



Montana Department of  
**ENVIRONMENTAL QUALITY**

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March 5, 2013

Frances Nunn  
Phillips 66 Company  
2626 Lillian Ave.  
Billings, MT 59101

Dear Ms. Nunn:

Montana Air Quality Permit #2907-09 is deemed final as of March 5, 2013, by the Department of Environmental Quality (Department). This permit is for a bulk product 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 Merkel  
Air Permitting Supervisor  
Air Resources Management Bureau  
(406) 444-3626

Deanne Fischer, P.E.  
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 #2907-09

Phillips 66 Company  
2626 Lillian Ave.  
Billings, MT 59101

March 5, 2013



## MONTANA AIR QUALITY PERMIT

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

MAQP: #2907-09  
Administrative Amendment (AA) Request  
Received: 12/26/2012  
Department's Decision on AA: 02/15/2013  
Permit Final: 03/05/2013  
AFS #: 030-049-0011A

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

Phillips 66 operates a bulk product terminal, which receives gasoline and distillate fuels from the Yellowstone Pipeline and distributes them around the state via railcar and tank truck. This facility is located in the Southeast ¼ of the Northeast ¼ of Section 28, Township 10 North, Range 3 West, in Lewis and Clark County, Montana. The facility is known as the Helena Bulk Terminal. A complete list of permitted equipment is contained in the permit analysis.

#### B. Current Permit Action

The Department of Environmental Quality Air Resources Management Bureau (Department) received a request for an administrative amendment to MAQP #2907-08 to remove Loading Operations Scenario #1 and to specify that the Helena Product Terminal is operating under Loading Operations Scenario #2 - *Controlled Cargo Tank Loading Racks (Plant-wide Controlled Loading)*. By removing Scenario #1, the source would be classified as a synthetic minor source and the facility would no longer be required to hold a Title V Operating Permit. Consequently, once this permit action is finalized, Phillips 66 has requested that the Title V operating permit, OP#2907-08, be revoked. In addition, a request was received on August 29, 2012 for a de minimis change to add a twelfth soil vapor extraction (SVE) well near the Helena Yellowstone Pipeline Pump Station. Therefore, the current permit action is an administrative amendment pursuant to ARM 17.8.764 that specifies the current loading operations at the bulk product terminal, restructures and updates the permit to reflect these changes, and adds another SVE well.

### SECTION II: Conditions and Limitations

#### A. Emission Limitations:

1. 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).
2. 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).

3. 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).
4. 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):
  - a. Subpart A – General Provisions applies to all equipment or facilities subject to a NESHAP for source categories subpart as listed below.
  - b. Subpart BBBBBB – National Emission Standards for Gasoline Distribution Bulk Terminals, Bulk Plants and Pipeline Facilities. Bulk gasoline terminals that are an area source of HAPs that were constructed or modified after November 9, 2006.
5. Phillips 66 shall ensure that any open-ended line be sealed with a valve (ARM 17.8.749).
6. Phillips 66 shall not exceed 75,600,000 gallons of gasoline throughput through the truck loadout operations, on a rolling 12-month basis (ARM 17.8.749, ARM 17.8.1204).
7. Phillips 66 shall not exceed 210,000,000 gallons of gasoline throughput through the railcar loadout operations, on a rolling 12-month basis (ARM 17.8.749, ARM 17.8.1204).
8. Phillips 66 shall not exceed 105,000,000 gallons of distillate product throughput through the truck loadout operations, on a rolling 12-month basis (ARM 17.8.749).
9. Phillips 66 shall not exceed 420,000,000 gallons of distillate product throughput through the railcar loadout operations, on a rolling 12-month basis (ARM 17.8.749).
10. Phillips 66 shall operate and maintain an enclosed VCU to control volatile organic compound (VOC) and hazardous air pollutant (HAP) emissions during the loading of gasoline (ARM 17.8.752).
11. Phillips 66 shall limit, by design, the maximum throughput for any possible loading scenario to less than 4,800 gallons per minute (gpm). Flow rate limiting design may include, but not be limited to, the combined capacity of pumps, the use of control valves with maximum flow rate settings, orifices, and/or locked out valves (ARM 17.8.749).
12. Loading racks shall be equipped with a vapor recovery system designed to collect the organic compounds displaced from gasoline loading and send those emissions to an enclosed VCU (ARM 17.8.752).
13. Loading of cargo tanks shall be restricted to the use of submerged loading or bottom fill loading and dedicated normal service and/or switch loading (ARM 17.8.749).
14. Phillips 66 shall ensure that loading of gasoline cargo tanks is made only into cargo tanks equipped with vapor recovery equipment that is compatible with the terminal's vapor recovery system (ARM 17.8.749).

15. Loading of product into gasoline cargo tanks shall be limited to vapor-tight cargo tanks using the following procedures (ARM 17.8.749):
  - a. Phillips 66 shall obtain the vapor tightness documentation described in 40 CFR 60 Appendix A Method 27 (or another method approved by the Department) or Department of Transportation (DOT) certification methods for each gasoline cargo tank that is to be loaded at the loading rack;
  - b. Phillips 66 shall require the cargo tank identification number to be recorded as each gasoline cargo tank is loaded at the terminal; and
  - c. Phillips 66 shall take the necessary steps to ensure that any non-vapor-tight gasoline cargo tank will not be reloaded until vapor tightness documentation for that cargo tank is obtained.
16. The vapor recovery and liquid loading equipment shall be designed and operated to prevent gauge pressure in the gasoline cargo tank from exceeding 4,500 pascals (Pa) (450 millimeters (mm) of water) during product loading (ARM 17.8.749).
17. No pressure-vacuum vent in the terminal's vapor recovery system shall begin to open at a system pressure less than 4,500 Pa (450 mm of water) (ARM 17.8.749).
18. The vapor recovery system shall be designed to prevent any vapors collected at one loading position from passing to another loading position (ARM 17.8.749).
19. Phillips 66 shall ensure that the terminal's and the cargo tank's vapor recovery systems are connected during each loading of gasoline (ARM 17.8.749).
20. Phillips 66 shall install and continuously operate a thermocouple, ultraviolet beam, or other equivalent heat sensing device, in proximity to the pilot flame, and an associated recorder, to detect the presence of a pilot flame in the VCU fire box. The VCU shall be equipped to automatically prevent loading operations from beginning at any time that the pilot flame is absent (ARM 17.8.749).
21. Phillips 66 shall operate and maintain the VCU and vapor collection system according to manufacturer's recommendations. Phillips 66 shall perform semiannual preventative maintenance inspections (or more frequently according to manufacturer's recommendations) (ARM 17.8.749).
22. Phillips 66 shall not cause or authorize to be discharged into the atmosphere from the enclosed VCU:
  - a. Visible emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes (ARM 17.8.749).
  - b. Any particulate emissions in excess of 0.10 grains per dry standard cubic foot (gr/dscf) corrected to 12% carbon dioxide (CO<sub>2</sub>) (ARM 17.8.749).
  - c. VOC emissions greater than 10.0 milligrams per liter (mg/L) of gasoline loaded (ARM 17.8.752 and ARM 17.8.1204).
  - d. Carbon monoxide (CO) emissions greater than 10.0 mg/L of gasoline loaded (ARM 17.8.749).

- e. Oxides of nitrogen (NO<sub>x</sub>) emissions greater than 4.0 mg/L of gasoline loaded (ARM 17.8.749).
- 23. VOC Emissions from the SVE system shall not exceed 23.7 tons per year (TPY) (ARM 17.8.749).
- 24. 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 (ARM 17.8.308).
- 25. Phillips 66 shall treat all unpaved portions of haul roads, access roads, parking lots, or general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precautions limitation in Section III.A.24 (ARM 17.8.749).

B. Testing Requirements

- 1. 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. Compliance with the vapor recovery and liquid loading equipment gauge pressure limit contained in Section II.A.16 shall be demonstrated every 5 years, or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.105).
- 3. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).
- 4. The Department may require further testing (ARM 17.8.105).

C. Inspection and Repair Requirements

- 1. Each calendar month, the vapor recovery system, the vapor control system, and the loading racks shall be inspected for leaks, liquid or vapor, during product transfer operations. For purposes of this requirement, detection methods incorporating sight, sound, or smell are acceptable. Each detected leak shall be recorded and the source of the leak repaired within 15 calendar days after it is detected (ARM 17.8.105 and ARM 17.8.749).
- 2. Each calendar month, all valves, flanges, pump seals, and open-ended lines shall be inspected for leaks. For purposes of this requirement, detection methods incorporating sight, sound, or smell are acceptable (ARM 17.8.749).
- 3. 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. 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).

#### D. Operational Reporting Requirements

1. Phillips 66 shall document, by month, the total gasoline throughput for the truck loading rack. This shall include all gasoline products shipped and received at the truck loading racks. By the 25<sup>th</sup> day of each month, Phillips 66 shall total the amount of throughput during the previous month. This information will be used to demonstrate compliance with the throughput limitations of Section II.A.6. This information shall be submitted along with the annual emissions inventory (ARM 17.8.749).
2. Phillips 66 shall document, by month, the total gasoline throughput for the railcar loading rack. This shall include all gasoline products shipped and received at the loading racks. By the 25<sup>th</sup> day of each month, Phillips 66 shall total the amount of throughput during the previous month. This information will be used to demonstrate compliance with the throughput limitations of Section II.A.7. This information shall be submitted along with the annual emissions inventory (ARM 17.8.749).
3. Phillips 66 shall document, by month, the total distillate throughput for the truck loading rack. This shall include all distillate products shipped and received at the truck loading racks. By the 25<sup>th</sup> day of each month, Phillips 66 shall total the amount of throughput during the previous month. This information will be used to demonstrate compliance with the throughput limitations of Section II.A.8. This information shall be submitted along with the annual emissions inventory (ARM 17.8.749).
4. Phillips 66 shall document, by month, the total distillate throughput for the railcar loading rack. This shall include all distillate products shipped and received at the railcar loading racks. By the 25<sup>th</sup> day of each month, Phillips 66 shall total the amount of throughput during the previous month. This information will be used to demonstrate compliance with the throughput limitations of Section II.A.9. This information shall be submitted along with the annual emissions inventory (ARM 17.8.749).
5. The cargo tank vapor tightness documentation required in Section II.A.15 of this permit shall be kept on file at the terminal, and be made available for inspection and shall be updated at least once per year to reflect current test results (ARM 17.8.749).
6. Phillips 66 shall document, by month, any VCU and/or vapor collection system malfunction which affects the collection and/or destruction efficiency while gasoline is loaded (ARM 17.8.749).
7. Phillips 66 shall maintain documentation as needed, depicting the design systems in place to limit the maximum combined loading rack throughput capacity to less than 4,800 gpm. This information will be used to demonstrate compliance with Section II.A.11 (ARM 17.8.749).
8. A record of each monthly leak inspection required under Section II.C.1 and II.C.2 of this permit shall be kept on file at the 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.
9. Phillips 66 shall calculate facility-wide annual VOC emissions, including emissions from the SVE system, the loading racks, and storage tanks, and miscellaneous and fugitive emissions. The emissions must be reported on the annual emissions inventory (ARM 17.8.749).
  10. 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).
  11. 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.

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).

For reporting purposes, the tanks shall be identified using the tank numbers contained in Section I.A.1 of the permit analysis.

12. 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*, 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(1)(d) (ARM 17.8.745).
13. Phillips 66 shall annually certify that its actual emissions are less than those that would require the source to obtain an air quality operating permit as required by ARM 17.8.1204(3)(b). The annual certification shall comply with the certification requirements of ARM 17.8.1207. The annual certification shall be submitted along with the annual emission inventory information (ARM 17.8.749 and ARM 17.8.1204).

### 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 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 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  
 MAQP #2907-09

I. Introduction/Process Description

Phillips 66 Company (Phillips 66) owns and operates a bulk product terminal. The facility is located in the SE¼ of the NE¼ of Section 28, Township 10 North, Range 3 West, in Lewis and Clark County, Montana, and is known as the Helena Bulk Terminal.

A. Permitted Equipment

1. Eight (8) Product Storage Tanks:

<u>Tank #</u>	<u>Yr manuf.</u>	<u>Fuel Stored</u>	<u>Barrels</u>	<u>Type of Tank</u>
T-20	2012	Ethanol	6,000	Int. flt. Roof
T-30	1953	Jet Kerosene	20,000	Fixed roof
T-31	1953	#2 Diesel	30,000	Fixed roof
T-32	1953	Gasoline	20,000	Int. flt. Roof
T-33	1953	Gasoline	30,000	Int. flt. Roof
T-35	1959	Gasoline	30,000	Ext. flt. Roof
T-36	1959	Gasoline	30,000	Ext. flt. Roof
T-37	1959	Gasoline	30,000	Ext. flt. Roof

2. Loading Racks and Associated Control Equipment:

- 2-bay Truck Loading Rack with 2 loading stations in each bay consisting of a total of 8 gasoline loading arms and 8 distillate arms. One bay will be utilized for offloading denatured ethanol.
- Railcar Loading Rack consisting of 6 loading arms capable of loading gasoline or distillates.
- One Cargo Tank Loading Racks Vapor Recovery System capturing the gasoline vapors from both railcar loading and truck loading operations and sending those vapors to an enclosed flare (vapor combustion unit (VCU)) for thermal oxidation.

3. Five (5) Additive Tanks (Insignificant Units) containing fuel detergents and/or lubricity additives.

4. Equipment Leak Emissions:

<b>Component Type</b>	<b>Estimated Number of Components</b>
Valves	320
Connections	1003
Open-ended Lines	54
Load Arms	36
Pump Seals and Meters	41

5. Other Miscellaneous Emissions:

Component Type	Number of Components
Tank Cleaning	1
Wastewater (WW) Tanks	0
WW Sumps	2
Oil Water OW Sep	0
Provers*	192
Rack Drains	2
Tank Roof Landings	5

*\*Provers: 192 provers = 16 provers-meters x 3 replicates x 4X per year*

6. Soil Vapor Extraction (SVE) System:

A 12-well SVE system installed for remediation purposes.

B. Source Description

Phillips 66 operates a bulk product terminal, which receives gasoline and distillate fuels from the Yellowstone Pipeline and distributes them around the state via tank truck. The facility is also designed for distribution via railcar.

C. Permit History

The original facility included 2 distillate tanks (T-30 and T-31), 2 gasoline tanks (T-32 and T-33), a gasoline and distillate railcar loading rack, and a gasoline and distillate truck loading rack. The truck loading rack consisted of 4 distillate loading arms and 4 gasoline loading arms. The railcar loading rack consisted of 4 loading arms capable of loading gasoline and distillate. In 1959, Conoco, Inc. (Conoco), added gasoline storage tanks T-35, T-36, and T-37.

On January 24, 1996, **MAQP #2907-00** was issued for Conoco to expand their rail loadout facility to accommodate the loading of gasoline. The proposed changes to the product railcar loading rack consisted of the removal of the existing loading arms and the installation of 6 new loading arms capable of loading gasoline and distillate fuel. Volatile organic compound (VOC) and hazardous air pollutant (HAP) emissions from the gasoline railcar loadout were controlled with an enclosed flare. The control on the gasoline railcar loading rack, combined with the throughput limits on the truck loading rack, kept Conoco below Title III Maximum Achievable Control Technology (MACT) applicability thresholds.

On February 14, 2002, MAQP #2907-01 was issued to Conoco for construction and operation of a new truck loading rack and installation of a flare to control loading emissions. The new loading rack replaced the existing truck loading rack at the Helena Products Terminal. The Helena Products Terminal operated under a Title V operating permit because the facility was considered a major source for VOC emissions. The installation of the flare on the truck loading rack significantly reduced VOC emissions below the major source threshold. The flare was controlled beyond the requirements of Title 40 Code of Federal Regulations (CFR) Part 60 Standards of Performance for New Stationary Sources (NSPS), which was considered to be Best Available Control Technology (BACT) for similar loading racks. The Montana Department of Environmental Quality (Department) had grounds to revoke the Title V permit following appropriate installation of the flare and at Conoco's request; however, Conoco would be considered a Title V synthetic minor.

The limit on the VOC emissions from the flare was as follows: the total VOC emissions to the atmosphere from the flare due to loading liquid product into tank trucks shall not exceed 10.0 milligrams per liter (mg/L) of gasoline loaded. This limit is more stringent than the 40 CFR 60, Subpart XX, VOC emissions limit of 35.0 mg/L of gasoline loaded. The source complied with the Subpart XX 35.0 mg/L limit by maintaining compliance with the 10.0 mg/L limit in MAQP #2907-01.

Because Conoco's flare was defined as an incinerator under Montana Code Annotated (MCA) 75-2-215, a determination that the emissions from the flare would constitute a negligible risk to public health was required prior to the issuance of a permit to the facility. Conoco and the Department identified the following HAP from the flare, which were used in the health risk assessment. These constituents are typical components of gasoline.

- Benzene
- Ethyl Benzene
- Hexane
- Toluene
- Xylenes

The reference concentrations for the above pollutants were obtained from EPA's Integrated Risk Information System (IRIS) database, where available. The model performed for the HAP identified above demonstrated compliance with the negligible risk requirement. **MAQP #2907-01** replaced MAQP #2907-00.

A letter from ConocoPhillips Company (ConocoPhillips) dated January 3, 2003, and received by the Department on 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 #2907-02** replaced MAQP #2907-01.

A letter from ConocoPhillips dated November 24, 2004, and received by the Department on December 1, 2004, notified the Department that ConocoPhillips planned to install a 2,000-gallon vertical tank used to store a lubricity additive. Since the uncontrolled potential to emit (PTE) of the 2,000-gallon vertical tank was less than 15 tons per year (tpy) of any regulated pollutant, the tank was added to the permit under the provisions of Administrative Rules of Montana (ARM) 17.8.745 Montana Air Quality Permits--Exclusion for de minimis Changes. MAQP #2907-03 was also updated to reflect current permit language and rule references used by the Department. **MAQP #2907-03** replaced MAQP #2907-02.

ConocoPhillips submitted an application on June 28, 2006, for the addition of an SVE system. In addition, ConocoPhillips never installed the 2-Bay truck loading rack and thermal oxidizer permitted in 2002 in MAQP #2907-01. Therefore, the company requested to remove this equipment from the permit. Furthermore, ConocoPhillips wanted to revise the throughput limits for truck loading and add limits for the railcar loading racks to maintain plant-wide emissions below 250 tpy of VOC. The permit was revised to clarify some of the conditions and limitations. The following provides more detail on each of these points.

The proposed SVE system had a calculated PTE of 23.7 tpy of VOC from the twelve wells, based on field scale emission tests conducted in February 2006. Emissions were based on the predicted concentration of VOC, assuming exponential decrease in VOC concentrations from the initial range of 920 – 13,000 parts per million on a volume basis (ppmv) documented in the laboratory analysis for the field study. BACT was determined to be no additional control.

This permit removed references to the 2-Bay truck loading rack and thermal oxidizer that were never installed, and the permit reverted back to the original truck loading requirements. Without the addition of the new truck loading rack, the facility was no longer subject to the NSPS for gasoline loading, 40 CFR 60, Subpart XX.

In an effort to ensure the facility maintains its status as a minor source under Prevention of Significant Deterioration (PSD), the following limits were changed, added to MAQP #2907-03, or clarified: Section II – Railcar loading throughput limits for gasoline and distillate; Section III – Truck loading throughput limits for gasoline and distillate, and Section V – annual VOC emission limited to less than 250 tpy VOC.

Lastly, specific requirements for operating the storage tanks in conformance with ARM 17.8.324 were added for clarity. **MAQP #2907-04** replaced MAQP #2907-03.

On May 21, 2009, the Department received an application for a modification of MAQP #2907-04 from Bison Engineering, Inc. on behalf of ConocoPhillips. An affidavit of Public Notice was received by the Department on June 2, 2009, and additional information received June 9, 2009, completing the application. The application proposed: 1) to modify the existing truck loading rack by removing the north loading bay, and using only the south loading bay with loading being accomplished by using the bottom valve connections of the tanker trucks and 2) to use an existing VCU for VOC emissions control from both the truck loading rack and the railcar loading rack (collectively called the cargo tank loading racks). The project would result in a net decrease of emissions, significantly reducing VOC emissions with a slight increase in conventional combustion products. The requested operational permit conditions would allow the facility to be designated as a synthetic minor with respect to Title V.

Because the VCU met the definition of an incinerator pursuant to 75-2-103, Montana Code Annotated (MCA), the permit analysis included a health risk assessment as required by Administrative Rules of Montana (ARM) 17.8.770. Operational and emissions limitations were combined for both the railcar and the tank truck loading operations. Other changes included updates made to reflect the current applicable requirements, permit language, format, and rule references used by the Department. Title V synthetic minor status for this facility was conditional based upon the installation and operation of the equipment as described in the application. **MAQP #2907-05** replaced MAQP #2907-04.

The Department received a letter from ConocoPhillips on September 13, 2010, requesting an administrative change to reduce the total allowable throughput of gasoline for the facility to 91,000,000 gallons per rolling 12-month period. ConocoPhillips requested this throughput limit be split between the railcar loading rack operations and the truck loading rack operations. Because the facility has not made the modifications permitted in MAQP #2907-05, and the facility requested to retain the ability to proceed with the project in the future, the Department constructed Operating Scenarios to more clearly identify the applicable requirements associated with this facility.

This permitting action included those conditions of MAQP #2907-04, which were the conditions under which the facility must currently operate, with an administrative change to reduce the allowed gasoline throughput under this scenario. This permit also included those conditions which would be applicable should ConocoPhillips proceed with the modifications previously permitted in MAQP #2907-05, in which the facility would control all gasoline cargo tank loading operations through use of gasoline vapor collection and combustion. **MAQP #2907-06** replaced MAQP #2907-05.

On October 28, 2011, ConocoPhillips submitted a permit application to modify MAQP #2907-06:

- Replacement of the current truck loading rack with a new two-bay loading rack, with eight arms per bay,
- Use of the existing VCU for VOC control,
- Increase in the available truck loading throughput,
- Installation of a new 6,000 barrel (bbl) (4,500 bbl working capacity) ethanol tank (Tank #20).

ConocoPhillips proposed to remove the existing truck loading rack entirely, and replace it with a new truck loading rack. The previous truck loading rack was uncontrolled and not connected to the VCU. ConocoPhillips proposed that the VCU would be brought online to control the vapors collected from the new truck loading rack.

ConocoPhillips requested the removal of permit conditions III.A.6 and III.F.5 that restrict the short term throughput of the VCU. The VCU originally had a short term permit limit of 2,300 gallon per minute (gpm) however the actual design capacity of the VCU is 4,800 gpm as confirmed by documentation from the manufacturer. The annual throughput to the VCU was limited by the throughput limits placed on the loadout units. The annual throughput limits on the loadout units were well below the annual capacity of the VCU. Additionally the combined pumping capacity of all the pumps on site were less than the VCU capacity. Permit conditions III.A.6 (new condition III.A.7) and III.F.5 (new condition III.F.7) were modified to assure that the pumping capacity on site did not exceed the design capacity of the VCU.

The permit action did not change scenario #1 as detailed in MAQP #2907-06 and modified scenario #2 to reflect the requested changes to the permit as detailed above. **MAQP #2907-07** replaced MAQP #2907-06.

The Department received notification on April 2, 2012, from ConocoPhillips Company (ConocoPhillips) indicating a transfer of assets and assignment of ownership from ConocoPhillips to Phillips 66. The permit action reflected the transfer of ownership of the facility and updated the permit language and rule references used by the Department. **MAQP #2907-08** replaced MAQP #2907-07.

#### D. Current Permit Action

1. On December 26, 2012, the Department received a request for an administrative amendment to MAQP #2907-08 to remove Loading Operations Scenario #1 from the permit and to specify that the Helena Product Terminal is using Loading Operations Scenario #2 - *Controlled Cargo Tank Loading Racks (Plant-wide Controlled Loading)*. This change does not increase emissions or change any operating conditions or limitations from what was previously permitted, and only serves to clarify the actual conditions at the site. By removing Scenario #1, the source would be classified as a synthetic minor source and the facility would no longer be required to hold a Title V Operating Permit. Consequently, once this permit action is finalized, Phillips 66 has requested that the Title V operating permit, OP#2907-08, be revoked. In addition, a request was received on August 29, 2012 for a de minimis change to add a twelfth soil vapor extraction (SVE) well near the Helena Yellowstone Pipeline Pump Station. The Department determined the VOC emissions from the SVE would not exceed five tons per year. Therefore, the current permit action is an administrative amendment (AA) pursuant to ARM 17.8.764 that specifies the current loading operations at the bulk product terminal, restructures and updates the permit to reflect these changes, and adds another SVE well. After MAQP #2907-09 was issued AA on January 30, 2013 it was noted that it had not been distributed to all the appropriate parties. MAQP #2907-09 is being re-issued AA on February 15 2013. **MAQP #2907-09** replaces MAQP#2907-08.

E. Additional Information

Additional information, such as applicable rules and regulations, 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.*, 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 PM<sub>10</sub>

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, 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 XX – Standard of Performance for Bulk Gasoline Terminals. This subpart applies to the total of all the loading racks at a bulk gasoline terminal which deliver liquid product into gasoline tank trucks, the construction or modification of which is commenced after December 17, 1980.



- c. 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.
9. ARM 17.8.341 Emission Standards for Hazardous Air Pollutants. This source shall comply with the standards and provisions of 40 CFR Part 61, as appropriate.
  10. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. The source, as defined and applied in 40 CFR Part 63, shall comply with the requirements of 40 CFR Part 63, as listed below:
    - a. 40 CFR 63, Subpart A – General Provisions apply to all equipment or facilities subject to an NESHAP Subpart as listed below:
    - b. 40 CFR 63, Subpart BBBB – National Emissions Standards for Hazardous Air Pollutants for Source Category: Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities. A bulk gasoline terminal that is not subject to the control requirements of 40 CFR 63 Subpart R is subject to this subpart. 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 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. Phillips 66 was not required to submit a permit application fee for the current permitting action because it is considered an administrative 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 MAQP 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 MAQP or permit modification to construct, modify, or use any air contaminant sources that have the PTE greater than 25 tons per year (tpy) of any pollutant. Phillips 66 has a PTE greater than 25 tpy of 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 was not required to submit an application for the current permit action because it is considered administrative. (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. An affidavit of publication of public notice was not required for the current permit action because the permit change is considered an administrative amendment.
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 MAQPs 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, 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.
- 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 tpy of any pollutant;
    - b. PTE > 10 tpy of any one HAP, PTE > 25 tpy of a combination of all HAPs, or lesser quantity as the Department may establish by rule; or
    - c. PTE > 70 tpy of particulate matter with an aerodynamic diameter of 10 microns or less (PM<sub>10</sub>) in a serious PM<sub>10</sub> 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 #2907-09 for Phillips 66, the following conclusions were made:

- a. The facility's PTE is greater than 100 tpy for any pollutant.
- b. The facility's PTE is less than 10 tpy for any one HAP and less than 25 tpy for all HAPs.
- c. This source is not located in a serious PM<sub>10</sub> nonattainment area.
- d. This facility is subject to current NSPS (40 CFR 60 Subparts A, Kb, and XX).
- e. This facility is subject to current NESHAP standards (40 CFR 63 Subparts A and 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.
- i. As allowed by ARM 17.8.1204(3), the Department may exempt a source from the requirement to obtain an air quality operating permit by establishing federally enforceable limitations which limit that source's potential to emit.
  - i. In applying for an exemption under this section, the owner or operator of the source shall certify to the Department that the source's potential to emit, does not require the source to obtain an air quality operating permit.
  - ii. Any source that obtains a federally enforceable limit on potential to emit shall annually certify that its actual emissions are less than those that would require the source to obtain an air quality operating permit.

Phillips 66 has taken federally enforceable permit limits to maintain potential emissions below the major source permitting threshold with respect to Title V. Therefore, the facility is not a major source and, thus a Title V operating permit is not required.

### 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 determination was not required for the current permit action because the permit change is considered an administrative amendment.

IV. Emission Inventory

**Phillips 66 – Helena Product Terminal  
Potential to Emit in Tons Per Year  
Plant-wide Controlled Loading Operations**

Source	Allowable Emissions					
	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub> /PM <sub>2.5</sub>	HAPs
Storage Tank Emissions (8 Tanks)	13.77					0.88
Cargo Tank Loading Racks VCU Emissions	11.95	4.78	11.95	ND	ND	0.16
Cargo Tank Loading Losses	8.76					0.002
Equipment Leaks	0.43					0.01
Miscellaneous Emissions	5.69					0.07
SVE System	23.70					0.31
<b>TOTAL</b>	<b>64.30</b>	<b>4.78</b>	<b>11.95</b>	<b>ND</b>	<b>ND</b>	<b>0.72</b>

Note: Emissions calculated as part of MAQP#2907-07.

**VCU Emissions:**

**VOC Emissions:**

Emissions Factor: 10 mg/L gas loaded (Manufacturer Information)  
 Gasoline Throughput: 285,600,000 gal/yr (Permit throughput limitation)  
 Calculations: 10 mg/L loaded \* 285,600,000gal/yr \* 3.8 liter/gal \* 1g/1000 mg \* 1lb/454 gm = 23905 lb/yr  
 23904lb/yr \* 0.0005 lb/ton = **11.95 ton/yr**

**NOX Emissions:**

Emissions Factor: 4 mg/L gas loaded (Manufacturer Information)  
 Gasoline Throughput: 285,600,000 gal/yr (Permit throughput limitation)  
 Calculations: 4 mg/L loaded \* 285,600,000gal/yr \* 3.8 liter/gal \* 1g/1000 mg \* 1lb/454 gm = 9562 lb/yr  
 9561lb/yr \* 0.0005 lb/ton = **4.78 ton/yr**

**CO Emissions:**

Emissions Factor: 10 mg/L gas loaded (Manufacturer Information)  
 Gasoline Throughput: 285,600,000 gal/yr (Permit throughput limitation)  
 Calculations: 10 mg/L loaded \* 285,600,000gal/yr \* 3.8 liter/gal \* 1g/1000 mg \* 1lb/454 gm = 23905 lb/yr  
 23904lb/yr \* 0.0005 lb/ton = **11.95 ton/yr**

**PM Emissions:**

ND

**SOX Emissions:**

ND

**HAPs Emissions:**

Speciation of Gasoline VOC Emissions: 11.95 ton/yr

HAP	% of total VOC Emissions	emissions/yr
Benzene	0.300%	0.0359 ton/yr
Methanol	0.040%	0.0048 ton/yr
Ethylbenzene	0.020%	0.0024 ton/yr
n-Hexane	0.510%	0.0610 ton/yr

1,2,4-Trimethyl Benzene	0.010%	0.0012	ton/yr
Toluene	0.330%	0.0394	ton/yr
Xylenes	0.090%	0.0108	ton/yr
<b>TOTAL HAPs</b>	<b>1.30%</b>	<b>0.155</b>	<b>ton/yr</b>

**Loading Racks Emissions (Losses from Collection)**

**VOC from Gasoline loading:**

$$L_L = 12.46 \frac{SPM}{T} \quad \text{(AP-42 Chapter 5, 6/2008)}$$

where:

$L_L$  = loading loss, pounds per 1000 gallons (lb/10<sup>3</sup> gal) of liquid loaded

S = a saturation factor (see Table 5.2-1)

P = true vapor pressure of liquid loaded, pounds per square inch absolute (psia) (see Figure 7.1-5, Figure 7.1-6, and Table 7.1-2)

M = molecular weight of vapors, pounds per pound-mole (lb/lb-mole) (see Table 7.1-2)

T = temperature of bulk liquid loaded, °R (°F + 460)

S = 0.6 (AP-42 Table 5.2-1, 6/2008, submerged loading: dedicated service)

P = 4.945 psia (prior determination)

M = 64.08 lb/lb-mol (prior determination)

T = 503.64 Rankine (prior determination)

Collection Eff = 98.7% collection efficiency (manufacturer information)

Gasoline Loading = 6,800,000 barrels/yr = 285,600,000 gallons/yr

Calculations:  $12.46 * ((0.6 * 4.945 * 64.08) / 503.64) * (1 - 0.987) = 0.061$  lb / thousand gal loaded  
 $0.061 * 285600000 / 1000 * 0.0005$  ton/lb = **8.73 ton/yr VOC**

HAPs Fraction: 0.02% see VCU HAPs Speciation  
 $8.73$  ton/yr \* 0.0002054 HAPs fraction = **0.00179 ton/yr HAPs**

**VOC from Distillate loading:**

S = 0.6 (AP-42 Table 5.2-1, 6/2008, submerged loading: dedicated service)

P = 0.0049 psia (Phillips 66)

M = 130 lb/lb-mol (Phillips 66)

T = 503.64 Rankine (Phillips 66)

Collection Eff = 98.7% collection efficiency (manufacturer information)

Distillate Loading = 12,500,000 barrels/yr = 525,000,000 gallons/yr

Calculations:  $12.46 * ((0.6 * 0.0049 * 130) / 503.64) * (1 - 0.987) = 0.0001$  lb / thousand gal loaded  
 $.0001 * 525000000 / 1000 * 0.0005$  ton/lb = **0.03 ton/yr VOC**

HAPs Fraction: 1.27% Distillate HAPS Speciation - MAQP#2907-04  
 $0.03$  ton/yr \* 0.01274 HAPs fraction = **0.00041 ton/yr HAPs**

**Total**

$8.73$  ton/yr +  $0.03$  ton/yr = **8.76 ton/yr VOC**  
 $0$  ton/yr +  $0$  ton/yr = **0.002205 ton/yr HAPs**

## Soil Vapor Extraction Emissions

\*\* 7-day field test in spring 2006 developed maximum anticipated emissions

	Permitted VOC Emissions:	23.7	ton/yr
	HAPs Emissions (see VCU HAPs Speciation):	1.30%	
Calculations:	23.7 ton/yr * 0.013 HAPs Fraction =	<b>0.31</b>	<b>ton/yr</b>

## Equipment Leaks

Fugitive Emissions From Equipment Leaks

The number of components comes from an actual component count by Phillips 66, adjusted by the expected change in number of components due to this permitting action. Only components in light liquid service are listed as components in distillate service have minimal VOC emissions

Component	Number of Components	Emissions Factor Per Component** (lb/hr)	Calculations		
Valves	320	0.00001	320 components * 0.00001 lb/hr = 0.003 lb/hr * 8760 hr * 0.0005 ton/lb =	0.003	lb/hr 0.01 ton/yr
Connections	1003	0.00002	1003 components * 0.00002 lb/hr = 0.02 lb/hr * 8760 hr * 0.0005 ton/lb =	0.020	lb/hr 0.09 ton/yr
Open-ended Lines	54	0.000287	54 components * 0.000287 lb/hr = 0.015 lb/hr * 8760 hr * 0.0005 ton/lb =	0.015	lb/hr 0.07 ton/yr
Load Arms	36	0.000287	36 components * 0.000287 lb/hr = 0.01 lb/hr * 8760 hr * 0.0005 ton/lb =	0.010	lb/hr 0.05 ton/yr
Pumps and Meters	41	0.00119	41 components * 0.00119 lb/hr = 0.049 lb/hr * 8760 hr * 0.0005 ton/lb =	0.049	lb/hr 0.21 ton/yr
<b>TOC Equipment Leak Emissions =</b>				<b>0.43</b>	<b>ton/yr</b>
<b>HAPs emissions =</b>				<b>0.00557</b>	<b>ton/yr</b>

\*\* Basis for emissions Factors: Table 2-3 of EPA Protocol for Equipment Leak Emission Estimates, November 1995 (EPA-453/RR-95-017). No non-VOC concentrations are given, therefore this emissions inventory assumes all TOC = VOC

## Miscellaneous Emissions

Miscellaneous Emissions Factors are those used by Phillips 66 based on engineering calculations and process knowledge.

Component Type	Number of Components	Emissions Factor (lb/yr-component)	Calculations		
Tank Cleaning	1	1218.48	1 components * 1218.48 lb/yr = 1218.48 lb/yr * 0.0005 ton/lb =	1218.48	lb/yr 0.61 ton/yr
WW Tanks	0	399.5	0 components * 399.5 lb/yr = 0 lb/yr * 0.0005 ton/lb =	0	lb/yr 0 ton/yr
WW Sumps	2	613	2 components * 613 lb/yr = 1226 lb/yr * 0.0005 ton/lb =	1226	lb/yr 0.61 ton/yr
Rack Drain	2	613	2 components * 613 lb/yr = 1226 lb/yr * 0.0005 ton/lb =	1226	lb/yr 0.61 ton/yr
OW Separator	0	11	0 components * 11 lb/yr = 0 lb/yr * 0.0005 ton/lb =	0	lb/yr 0.00 ton/yr

Provers	192	7.4	192 components * 7.4 lb/yr =	1420.8	lb/yr
(10 prover-meters x 3 replacements x 4x/yr)			1420.8 lb/yr * 0.0005 ton/lb =	0.71	ton/yr
Tank Roof Landings	5	1218.5	5 components * 1218.5 lb/yr =	6092.5	lb/yr
			6092.5 lb/yr * 0.0005 ton/lb =	3.05	ton/yr
Additive Tanks	5	37.4	5 components * 37.4 lb/yr =	187	lb/yr
			187 lb/yr * 0.0005 ton/lb =	0.09	ton/yr

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**Total Miscellaneous VOC Emissions: 5.69 ton/yr**  
**HAPs emissions = 0.07391 ton/yr**

HAPs from Miscellaneous Emissions from application data.

No non-VOC concentrations are given, therefore this emissions inventory assumes all TOC = VOC

## V. Existing Air Quality

Phillips 66 Helena Bulk Product Terminal is located in an area designated as unclassifiable/attainment for the National Ambient Air Quality Standards for criteria pollutants.

## VI. Ambient Air Impact Analysis

The Department did not conduct ambient air modeling for this permit action. The Department believes it will not cause or contribute to a violation of any ambient air quality standard because this permit action was accomplished under the provisions of ARM 17.8.764 and included no increase in emissions.



## 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

This permitting action was accomplished under the provisions of ARM 17.8.764 and is considered an administrative action; furthermore, this permitting action will not result in an increase in emissions from the facility; therefore, an Environmental Assessment is not required.

Analysis Prepared By: Deanne Fischer

Date: January 18, 2013