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November 17, 2014

Kim Olsen
Environmental Coordinator
Phillips 66 Company
2626 Lillian Avenue
Billings, MT 59101

Dear Ms. Olsen:

Montana Air Quality Permit #2945-08 is deemed final as of November 15, 2014, by the Department of Environmental Quality (Department). This permit is for a bulk petroleum products terminal. 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
Air Permitting Supervisor
Air Resources Management Bureau
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Deanne Fischer
Environmental Engineer
Air Resources Management Bureau
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JM:DF
Enclosure

Montana Department of Environmental Quality
Permitting and Compliance Division

Montana Air Quality Permit #2945-08

Phillips 66 Company
Bozeman Bulk Terminal
2626 Lillian Avenue
Billings, MT 59101

November 15, 2014



MONTANA AIR QUALITY PERMIT

Issued To: Phillips 66 Company
2626 Lillian Avenue
Billings, MT 59101

MAQP: #2945-08
Application Complete: 09/09/2014
Preliminary Determination Issued: 09/29/2014
Department's Decision Issued: 10/30/2014
Permit Final: 11/15/2014
AFS #:031-0012

A Montana Air Quality Permit (MAQP), with conditions, is hereby granted to Phillips 66 Company (Phillips 66), 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

Phillips 66 operates a bulk gasoline terminal, which stores and transfers petroleum products (gasoline and distillate) received from the pipeline and distributes them to regional markets via tank truck. This facility is located in the Northwest $\frac{1}{4}$ of Section 6, Township 2 South, Range 6 East, in Gallatin County, Montana, just north of the city of Bozeman. The facility is known as the Phillips 66 Bozeman Bulk Terminal. A complete list of permitted equipment is contained in the Permit Analysis.

B. Current Permit Action

The Department of Environmental Quality (Department) received a complete application from Phillips 66 on September 9, 2014, to modify Montana Air Quality Permit (MAPQ) 2945-07 by proposing to:

- repurpose the existing truck loadout rack to an ethanol offloading rack,
- add a new loading rack controlled by the addition of a vapor combustion unit [VCU]),
- install a new denatured ethanol tank, and
- increase the available truck loading throughput to previously permitted level of 97,500,000 gallons of gasoline per rolling 12-month period.

SECTION II: Conditions and Limitations

A. Tank Truck Loading Rack:

1. Loading of tank trucks shall be restricted to the use of submerged fill and dedicated normal service and/or switch loaded service (ARM 17.8.749).
2. Phillips 66 shall be limited to a maximum of 97,500,000 gallons of gasoline throughput for the truck loadout operation during any rolling 12-month period (ARM 17.8.749).

3. Phillips 66 shall be limited to a maximum of 105,000,000 gallons of distillate product throughput for the truck loadout operation during any rolling 12-month period (ARM 17.8.749).
4. Phillips 66 new truck loadout rack shall be equipped with a vapor combustion unit (VCU) to control VOC and HAP emissions during the loading of gasoline and distillate. The VCU shall be designed and operated to provide a destruction and removal efficiency (DRE) of 98% (ARM 17.8.749, ARM 17.8.752).
5. The total emissions discharged to the atmosphere from the VCU shall not exceed the following:
 - a. VOC emissions of 10.0 milligrams per liter (mg/L) of gasoline loaded (ARM 17.8.749 and ARM 17.8.752).
 - b. Any particulate emissions in excess of 0.10 grains per dry standard cubic foot (gr/dscf) corrected to 12% carbon dioxide (CO₂) (ARM 17.8.749 and ARM 17.8.316(2))
 - c. Visible emissions that exhibit an opacity of 10% or greater averaged over six consecutive minutes (ARM 17.8.749 and ARM 17.8.316(3))
6. Phillips 66 shall install an internal floating roof on the 10,000 barrel ethanol storage tank (Tank T-16) to control VOC emissions. (ARM 17.8.752)
7. Phillips 66 shall not cause or authorize the use of any haul roads, access roads, parking lots, or the general plant property without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308).
8. Phillips 66 shall treat all unpaved portions of the access roads, parking lots, and general plant area with water and/or chemical dust suppressant, as necessary, to maintain compliance with the reasonable precautions limitation in Section II.A.4 (ARM 17.8.749).
9. Phillips 66 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).
10. Phillips 66 shall comply with all applicable standards and limitations, and the reporting, recordkeeping and notification requirements contained in 40 CFR 60, Subpart XX, Standards of Performance for Bulk Gasoline Terminals for all loading racks at a bulk gasoline terminal that deliver liquid product into gasoline tank trucks that commenced construction or modification after December 17, 1980. (ARM 17.8.340 and 40 CFR 60, Subpart XX).
11. Phillips 66 shall comply with all applicable standards and limitations, and the reporting, recordkeeping and notification requirements contained in 40 CFR 60, Subpart Kb, Standards of Performance for Volatile Organic Liquid (VOL) Storage vessels (including Petroleum Liquid Storage Vessels) for which construction, reconstruction or modification commenced after July 23, 1984, with a capacity of 75 to 151 cubic meters, and that have a product with a true vapor pressure of 15.0 kilopascals (kPa) or more. (ARM 17.8.340 and 40 CFR 60, Subpart Kb).

12. Phillips 66 shall comply with all applicable standards, limitations, reporting, recordkeeping, and notification requirements of ARM 17.8.342, as specified in 40 CFR 63, National Emission Standards for Hazardous Air Pollutants, Subpart A and Subpart BBBBBB (ARM 17.8.342, ARM 17.8.752, and 40 CFR 63, Subpart A and Subpart BBBBBB).

B. Inspection and Repair Requirements:

1. Each calendar month, all valves, flanges, pump seals, and open-ended lines shall be inspected for total organic compound leaks. For purposes of this requirement, detection methods incorporating sight, sound, or smell are acceptable (ARM 17.8.749).
2. Phillips 66 shall (ARM 17.8.749):
 - a. Make a first attempt at repair for any leak not later than 5 calendar days after the leak is detected; and
 - b. Repair any leak as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in Section II.B.3. below.
3. Delay of repair of equipment for which a leak has been detected will be allowed if repair is technically infeasible without a source shutdown. Such equipment shall be repaired before the end of the first source shutdown after detection of the leak (ARM 17.8.749).

C. Notification Requirements :

1. Phillips 66 shall furnish the Department a notification of the date that construction of the Truck Loading Rack is commenced, postmarked no later than 30 days after such date (ARM 17.8.749).
2. Phillips 66 shall furnish the Department a notification of the date that the ethanol tank (Tank T-16) construction is commenced, postmarked no later than 30 days after such date (ARM 17.8.749).
3. Phillips 66 shall furnish the Department a notification of the date of initial startup of the Truck Loading Rack and VCU, postmarked no later than 15 days after such date (ARM 17.8.749).
4. Phillips 66 shall furnish the Department a notification of the date of initial startup of the new ethanol tank (Tank T-16), postmarked no later than 15 days after such date (ARM 17.8.749).

D. Testing Requirements

1. Within 180 days of the initial startup of the Truck Loading Rack and VCU, the VCU shall be tested for total VOC emissions to demonstrate compliance with the emission limitations stated in Section II.A.5.a. The VCU shall be tested for total VOC emissions every 5 years or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.105).

2. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).
3. The Department may require further testing (ARM 17.8.105).

E. Operational Reporting Requirements

1. Phillips 66 shall document, by calendar month, the gasoline and distillate throughput for the truck loadout operation. By the 25th of each calendar month, Phillips 66 shall total the amount of throughput by fuel during the previous calendar month. The monthly information will be used to demonstrate compliance with the rolling 12-month total throughput limitations in Sections II.A.2. and II.A.3. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).
2. A record of each monthly leak inspection required under Section II.B. of this permit shall be kept on file at the bulk terminal. Inspection records shall include, at a minimum, the following information (ARM 17.8.749):
 - a. Date of inspection;
 - b. Findings (may indicate no leaks discovered or location, nature, and severity of each leak);
 - c. Leak determination method;
 - d. Corrective action (date each leak repaired and reasons for any repair interval in excess of 15 calendar days); and
 - e. Inspector's name and signature.
3. Phillips 66 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. For reporting purposes, the tanks shall be identified using the tank numbers contained in Section I.A. of 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).

4. Phillips 66 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*, a 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 start

up 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(1)(d) (ARM 17.8.745).

5. All records compiled in accordance with this permit must be maintained by Phillips 66 as a permanent business record for at least 5 years following the date of the measurement, must be available at the plant site for inspection by the Department, and must be submitted to the Department upon request (ARM 17.8.749).

SECTION III: General Conditions

- A. Inspection –Phillips 66 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 (Continuous Emissions Monitoring System (CEMS), Continuous Emissions Rate Monitoring System (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 Phillips 66 fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving Phillips 66 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 therefore, 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 MAQP 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 Phillips 66 may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.

- H. Duration of Permit – Construction or installation must begin or contractual obligations entered into that would constitute substantial loss within 3 years of permit issuance and proceed with due diligence until the project is complete or the permit shall expire (ARM 17.8.762).

Montana Air Quality Permit (MAQP) Analysis
 Phillips 66 Company – Bozeman Product Terminal
 MAQP #2945-08

I. Introduction/Process Description

Phillips 66 Company (Phillips 66) owns and operates a bulk petroleum products terminal. The facility is located in the Northwest ¼ of Section 6, Township 2 South, Range 6 East, Gallatin County, Montana, just north of the city of Bozeman, and is known as the Phillips 66 Bozeman Product Terminal.

A. Permitted Equipment

| Source ¹ | Existing/ New | Capacity/ Rating | Fuel | Pollution Control Device |
|--|------------------|-----------------------------------|-----------------------------|-----------------------------|
| EU002 -Tank T-10, 20,000 barrels (bbl) Storage Tank (Installed 1955) | Existing | 20,000 BBL (840,000 gallon) | Gasoline | Internal floating roof |
| EU003 -Tank T-11, 20,000 bbl Storage Tank (Installed 1955) | Existing | 20,000 BBL (840,000 gallon) | Gasoline | Internal floating roof |
| EU004 -Tank T-12 20,000 bbl Storage Tank (Installed 1955) | Existing | 20,000 BBL (840,000 gallon) | Distillates | Vertical fixed roof |
| EU005 -Tank T-13 20,000 bbl Storage Tank (Installed 1955) | Existing | 20,000 BBL (840,000 gallon) | Distillates | Vertical fixed roof |
| EU007 – Fugitives/Misc Emissions ¹ | Existing | N/A | - | N/A |
| EU008 - Loading Rack (bottom filling) | Proposed | 144,000 gal/hr | Gasoline and distillates | Vapor combustion unit |
| EU009 - Tank T-16, 10,000 bbl Storage Tank | Proposed | 10,000 BBL (420,000 gallon) | Ethanol | Internal floating roof |
| EU010 – Vapor Combustion Unit (VPU) | Proposed | 4,800 GPM of Gasoline | Gasoline and distillates | N/A |

1. Emission Unit ID EU006 (40,000 barrel Tank T-15) was placed out of service May 2, 2008 and is now insignificant emission unit IEU05.

B. Source Description

Phillips 66 operates a bulk petroleum products terminal, which stores and transfers petroleum products (gasoline and distillate) received from the pipeline and distributes them to regional markets via tank truck. The surrounding vicinity is mainly industrial.

C. Permit History

The Bozeman Product Terminal was installed and operating by 1955. Tanks were installed from 1955 to 1966 and therefore the facility was grandfathered from the Air Quality Preconstruction Permit process. On September 28, 1997, **MAQP #2945-00** was issued final to Conoco, Inc. (Conoco), for the operation of a bulk gasoline terminal. MAQP

#2945-00 reflected the fact that Conoco requested a throughput limit on the facility. The proposed throughput limit kept Conoco below the 40 Code of Federal Regulations (CFR) 63, Subpart R applicability threshold.

On March 30, 1998, the Montana Department of Environmental Quality (Department) modified MAQP #2945-00. The modification corrected an error made in the original permitting process, as reflected in Section II.A.1. This condition did not contain the "...and/or switch loaded service" language, which should have been included in MAQP #2945-00. **MAQP #2945-01** replaced MAQP #2945-00.

A letter from ConocoPhillips dated January 3, 2003, and received by the Department January 10, 2003, notified the Department that Conoco had changed its name to ConocoPhillips. The permit action changed the facility name from Conoco to ConocoPhillips. **MAQP #2945-02** replaced MAQP #2945-01.

A letter from ConocoPhillips dated November 24, 2004, and received by the Department December 1, 2004, notified the Department that ConocoPhillips planned to install a 3,000-gallon vertical tank used to store a lubricity additive. Since the uncontrolled potential to emit (PTE) of the 3,000-gallon vertical tank was less than 15 tons per year of any regulated pollutant the tank was added to the permit under the provisions of ARM 17.8.745 Montana Air Quality Permits--Exclusion for De Minimis Changes. The permit was also updated to reflect current permit language and rule references used by the Department. **MAQP #2945-03** replaced MAQP #2945-02.

A letter from ConocoPhillips dated August 6, 2008, and received by the Department August 8, 2008, requested an administrative amendment to further limit the facilities annual truck loading throughput of gasoline. The throughput limit was requested to be reduced to 97,500,000 gallons per year of gasoline. **MAQP #2945-04** replaced MAQP #2945-03.

A letter from ConocoPhillips dated June 8, 2009, and received by the Department June 10, 2009, requested an administrative amendment to change the address associated with MAQP #2945-04. The permit action incorporated the request into the MAQP. **MAQP #2945-05** replaced MAQP #2945-04.

A letter from ConocoPhillips, received by the Department September 13, 2010, requested an administrative amendment to reduce the allowable throughput of gasoline for the facility to 91,000,000 gallons of gasoline per rolling 12-month period. **MAQP#2945-06** replaced MAQP #2945-05.

On March 30, 2012, ConocoPhillips submitted a letter to the Department notifying the Department that ConocoPhillips changed their name to Phillips 66 Company. In addition, ConocoPhillips requested to change the mailing address for the facility. **MAQP #2945-07** replaced MAQP# 2945-06.

D. Current Permit Action

On August 18, 2014, the Department received an application from Phillips 66 via email to modify MAQP #2945-07 as follows:

- reconfigure the existing loading rack (EU001) installed in 1955 to be used to off load ethanol and additives and therefore be listed as an insignificant emissions source,

- add a new bottom-filling loading rack with eight arms in a new bay and a new additional loading arm in the existing truck bay (nine loading arms total, all controlled by the addition of a vapor combustion unit [VCU]), and,
- install a new 10,000 bbl denatured ethanol tank

The addition of a VCU for the control of emissions from the truck loading rack will decrease the potential to emit from the terminal to less than 100 tons per year of VOC and, therefore, below Title V operating permit thresholds. This decrease allows for the proposed increase in throughput for the facility while allowing the terminal to remain below Title V thresholds. Phillips 66 proposes to increase the available truck loading throughput to the previously permitted level of 97,500,000 gallons of gasoline per rolling 12-month period. Upon issuance of MAQP#2945-08, Phillips 66 will request revocation of #OP2945-07. **MAQP #2945-08** replaces MAQP# 2945-07.

E. Response to Public Comments

| Person/Group Commenting | Permit Reference | Comment | Department Response |
|-------------------------|--------------------------|---|--|
| Phillips 66 | Section II.B.5.b. and c. | Phillips requested that reference to ARM 17.8.316 Incinerators be added to permit condition. | Rule reference was added as requested. |
| Phillips 66 | Section II.E.1. | Phillips requested that the operational reporting requirement be modified to clarify that documentation of gasoline and distillate throughput is required to be submitted each calendar month, and that this information will be used to demonstrate compliance with the rolling 12-month total throughput. | Changes were made as requested. |

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 ARM and are available, upon request, from the 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).

Phillips 66 shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual, including, but not limited to, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.

4. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation or to continue for a period greater than 4 hours.
5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means that, without resulting in reduction of the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner as to create a public nuisance.

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

1. ARM 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
5. ARM 17.8.213 Ambient Air Quality Standard for Ozone
6. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide
7. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
8. ARM 17.8.221 Ambient Air Quality Standard for Visibility
9. ARM 17.8.222 Ambient Air Quality Standard for Lead
10. ARM 17.8.223 Ambient Air Quality Standard for PM10

Phillips 66 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, Phillips 66 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). Phillips 66 is considered an NSPS affected facility under 40 CFR Part 60 and is subject to the requirements of the following subparts.
 - a. 40 CFR 60, Subpart A – General Provisions apply to all equipment or facilities subject to an NSPS Subpart as listed below:
 - b. 40 CFR 60, Subpart Kb – Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984. This rule applies to certain storage vessels with a design capacity greater than or equal to 75 cubic meters (m³) (472 bbl) used to store volatile organic liquids (40 CFR 60.110b(a)). Specifically, this regulation applies to all storage vessels storing volatile organic liquids with a capacity over 151m³ that contain a product with a

true vapor pressure of 3.5 kilopascals (kPa) or greater. The design capacity of the new proposed ethanol storage tank is approximately 1,576 m³ (10,000 bbls) and ethanol has a true vapor pressure of approximately 11.5kPa (1.7 pound per square inch atmospheric (psia)) at 90°F. The proposed new ethanol tank is subject to Subpart Kb.

- c. 40 CFR 60 Subpart XX - Standards of Performance for Bulk Gasoline Terminals. This rule applies to the loading racks at a bulk gasoline terminal with a gasoline throughput greater than 75,700 liters per day (19,997.8 gallons) that deliver liquid product into gasoline tank trucks that commenced construction or modification after December 17, 1980. Gasoline is defined as a petroleum distillation/alcohol blend having a Reid Vapor Pressure of 27.6kPa or greater that is used as a fuel for internal combustion engines. The gasoline and ethanol to be loaded at this facility meet this criterion. Since these products may be pumped through any of the loading racks and arms, Subpart XX is applicable to this facility. This regulation requires a vapor collection system capable of discharging to the atmosphere VOCs less than 35 mg/liter of gasoline loaded. This regulation also requires loading gasoline to vapor-tight trucks only.
1. 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.
2. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. The source, as defined and applied in 40 CFR Part 63, shall comply with the requirements of 40 CFR Part 63, as listed below:
 - a. 40 CFR 63, Subpart A – General Provisions apply to all equipment or facilities subject to an NESHAP Subpart as listed below:
 - b. 40 CFR 63, Subpart R - National Emission Standards for Gasoline Distribution Facilities (Bulk Gasoline Terminals and Pipeline Breakout Stations). This rule applies to each bulk gasoline terminal, except those bulk gasoline terminals meeting the exemption requirements of 40 CFR 63.420 (a). The Bozeman terminal will not be a major source of HAPs. Therefore, Subpart R will not be applicable to the facility.
 - c. 40 CFR 63, Subpart BBBBBB – National Emissions Standards for Hazardous Air Pollutants for Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities. This rule applies to bulk gasoline terminals that are an area source of HAPs that were constructed or modified after November 9, 2006, and that are not subject to the control requirements of 40 CFR 63 Subpart R. The Bozeman terminal is an area source of HAPs. The emissions sources to which this subpart applies are gasoline storage tanks, gasoline loading racks, vapor collection-equipped gasoline cargo tanks, and equipment components in vapor or liquid gasoline service that meet the criteria specified in Tables 1 through 3 of this subpart.

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 application fee concurrent with the submittal of an MAQP application. A permit application is incomplete until the proper application fee is paid to the Department. Phillips 66 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 MAQP (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 PTE greater than 25 tons per year of any pollutant. Phillips 66 has a PTE greater than 25 tons per year of volatile organic compounds (VOC); therefore, an MAQP 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. Phillips 66 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. Phillips 66 submitted an affidavit of publication of public notice for the August 8, 2014, issue of the *Bozeman Daily Chronicle*, a newspaper of general circulation in the Town of Bozeman in Gallatin 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 Phillips 66 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 17.8.762 Duration of Permit. An MAQP 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.
12. ARM 17.8.763 Revocation of Permit. An MAQP 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).
13. ARM 17.8.764 Administrative Amendment to Permit. An MAQP 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.
14. ARM 17.8.765 Transfer of Permit. This rule states that an MAQP 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.

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

F. ARM 17.8, Subchapter 8 – Prevention of Significant Deterioration of Air Quality, including, but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.
2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications--Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through ARM 17.8.827 shall apply to any major stationary source and any major modification, with respect to each pollutant subject to regulation under the FCAA that it would emit, except as this subchapter would otherwise allow.

This facility is not a major stationary source because this facility is not a listed source and the facility's PTE is below 250 tons per year of any pollutant (excluding fugitive emissions).

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

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any source having:
 - a. PTE > 100 tons/year of any pollutant;
 - b. PTE > 10 tons/year of any one hazardous air pollutant (HAP), PTE > 25 tons/year of a combination of all HAPs, or lesser quantity as the Department may establish by rule; or
 - c. PTE > 70 tons/year of particulate matter with an aerodynamic diameter of 10 microns or less (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 #2945-08 for Phillips 66, 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 current NSPS Standards (40 CFR 60, Subpart Kb and Subpart XX).

- e. This facility is subject to current NESHAP standards (40 CFR 63, Subpart R and Subpart BBBBBB).
- f. This source is not a Title IV affected source
- g. This source is not a solid waste combustion unit.
- h. This source is not an EPA designated Title V source.

Based on these facts, the Department has determined that Phillips 66 is a minor source of emissions as defined under Title V and is not subject to the Title V Operating Permit Program. However, if minor sources subject to NSPS are required to obtain a Title V Operating Permit, Phillips 66 will be required to obtain a Title V Operating Permit.

Prior to this permit action the Phillips 66 facility was a major source and still holds a Title V operating permit (#OP2945-07). Upon notification that the new truck loadout rack and VCU are constructed and operating, Phillips 66 has indicated that they will revoke the Title V permit. The facility will need to continue to comply with its Title V Operating Permit #OP2945-07 until it has been revoked or expires.

III. BACT Determination

A BACT determination is required for each new or modified source. Phillips 66 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 Phillips 66 in permit application #2945-08, addressing available methods of controlling VOC emissions from rack loading of petroleum products and storage of ethanol in the 10,000 bbl tank. Unloading at the proposed new truck unloading rack will create a vacuum at the point of unload and does not result in additional emissions other than fugitives from piping and tank loading.

A “top-down,” five-step approach was used to determine BACT for rack loading of petroleum products. To determine what is currently considered BACT for the ethanol storage tank, the RACT/BACT/LAER Clearinghouse (RBLC) was searched. The Department reviewed these methods, as well as previous BACT determinations in order to make the following BACT determination.

Rack Loading of Petroleum Products

Identify All Available Control Technologies

A VOC BACT analysis was performed for the VOC emissions from the loading of the petroleum products into trucks at the truck loading rack. Fugitive VOC emissions from equipment leaks (e.g., valves, pumps, flanges, etc.) are not included in the BACT analysis. The following control options were identified by Phillips 66 for control of VOC from rack loading of petroleum products:

- Carbon adsorbers;
- Condensers (including coalescers);
- Incinerators; and
- Vapor combustors

Carbon Adsorbers

Adsorption itself is a phenomenon where gas molecules passing through a bed of solid particles (e.g., activated carbon) are selectively held there by attractive forces which are weaker and less specific than those of chemical bonds. During adsorption, a gas molecule migrates from the gas stream to the surface of the solid where it is held by physical attraction releasing energy, which typically equals or exceeds the heat of condensation. Gases form actual chemical bonds with the adsorbent surface groups. Most adsorbates can be cleaned by heating to a sufficiently high temperature, usually via steam or (increasingly) hot combustion gases, or by reducing the pressure to a sufficiently low value (vacuum desorption).

Carbon adsorbers use activated carbon to adsorb VOCs with intermediate molecular weights (typically between 45 and 130 lb/lb-mole). Smaller compounds do not adsorb well and larger compounds cannot be removed during carbon bed regeneration, when the carbon adsorber is cleaned using a sufficiently high temperature. Carbon beds can be plugged by heavy particulate or wet gas streams. VOCs are typically controlled with efficiencies greater than 90%.

Condensers

Condensers operate either by reducing the temperature or increasing the pressure of the gas stream to cause condensable materials to liquefy. Condensers have been used successfully in bulk gasoline terminals. Removal efficiencies greater than 90% can be achieved. Coalescers, another type of condenser which uses a filter medium to collect and condense vapor mist containing VOC emissions, have also successfully been used for storage facilities.

Incinerators

Incinerators combust waste gases. In a thermal incinerator, combustion is typically performed between 1,200 degrees Fahrenheit (°F) and 2,000 °F. In a catalytic incinerator, a catalyst is used to lower the temperature of combustion to around 600 °F. Catalysts are subject to wear and can plug with high particulate loading and can foul with heavy metals, phosphorus, and sulfur compounds. Incinerators are normally forced air and designed with a combustion chamber larger than the stack in order to achieve some degree of recirculation and thus higher temperatures needed for high destruction efficiencies. Control efficiencies for incinerators can be between 95% to greater than 99%.

A major advantage of incineration is that virtually any gaseous organic stream can be incinerated safely and cleanly, provided proper engineering design is used. Incineration converts organic compounds into carbon dioxide and water, assuming complete combustion. Typically, the waste gas stream is much lower in temperature than is required for incineration; therefore, energy must be supplied to the incinerator to raise the waste gas temperature.

Vapor combustion units

Vapor combustion units (VCUs) combust VOCs in the waste gas stream in an enclosed stack. The waste gas stream is piped to a remote, usually elevated, location (for safety reasons) and burned in an open flame in an enclosed stack using a specially designed burner

tip, auxiliary fuel, and steam or air to promote mixing for nearly complete (>98%)VOC destruction. Complete combustion in a VCU is governed by flame temperature, residence time in the combustion zone, turbulent mixing of the components to complete the oxidation reaction, and available oxygen for free radical formation.

Eliminate Technically Infeasible Options

All of the listed control technologies are technically feasible for control of VOCs from the loading rack. Therefore, this BACT analysis explored all of the listed VOC control options.

Rank Remaining Control Technologies

The control technologies are ranked by estimated control efficiency:

1. VCU (greater than 98% control efficiency)
2. Incinerators (90 - 99% control efficiency)
3. Condensers (greater than 90% control efficiency)
4. Carbon adsorbers (greater than 90% control efficiency)

Evaluate And Document Remaining Control Technologies

The control technologies with the greatest control efficiencies are VCU and incinerators, which both achieve approximately the same VOC destruction efficiency of approximately 98%. These control technologies have similar environmental, energy, and economic impacts, which are evaluated here. Condensers and carbon adsorbers are not considered any further.

Environmental Impacts

Both VCU and incinerator control technologies involve potential environmental impacts. Incineration will require the combustion of additional fuel to increase the waste-gas temperatures from 370 °F to 1,600 °F. This extra combustion will increase the amount of pollutants emitted. However, these environmental impacts are not considered significant enough to eliminate these options from further evaluation.

Energy Impacts

Incineration and the use of vapor combustors involve potential energy impacts. Employing incineration will require additional energy resources in the combustion of additional fuel to maintain proper temperature range. This combustion will increase pollutant loading (i.e., combustion gases) on the environment. These energy impacts are not considered significant enough to eliminate these options from further evaluation.

Economic Impacts

Because Phillips 66 is proposing to install a control technology with the highest efficiency determined, no economic analysis is necessary.

Human Health Risk Assessment

The vapor combustion unit (VCU) proposed for installation and operation at the terminal is considered an incinerator as defined at ARM 17.8.101(22). A human health risk assessment (HHRA) is required as part of the application for incinerators under ARM 17.8.770.

The HHRA must include an emissions inventory listing potential emissions of all pollutants specified in section 112(b) of the Federal Clean Air Act. ARM 17.8.770(1)(c) excludes pollutants from the HHRA if the Department determines that exposure from inhalation is the only appropriate pathway to consider and if the ambient concentrations of the pollutants are less than the screening levels specified in the rule. Phillips 66 proposed that inhalation of the HAPs emitted from the VCU is the appropriate pathway to consider for the HHRA.

AERSCREEN model version 11126 was used by Phillips 66 to estimate the scaled annual ground-level VOC concentration from the VCU. This scaled annual ground-level VOC concentration was speciated into HAP constituents to calculate cancer and non-cancer risks from the operation of the VCU. To determine whether the ambient concentrations of the pollutants are below their respective screening levels, the annual average of the speciated pollutants were compared to the screening levels. The screening level thresholds include values for chronic cancer risk and chronic and acute non-cancer hazard, though not all pollutants have all three screening level thresholds. In instances where a screening level threshold was not available, the exposure risk is considered negligible. The annual average concentrations of the pollutants identified and their respective screening level thresholds are compared in the table below:

| Species ¹ | Vapor Weight Fraction | Annual Average, $\mu\text{g}/\text{m}^3$ | Screening Level Thresholds (ARM 17.8.770) | | | Screen Out of HRA? (Yes/No) |
|----------------------|-----------------------|--|---|---|---|-----------------------------|
| | | | Cancer Annual, $\mu\text{g}/\text{m}^3$ | Non-Cancer Chronic Annual, $\mu\text{g}/\text{m}^3$ | Non-Cancer Acute Annual, $\mu\text{g}/\text{m}^3$ | |
| Benzene | 0.007% | 7.15E-03 | 1.20E-02 | 7.10E-01 | N/A | Yes |
| Ethylbenzene | 0.001% | 1.02E-03 | N/A | 1.00E+01 | N/A | Yes |
| n-Hexane | 0.0242% | 2.48E-02 | N/A | 2.00E+00 | N/A | Yes |
| Toluene | 0.011% | 1.12E-02 | N/A | 4.00E+00 | N/A | Yes |
| m-Xylene | 0.004% | 4.09E-03 | N/A | 3.00E+00 | 4.40E+01 | Yes |

Note: Supporting calculations and data for the scaled annual ground-level VOC concentrations are on file at the Department.

1. Species included in ARM 17.8.770 (Table 1 and Table 2)

All pollutants are below the screening level thresholds and do not require a more refined risk assessment. Therefore, there is a negligible risk to public health, safety, and welfare, and to the environment, from the operation of the vapor combustion unit.

Select BACT

Phillips 66 proposes to install a John Zink Vapor Combustion Unit to control VOC emissions from rack loading of petroleum products. This unit has a guaranteed VOC emission rate of 10 milligrams per liter (mg/L) of petroleum product loaded. 40 CFR Part 63, Subpart BBBBBB requires the emission rate for VOCs to be below 80 milligrams per liter, and 40 CFR Part 60, Subpart XX requires an emission rate for VOCs below 35

milligrams per liter loaded. Emissions from the VCU are also limited by MAQP #2945-08 to 0.10 grains per dry standard cubic foot for particulate matter and to 10% opacity (visible emissions). Furthermore, the health risk assessment shows negligible risks from the small amount of HAP emissions from the VCU. Therefore, the Department determined that proper operation of the VCU, and compliance with the operational conditions of MAQP #2945-08 constitute BACT in this case.

Ethanol Storage Tank

For the new 10,000 barrel ethanol storage tank, Phillips 66 is proposing to install an internal floating roof tank to control VOC emissions. The internal floating roof tank will provide approximately 98% VOC control. A search of the RBLC was completed by Phillips 66 to determine typically considered BACT in similar applications. Taking into account environmental, energy, and economic impacts, an internal floating roof represents the maximum achievable degree of reduction for VOC emissions from the ethanol tank.

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

| Potential to Emit in Tons Per Year (TPY) – Controlled Phillips 66 Company - Bozeman Product Terminal MAQP #2945-08 | | | | | | | |
|--|---------------|-------------|------------------------|-------------|-------------|------------------------|-------------------------|
| Source | VOC TPY | HAPs TPY | NO _x TPY | CO TPY | PM TPY | SO ₂ TPY | CO _{2e} TPY |
| Storage Tank T-10 (stores gasoline) (RVP 11.5) | 2.91 | 1.59E-03 | | | | | |
| Storage Tank T-11 (stores gasoline) (RVP 11.5) | 1.08 | 5.91E-04 | | | | | |
| Storage Tank T-12 (stores distillates) | 0.24 | 4.18E-04 | | | | | |
| Storage Tank T-13 (stores distillates) | 0.25 | 4.31E-04 | | | | | |
| Storage Tank T-16 (stores ethanol) | 0.09 | 6.69E-05 | | | | | |
| Truck Loading Rack (bottom-fill, gasoline & distillates) uncontrolled | 328.93 | 0.24 | - | - | - | - | - |
| Truck Loading Rack (bottom-fill, gasoline & distillates) controlled | 6.58 | 0.0 | | | | | |
| Vapor Combustion Unit (controlling loading rack) | 8.48 | 0.01 | 3.52 | 8.55 | 0.01 | 0.00 | 154.08 |
| Fugitive and Miscellaneous Emissions | 10.08 | 0.01 | | | | | |
| TOTAL (uncontrolled) : | 343.58 | 0.25 | 3.52 | 8.55 | 0.01 | 0.00 | 154.08 |
| TOTAL (controlled) : | 29.73 | 0.02 | 3.52 | 8.55 | 0.01 | 0.00 | 154.08 |

Note: VOC emission rate from EPA TANKS 4.0.9b modeling runs. HAPs are based on ConocoPhillips TRI Study

Emissions Calculations:

Storage Tanks

| Emission Unit ID | Emission Unit | VOC, tpy | HAPs, tpy |
|------------------|--|-------------|-----------------|
| EU002 | Storage Tank T-10 (stores gasoline) | 2.91 | 1.59E-03 |
| EU003 | Storage Tank T-11 (stores gasoline) | 1.08 | 5.91E-04 |
| EU004 | Storage Tank T-12 (stores distillates) | 0.24 | 4.18E-04 |
| EU005 | Storage Tank T-13 (stores distillates) | 0.25 | 4.31E-04 |
| EU009 | Storage Tank T-16 (stores ethanol) | 0.09 | 6.69E-05 |
| Total: | | 4.58 | 3.10E-03 |

Note: VOC emission rate from EPA TANKS 4.0.9b modeling runs. HAPs are based on ConocoPhillips TRI Study.

Truck Loading Rack

| Parameter | Gasoline | Distillates |
|--|-------------|-------------|
| Saturation factor (S) | 0.6 | 0.6 |
| True vapor pressure of liquid loaded (P), psia | 6.774 | 0.006 |
| Molecular weight of vapors (M), lb/lb-mole | 67 | 130 |
| Temperature of bulk liquid loaded (T), °R | 503.97 | 503.97 |
| Loading losses, lb/1,000 gallons | 6.73 | 0.01 |

Note: Loading losses based on EPA AP-42 Section 5.2-4: $L_L = 12.46 \frac{SPM}{T}$
 True vapor pressure from AP-42, Chapter 7.1, Table 7.1-2, for gasoline (RVP 15) and jet kerosene (distillates) at 50 °F.

| Emission Unit | Loading Losses, lb/1,000 gal | Throughput Limit, gal/yr | Uncontrolled VOC, tons/year | Uncontrolled HAP, tons/year | Controlled VOC, tons/year | Controlled HAP, tons/year |
|---------------------------|------------------------------|--------------------------|-----------------------------|-----------------------------|---------------------------|---------------------------|
| Gasoline truck loadout | 6.73 | 97,500,000 | 328.22 | 0.24 | 6.56 | 0.00 |
| Distillates truck loadout | 0.01 | 105,000,000 | 0.61 | 0.00 | 0.01 | 0.00 |
| Total: | | | 328.82 | 0.24 | 6.58 | 0.00 |

Vapor Combustion Unit (VCU):

VCU: Criteria Pollutant Emissions

| Pollutant | Emission Factor, mg/L | Emission Factor, lb/gal | Throughput, gal/yr | Emission Rate, lb/year | Emission Rate, tpy |
|-----------|-----------------------|-------------------------|--------------------|------------------------|--------------------|
| VOC | 10 | 8.37E-05 | 202,500,000 | 16,949 | 8.47 |
| NOX | 4 | 3.35E-05 | | 6,780 | 3.39 |
| CO | 10 | 8.37E-05 | | 16,949 | 8.47 |

Emission factors for VOC, NOx, and CO in mg/L from the manufacturer. Throughput includes gasoline (97,500,000 gal/yr) and distillate (105,00,000 gal/yr).

VCU: GHG Emissions

| Pollutant | Emission Factor, kg/MMBtu | | Emission Factor, lb/MMBtu | | Average Emission Factor, lb/MMBtu | Heat Input, MMBtu/yr | Emission Rate, tpy |
|-------------------|---------------------------|------------|---------------------------|------------|-----------------------------------|----------------------|--------------------|
| | Gasoline | Distillate | Gasoline | Distillate | | | |
| CO2 | 70.22 | 73.96 | 156.59 | 164.93 | 160.76 | 334.31 | 26.87 |
| CH4 | 3.00E-03 | 3.00E-03 | 6.69E-03 | 6.69E-03 | 6.69E-03 | | 1.12E-03 |
| N ₂ O | 6.00E-04 | 6.00E-04 | 1.34E-03 | 1.34E-03 | 1.34E-03 | | 2.24E-04 |
| CO ₂ e | 70.47 | 74.21 | 157.16 | 165.50 | 161.33 | | 26.97 |

GHG Emission factors for gasoline ("Motor Gasoline") and distillate ("Distillate Fuel Oil No. 2") obtained from 40 CFR Part 98, Table C-1 and C-2. Emissions of CO₂e were estimated assuming a throughput of gasoline of 97,500,000 gal/yr and distillate of 105,00,000 gal/yr at an emission rate of 10 mg/L. Based on the energy content (MMBtu/gal) and density (lb/gal) of gasoline (0.125 MMBtu/gal; 6.217 lb/gal) and diesel fuel (0.138 MMBtu/gal; 6.943 lb/gal) the total heat input was estimated to be approximately 334 MMBtu/yr.

Example Calculation:

Heat Input (MMBtu/yr) for gasoline = [97,500,000 (gal. of gasoline/yr) * 10 (mg/L) * 1/1000 (g/mg) * 3.75 (L/gal) * 1/454 (lb/g)/6.217 (lb/gal) * 0.125 (MMBtu/gal)] = 161.9 MMBtu/yr

VCU: Hazardous Air Pollutant Emissions

| Pollutant | Emission Rate, tpy |
|-----------|--------------------|
| HAPs | 4.63E-03 |

Note: HAPs from the VCU are assumed to be a fraction of the VOC emission rate based on the ConocoPhillips TRI Study.

VCU Pilot and Assist Gas Usage

| Parameter | Natural Gas | Propane |
|---------------------------|-------------|---------|
| Pilot fuel flow, scfh | 54 | 21 |
| Max assist gas flow, scfh | 150 | 60 |
| Total gas flow, scfh | 204 | 81 |
| Total gas flow, gal/hr | N/A | 2.27 |
| Btu/hr | 55,080 | N/A |
| Btu/hr | 55,080 | N/A |

Note: Fuel flow in gal/hr based on http://www.oregon.gov/osp/SFM/docs/cr2k/cr2k_general/gasconversionchartpublic.pdf

VCU Pilot Gas Emissions: Natural Gas and Propane

| Pollutant | Natural Gas | | | Propane | |
|-------------------|---------------------------|---------------------------|--------------------|-----------------------------|--------------------|
| | Emission Factor, lb/MMSCF | Emission Factor, lb/MMBtu | Emission Rate, tpy | Emission Factor, lb/1000gal | Emission Rate, tpy |
| NOX | 100 | 0.10 | 0.02 | 13 | 0.13 |
| CO | 84 | 0.08 | 0.02 | 7.5 | 0.07 |
| VOC | 5.5 | 0.01 | 1.30E-03 | 1 | 0.01 |
| PM | 7.6 | 0.01 | 1.80E-03 | 0.7 | 0.01 |
| SO ₂ | 0.6 | 5.88E-04 | 1.42E-04 | - | - |
| CO ₂ | 120,000 | 117.65 | 28.38 | 12,500 | 124.40 |
| N ₂ O | 2.2 | 2.16E-03 | 5.20E-04 | 0.9 | 0.01 |
| CH ₄ | 2.3 | 2.25E-03 | 5.44E-04 | 0.2 | 0.00 |
| CO ₂ e | 120,656 | 118.29 | 28.54 | 12,773 | 127.12 |
| HAP | 1.89 | 1.85E-03 | 4.47E-04 | - | - |

Note: Pilot gas emissions based upon EPA AP-42 Sections 1.4 - Natural Gas Combustion and 1.5 - Liquefied Petroleum Gas Combustion. HAP values from propane not listed in AP-42. Values for propane are used to report pilot gas usage emissions, as they are most conservative.

Global warming potentials obtained from Table A-1 to Subpart 98 - Global Warming Potentials

$$\text{Equation A-1 } \text{CO}_2\text{e} = \sum \text{GHG}_i \times \text{GWP}_i$$

Where:

CO₂e = Carbon dioxide equivalent (tons/year)

GHG_i = Mass emissions of each GHG (tons/year)

GWP_i = Global warming potential for each GHG (1 for CO₂; 25 for CH₄; 298 for N₂O)

Total VCU Emissions, Including Pilot Gas Usage

| Parameter | Emission Rate, tpy |
|-------------------|--------------------|
| VOC | 8.48 |
| NOX | 3.52 |
| CO | 8.55 |
| PM | 0.01 |
| SO ₂ | 0.00 |
| CO ₂ e | 154.08 |
| HAP | 0.01 |

Total Fugitive and Miscellaneous Emissions

| Source | VOC | HAPs |
|--|--------------|-------------|
| Fugitive component emissions, (valves, connectins, open-ended lines, load arms, pump and meters) tpy | 0.18 | 9.91E-05 |
| Miscellaneous emissions (tank roof landings), tpy | 1.40 | 7.67E-04 |
| Miscellaneous emissions (tank roof cleanings), tpy | 7.02 | 3.83E-03 |
| Miscellaneous emissions (other, wastewater tanks, wastewater sumps, oi/water separator, provers, rack drains, additive tanks), tpy | 1.48 | 8.05E-04 |
| Total fugitive and miscellaneous emissions, tpy | 10.08 | 0.01 |

Note: Supporting calculations and data for the scaled annual ground-level VOC concentrations are on file at the Department.

Hazardous Air Pollutant Emission Factors from ConocoPhillips TRI Study

| Species | Hazardous Air Pollutant? | Gasoline Factors | Distillate Factors |
|-------------------------------------|--------------------------|------------------|--------------------|
| | | Vapor | Vapor |
| Arsenic (and compounds) | Yes | N/A | 0% |
| 1,2,4-Trimethylbenzene | No | 0.000741596% | 0.007063651% |
| 2,2,4-Trimethylpentane | Yes | 0.007% | N/A |
| Benzene | Yes | 0.007% | 0.071721853% |
| Biphenyl | Yes | 0.000000393369% | 0.00000936704% |
| Chromium VI (and compounds) | Yes | 0% | N/A |
| Cumene | Yes | 0.000340463% | 0.001621446% |
| Cyclohexane | No | 0.003722767% | N/A |
| Ethyl benzene | Yes | 0.001% | 0.006843637% |
| Hexane (total) | No | 0.014% | 0.057697386% |
| Napthalene/Methylnapthalenes | Yes | 0.0000144886% | 0.000427373% |
| n-Hexane | Yes | 0.024230037% | 0.023078954% |
| Phenanthrene | No | N/A | 0.000000271297% |
| Phenol | Yes | 0.00000260336% | 0.00007214% |
| Styrene | Yes | N/A | 0.000757348% |
| Toluene | Yes | 0.011% | 0.041919818% |
| Xylene (mixed isomers) | Yes | 0.004% | 0.025192065% |
| Total, weight fraction: | | 0.07305% | 0.23641% |
| Total HAPs, weight fraction: | | 0.05459% | 0.17164% |

Note: Data is from ConocoPhillip's Refinery TRI team spreadsheets developed in 2008 and used for SARA 313 TRI submittals

V. Existing Air Quality

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

VI. Ambient Air Impact Analysis

The Department determined 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 | |
|-----|----|---|
| XX | | 1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights? |
| | XX | 2. Does the action result in either a permanent or indefinite physical occupation of private property? |
| | XX | 3. Does the action deny a fundamental attribute of ownership? (ex.: right to exclude others, disposal of property) |
| | XX | 4. Does the action deprive the owner of all economically viable uses of the property? |
| | XX | 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? |
| | XX | 6. Does the action have a severe impact on the value of the property? (consider economic impact, investment-backed expectations, character of government action) |
| | XX | 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? |
| | XX | 7a. Is the impact of government action direct, peculiar, and significant? |
| | XX | 7b. Has government action resulted in the property becoming practically inaccessible, waterlogged or flooded? |
| | XX | 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? |
| | XX | 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
Permitting and Compliance Division
Air Resources Management Bureau
P.O. Box 200901, Helena, Montana 59620
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FINAL ENVIRONMENTAL ASSESSMENT (EA)

Issued To: Phillips 66 Company - Bozeman Product Terminal

Montana Air Quality Permit Number: MAQP #2945-08

Preliminary Determination Issued: September 29, 2014

Department Decision Issued: October 30, 2014

Permit Final: November 15, 2014

1. *Legal Description of Site:* Located in the NW¹/₄, Sec. 6, T2S, R6E, Gallatin County
2. *Description of Project:* The current project proposes to repurpose the existing truck loadout rack to an ethanol offloading rack, add a new loading rack controlled by the addition of a vapor combustion unit [VCU]), install a new denatured ethanol tank, and increase the available truck loading throughput to previously permitted level of 97,500,000 gallons of gasoline per rolling 12-month period.
3. *Objectives of Project:* The proposed project would reduce volatile organic compound (VOC) emissions from the terminal due to the addition of a vapor combustion unit (VCU) to control emissions from the loading rack. The control would decrease the facility's potential to emit to below Title V operating permit thresholds allowing for revocation of the facility's Title V Operating Permit (#OP2945-07) upon completion of the project.
4. *Alternatives Considered:* In addition to the proposed action, the Department also considered the "no-action" alternative. The "no-action" alternative would deny issuance of the air quality preconstruction permit to the proposed facility. However, the Department does not consider the "no-action" alternative to be appropriate because Phillips 66 Company (Phillips 66) demonstrated compliance with all applicable rules and regulations as required for permit issuance. Therefore, the "no-action" alternative was eliminated from further consideration.
5. *A Listing of Mitigation, Stipulations, and Other Controls:* A list of enforceable conditions, including a BACT analysis, would be included in MAQP #2945-08.
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. The following table summarizes the potential physical and biological effects of the proposed project on the human environment. The “no-action” alternative was discussed previously.

| | | Major | Moderate | Minor | None | Unknown | Comments Included |
|---|--|-------|----------|-------|------|---------|-------------------|
| A | Terrestrial and Aquatic Life and Habitats | | | X | | | Yes |
| B | Water Quality, Quantity, and Distribution | | | | X | | Yes |
| C | Geology and Soil Quality, Stability and Moisture | | | | X | | Yes |
| D | Vegetation Cover, Quantity, and Quality | | | | X | | Yes |
| E | Aesthetics | | | X | | | Yes |
| F | Air Quality | | | X | | | Yes |
| G | Unique Endangered, Fragile, or Limited Environmental Resources | | | | X | | Yes |
| H | Demands on Environmental Resource of Water, Air and Energy | | | X | | | Yes |
| I | Historical and Archaeological Sites | | | X | | | Yes |
| J | Cumulative and Secondary Impacts | | | X | | | Yes |

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 because the facility is located within the Bozeman city limits and is not considered habitat for any wildlife. In addition, current permitting action would result in a reduction in air emissions. In addition, because Phillips 66 is not proposing to directly discharge any material to surface or ground water sources in the area, aquatic life and habitats would realize little or no impact from the proposed facility. Increased gasoline production would increase vehicle traffic to and from the facility. Overall, impacts to terrestrial and aquatic life and habitats from the proposed project would be minor.

B. Water Quality, Quantity and Distribution

The proposed project would not result in any impacts to water quantity or distribution in the area of operation because it would take place at an existing facility and would not require additional water for proper operation nor discharge to any area surface water resource. Increased air pollutant emissions from the proposed project are not anticipated. Overall, there would be no impact to water quality, quantity, and distribution in the surrounding area.

C. Geology and Soil Quality, Stability and Moisture

The actions addressed in this permit would not change the soil stability, quality, moisture, or geologic substructure. The proposed changes would not result in impacts to productivity or fertility at or near the site. No unique geologic or physical features would be disturbed. Therefore, no impact to geology or soil quality, stability, and moisture would occur.

D. Vegetation Cover, Quantity, and Quality

Currently, the surrounding area is classified as industrial and commercial. There is no evidence that any rare plants, or vegetative communities exist in the area. Phillips 66 suppresses all plant growth at the site with the use of herbicides. The current permit action would take place in the existing facility and air emissions would not increase. Overall, there would be no impact on the quantity or quality of vegetation cover in the surrounding area.

E. Aesthetics

The site is an established bulk gasoline terminal located in Bozeman, Montana. The facility is surrounded by other industrial/commercial properties. The proposed project at this existing facility would not alter any scenic vistas, however there may be a minor increase in traffic due to the increased gasoline production rate. Although it is anticipated that air emissions would decrease, there may be a minor increase to noise because from increase trucking traffic. Overall, impacts to aesthetics from the proposed project would be minor.

F. Air Quality

The Phillips 66 facility is located in Gallatin County, which is designated by the EPA as being in attainment or unclassified with respect to the National Ambient Air Quality Standards (NAAQS) for ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter less than 10 microns in diameter (PM₁₀), particulate matter less than 2.5 microns in diameter (PM_{2.5}), and lead (Pb). The proposed project to repurpose the existing truck loadout rack, add a new loading rack with a VCU, install a new denatured ethanol tank, and increase the available truck loading throughput will emit pollutants, however, MAQP#2945-08 would include the addition of a VCU for the control of emissions from the truck loading rack which would decrease the potential to emit from the terminal to less than 100 tons per year of VOC. Although this decrease allows for the proposed increase in throughput for the facility, the terminal would remain below Title V thresholds. Therefore, allowable emissions would remain below the National Ambient Air Quality Standards and Montana Ambient Air Quality Standards. Overall, any impacts to air quality from the proposed project would be minor.

G. Unique Endangered, Fragile, or Limited Environmental Resources

The proposed project would not result in increased emissions and would take place in the existing facility. There would be no impact to any unique endangered, fragile or limited environmental resources.

H. Demands on Environmental Resource of Water, Air and Energy

No significant demands would be placed on environmental resources such as water, air and energy. The proposed project would occur at an existing facility and would increase the gasoline throughput for the facility to previously permitted levels while decreasing VOC emissions. The need for additional resources required to operate, including a new natural gas line for supplemental fuel supply to the VCU, would be minor. Overall, there would be minor impacts on the demands for environmental resources of water, air, and energy.

I. Historical and Archaeological Sites

Since this facility is existing and the area within the plant property which would be disrupted by the proposed project, has already been disturbed, no effects on historical and archeological findings are expected to occur.

J. Cumulative and Secondary Impacts

Because the proposed area of operation would occur at an existing facility, the proposed project could result in cumulative physical and biological impacts; however, as previously described in this environmental assessment, any cumulative impacts would be minor. In addition, the proposed project would not result in any known secondary impacts. Air pollution from the facility would be controlled by Department-approved BACT and conditions in MAQP #2945-08. This facility would be expected to operate in compliance with all applicable rules and regulations as outlined in MAQP #2945-08

8. *The following table summarizes the potential economic and social effects of the proposed project on the human environment. The “no-action” alternative was discussed previously.*

| | | Major | Moderate | Minor | None | Unknown | Comments Included |
|---|---|-------|----------|-------|------|---------|-------------------|
| A | Social Structures and Mores | | | | X | | Yes |
| B | Cultural Uniqueness and Diversity | | | | X | | Yes |
| C | Local and State Tax Base and Tax Revenue | | | | X | | Yes |
| D | Agricultural or Industrial Production | | | X | | | Yes |
| E | Human Health | | | | X | | Yes |
| F | Access to and Quality of Recreational and Wilderness Activities | | | | X | | Yes |
| G | Quantity and Distribution of Employment | | | | X | | Yes |
| H | Distribution of Population | | | | X | | Yes |
| I | Demands for Government Services | | | X | | | Yes |
| J | Industrial and Commercial Activity | | | | X | | Yes |
| K | Locally Adopted Environmental Plans and Goals | | | | X | | Yes |
| L | Cumulative and Secondary Impacts | | | X | | | Yes |

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

A. Social Structures and Mores

The proposed project would not cause a disruption to any native or traditional lifestyles or communities (social structures or mores) in the area because the site is an existing facility and the proposed project does not change the purpose or means of operation of the bulk petroleum products terminal. Therefore, use of the immediate surrounding area would remain the same.

B. Cultural Uniqueness and Diversity

The proposed project would not cause a change in the cultural uniqueness and diversity of the area because the site is an existing facility and is currently used predominantly for industrial purposes and the proposed project would not change the existing industrial character of the area.

C. Local and State Tax Base and Tax Revenue

The proposed changes would not have an effect on the local and state tax base and tax revenue because Phillips 66 would not hire any additional employees and therefore would not add to the overall income base of the area.

D. Agricultural or Industrial Production

Because the proposed project would operate within the existing boundaries of the Phillips 66 facility, the project would not result in a reduction of available acreage or productivity of any agricultural land; therefore, agricultural production would not be affected. As a result of the proposed project, the bulk terminal's overall throughput capacity limitation has increased to 97,500,000. Therefore, there would be minor impact to industrial production expected from this permitting action.

E. Human Health

The project would result in a decrease of VOC emissions. The land is currently used as a bulk terminal and there are numerous commercial and industrial structures within ¼ mile of the site. MAQP #2945-08 would incorporate 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. Therefore there would be no impacts to overall Human Health are expected from this permitting action.

F. Access to and Quality of Recreational and Wilderness Activities

This project would not have an impact on recreational or wilderness activities because this project would be located within the boundaries of an existing facility, there are no wilderness areas near the project site, and it would not result in any changes in access to and quality of recreational and wilderness activities.

G. Quantity and Distribution of Employment

Activities from the proposed operations would have no effect on the quantity and distribution of employment in the area. The proposed project would not increase the number of permanent employees at the plant.

H. Distribution of Population

The proposed operations would not increase the normal population distribution in the area because the number of permanent employees would not increase as a result of the proposed project.

I. Demands for Government Services

Government services would be required for acquiring the appropriate permits from government agencies (including a state air quality permit). In addition, the permitted source of emissions would be subject to periodic inspections by government personnel. Therefore, the project would have a minor effect on the demands of government services.

J. Industrial and Commercial Activity

No additional industrial or commercial activity is expected as a result of the proposed changes because the site is an existing facility, which is an industrial operation.

K. Locally Adopted Environmental Plans and Goals

The Department is not aware of any locally adopted environmental plans or goals that would be affected by the current permit action. The state standards would protect the proposed site and the environment surrounding the site.

L. Cumulative and Secondary Impacts

Overall, cumulative and secondary impacts from the proposed project on the economic and social resources of the human environment in the immediate area would be minor due to the fact that the proposed area of operation would take place at an existing industrial operation the predominant use of the surrounding area would not change as a result of the modified operations. In addition, the proposed project would not result in any known secondary impacts.

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 an existing gasoline bulk terminal including a new loading rack controlled by the addition of a vapor combustion unit [VCU], a new denatured ethanol tank, and an increase the available truck loading throughput. MAQP #2945-08 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

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

EA prepared by: D. Fischer

Date: 09/16/2014