



**STATEMENT OF BASIS**

**Title V Air Quality Construction Permit**

**Magellan Pipeline Company, L.P.  
Rapid City, South Dakota**

# TABLE OF CONTENTS

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	Page
<b>1.0 BACKGROUND.....</b>	<b>1</b>
<b>1.1 Operational Description .....</b>	<b>1</b>
<b>1.2 Existing Equipment.....</b>	<b>1</b>
<b>1.3 Proposed Changes .....</b>	<b>2</b>
<b>2.0 New Source Performance Standards.....</b>	<b>3</b>
<b>2.1 New Source Performance Standards.....</b>	<b>3</b>
<b>2.2 Standards Applicable to Storage Tanks.....</b>	<b>3</b>
<b>2.3 Standards Application to Loading Racks .....</b>	<b>3</b>
<b>2.4 Standards for Generators.....</b>	<b>3</b>
<b>3.0 New Source Review .....</b>	<b>4</b>
<b>4.0 Prevention of Significant Deterioration .....</b>	<b>4</b>
<b>4.1 Potential Emissions .....</b>	<b>5</b>
<b>4.2 Storage Tanks .....</b>	<b>5</b>
<b>4.3 Potential Emission Summary .....</b>	<b>6</b>
<b>5.0 National Emission Standards for Hazardous Air Pollutants .....</b>	<b>7</b>
<b>6.0 Maximum Achievable Control Technology Standards.....</b>	<b>7</b>
<b>6.1 Major versus Area Source .....</b>	<b>7</b>
<b>6.2 Standards for Gasoline Distribution Facilities .....</b>	<b>8</b>
<b>6.3 Standards for Gasoline Distribution Bulk Terminals.....</b>	<b>8</b>
<b>6.4 Standards for Generators.....</b>	<b>8</b>
<b>7.0 State Requirements .....</b>	<b>9</b>
<b>8.0 Recommendation .....</b>	<b>9</b>

## 1.0 BACKGROUND

On December 8, 1998, Kaneb Pipe Line Operating Partnership, L.P. (Kaneb) was issued a Title V air quality permit (#28.9901-02) for its bulk petroleum marketing terminal in Rapid City, South Dakota. During the term of this permit, the permit was revised as follows:

- On July 13, 2006, an administrative amendment was issued to change the facility's name to Rocky Mountain Pipeline System, LLC.

On May 4, 2007, Rocky Mountain Pipeline System, LLC, was issued a renewed Title V air quality permit (#28.9901-02). During the term of this permit, the permit was revised as follows:

- On May 24, 2007, DENR amended Rocky Mountain Pipeline's (RMP) existing Title V air quality permit to allow the construction and operation of ethanol storage tank (Tank 5-22)
- On October 10, 2008, DENR amended Rocky Mountain Pipeline's (RMP) existing Title V air quality permit to allow the storage of ethanol in Tank 12-1, the installation of an underground storage tank, and the construction of a truck unloading pad and associated metering equipment.

On October 12, 2012, Rocky Mountain Pipeline System, LLC, was issued a renewed Title V air quality permit (#28.9901-02). During the term of this permit, the permit was revised as follows:

- On November 18, 2013, an administrative amendment was issued to change ownership and the facility's name to Magellan Pipeline Company, L.P. (MPC).

There have been no complaints or violations filed against this facility in the last five years.

### 1.1 Operational Description

Magellan is a refined petroleum pipeline terminal and is a major source of volatile organic compound (VOC) emissions stemming from truck loading and storage tank losses. The facility handles refined petroleum products, including, unleaded regular gasoline, unleaded premium gasoline, #1 fuel oil, #2 fuel oil, diesel fuel, and interface. The terminal receives the petroleum liquids through a pipeline network. The Primary Standard Industrial Classification (SIC) Code is 4613.

### 1.2 Existing Equipment

Table 1-1 provides a description of the currently permitted equipment at Magellan's facility in Rapid City.

*Table 1-1 – Permitted Units*

Unit	Description	Maximum Capacity	Control Equipment
#1	A submerged-fill truck loading rack to load product into trucks.	Not applicable	Vapor combustor
	John Zink vapor combustor fired with natural gas	52 million Btus per hour	

<b>Unit</b>	<b>Description</b>	<b>Maximum Capacity</b>	<b>Control Equipment</b>
#2	Tank 10-53 - 1962 aboveground external floating roof storage tank	424,620 gallons	Not applicable
#3	Tank 10-54 - 1962 aboveground external floating roof storage tank	424,620 gallons	Not applicable
#4	Tank 11-1 - 1962 aboveground fixed roof storage tank	475,860 gallons	Not applicable
#5	Tank 12-1 - 1989 aboveground internal floating roof storage tank	510,468 gallons	Not applicable
#6	Tank 14-1 - 1962 ground external floating roof storage tank	581,580 gallons	Not applicable
#7	Tank 17-1 - 1962 aboveground fixed roof storage tank	705,180 gallons	Not applicable
#8	Tank 20-27 - 1962 aboveground fixed roof storage tank	845,880 gallons	Not applicable
#9	Tank 24-1 - 1962 ground external floating roof storage tank	1,015,140 gallons	Not applicable
#10	Tank 24-2 - 1962 ground external floating roof storage tank	1,015,140 gallons	Not applicable
#11	Tank 24-3 - 1968 ground fixed roof storage tank	1,015,140 gallons	Not applicable
#12	Tank 33-1 - 1962 ground external floating roof storage tank	1,381,800 gallons	Not applicable
#13	Tank 33-2 - 1969 ground internal floating roof storage tank	1,381,842 gallons	Not applicable
#14	Tank 33-3 - 1969 ground internal floating roof storage tank	1,381,842 gallons	Not applicable
#16	1988 Industrial Manufacturing Systems electrical generator	40 Kilowatts	Not applicable

### **1.3 Proposed Changes**

On July 17, 2014, DENR received a construction application from Magellan Pipeline Company (MPC). Magellan plans to install slotted gauge-poles in three existing external-floating-roof tanks. The new gage poles will be slotted and installed with gaskets, pole sleeves and wipers. In each instance the new gage poles will be installed in the roof opening currently occupied by a sample hatch. The hatch will be removed and the opening enlarged from 8 to 21 inches. The construction will be on Unit #9, Unit #10 and Unit #12.

The application also provided an updated maximum operating rate for Unit #9, Unit #10 and Unit #12. Unit #9 and Unit #10 have a maximum operating rate of 919,422 gallons. Unit #12 has a maximum operating rate of 1,246,476 gallons. The maximum operating rate will be used for all potential emission calculations during this review.

## **2.0 New Source Performance Standards**

### **2.1 New Source Performance Standards**

DENR reviewed the new source performance standards (NSPS) and determined that the following may be applicable to this facility.

### **2.2 Standards Applicable to Storage Tanks**

There are three New Source Performance Standards for tanks. The three standards are applicable to the following tanks:

1. 40 CFR Part 60, Subpart K: applicable to storage vessels of petroleum liquids constructed, reconstructed or modified after June 11, 1973, and before May 19, 1978, where the tank has a capacity greater than or equal to 151,412 liters (40,000 gallons) that is used to store volatile organic liquids.
2. 40 CFR Part 60, Subpart Ka: applicable to storage vessels of petroleum liquids constructed, reconstructed or modified after May 18, 1978 and before July 24, 1984 where the tank has a capacity greater than or equal to 151,416 liters (40,000 gallons) that is used to store volatile organic liquids.
3. 40 CFR Part 60, Subpart Kb: applicable to storage vessels of petroleum liquids constructed, reconstructed or modified after July 23, 1984 where the tank has a capacity greater than or equal to 75 cubic meters (19,813 gallons) that is used to store volatile organic liquids.

The installation of the gauge poles for Unit #9, Unit #10 and Unit #12 will occur after July 23, 1984 and the amount of air pollutant emitted will increase. A unit is considered modified if any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by that facility or which results in the emission of any air pollutant (to which a standard applies) into the atmosphere not previously emitted. Therefore, according to federal requirements, each unit will meet the definition of a modification. Unit #9, Unit #10 and Unit #12 will be applicable to Subpart Kb.

### **2.3 Standards Application to Loading Racks**

The proposed installation of gauge poles for Unit #9, Unit #10 and Unit #12 at Magellan does not change the previous NSPS determination for Subpart XX. Therefore, a review of Subpart XX is not applicable.

### **2.4 Standards for Generators**

The proposed installation of gauge poles for Unit #9, Unit #10 and Unit #12 at Magellan does not change the previous NSPS determination for Subpart IIII and Subpart JJJJ. Therefore, a review of these subparts is not applicable.

### **3.0 New Source Review**

New source review regulations apply to areas of the state which are designated as nonattainment for any pollutant regulated under the Clean Air Act. Magellan's operations are located near Rapid City, South Dakota, which is in attainment for all the applicable pollutants. Therefore, Magellan is not subject to new source review.

### **4.0 Prevention of Significant Deterioration**

Any stationary source which emits or has the potential to emit 250 tons per year or more of any air pollutant is considered a major source and is subject to prevention of significant deterioration (PSD) requirements (ARSD 74:36:09 – 40 CFR. Part 52.21(b)(1)). Any stationary source which emits or has the potential to emit 100 tons per year or more of any air pollutant and is one of the 28 named PSD source categories is subject to PSD requirements (ARSD 74:36:09 – 40 CFR. Part 52.21(b)(1)). The following is a list of regulated pollutants under the PSD program:

1. Total suspended particulate (PM);
2. Particulate with a diameter less than or equal to 10 microns (PM10);
3. Particulate with a diameter less than or equal to 2.5 microns (PM2.5);
4. Sulfur dioxide (SO<sub>2</sub>);
5. Nitrogen oxides (NO<sub>x</sub>);
6. Carbon monoxide (CO);
7. Ozone – measured as volatile organic compounds (VOCs);
8. Lead;
9. Fluorides
10. Sulfuric acid mist;
11. Hydrogen sulfide;
12. Reduced sulfur compounds;
13. Total reduced sulfur; and
14. Greenhouse gases (carbon dioxide, methane, nitrous oxide, etc.).

If the source is considered one of the 28 named PSD source categories listed in Section 169 of the federal Clean Air Act, the major source threshold is 100 tons per year of any regulated air pollutant, except for greenhouse gases. The major source threshold for all other sources is 250 tons per year of any regulated air pollutant, except for greenhouse gases. Magellan is not one of the 28 named PSD source categories; therefore, its PSD threshold for pollutants is 250 tons per year, except for greenhouse gas emissions.

According to the Clean Air Act, once a pollutant is regulated under any part of the Act, (as was the case with greenhouse gas emissions after the motor vehicle regulations were finalized in March 2010) major new sources or major modifications are subject to the PSD program and Title V air quality operating permit program. Under the Clean Air Act, PSD and Title V air quality operating permits are required for all sources that emit a regulated air pollutant above 100 or 250 tons per year, depending on the source. This threshold, if applied to greenhouse gases, would greatly increase the number of facilities requiring a PSD review or Title V air quality operating permit. Based on administrative necessity, EPA increased these thresholds through the "Tailoring Rule."

On May 13, 2010, EPA issued the final version of the “Tailoring Rule” for greenhouse gas emissions. The major source threshold for greenhouse gases is listed below:

1. New PSD source because of a criteria air pollutant, the major source threshold for greenhouse gases is 75,000 tons per year of carbon dioxide equivalent or more;
2. New PSD source if greenhouse gas emissions are 100,000 tons per year of carbon dioxide equivalent or more;
3. For an existing PSD source because of a criteria air pollutant, a major modification for greenhouse gases is an increase of 75,000 tons per year of carbon dioxide equivalent or more;
4. For an existing non-PSD source that has the potential to emit 100,000 tons per year of carbon dioxide equivalent emissions or more, a major modification for greenhouse gases is an increase of 75,000 tons per year of carbon dioxide equivalent or more; and
5. In addition to subsection (2) and (4), a specific greenhouse gas, without calculating the carbon dioxide equivalent, also needs to emit greater than 100 or 250 tons per year, whichever is applicable, to be regulated.

The US Supreme Court heard challenges to EPA’s “Tailoring Rule”. On June 24, 2014, the Supreme Court decided greenhouse gases may not be regulated under the PSD program unless the facility requires a PSD permit for the other regulated air pollutants.

#### **4.1 Potential Emissions**

The department uses stack test results to determine air emissions whenever stack test data is available from the source or a similar source. When stack test results are not available, the department relies on manufacturing data, material balance, EPA’s Compilation of Air Pollutant Emission Factors (AP-42, Fifth Edition, Volume 1) document, the applicant’s application, or other methods to determine potential air emissions.

Potential emissions for each applicable pollutant are calculated from the maximum design capacity listed in the application and assuming the unit operates every hour of every day of the year, while using the fuel that will emit the greatest emissions. Potential emissions are not realistic of the actual emissions and are used only to identify which air quality permit and requirements Magellan is required to meet.

#### **4.2 Storage Tanks**

The proposed installation of gauge poles for Unit #9, Unit #10 and Unit #12 at Magellan will increase the air emissions from the tanks. Emissions from the loading rack, vapor combustion unit and the generator will not be affected.

The storage tank emissions were calculated by DENR with information provided by the applicant and using the Environmental Protection Agency’s Tanks 4.0.9d program. The tank emission results from Tanks are summarized in Table 4-1.

***Table 4-1 Storage Tank VOC from Tanks 4.0.9d***

<b>Unit</b>	<b>Tank #</b>	<b>VOCs (tons per year)</b>
#9	24-1	2.6

#10	24-2	2.6
#12	33-1	2.9
<b>Total</b>		<b>8.1</b>

The storage tank emissions were also calculated by the applicant using TankESP. The tank emission results provided by the applicant are summarized in Table 4-2

**Table 4-2 Storage Tank VOC from TankESP**

Unit	Tank #	VOCs (tons per year)
#9	24-1	2.7
#10	24-2	2.7
#12	33-1	3.1
<b>Total</b>		<b>8.5</b>

The potential storage tank emissions provided from Tanks 4.0.9d and TankESP are very similar. However, TankESP shows a higher potential to emit. Therefore, the emissions from TankESP will be used.

### 4.3 Potential Emission Summary

Table 4-3 displays the storage tank data from the previous statement of basis for the affected units. The proposed installation of gauge poles for Unit #9, Unit #10 and Unit #12 at Magellan will increase the emissions by 1.9 tons per year based on the difference between the emissions calculated from TanksESP and the previous statement of basis.

**Table 4-3 Emissions from Previous Statement of Basis**

Unit	Tank #	VOCs (tons per year)
#9	24-1	2.1
#10	24-2	2.1
#12	33-1	2.4
<b>Total</b>		<b>6.6</b>

Table 4-4 displays the potential VOC emissions from the entire facility. The proposed installation of gauge poles for Unit #9, Unit #10 and Unit #12 at Magellan will increase the emissions by 1.9 tons per year. The facility will have a potential to emit 105 tons per year of VOCs.

**Table 4-4 Potential Controlled Emissions (tons per year)**

Source	VOCs
Tanks	23.5
Loading Rack	80
Vapor Combustor	1.2
Generator	0.04
<b>Total</b>	<b>105</b>

Magellan’s potential emissions are less than the thresholds for the PSD program. Therefore, Magellan is considered a minor source under the PSD program. Based on the US Supreme Court’s decision and because Magellan is not applicable to the PSD program, a review for greenhouse gas emissions are not warranted or required.

## 5.0 National Emission Standards for Hazardous Air Pollutants

The proposed installation of gauge poles for Unit #9, Unit #10 and Unit #12 at Magellan is not subject to the National Emissions Standards for Hazardous Air Pollutants standards under ARSD 74:36:08, as referenced to 40 CFR Part 61.

## 6.0 Maximum Achievable Control Technology Standards

The proposed installation of gauge poles for Unit #9, Unit #10 and Unit #12 at Magellan may be subject to the Maximum Achievable Control Technology Standards stated in ARSD 74:36:08, as referenced to 40 CFR Part 63. The following need to be reviewed further to determine if they are still applicable.

### 6.1 Potential HAP Emissions

The maximum control technology standards are based upon if a source is considered a major source or an area source for hazardous air pollutants. A major source of a hazardous air pollutants is a facility that has the potential to emit greater than 10 tons of a single hazardous air pollutant or and/or 25 tons of any combination of a hazardous air pollutants. An area source has the potential to emit less than the major source threshold.

DENR utilized the baseline values for gasoline vapor phase HAP-VOC weight percentages in the list in Table 11.3-2 of the EPA’s January 2001 document *Gasoline Marketing (Stage I and Stage II)*.

- Hexane = 1.6 % VOC
- Toluene = 1.3 % VOC
- Benzene = 0.9 % VOC
- 2,2,4-Trimethylpentane = 0.8 % VOC
- Xylene = 0.5 % VOC
- Ethyl Benzene = 0.1 % VOC
- Cumene = 0.05 % VOC
- Total HAPs = 5.25 % VOC

Table 6-1 displays the potential HAP emissions for the affected units from the previous statement of basis.

**Table 6-1 Storage Tank HAP Data**

Unit	Tank #	HAPs (tons per year)
#9	24-1	<b>0.11</b>
#10	24-2	<b>0.11</b>

#12	33-1	<b>0.12</b>
<b>Total</b>		<b>0.34</b>

The storage tank emissions were calculated by the applicant using the TankESP program and are included in the application. The tank emission results are summarized in Table 6-2. The proposed installation of gauge poles for Unit #9, Unit #10 and Unit #12 at Magellan increased the potential HAP emissions by 0.10 tons per year.

**Table 6-2 Storage Tank HAP Data**

Unit	Tank #	HAPs (tons per year)
#9	24-1	<b>0.14</b>
#10	24-2	<b>0.14</b>
#12	33-1	<b>0.16</b>
<b>Total</b>		<b>.44</b>

The potential uncontrolled emissions for the tanks and loading rack are summarized in Table 6-3.

**Table 6-3 Potential Uncontrolled Emissions**

Pollutant	Tanks	Loading Rack (tons per year)	Total (tons per year)
Hazardous air pollutants	1.24	4.2	5.4

Magellan is considered a minor source for hazardous air pollutants. The total HAPs emitted is less than 25 tons per year and Hexane is emitted at less than 10 tons per year.

## **6.2 Standards for Gasoline Distribution Facilities**

The proposed installation of gauge poles for Unit #9, Unit #10 and Unit #12 at Magellan does not change the previous MACT determination for Subpart R. Therefore, a review of Subpart R is not applicable.

## **6.3 Standards for Gasoline Distribution Bulk Terminals**

The proposed installation of gauge poles for Unit #9, Unit #10 and Unit #12 at Magellan does not change the previous MACT determination for Subpart BBBBBB. Magellan is still considered an existing facility. Therefore, a review of this subpart is not applicable.

## **6.4 Standards for Generators**

The proposed installation of gauge poles for Unit #9, Unit #10 and Unit #12 at Magellan does not change the previous MACT determination for Subpart ZZZZ. Therefore, a review of this subpart is not applicable.

## **7.0 State Requirements**

Magellan was required to obtain a Title V air quality operating permit because it meets the definition of a major source under ARSD 74:36:05:03. The proposed installation of gauge poles for Unit #9, Unit #10 and Unit #12 does not affect Magellan's requirements to meet any of the previously set state limits for Units #9, #10 and #12. Therefore all state requirements remain the same.

## **8.0 Recommendation**

Based on the information submitted in the air quality permit application, DENR recommends conditional approval of a construction air quality permit for Magellan near Rapid City, South Dakota. Magellan is required to construct and operate the proposed equipment as stipulated in the following regulations:

- ARSD 74:36:05 – Operating Permits for Part 70 Sources;
- ARSD 74:36:07 – New Source Performance Standards; and
- ARSD 74:36:20 – Construction Permits for New Sources or Modifications.

Any questions on this review should be directed to April Soukup, Engineer I, with the Department of Environment and Natural Resources.