to consider in the human health risk assessment and if the ambient concentrations of the pollutants (calculated using the potential to emit; enforceable limits or controls may be considered) are less than the levels specified in Table 1 or Table 2 of ARM 17.8.770.

Inhalation is considered the only pathway of exposure from the two flares. The identical flares at the adjacent pipelines pump stations were conservatively modeled as one flare with twice the emission concentration of either flare. The nearest receptor was set at 30 meters.

The Department conducted a Human Health Risk Assessment for this project. The speciated concentration of each identified HAP is shown from extrapolation of the SCREEN3 modeling results in Table A. The speciated HAP concentrations are compared to the threshold values from Table 1 and Table 2 of ARM 17.8.770 and results are provided in Table B. Only Benzene exceeded the thresholds for annual cancer impacts in from Table 1 of ARM 17.8.770. Benzene was further analyzed, and benzene was found to be below the negligible risk value established by EPA and shown in Table C. The results demonstrate that the emissions from the flares are expected to have negligible risk to human health, as defined by this rule.

Table A: Speciated Concentration of HAPs

<u>98% Destructured HAPS</u>	<u>Emissions Factor</u> (% of VOC to Flare)	<u>Emissions Rate or Both Flares Combined</u> (lb/hr)	<u>Fraction Total Emissions</u>	<u>Speciated Annualized Concentrations</u> ($\mu\text{g}/\text{m}^3$)
		0.0094		
n-Hexane	4.69	0.000439725	0.80789166	0.28903132
Benzene	0.44	4.09622E-05	0.075258553	0.0269245
2,2,4-TMP	0.36	3.36206E-05	0.061770057	0.022098855
Ethylbenzene	0.02	1.48986E-06	0.002737274	0.000979287
Toluene	0.20	1.8345E-05	0.033704751	0.012058212
Xylenes	0.09	8.04166E-06	0.014774685	0.005285791
<u>Natural Gas Combustion Related Emissions Including Combustion Formed HAPS</u>	lb/MMscf (AP-42, Table 1.4-3)	(lb/hr)		
2-methylnaphthalene	0.000024	6.61E-10	1.21534E-06	4.348E-07
3-methylchloranthrene (less than)	0.0000018	4.96E-11	9.11505E-08	3.261E-08
7,12 Dimethylbenz(a)anthracene	0.000016	4.41E-10	8.10227E-07	2.89867E-07
Acenaphthene	0.0000018	4.96E-11	9.11505E-08	3.261E-08
Acenaphthylene	0.0000018	4.96E-11	9.11505E-08	3.261E-08
Anthracene	0.0000024	6.61E-11	1.22E-07	4.348E-08
Benz(a)anthracene	0.0000018	4.96E-11	9.11505E-08	3.261E-08
Benzo(a)pyrene	0.0000012	3.31E-11	6.0767E-08	2.174E-08

Benzo(b)fluoranthene	0.0000018	4.96E-11	9.11505E-08	3.261E-08
Chrysene	0.0000018	4.96E-11	9.11505E-08	3.261E-08
Dibenzo(a,h)anthracene	0.0000012	3.31E-11	6.0767E-08	2.174E-08
Dichlorobenzene	0.0012	3.31E-08	6.0767E-05	2.174E-05
Fluoranthene	0.0000003	8.27E-11	1.51918E-07	5.435E-08
Fluorene	0.0000028	7.72E-11	1.4179E-07	5.07267E-08
Formaldehyde	0.075	2.07E-06	0.003797939	0.001358751
Indeno(1,2,3-cd)pyrene	0.0000018	4.96E-11	9.11505E-08	3.261E-08
Phenanthrene	0.000017	4.69E-10	8.60866E-07	3.07983E-07
Pyrene	0.0000005	1.38E-10	2.53196E-07	9.05834E-08
TOTAL (lb/hr)		0.000544287		

Table B: Maximum Flare Concentration Compared to Allowed Levels

<u>98% Destructured HAPS</u>	Table 1 (ARM 17.8.770) Cancer Annual ($\mu\text{g}/\text{m}^3$)	Table 2 (ARM 17.8.770) Noncancer Chronic Annual ($\mu\text{g}/\text{m}^3$)	Table 2 (ARM 17.8.770) Noncancer Acute Annual ($\mu\text{g}/\text{m}^3$)	Speciated Conc. Below Table 1 or 2 Values?
n-Hexane	N/A	2.00E+00	N/A	YES
Benzene	0.012048	0.71	N/A	NO
2,2,4-TMP				
Ethylbenzene	N/A	10	N/A	YES
Toluene	N/A	4	N/A	YES
Xylenes	N/A	3	44	YES
<u>Natural Gas Combustion Related Emissions Including Combustion Formed HAPS</u>				
2-methylnaphthalene	N/A	N/A	N/A	YES
3-methylchloranthrene (less than)	N/A	N/A	N/A	YES
7,12 Dimethylbenz(a)anthracene	N/A	N/A	N/A	YES
Acenaphthene	N/A	N/A	N/A	YES
Acenaphthylene	N/A	N/A	N/A	YES
Anthracene	N/A	N/A	N/A	YES
Benz(a)anthracene	5.88E-05	N/A	N/A	YES

Benzo(a)pyrene	5.88E-05	N/A	N/A	YES
Benzo(b)fluoranthene	0.000058824	N/A	N/A	YES
Chrysene	N/A	N/A	N/A	YES
Dibenzo(a,h)anthracene	N/A	N/A	N/A	YES
Dichlorobenzene	0.0090909	8.00E+00	N/A	YES
Fluoranthene	N/A	N/A	N/A	YES
Fluorene	N/A	N/A	N/A	YES
Formaldehyde	0.0076923	0.036	3.7	YES
Indeno(1,2,3-cd)pyrene	0.000058824	N/A	N/A	YES
Phenanthrene	N/A	N/A	N/A	YES
Pyrene	N/A	N/A	N/A	YES

Table C: Negligible Risk Assessment of HAPs That Weren't Excluded in Table B

	Negligible Risk Assessment(1)		
98% Destructed HAPS	Cancer URF(2) 1/(µg/m³)	Cancer Risk(3)	Is the Cancer Risk less than 1E-6?
Benzene	0.0000078	2.1E-07	YES

(1) Source of chronic dose-response values is from USEPA Table 1: Prioritized Chronic Dose-Response Values for Screening Risk Assessments

(2) Cancer Chronic Inhalation Unit Risk Factor (URF), units 1/µg/m³

(3) Cancer Risk is unit less and is calculated by multiplying the predicted concentration by the URF.

- 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 conventional pollutant.

- G. ARM 17.8, Subchapter 12 – Operating Permit Program Applicability:

ARM 17.8.1201(23) (a)(i) states that . . . “emissions from any pipeline pump station are not aggregated with emissions from other similar units, whether or not such units are in a contiguous area or under common control, to determine whether such units or stations are major sources”. Therefore, Wibaux I and Wibaux II are not assumed to require aggregation with other pump stations. Further, this station is greater than ¼ mile away from other pump stations. Therefore, this determination is also in alignment with EPA’s [federal register notice](#) clarifying the meaning of the term ‘adjacent’ that is used to determine the scope of a stationary source for sources in the oil and gas industry.

1. ARM 17.8.1201 Definitions. In (23) of the rule, a Major Source under Section 7412 of the FCAA is defined as any source having:
 - a. PTE > 100 tons/year of any pollutant;
 - b. PTE > 10 tons/year of any one hazardous air pollutant (HAP), PTE > 25 tons/year of a combination of all HAPs, or lesser quantity as the Department may establish by rule; or
 - c. PTE > 70 tons/year of particulate matter with an aerodynamic diameter of 10 microns or less (PM₁₀) in a serious PM₁₀ nonattainment area.

2. ARM 17.8.1204 Air Quality Operating Permit Program. In (1) of the rule, 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 #5254-00 for ONEOK, 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 not subject to any current NSPS.
 - e. This facility is not subject to any current NESHAP standards.
 - f. This source is not a Title IV affected source, or a solid waste combustion unit.
 - g. This source is not an EPA designated Title V source.

Based on these facts, the Department determined that ONEOK will be a minor source of emissions as defined under Title V.

III. BACT Determination

A BACT determination is required for each new or modified source. ONEOK 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 ONEOK in permit application #5254-00, addressing some available methods of controlling VOC emissions from the facility. The Department reviewed these methods, as well as previous BACT determinations. The following control options have been reviewed by the Department in order to make the following BACT determination.

VOC and HAPs

VOC and HAP emissions occur as the result of scheduled maintenance from blowdowns of valves, pump strainers, and pumps. Other fugitive VOC and HAP emissions occur from pipeline components such as valves, flanges and other connections, pump seals, and other such components.

ONEOK proposed to control emissions related to blowdowns from valves, pump strainers, and pumps with a flare. A properly designed and operated flare can be expected to achieve a 98% control efficiency. As one of the top control technologies available, the Department concurred with no further analyses requested.

For VOC generated by fugitive equipment leaks, a leak detection and repair program was assigned. A leak detection and repair program ensures that routine inspections to identify any leaking components, and appropriate reaction to those leaks, occurs on a timely basis, minimizing these fugitive emissions.

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

IV. Emission Inventory

Description	NO _x		CO		VOC		HAP	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Existing Facility								
Wibaux I – Component Fugitive	-	-	-	-	3.18	13.94	0.18	0.81
Wibaux I – Pump Seal Losses	-	-	-	-	-	0.01	-	6.89E-04
Wibaux I - Flare	0.02	0.07	0.08	0.33	0.08	0.35	4.69E-03	0.02
New Construction								
Wibaux II – Component Fugitive	-	-	-	-	3.18	13.94	0.18	0.81
Wibaux II – Pump Seal Losses	-	-	-	-	-	0.01	-	6.89E-04
Wibaux II - Flare	0.02	0.07	0.08	0.33	0.08	0.35	4.69E-03	0.02
Total Emissions	0.03	0.14	0.15	0.66	6.53	28.61	0.38	1.66

** NO_x = oxides of nitrogen
 lb = pound
 hr = hour
 tpy = tons per year
 CO = carbon monoxide
 VOC = volatile organic compounds
 HAPs = hazardous air pollutants

An emissions inventory Excel spreadsheet is located within the application files for MAQP #5254-00, received as application correspondence on September 9, 2020. Tables for the Wibaux I Pump Station from this spreadsheet are included below. Please note that since both pump station are identical, the tables are representative of both pump station.

**ONEOK Bakken Pipeline
L.L.C. - Wibaux I Pump
Station**

Fugitive Components (ID: Fugitive Equipment Leaks)

Component Type ^{1,4}	Light Liquid	Light Liquid (With 10% Buffer) ²
Connections	378	416
Flanges	168	185
Open-Ends	4	5
Pumps	3	4
Valves	269	296
"Others" ³	65	72
Totals	887	978

¹ No gas component counts.

² Components used for permitting are inclusive of a 10% buffer.

³ "Others" could include check valves, compressors, pressure relief valves, etc.

⁴ Wibaux I Pump Station counts assumed to be the same as the Capitol II Pump Station component counts (conducted June 2020 by Grouse Mountain Environmental Consultants, LLC).

Unspeciated Emissions from Fugitive Leaks

Component Type	Emission Factor ¹ Light Liquid (kg/hr/source)	Hourly Emission Rate ² Light Liquid (lb/hr)	Annual Emission Rate ³ Light Liquid (tpy)
Connections	2.10E-04	0.19	0.84
Flanges	1.10E-04	0.04	0.20
Open-Ends	1.40E-03	0.02	0.07
Pumps	1.30E-02	0.11	0.50
Valves	2.50E-03	1.63	7.13
"Others"	7.50E-03	1.19	5.20
	Totals	3.18	13.94

¹ Emission factors for light liquids obtained from U.S. EPA, Protocol for Equipment Leak Emission Estimates, Table 2-4 *Oil and Gas Production Operations Average Emission Factors (November 1995)*.

² Emission Rate (lb/hr) = Emission Factor (kg/hr/source) x Number of sources x (2.2 lb/kg).

$$\text{Example "Connections" Hourly Emission Rate (lb/hr)} = \frac{2.10\text{E-}04 \text{ kg}}{\text{hr-source}} \times 416 \text{ sources} \times \frac{2.2 \text{ lb}}{\text{kg}} = \frac{0.19 \text{ lb}}{\text{hr}}$$

³ Emission Rate (tpy) = Emission rate (lb/hr) x (8,760 hr/yr) / (2,000 lb/ton).

$$\text{Example "Connections" Annual Emission Rate (tpy)} = \frac{0.19 \text{ lb}}{\text{hr}} \times 8,760 \text{ yr} \times \frac{1 \text{ ton}}{2,000 \text{ lb}} = \frac{0.84 \text{ ton}}{\text{yr}}$$

VOC and HAP Emission Speciation

Pollutant	Wt% ¹	Emission Rate	
		lb/hr ²	tpy ³
VOC ⁴	100	3.18	13.94
n-Hexane	4.69	0.15	0.65
Benzene	0.44	0.014	0.061
2,2,4-TMP	0.36	1.14E-02	0.050
Ethylbenzene	0.016	5.06E-04	2.22E-03
Toluene	0.20	0.006	0.027
Xylenes	0.086	2.73E-03	0.012
Total HAP	5.79	0.18	0.81

¹ Based on theoretical maximum based on Garden Creek Chemical Analysis data from April 27, 2020 to account for possible fluctuations in composition.

² VOC (lb/hr) = Unspeciated Hourly Emission Rate (lb/hr) x VOC wt%

³ VOC (tpy) = Unspeciated Annual Emission Rate (tpy) x VOC wt%

⁴ %VOC assumed to be 100% for conservatism.

ONEOK Bakken Pipeline L.L.C. -

Wibaux I Pump Station

Potential to Emit

(PTE) Emission

Estimates

Pump Station Facility includes three Pumps (Electric), Pump Strainer, Flare

Equipment	Length (feet)	Inner Dia. (inch)	Inner Dia. (feet)	Volume (cf)	Volume (bbl/event)	Liquid Density (lb/bbl) ¹	% VOC ²	% HAP ³	VOC (lb/event) ⁴	HAP (lb/event) ⁴	Release to	Events/yr ⁵	Volume (bbl/yr) ⁶	Uncontrolled VOC (tons/yr) ⁷	Uncontrolled HAP (tons/yr) ⁸	Controlled VOC (tons/yr)	Controlled HAP (tons/yr)
Pump Strainer Blowdowns	-	-	-	-	19	200.0	100%	5.79%	3799	220	flare	1	19.00	1.90	0.11	See Flare	Neg.
Pump Blowdown (each, including piping)	-	-	-	-	5	200.0	100%	5.79%	1000	58	flare	8	40.00	4.00	0.23	See Flare	Neg.
Valve Blowdowns (inc. piping)	50	15.2	1.27	63.0	11.2	200.0	100%	5.79%	2244	130	flare	10	112.22	11.22	0.65	See Flare	Neg.
Subtotal Maintenance (Other Blowdown)					35.2				7043	407		19	171.2	17.1	0.99	See Flare	Neg.
											(To atmosphere)		0.00	0.00	0.00		
											(To flare)		171.2	17.1	0.99		

¹ NGL density (lb/bbl) is based on theoretical conservative composition to account for possible fluctuations in composition.

² %VOC assumed to be 100% for conservatism.

³ %HAP calculated based on theoretical maximum based on Garden Creek Chemical Analysis data from April 27, 2020 to account for possible fluctuations in composition.

⁴ VOC or HAP (lb/event) = Volume (bbl/event) x Liquid Density (lb/bbl) x % VOC or % HAP

⁵ Total Maintenance Blowdown (Mtn.) events include 1 pump strainer blowdown, 8 pump blowdowns, and 10 valve blowdowns.

⁶ Volume (bbl/yr) = Volume (bbl/event) x Events per year (events/yr)

⁷ Uncontrolled VOC emissions (tons/yr) = VOC (lb/event) x Events per year (events/yr) / 2000 lb/ton

⁸ Uncontrolled HAP emissions (tons/yr) = HAP (lb/event) x Events per year (events/yr) / 2000 lb/ton

Seal Flush Filter Change Emissions (Flared) - Wibaux I Pump Station

Seal Flush Filter Change Volume (gal/event) ¹	Sampling Frequency (events/year) ²	Seal Flush Filter Change Volume (gal/year) ³	Seal Flush Filter Change Volume (bbl/year) ⁴	Liquid Density (lb/bbl) ⁵	VOC % ⁶	Uncontrolled VOC Emissions (ton/yr) ⁷	HAP % ⁸	Uncontrolled HAP Emissions (ton/year) ⁹	Flare DRE (%)	Controlled VOC Emissions (tons/yr)	Controlled HAP Emissions (tons/yr)
5	52	260	6.19	200.0	100%	0.62	5.79%	0.036	98%	See Flare	Neg.

^{1,2} Seal Flush Filter Change volume and Sampling Frequency based on the Colby Pump Station.

³ Annual Seal Flush Filter Change Volume (gal/year) = Seal Flush Filter Change Volume (gal/event) * Sampling Frequency (events/year)

⁴ Annual Seal Flush Filter Change Volume (bbl/year) = Annual Seal Flush Filter Change Volume (gal/year) / 42 (gal/bbl)

⁵ NGL density (lb/bbl) is based on theoretical conservative composition to account for possible fluctuations in composition.

⁶ %VOC assumed to be 100% for conservatism.

⁷ Uncontrolled VOC Emissions (tons/year) = Annual Seal Flush Filter Change Volume (bbl/year) * Liquid Density (lb/bbl) * VOC % / 2000 lb/ton

⁸ %HAP calculated based on theoretical maximum based on Garden Creek Chemical Analysis data from April 27, 2020 to account for possible fluctuations in composition.

⁹ Uncontrolled HAP Emissions (tons/year) = Annual Seal Flush Filter Change Volume (bbl/year) * Liquid Density (lb/bbl) * HAP % / 2000 lb/ton

Pump Seal Loss Emissions (Uncontrolled) - Wibaux I Pump Station

Pump Seal Loss Volume (gal/event) ¹	Pump Startup Frequency (events/year) ²	Pump Seal Loss Volume (gal/year) ³	Pump Seal Loss Volume (bbl/year) ⁴	Liquid Density (lb/bbl) ⁵	VOC % ⁶	Uncontrolled VOC Emissions (ton/yr) ⁷	HAP % ⁸	Uncontrolled HAP Emissions (ton/year) ⁹
0.02	250	5	0.12	200.0	100%	0.01	5.79%	6.89E-04

^{1,2} Pump Seal Loss Volume and Pump Startup Frequency based on the Colby Pump Station.

³ Annual Pump Seal Loss Volume (gal/year) = Pump Seal Loss Volume (gal/event) * Pump Startup Frequency (events/year)

⁴ Annual Pump Seal Loss Volume (bbl/year) = Annual Pump Seal Loss Volume (gal/year) / 42 (gal/bbl)

⁵ NGL density (lb/bbl) is based on theoretical conservative composition to account for possible fluctuations in composition.

⁶ %VOC assumed to be 100% for conservatism.

⁷ Uncontrolled VOC Emissions (tons/year) = Annual Pump Seal Loss Volume (bbl/year) * Liquid Density (lb/bbl) * VOC % / 2000 lb/ton

⁸ %HAP calculated based on theoretical maximum based on Garden Creek Chemical Analysis data from April 27, 2020 to account for possible fluctuations in composition.

⁹ Uncontrolled HAP Emissions (tons/year) = Annual Pump Seal Loss Volume (bbl/year) * Liquid Density (lb/bbl) * HAP % / 2000 lb/ton

Flare Calculations - Wibaux I Pump Station

Flared Gas Composition

Component	MW lb/lb-mol	Composition ² Mol%	Component Mass ³ lb/lb-mol	Flared NGL Composition ⁴ Wt%	HHV ⁵ Btu/scf	Heat Content ⁶ (Btu/scf * wet vol %)
CO ₂	44.01	0.02000%	0.00880	0.01579%	0	0.0
Methane	16.04	0.060%	0.0096	0.0173%	919	0.55
Ethane	30.07	5.4%	1.62	2.91%	1619	87
Propane	44.10	43.4%	19.1	34.3%	2315	1004
i-Butane	58.12	6.86%	3.99	7.15%	3000	206
n-Butane	58.12	19.3%	11.2	20.1%	3011	581
i-Pentane	72.15	5.37%	3.87	6.95%	3699	199
n-Pentane	72.15	7.24%	5.22	9.37%	3707	268
Hexanes ¹	86.18	12.39%	10.68	19.15%	4404	546
Total		100%	55.7			2891
NMNEHC (VOC)		94.53%				

¹ Molecular weight of Hexanes+ assumes 100% C₆, in order to more conservatively estimate total heat input to the flare.

² Composition is based on estimated worst-case composition provided by Jenny Ellette (ONEOK) to Hanna Warlick (Trinity) on June 9, 2020. It is assumed that gas molar fractions are equivalent to volume fractions (ideal gas law).

⁴ Flared gas is assumed to have the same composition as the provided analysis. The Wt% of each component is calculated as lb/lb-mol / total moles.

⁵ Component HHVs obtained from GPSA Engineering Handbook.

⁶ It is assumed that gas molar fractions are equivalent to volume fractions (ideal gas law). Heat content is calculated as HHV (Btu/scf) x Flared gas composition (Vol%). The overall heat content of the flared product is the sum of individual heat content.

Flare Parameters

Description	Value
Manufacturer	Zeeco, Inc.
Model	AFDS-3 Dual Flare Tip
Year Built	2015
Flare Type	Elevated-open, Air assisted
Flare Efficiency	98%
Height (feet)	20
Diameter (inches)	12
Exit gas temperature (°F)	100
Exit gas velocity (ft/sec)	905
Exit gas flow rate (lb/hr)	3,400
Exit gas flow rate (acfm)	386

Fuel Data (Pilot)

Description	Value	Source
Pilot Rating (scf/hr)	65	Design Spec Sheet (using natural gas rating as a conservative measure)
Pilot Rating (MMscf/hr)	6.50E-05	
Heat Rating (Btu/scf)	2,517	Propane, Gross Heating Value ¹
Pilot Rating (MMBtu/hr)	0.164	
Flare Efficiency	98%	
Total Number of Flaring events per year (Events/yr)	19	Maintenance events per year (19 events/yr)
	52	Seal Flush Filter Change events per year (52 events/yr)
Flare Pilot Operational Time ² (hours/yr)	8,760	

¹ Heating value of propane obtained from Physical Constants of Hydrocarbons. Gross Heating Value is conservatively used to calculate pilot emissions.

² Pilot emissions are conservatively based on 8,760 hours of operation per year, however the flare is a maintenance flare and actual operational time is estimated as less than 4 hours per flaring event.

Emission Factors

Pollutant	Emission Factor ¹ (lb/MMBtu)
NO _x	0.068
CO	0.31

¹ Emission factors per U.S. EPA AP-42 Tables 13.5-1 and 13.5-2 (02/18)

Emission Rates - Pilot

Pollutant	Emissions (lb/hr) ¹	Emissions (tpy) ²
NO _x	0.01	4.87E-02
CO	0.05	2.22E-01

¹ Hourly Emissions (lb/hr) calculated as Annual Emissions (tons/yr) / Hours of Flare Operation (hr/yr) x (2,000 lb/ton)

² Annual Emissions (tpy) calculated as Emission Factor (lb/MMBtu) x Flare Pilot Rating (MMBtu/yr) / (2,000 lb/ton)

Emission Rates - Flared gas

Pollutant	Emissions (lb/hr) ¹	Emissions (tpy) ^{2,3}
NO _x	0.01	0.02
CO	0.02	0.108
VOC ⁴	0.08	0.35
HAP	4.69E-03	0.02

¹ Hourly Emissions (lb/hr) calculated as Annual Emissions (tons/yr) / Hours of Flare Operation(hr/yr) x (2,000 lb/ton)

² Annual NO_x and CO emissions (tpy) calculated as Emission Factor (lb/MMBtu) x Flare Gas Heat Rating (MMBtu/yr) / 2000 (lb/ton).

³ Annual Controlled VOC/HAP Emissions (tpy) = Annual flared volume (bbl/yr) x Liquid Density (lb/bbl) x Total VOC/HAP % x (1- Destruction efficiency of the flare) / 2,000 (lb/ton).

⁴ %VOC assumed to be 100% for conservatism.

**ONEOK Bakken Pipeline
L.L.C. - Wibaux I Pump
Station**

Fugitive Components (ID: Fugitive Equipment Leaks)

Component Type ^{1,4}	Light Liquid	Light Liquid (With 10% Buffer) ²
Connections	378	416
Flanges	168	185
Open-Ends	4	5
Pumps	3	4
Valves	269	296
"Others" ³	65	72
Totals	887	978

¹ No gas component counts.

² Components used for permitting are inclusive of a 10% buffer.

³ "Others" could include check valves, compressors, pressure relief valves, etc.

⁴ Wibaux I Pump Station counts assumed to be the same as the Capitol II Pump Station component counts (conducted June 2020 by Grouse Mountain Environmental Consultants, LLC).

Unspeciated Emissions from Fugitive Leaks

Component Type	Emission Factor ¹ Light Liquid (kg/hr/source)	Hourly Emission Rate ² Light Liquid (lb/hr)	Annual Emission Rate ³ Light Liquid (tpy)
Connections	2.10E-04	0.19	0.84
Flanges	1.10E-04	0.04	0.20
Open-Ends	1.40E-03	0.02	0.07
Pumps	1.30E-02	0.11	0.50
Valves	2.50E-03	1.63	7.13
"Others"	7.50E-03	1.19	5.20
	Totals	3.18	13.94

¹ Emission factors for light liquids obtained from U.S. EPA, Protocol for Equipment Leak Emission Estimates, Table 2-4 *Oil and Gas Production Operations Average Emission Factors (November 1995)*.

² Emission Rate (lb/hr) = Emission Factor (kg/hr/source) x Number of sources x (2.2 lb/kg).

$$\begin{array}{r}
 \text{Example "Connections"} \\
 \text{Hourly Emission Rate (lb/hr)} \\
 = \\
 \frac{2.10\text{E-}04 \text{ kg}}{\text{hr-source}} \times 416 \text{ sources} = \frac{2.2 \text{ lb}}{\text{kg}} \times \frac{0.19 \text{ lb}}{\text{hr}}
 \end{array}$$

³ Emission Rate (tpy) = Emission rate (lb/hr) x (8,760 hr/yr) / (2,000 lb/ton).

$$\begin{array}{r}
 \text{Example "Connections"} \\
 \text{Annual Emission Rate (tpy)} = \\
 \frac{0.19 \text{ lb}}{\text{hr}} \times 8,760 \text{ yr} = \frac{1 \text{ ton}}{2,000 \text{ lb}} \times \frac{0.84 \text{ ton}}{\text{yr}}
 \end{array}$$

VOC and HAP Emission Speciation

Pollutant	Wt% ¹	Emission Rate	
		lb/hr ²	tpy ³
VOC ⁴	100	3.18	13.94
n-Hexane	4.69	0.15	0.65
Benzene	0.44	0.014	0.061
2,2,4-TMP	0.36	1.14E-02	0.050
Ethylbenzene	0.016	5.06E-04	2.22E-03
Toluene	0.20	0.006	0.027
Xylenes	0.086	2.73E-03	0.012
Total HAP	5.79	0.18	0.81

¹ Based on theoretical maximum based on Garden Creek Chemical Analysis data from April 27, 2020 to account for possible fluctuations in composition.

² VOC (lb/hr) = Unspeciated Hourly Emission Rate (lb/hr) x VOC wt%

³ VOC (tpy) = Unspeciated Annual Emission Rate (tpy) x VOC wt%

⁴ %VOC assumed to be 100% for conservatism.

V. Existing Air Quality

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

VI. Ambient Air Impact Analysis

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

VII. Taking or Damaging Implication Analysis

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

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

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

VIII. Environmental Assessment

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

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

ENVIRONMENTAL ASSESSMENT (EA)

Issued To: ONEOK Elk Creek Pipeline, LLC and
ONEOK Bakken Pipeline, LLC
100 West Fifth Street
Tulsa, OK, 74103

Montana Air Quality Permit number (MAQP): 5254-00

EA Draft: 10/1/2020

EA Final: 11/4/2020

Permit Final: 11/20/2020

1. *Legal Description of Site:* The SE/SW Qtr of Section 9, Township 16 North, Range 60 East, in Wibaux County, at latitude 47.1519°N, longitude -104.126°W.
2. *Description of Project:* The ONEOK Elk Creek Pipeline, LLC and ONEOK Bakken Pipeline, LLC (ONEOK) have applied for an air quality permit. ONEOK has been operating Wibaux I Pump Station (Wibaux I) since January 2015, which supports the ONEOK Bakken Pipeline that transports natural gas liquids (NGL). ONEOK plans to construct and operate Wibaux II Pump Station (Wibaux II) immediately adjacent to Wibaux I. Wibaux II would support the ONEOK Elk Creek Pipeline that also transports NGL. The Elk Creek Pipeline is approximately 900 miles of 20-in diameter piping that originates in Richland, Montana and terminate in Bushton, Kansas.

Individually, Wibaux I does not have the potential to emit above MAQP permitting thresholds. With the additional potential to emit from Wibaux II, the joint emissions of Wibaux I and II exceeds the MAQP permitting threshold. Wibaux I and Wibaux II would be referred to together as “the facility.”
3. *Objectives of Project:* These pump stations serve two NGL pipelines by maintaining the necessary pressure in the pipeline for fluid transport.
4. *Alternatives Considered:* In addition to the proposed action, the Department also considered the “no-action” alternative. ONEOK has complied with all applicable requirements in obtaining an MAQP, therefore, the “no-action” alternative was eliminated from further consideration. Other alternatives considered were discussed in the BACT analysis of the permit.
5. *A Listing of Mitigation, Stipulations, and Other Controls:* A list of enforceable conditions, including a BACT analysis, would be included in MAQP #5254-00.

As required under the Sage Grouse Executive Order, the proposed project information was submitted to, and reviewed by the Montana Sage Grouse Oversight Team (MSGOT). The

results of the MSGOT review were submitted to the Department with application materials for the proposed project. Reference Section 7.H for details.

6. *Regulatory Effects on Private Property:* The Department considered alternatives to the conditions imposed in this permit as part of the permit development. The Department determined that the permit conditions are reasonably necessary to ensure compliance with applicable requirements and demonstrate compliance with those requirements and do not unduly restrict private property rights.
7. *SUMMARY OF COMMENTS ON POTENTIAL PHYSICAL AND BIOLOGICAL EFFECTS:* The following comments have been prepared by the Department.

A. *Terrestrial and Aquatic Life and Habitats*

Any impacts resulting from the proposed project to terrestrial and aquatic life and habitats would be minor. Wibaux I is an existing facility already operating and the resulting increase of emissions from the operation of Wibaux II is expected to be equivalent to the existing emissions of Wibaux I. Further, minor impacts to the surrounding area from the air emissions (see Section VI of the permit analysis) would be realized due to dispersion of pollutants.

Terrestrials (such as deer, antelope, rodents, and insects) would use the general area of the facility. The impacts to terrestrial and their habits would be minor since a portion of the facility is already an active industrial facility. Additional analysis regarding species of special concern is provided in Section G.

There would be no discharge into surface water on the project site and aquatic life would only be minimally impacted through deposition into offsite waters.

As required under the Sage Grouse Executive Order, the proposed pipeline project, of which this pump station supports, was submitted to the Montana Sage Grouse Habitat Conservation Program Manager for review. The Montana Sage Grouse Habitat Conservation Program recommended the Montana Sage Grouse Oversight Team (MSGOT) approve the pipelines *Mitigation Plans*. The proposed pump stations of MAQP #5254-00 do not fall within sage grouse habitat. Other distant portions of the pipelines are within sage grouse habitat. Therefore, these pump stations would not impact sage grouse habitat.

B. *Water Quality, Quantity and Distribution*

The project site is not located nearby surface waters and no discharges into surface waters is expected. Existing drainage patterns would not be changed. No significant water usage would be expected as a part of normal operations of the site. No significant impacts would be expected to water quality, quantity, or distribution.

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

Wibaux I sits on 4 acres of previously developed industrial property. Wibaux II would be co-located with Wibaux I, and would be situated on an additional 10 acres of land that is currently pasture. The post-developed site would be graded and surfaced with aggregate.

Impacts to geology, soil quality, stability, and moisture would not be expected to be significant.

D. *Vegetation Cover, Quantity, and Quality*

Wibaux I sits on 4 acres of previously developed industrial property. Wibaux II would be co-located with Wibaux I, and would be situated on an additional 10 acres of land that is currently pasture. The post-developed site would be graded and surfaced with aggregate. Emissions from normal operations at the site would be mostly volatile organic compounds. Further, minor impact to the surrounding area from the air emissions (see Section VI of the permit analysis) would be realized due to dispersion of pollutants. Impacts to vegetation cover, quantity, and quality, would not be expected to be significant.

E. *Aesthetics*

The post-project emissions would not be visible. A flare would be installed at the site, as well as other structures to house the electrically driven pumps. The area currently has an industrial nature from the operation of Wibaux I. This industrial nature would expand from 4 to 14 acres total. Some noise would be present at the facility, however, significant noise beyond the boundaries would not be expected. The pumps are electrically driven, eliminating noise from combustion engines. Construction activity would be present short term. The overall project size is relatively small. Impacts to aesthetics would not be expected to be significant.

F. *Air Quality*

The air quality impacts from the current permit action would be minor because MAQP #5254-00 would include conditions limiting emissions of air pollution from the flares and equipment. Overall, any impacts to the air quality of the project area from the facility, including construction activities, normal operations resulting in air emissions, and deposition of air emissions would be minor and in compliance with all applicable MAAQS and NAAQS.

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

The amount of allowable emissions which would be permitted by MAQP #5254-00 would be small on an industrial scale. No significant impacts to unique endangered, fragile, or limited environmental resources would be expected from the normal operations emissions from the facility.

A data request to the Montana Natural Heritage Program was made to identify any sensitive species which may be in the area. The Greater Short-horned Lizard and the Ferruginous Hawk are both species of concern that have been observed within a mile of the facility. The Snapping Turtle, Iowa Darter, Sauger, and Whooping Crane are all species of concern that have been observed nearby, but more than a mile from the facility. Other species of concern for the area are the Northern Leopard Frog and the Sharp-tailed Grouse.

H. *Sage Grouse Executive Order*

General Habitat Area

The Department recognizes that the facility is not within a Greater Sage Grouse General Habitat Area as defined by Executive Order No. 12-2015.

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

As discussed in Sections 7.B and 7.F above, no significant impacts to water or air quality would be expected. Demand for energy in the form of electricity would be necessary to drive the electric powered pumps. Demands on water, air, and energy is not expected to be significant.

J. *Historical and Archaeological Sites*

The Department requested a search of the cultural resource information system from the State Historic Preservation Office. No cultural properties are previously recorded in or near the project location. Therefore, the proposed project is not expected to have any historical or archaeological impacts.

K. *Cumulative and Secondary Impacts*

Wibaux I supports ONEOK's existing Bakken NGL Pipeline and Wibaux II supports the Elk Creek NGL Pipeline. The 600-mile Bakken NGL Pipeline and the 900-mile Elk Creek NGL Pipeline originates in Richland County, Montana in the Williston Basin. The Elk Creek NGL Pipeline parallels the Bakken NGL Pipeline through Montana. Both pipelines terminate in Kansas.

The Montana portion of the pipelines traverse private and state trust lands in Wibaux, Fallon, and Carter counties, and have been permitted through the appropriate authorities.

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

A. *Social Structures and Mores*

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

B. *Cultural Uniqueness and Diversity*

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

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

This project is part of the Elk Creek NGL Pipeline and the existing Bakken NGL Pipeline. The proposed project would necessitate a minimal amount of construction activity. Any

construction related jobs would be temporary and any corresponding impacts on the tax base/revenue in the area would be minor. Overall, any impacts to the local and state tax base and tax revenue would be positive.

D. *Agricultural or Industrial Production*

This project is part of the Elk Creek NGL Pipeline and Bakken NGL Pipeline. The Elk Creek NGL Pipeline is necessary because the parallel existing Bakken NGL Pipeline is at capacity. Impacts to agricultural or industrial production at the project location would be expected to be minor, if any at all.

E. *Human Health*

MAQP #5254-00 would include conditions to ensure that the facility would be operated in compliance with all applicable rules and standards. These rules and standards are designed to be protective of human health. As detailed in Section 7.F of this EA, ONEOK would comply with all applicable ambient air quality standards thereby protecting human health.

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

The project is not located at or nearby wilderness or recreational access route. Normal operation emissions would not be visible, and would be in amounts that are very small on an industrial scale. Impacts to access of or quality of recreational and wilderness activities are not expected.

G. *Quantity and Distribution of Employment*

The proposed action would not result in any change to the quantity or distribution of employment. The current ONEOK staff at Wibaux I would operate and maintain the Wibaux II as well. Therefore, no impact would be expected.

H. *Distribution of Population*

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

I. *Demands for Government Services*

The project would require a Montana Air Quality Permit and the associated administration of that permit. The project would consist of a minor source of emissions. The demand for government services would be minor.

J. *Industrial and Commercial Activity*

Short term construction activities would occur. In addition to the construction of Wibaux II, additional transmission lines would be run to the site. Once construction would be complete, any impacts to industrial or commercial activity would be expected to be minor, if any at all.

K. *Locally Adopted Environmental Plans and Goals*

The current permit action would not contribute to the nonattainment status of any surrounding area. No known state, county, city, USFS, BLM, or tribal zoning or management plans and goals are known to potentially affect the site. The Department is unaware of any other locally adopted environmental plans or goals. The state air quality standards would protect air quality at the proposed site and the environment surrounding the site; therefore, the proposed permit would not impact any locally adopted environmental plans and goals.

L. *Cumulative and Secondary Impacts*

This project supports the Elk Creek NGL Pipeline and the Bakken NGL Pipeline, both which originate in Richland County, Montana, and terminating in Kansas. The Montana portion of the pipelines parallel each other, traversing private and state trust lands in Wibaux, Fallon, and Carter counties, and has been permitted through the appropriate authorities.

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

If an EIS is not required, explain why the EA is an appropriate level of analysis: The current permitting action is for the construction and operation of Wibaux I Pump Station and Wibaux II Pump Stations which are co-located. MAQP #5254-00 includes conditions and limitations to ensure the facility will operate in compliance with all applicable rules and regulations. In addition, there are no significant impacts associated with this proposal.

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

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

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