

**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY
OPERATING PERMIT TECHNICAL REVIEW DOCUMENT**

**Permitting and Compliance Division
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Helena, Montana 59620-0901**

ExxonMobil Refining and Supply Company
Billings Refinery
S ½ of Section 24 and N ½ of Section 25, Township 1 North, Range 25 East, Yellowstone County
700 ExxonMobil Road
Billings, MT 59103

The following table summarizes the air quality programs testing, monitoring, and reporting requirements applicable to this facility.

Facility Compliance Requirements	Yes	No	Comments
Source Tests Required	X		Methods 1-4, 5, 6/6C, 9, 10 & 11
Ambient Monitoring Required		X	Monitoring is being conducted on a voluntary basis under the auspices of BLAQTC
Continuous Opacity Monitoring System (COMS) Required	X		FCC carbon monoxide (CO) Boiler Stack, Coker CO Boiler Stack
Continuous Emission Monitoring System (CEMS) Required	X		CO, Hydrogen sulfide (H ₂ S), sulfur dioxide (SO ₂), and after 12/2008 oxides of nitrogen (NO _x)
Schedule of Compliance Required		X	
Annual Compliance Certification and Semiannual Reporting Required	X		
Monthly Reporting Required		X	
Quarterly Reporting Required	X		In accordance with the Stipulation
Applicable Air Quality Programs			
ARM Subchapter 7 Montana Air Quality Permits (MAQP)	X		MAQP #1564-23
New Source Performance Standards (NSPS)	X		Subparts A, J, Ja, Kb, VV (as required by MACT CC), GGG (subsumed), and IIII
National Emission Standards for Hazardous Air Pollutants (NESHAPS)	X		
Maximum Achievable Control Technology (MACT)	X		Subparts CC, UUU, and ZZZZ.
Major New Source Review (NSR)/Prevention of Significant Deterioration (PSD)	X		ExxonMobil is defined as a major source but has not yet triggered a PSD/NSR review
Risk Management Plan Required (RMP)	X		Submitted to EPA on 6/21/99
Acid Rain Title IV		X	
State Implementation Plan (SIP)	X		Billings/Laurel SO ₂ Control Plan

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SECTION I. GENERAL INFORMATION

A. Purpose

This document establishes the basis for the decisions made regarding the applicable requirements, monitoring plan, and compliance status of emission units affected by the operating permit proposed for this facility. The document is intended for reference during review of the proposed permit by the U.S. Environmental Protection Agency (EPA) and the public. It is also intended to provide background information not included in the operating permit and to document issues that may become important during modifications or renewals of the permit.

Conclusions in this document were based on information provided in the original application submitted by ExxonMobil Refining & Supply Company (ExxonMobil) on June 12, 1996; additional submittals on March 23, 2000, April 24, 2000, and April 25, 2000; a significant modification application submitted on August 21, 2000, with additional information submitted on November 13, 2000, and November 22, 2000; significant modification applications submitted on February 13, 2002, October 22, 2003, April 9, 2004, February 9, 2005, September 22, 2005, and October 5, 2005; Administrative Amendment requests dated January 11, 2006, April 5, 2006, and February 9, 2007; the Title V renewal application submitted June 6, 2006; Administrative Amendment requests dated February 28, 2008, April 15, 2008, June 19, 2008, and November 24, 2008; a significant modification application submitted on April 20, 2009; a significant modification application submitted on July 6, 2009, with additional information submitted on August 11, 2009, and December 24, 2009; a significant modification application submitted on June 1, 2010; and a significant modification application submitted on April 28, 2011, with additional information submitted on June 24, 2011, and August 17, 2011.

B. Facility Location

The ExxonMobil Billings Refinery is located at 700 ExxonMobil Road in Billings, Montana. The Yellowstone River forms the northern and northeastern boundaries and interstate Highway 90 lies along the southern border. Refinery units and storage tanks lie in the southern half of Section 24 and the northern half of Section 25 of Township 1 North, Range 25 East in Yellowstone County. The Montana Rail Link railroad tracks transect the refinery product storage tanks lying south of the railroad right-of-way and the remainder of the refinery lying north of the tracks. The active refinery occupies approximately 380 acres on a level plot with an elevation of approximately 3091 feet (Mean Sea Level). ExxonMobil Road, which provides access to the refinery, is paved. Parking lots and roadways within the active portion of the site are also paved. The refinery lies east of the Billings City Limits in an area zoned Heavy Industrial. A 5- to 7-foot high chain link fence, topped with 1 foot of three strands of barbed wire and 24-hour guards provide security.

C. Facility Background Information

The Exxon Company U.S.A Billings Refinery (Exxon) requested a modification to **Montana Air Quality Permit (MAQP) #1564A2** to support the Yellowstone Energy Limited Partnership (YELP) permit. The permit modification was given **MAQP #1564-03**. That request was addressed under the provisions of Subchapter 7, Administrative Rules of Montana (ARM) 17.8.733(1)(b) (now ARM 17.8.764). Exxon proposed to do the following in conjunction with the YELP permit: (1) send all coker process gases to YELP for treatment; (2) change the manner in which the refinery-wide sulfur-in-fuel emission limitation is calculated (daily to hourly) for all fuel-burning units; (3) change the 1.1 pounds per million British thermal units (lb/MMBtu) sulfur limit to 0.96 in order to provide sufficient offsets for the YELP facility; (4) cap the refinery fuel oil burning at 720 barrels per day any time YELP is operating both of its boilers; and (5) provide additional verification of sulfur dioxide

emission reductions by the addition of recording devices on the Coker Carbon Monoxide Boiler (KCOB) fuel oil-firing unit and storage fuel oil system, and by utilizing the present emission calculation/ accounting procedures at the refinery.

The projected operational changes in Exxon's permit would reduce SO₂ emissions into the Billings air shed. This reduction takes place as a result of the coker process gas emissions, which include SO₂, CO, coke fines, reduced sulfur compounds and oxides of nitrogen (NO_x) being sent to YELP for treatment. This is discussed further in the YELP permit analysis.

In addition, Exxon proposed no fuel oil burning in the KCOB any time YELP is operating two boilers, plus a commitment to adhere to an hourly sulfur-in-fuel limitation on a refinery-wide basis when YELP is operating both of their boilers.

Adherence to an hourly sulfur-in-fuel limitation has been changed from 1.1 to 0.96 lbs. of sulfur-in-fuel per million Btu's fired. This change has been equated to a 100-ton-per-year offset based on actual SO₂ emissions for the past 2 years. In addition, Exxon has committed to a daily refinery fuel oil consumption cap of 720 barrels any time YELP is operating two boilers. This condition was insisted upon by the EPA because of the difficulty in meeting the federal definition of federally enforceable emission limits. Logic suggests that if the YELP facility operates as expected and provides the anticipated steam load to Exxon, a larger reduction in SO₂ emissions would actually be realized because of reduced fuel oil firing at the refinery.

It was critical for both YELP and Exxon to coordinate their activities closely once operation of YELP commenced. The Exxon proposal was based on information attached to MAQP #1564-03 which more fully explains the 100-ton-per-year figure and also the rationale for the block hourly 0.96 lbs. of sulfur-in-fuel figure calculated on a refinery-wide basis.

Exxon requested that the Department of Environmental Quality (Department) consider revising the permit when the new 213-foot stack at Montana Sulphur and Chemical Company (MSCC) is constructed and made federally enforceable. This increase in stack height decreases MSCC's ambient impacts and could decrease the required offset at Exxon for YELP. The Department agreed to provide the opportunity for such a revision. However, before Exxon's sulfur-in-fuel limit could be increased, the new 213-foot stack must be made federally enforceable through a modification of MSCC's air quality permit. Further, the Department believed the increased stack height may be necessary to address concerns with the current SIP and, therefore, may not be available to reduce the required emission offset at Exxon.

On November 12, 1994, Exxon was issued **MAQP #1564-04** to construct and operate an 800-ton/day Polymer Modified Asphalt (PMA) unit. The PMA unit allows Exxon to produce polymerized asphalt. Conventional asphalt base stock is mixed with solid polymer pellets in a wetting/mixing tank, ground with a shear mill, and returned to the PMA storage tank. The PMA is then loaded out through existing stubs at the west rack. No additional steam demand or fuel consumption was necessary for the PMA project. Volatile Organic Compound (VOC) emissions were the primary pollutant of concern; however, all VOC emissions from equipment and tanks in asphalt service were assumed to be negligible since asphalt has negligible vapor pressure at the working temperature seen in the unit.

This alteration also addressed Exxon's August 9, 1994, modification request to replace the strip recorder of the tank gauging device on the fuel oil storage system with a data transmission system inputting to a data acquisition system (DAS). The modification allowed Exxon to use the computer system to collect and archive the fuel data to meet permit conditions.

On August 25, 1995, Exxon was issued **MAQP #1564-05** for a stack extension to the D-4 Drum Atmospheric Vent stack constructed in July 1993. The stack extension raised the height of the D-4

Drum Atmospheric Vent stack from 40.8 meters (134 feet) to 70.1 meters (230 feet). In addition, steam injection capability was added to raise the effective height of the stack to 79.2 meters. The stack extension was designed to eliminate refinery worker exposure impacts during emergencies.

The D-4 Drum Atmospheric Vent is a safety device used to control and manage both routine and abnormal releases from process units. A limited number of safety valves and intermittent blowdowns from the crude, hydrofiner and coker units are vented to this drum. Inside the drum, a continuous flow of water cools any safety valve releases or blowdowns to condense vapors for subsequent treatment in the wastewater treatment plant. Any vapors not condensed, exit through the D-4 Drum Atmospheric Vent stack.

On January 14, 1996, Exxon was issued **MAQP #1564-06** to construct the Fluid Catalytic Cracking (FCC)/CO Boiler stack extension from 63.4 to 76.7 meters and the F-2 Crude/Vacuum Heater stack from 63.6 to 65 meters. As part of the 1995 proposed Billings/Laurel SO₂ State Implementation Plan, Exxon and the Department stipulated that Exxon shall extend the heights of the F-2 Crude/Vacuum Heater and FCC/CO Boiler stacks to at least 65 meters. Exxon was allowed to raise these stacks to above 65 meters, but will receive a Good Engineering Practices (GEP) credit for modeling purposes of 65 meters. Exxon shall be entitled to a greater GEP credit for either stack if a physical demonstration (fluid model or field study) is conducted and justifies a taller GEP stack height.

On June 17, 1996, the Department issued **MAQP #1564-07** to modify the opacity limitations for the wetting/mixing tank exhaust vent in the PMA unit. The requirements of 40 CFR 60, Subpart UU - Standards of Performance for Asphalt Processing and Asphalt Roofing Manufacture, were reviewed during the initial permit review and it was determined that this Subpart was not applicable to the wetting/mixing tank because the tank is used for mixing only and does not store asphalt; therefore, it does not meet the definition of a storage tank. The opacity limit set in the original permit was representative of an asphalt tank used for storage of asphalt as defined under 40 CFR 60, Subpart UU. However, the permitted opacity limit did not recognize the fact that mixing asphalt is occurring in the mixing tank. Due to mixing, there may be a noticeable opacity at the wetting/mixing tank top, even when mixing temperatures are well below 400° F.

A 20% opacity limit was set to reflect the effects of minor mixing in the wetting/mixing tank, which is consistent with ARM 17.8.304 (2). 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.

Exxon still needs to maintain the operating temperature of the wetting/mixing tank below the smoking point of the asphalt in order to comply with a 20% opacity limit. The wetting/mixing tank only operates intermittently during the summer asphalt season. Any opacity is localized inside the refinery and does not create a public nuisance.

On July 7, 1999, Exxon was issued **MAQP #1564-08** to bring the permit closer to the requirements of the June 12, 1998, Stipulation between Exxon, the Department, and the Board of Environmental Review. The proposed changes reduced the reporting and recordkeeping burden for both Exxon and the Department, updated the permit with current rule references, and consolidated all the previously issued permits to Exxon in MAQP #1564-08. The specific changes to the permit and consolidated permits are outlined in the permit analysis section of MAQP #1564-08.

On August 21, 2000, Exxon submitted a permit application to the Department, with additional submittals on November 13, 2000, and November 22, 2000. The submittals requested the following changes to MAQP #1564-08:

1. Addition of one new furnace (F-1201) with a firing capacity of 99 million British thermal units per hour (MMBtu/hr) or less;

2. Allow for the modification of furnace F-700 to increase its firing capability from 105.6 MMBtu/hr to 122 MMBtu/hr; and
3. Modification to the method of operation of Tank 26 to reduce volatilization of the stored petroleum product.

Several other administrative changes were made during this permit action. The following changes were incorporated into this permit, as well:

1. Removal of condition II.E.7 (Odors), based on ARM 17.8.717, from Exxon's permit, so it remains solely state enforceable.
2. A name change from Exxon Company U.S.A. to ExxonMobil received January 7, 2000).
3. Clarification of new operating temperature used in Section II.E.1. The description of the operating temperature was changed from "minimum operating temperature" to "operating temperature of the wetting/mixing tank below the smoking point of asphalt."
4. Reorganization of Section II of the permit.
5. Attachment of the letter dated September 25, 1989, which specifies the monitoring procedures (Appendix A) to be used for the permit (the above letter was previously referenced for monitoring procedures).

The requirements contained in Section II, Parts B and C, concerning an hourly limitation on sulfur in fuel and a daily limitation on fuel oil firing, respectively, apply on a refinery-wide basis to all fuel-burning units at the refinery, consistent with the 1977 Stipulation. **MAQP #1564-09** reflected all of the above changes and replaced MAQP #1564-08.

MAQP #1564-10 was not issued. Two applications were received within the same time period to alter MAQP #1564-09 and were not issued in the order in which they were received. To avoid confusion in referencing these permit applications and actions, MAQP #1564-10 was removed from use.

On March 3, 2001, the Department issued a permit for the installation and operation of two temporary aero-derivative jet engine electricity generators (Model LM1500), each capable of generating approximately 10 megawatts of power, and an accompanying diesel storage tank. These generators were necessary because of the high cost of electricity. The operation of the generators would not occur beyond 2 years and was not expected to last for an extended period of time, but rather only for the length of time necessary for ExxonMobil to acquire a more economical supply of power.

Because these generators would only be used when commercial power was too expensive to obtain, the amount of emissions expected during the actual operation of these generators was minor. In addition, the installation of these generators qualified as a "temporary source" under the PSD permitting program because the permit limited the operation of these generators to a time period of less than 2 years. Therefore, ExxonMobil was not required to comply with ARM 17.8.804, 17.8.820, 17.8.822, and 17.8.824. Even though the portable generators were considered temporary, the Department required compliance with BACT and public notice requirements; therefore, compliance with ARM 17.8.819 and 17.8.826 was ensured. In addition, ExxonMobil was responsible for complying with all applicable air quality standards. As these generators were temporary, the Title V permit was not modified to include them. **MAQP #1564-11** replaced MAQP #1564-09.

On May 16, 2001, the Department issued a permit for the installation and operation of a temporary aero-derivative jet engine electricity generator (Model LM1500), capable of generating approximately 10 megawatts of power. This generator would be used in addition to the two similar generators permitted in MAQP #1564-11 and would be considered a part of the same project with respect to time constraints. This generator and the two generators previously permitted are necessary because of the high cost of electricity. The operation of the generators will not occur beyond 2 years and is not expected to last for an extended period of time, but rather only for the length of time necessary for ExxonMobil to acquire a more economical supply of power.

As previously mentioned, because the generators will only be used when commercial power is too expensive to obtain, the amount of emissions expected during the actual operation of the generators is minor. In addition, the installation of the generators qualifies as a “temporary source” under the PSD permitting program because the permit will limit the operation of the generators to a time period of less than 2 years. Therefore, ExxonMobil will not need to comply with ARM 17.8.804, 17.8.820, 17.8.822, and 17.8.824. Even though the portable generators are considered temporary, the Department requires compliance with BACT and public notice requirements; therefore, compliance with ARM 17.8.819 and 17.8.826 will be ensured. In addition, ExxonMobil is responsible for complying with all applicable air quality standards. Again, as this generator was temporary, the Title V permit was not modified to include it. **MAQP #1564-12** replaced MAQP #1564-11.

ExxonMobil was issued a final and effective Title V permit on December 2, 2001 (**Permit #OP1564-00**).

On February 13, 2002, the Department received a permit application to address emission increases associated with the proposed modifications to allow approximately 500 barrels per day more fresh feed to be processed through the Fluid Coker unit (Coker). Other units/processes that would be affected by the proposed modifications include the FCC Unit, the motor gasoline (mogas) storage tank throughputs, and the refinery fuel gas system throughput. Included in this permitting action is a limit on refinery-wide fuel oil combustion used to keep the overall SO₂ emissions increase from the project below the PSD of Air Quality SO₂ significance levels. In addition, a contemporaneous decrease in VOC emissions on Tank #309 would offset the increase in VOC emissions from the project, to keep the project below PSD VOC significance levels.

The project involves the following activities (not all of them requiring permitting, but all included in the application as they relate to the overall project):

1. Replace the existing product coke line with a larger diameter pipe and remove a number of bends and turns to decrease piping pressure drop. Line size will increase from 6 inch to 8 inch in diameter and allow for a product coke capacity of approximately 550 tons per day. This line connects from the Coker unit to the BGI coke silo (capacity related);
2. Upgrade the gearbox of the Coker light ends compressor to facilitate compressing the increased volume of light ends from the higher throughput at the Coker. This compressor (C-311) is located in the refinery Gas Compressor Building near the north end of the FCC Unit facility (capacity related);
3. Install new steam aeration nozzles and replace appropriate sections of the scouring coke line from the Coker burner to the reactor. This will allow improved coke circulation and avoid excessive coke buildup at the Coker area (maintenance related);
4. Install a multi-hole orifice chamber in the Coker Process Gas line that goes to either BGI or the Coker CO Boiler. This device stabilizes the back-pressure that the slide valves, located on the top of the Coker burner vessel, will have to control. This device will allow smoother transition in unit operations whenever the Coker Process Gas must be diverted away from BGI and back to the Coker CO Boiler (maintenance and capacity related);

5. Modify the cyclone outlet from the Coker reactor to the scrubber section to a newer design, which has a custom designed elbow and larger horn (outlet), decreasing the velocity and pressure drop through the cycle to accommodate an increased vapor rate. The cyclone is located at the top of the Coker reactor outlet and carries reactor hydrocarbon vapors into the scrubber section of the vessel (capacity related);
6. Modify the internals of the D-202 Coker Fractionator Overhead receiver drum to improve liquid/vapor separation. This drum is located at the Coker unit (capacity related);
7. Modify the Coker reactor feed pumps and drivers to increase capacity to match the 500 barrel per day unit increase and higher discharge pressure requirements. The reactor feed pumps take oil from the scrubber and recycle this liquid back to the feed surge drum and supply the reactor feed nozzles. By increasing the speed of the pump impellers, both pressure and increased capacity requirements are satisfied without having to replace the pumps. The bearing housings will be upgraded, if necessary, to safely achieve these higher speeds (capacity related);
8. Modify the reactor feed nozzle system with an improved design. The intent of these changes will be to optimize the Coker unit feed nozzle system operation (capacity related); and
9. Include adequate safety facilities to address safety concerns at the higher Coker unit capacity. This may include replacement of some vessel nozzles and connecting piping to upgrade metallurgy or refractory linings such that higher operating temperatures could be achieved. This may also include the installation of larger safety valves and associated piping (capacity related).

MAQP #1564-13 replaced MAQP #1564-12.

Operating Permit #OP1564-01 incorporated the changes made to the MAQPs #1564-09 and #1564-13. As mentioned above, MAQP #1564-10 was not issued. MAQPs #1564-11 and #1564-12 involved temporary sources, and, therefore, the Title V permit was not updated to include those sources. In addition, upon review of Operating Permit #OP1564-00, the Department discovered that an applicable requirement from the MAQP was not included in the Title V permit. That requirement (a 0.96 lb/MMBtu limit on sulfur in the refinery fuel gas) has been superseded by other requirements listed in the permit, but is still applicable, and needs to be included. Operating Permit #OP1564-01 was issued final and effective on July 20, 2004, and replaced Operating Permit #OP1564-00.

On October 22, 2003, the Department received a MAQP Application from ExxonMobil to modify MAQP #1564-13 to meet the EPA 15 parts per million (ppm) sulfur standard for highway diesel fuel. On December 4, 2003, the Department deemed the application complete. Units/processes that were affected by the proposed modifications included the Kerosene Hydrofiner (Hydrofiner No. 3), Diesel Hydrofiner (Hydrofiner No. 1), new facilities to segregate Hydrocracker diesel from Hydrofiner No. 1 diesel, and modifications and additions to facilities to segregate highway and off-road No. 2 diesel fuels. The modifications resulted in an increase in throughput through the FCCU and an increase on motor gas (mogas) production. This permitting action resulted in a limit on refinery-wide fuel oil combustion so that the overall SO₂ emissions increase from the project would stay below the PSD SO₂ significance levels. The permit action took out all references to the temporary generators that were previously permitted and were removed from the facility. The equation for Tank 26 was updated to more accurately account for temperature and pressure in the calculation of VOC emissions for Tank 26. **MAQP #1564-14** replaced MAQP #1564-13.

On April 9, 2004, the Department received a MAQP Application from ExxonMobil to modify MAQP #1564-14 for changes in how ExxonMobil planned to meet the EPA's 15 ppm sulfur standard for highway diesel fuel. Units/processes affected by the proposed modifications included the addition of a lubricity facility and the addition of minor piping. ExxonMobil no longer planned to segregate Hydrocracker diesel from Hydrofiner No. 1 diesel, or to segregate highway and off-road No. 2 diesel fuels. The current modification resulted in an increase in throughput through the FCC Unit, an increase in mogas production, an increase at the Hydrogen Unit, and an increase in throughput at the marketing terminal. The permitting action resulted in a limit on refinery-wide fuel oil combustion so that the overall SO₂ and particulate matter (PM) emissions increase from the project would stay below the PSD SO₂ and PM significance levels. **MAQP #1564-15** replaced MAQP #1564-14.

On February 9, 2005, the Department received a complete MAQP Application from ExxonMobil to modify MAQP #1564-15. The purpose of the application was to address the replacement of six existing convection section tubes with six new finned convection section tubes in the Steam Reforming Furnace (F-551) located in the Hydrogen Plant. Replacing and finning the upper tube row in the secondary preheat coil of F-551 allowed for improved heat absorption from the process stream which in turn results in improved Hydrogen Plant production. The modifications directly affected F-551 and, potentially, indirectly increased throughput to the FCC Unit, Alkylation Unit, Powerformer Unit, and Hydrocracker Unit. Crude oil throughput did not increase as a result of the modification. The permitting action resulted in lowering the existing limit on refinery-wide fuel oil combustion so that the overall SO₂ and PM emissions increase from the project was below the PSD SO₂ and PM significance levels. Section II.F.2 of the Permit Analysis (MAQP #1564-16) included a discussion of the netting analysis conducted for the permit action. **MAQP #1564-16** replaced MAQP #1564-15.

On September 22, 2005, the Department received a complete MAQP Application from ExxonMobil to modify MAQP #1564-16. Further information was received in a letter from ExxonMobil dated October 20, 2005. The purpose of this application was to address several projects impacting the PMA unit. ExxonMobil proposed modifications to the PMA process unit and addition of a new PMA railcar loading in order to create more PMA from a historical production rate of 300 – 600 barrels per day, to 5000 barrels per day PMA, and to allow PMA loading of railcars. In addition, on October 19, 2005, the Department received a request for an Administrative Amendment to allow the use of Method ASTM D1298 for determining the API gravity of fuel oil. These permit actions were combined. **MAQP #1564-17** replaced MAQP #1564-16.

On October 5, 2005, the Department received a MAQP Application from ExxonMobil to incorporate the following emergency stationary engines into MAQP #1564-17: five existing diesel-fired engines; one new diesel-fired engine; and two existing gasoline-fired engines. After receiving additional submittals from ExxonMobil, the Department determined that the application was complete on February 17, 2006. **MAQP #1564-18** replaced MAQP #1564-17.

The Department received two de minimis notifications and two administrative amendment requests from ExxonMobil. The administrative amendment was issued May 8, 2007, in response to these four requests:

- 12/22/05 – Catalytic Hydrotreater Unit – Billings (CHUB-Amine) and FCC Unit de minimis notification (no permit changes required).
- 1/11/06 – Administrative Amendment request to eliminate fuel oil monitoring requirements, based on elimination of fuel oil firing at the refinery;
- 4/5/06 – Administrative Amendment request to incorporate Consent Decree requirements; and
- 2/9/07 – De minimis notification for addition of Selective Catalytic Reduction (SCR) to FCC Unit/CO boiler and treat Sour Water Stripper (SWS) overhead to meet Consent Decree requirements (no permit changes required).

Section II of the permit was also reorganized and extraneous permit conditions were eliminated. **MAQP #1564-19** replaced MAQP #1564-18.

On June 6, 2006, the Department received an application for the renewal of Title V Operating Permit #OP1564-01. The application was deemed administratively complete on July 6, 2006, and technically complete on August 7, 2006. Operating Permit #OP1564-02 incorporates all applicable source changes since the issuance of Operating Permit #OP1564-01, including:

- Consolidation of all refinery fuel gas combustion requirements into a new EU00;
- Addition of a Refinery-wide fugitive emitting unit EU17;
- Elimination of all emitting units that have no applicable requirements, other than facility-wide applicable requirements (EU02, EU05, EU-06, EU07, EU08, EU10, EU11, EU12, EU13, EU16);
- Addition of a new emergency stationary engine EU18; and
- Inclusion of all Consent Decree requirements.

On December 3, 2007, Exxon appealed Operating Permit #OP1564-02 on the basis of the inclusion of the entire Consent Decree CV-05-C-5809. The Department included the Consent Decree because it considered the Consent Decree requirements as relevant terms and conditions required to be included in the Title V Operating Permit. The following language (and changes to the permit as described below) satisfy both Exxon and the Department with respect to inclusion of Consent Decree requirement into the Title V Operating Permit. Exxon will continue to pursue the necessary permitting action as necessary to comply with the requirements of the Consent Decree.

ExxonMobil has entered into a Consent Decree (United States et al v. Exxon Mobil Corp., CV-05-C-5809 (N.D. Ill. Dec. 13, 2005)). Certain consent decree emission limits, standards, and schedules have been incorporated as applicable requirements into the appropriate sections of this permit. Other consent decree requirements, *including program enhancements, are not required by the Consent Decree to be incorporated into this permit as permit conditions and are thereby not included as applicable requirements in this permit.* These terms and conditions may only be enforced by the State of Montana and the United States Environmental Protection Agency pursuant to the provisions of the Consent Decree. This summary is intended for convenient reference only and the actual language of the Consent Decree governs the terms and conditions that are enforceable through the Consent Decree.

Operating Permit #OP1564-02 replaced Operating Permit #OP1564-01.

The Department received three de minimis notifications and one administrative amendment requests from ExxonMobil. The current administrative amendment is in response to each of these requests described more thoroughly below.

On February 28, 2008, a de minimis notification was received proposing process modifications in order to achieve emission reductions mandated by the US EPA Consent Decree (CD). The notification proposed the following process modifications:

1. Nitrogen Oxide (NO_x) control – proposal to install a third catalyst bed to the Selective Catalytic Reduction (SCR) unit on the FCCU Carbon Monoxide Boiler (COB) in order to meet the requirements of ExxonMobil's CD, Paragraph 17a. This proposal supersedes the May 8, 2006, notification for installation of a Thermal DeNO_x system and Ultralow NO_x Burners, and is a modification and update of the February 9, 2007, notification for the installation of the SCR on the FCCU and FCCU COB.

2. Proposal to remove the five existing soot blowers and replace with 17 new soot blowers to assist with boiler tube fouling and increased temperatures in the boiler.
3. Proposal to replace air blowers for FCCU COB to help maintain current boiler capabilities at increased operating pressure.
4. SO₂ control – proposal to treat the Sour Water Stripper (T-23) overhead gas (SWS Overhead Project) with hydrogen peroxide treatment, in order to meet Subpart A and J requirements as mandated by the CD paragraph 59. This supersedes the February 9, 2007, proposal to treat the SWS overhead gas with caustic wash treatment.

On April 15, 2008, a de minimis notification was received proposing the following process modifications mandated by the US EPA CD that requires ExxonMobil to comply with the NSPS, 40 CFR 60, Subparts A and J for the main flare and turnaround flare:

1. Flare Gas Recovery (FGR) Unit – modifications to existing FGR unit, including a proposal to install a two-stage dry helical screw compressor to pressurize the flare gas and to allow gas to be sent to MSCC.
2. Sweet Fuel Gas Letdown Facilities – proposal to add a sweet fuel gas letdown line with associated knock out (KO) drum to allow flaring of the sweet fuel gas in the event that MSCC is shut down.
3. Connection between J-901 and C-311 – proposal to use the J-901 Flare Gas Eductor to recover flare gas into C-310 FCC Wet Gas Compressor in the event that the FGR unit is shut down. In addition, ExxonMobil proposed to add new piping to recover flare gas from J-901 into C-311 Coker Gas Compressor if both the FGR unit and the FCCU are shutdown.
4. H₂S continuous emission monitoring system (CEMS) – proposal to add a CEMS to the flare header to monitor H₂S concentration of the gas sent to either the turnaround flare or the main flare.
5. Unsaturated Light Ends (ULEB) Unit – modification to ULEB unit to mitigate potential flaring events, including: replacement of safety valves on the Unsaturated Caustic Prewash Drum D-326 and Unsaturated Caustic Settling Drum D-327; addition of a sleeve/dipleg added to D-327, and the addition of high pressure alarms on the two DEA regenerator towers (T-305 and T-607).
6. Modification to D-942 Seal Drum – modify or replace the existing sparger in the D-942 Seal drum to increase the existing 12-inch glycol seal to between 18 and 24 inches.

On June 19, 2008, a de minimis notification was received for operation of a natural gas furnace in a new Operation and Control Center Building. The natural-gas fired residential furnace is rated at 10 standard cubic feet per minute (scfm) resulting in potential emissions significantly less than 15 tons per year (TPY).

On November 24, 2008, an Administrative Amendment request was received proposing inclusion of language in the permit signifying modified or the potential to modify CD deadlines as negotiated by ExxonMobil.

MAQP #1564-20 replaced MAQP #1564-19.

Operating Permit #OP1564-03 replaced Operating Permit #OP1564-02, incorporating the applicable changes associated with permit action MAQP #1564-20, primarily the addition of language

signifying modified or the potential to modify Consent Decree deadlines as negotiated by ExxonMobil.

On April 17, 2009, the Department received a request from ExxonMobil to amend (via administrative amendment) MAQP #1564-20 and modify Operating Permit #OP1564-02 with language that states ExxonMobil will control NO_x emissions from F-700 with ULNBs as defined in the Consent Decree. The Operating Permit was assigned Operating Permit #OP1564-04; however, as explained below, this permit action was rolled into the permit action that followed. **Operating Permit #OP1564-04** was not issued.

On July 6, 2009 (with additional information received on August 11, 2009), the Department received a request from ExxonMobil to modify their current permit to reflect decommissioning of the existing B-8 boiler, construction and operation of a temporary natural gas-fired boiler for a period of up to twelve months, and construction of a new permanent B-8 natural gas and/or refinery fuel gas-fired boiler.

The decommissioning of the existing B-8 boiler is part of a NO_x reduction strategy as required by the US EPA CD (*United States et al. v. Exxon Mobil Corporation et al.*, dated December 13, 2005).

In addition to making the requested change, the Department deleted all references to 40 CFR 63, Subpart DDDDD: NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters, as it was removed from the ARM in October 2008 following a federal court vacature.

MAQP #1564-21 replaced MAQP #1564-20.

On December 18, 2009, the Department received a request from ExxonMobil to administratively amend their current permit to clarify permit conditions contained in MAQP #1564-21, specifically pertaining to a temporary B-8 boiler (B-8 Temp). Inadvertently, a portion of the conditions identified in MAQP #1564-21 for B-8 Temp were incorrectly stated. Specifically, these conditions pertain to operational time frames of B-8 Temp and also the existing B-8 boiler.

On December 24, 2009, the Department received an Application for an Air Quality Permit Modification from ExxonMobil to incorporate modifications to MAQP #1564-21. The requested changes include the addition of new fugitive volatile organic compound (VOC) components and a modification to compressor C-310.

Because of the uncertainty associated with the current Montana de minimis rule (ARM 17.8.745) with respect to the rule having not yet been approved by EPA into Montana's State Implementation Plan (SIP) and the need to comply with internal company policy, ExxonMobil chose to group future VOC fugitive component additions and apply for a permit modification on that basis instead of using ARM 17.8.745 when such components were added in smaller increments and associated with separate projects.

In order to meet requirements outlined within the EPA CD, ExxonMobil intends to install a larger second eductor (J-902) for flare gas management. The gas to operate J-902 will come from C-310. The increase of flare gas recovery associated with J-902 will result in a decrease of C-310 gas compression from the fluidized catalytic cracking unit (FCCU), which in turn will decrease FCCU capacity. In order to recover this lost FCCU capacity, the proposed project is to install a new, larger C-310. In April 2009, a de minimis request was approved for a modification to this unit. ExxonMobil has changed the scope of the project to install a new unit, which is included in this permit action. **MAQP #1564-22** replaced MAQP #1564-21.

The application associated with the decommissioning of the existing B-8 boiler as part of a NO_x reduction strategy outlined in the Consent Decree was deemed substantively and technically complete on December 24, 2009.

The action (ULNBs on F-700) associated with the application for Operating Permit #OP1564-04 is was combined with Operating Permit #OP1564-05. Therefore, Operating Permit #OP1564-04 was never issued.

Operating Permit #1564-05 incorporated the modifications necessary as a result of decommissioning of the existing B-8 boiler and addition of ULNBs on F-700. In addition to making the requested changes, the Department deleted all references to 40 CFR 63, Subpart DDDDD: NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters, as it was removed from the ARM in October 2008. **Operating Permit #1564-05** replaced Operating Permit #OP1564-03.

On May 17, 2010, the Department received a request from ExxonMobil to administratively amend MAQP #1564-22 and on June 1, 2010, the Department received a request from ExxonMobil to incorporate a significant modification to their operating permit (#OP1564-05). The amendment and significant modification requests were submitted to incorporate into each permit, applicable requirements contained in paragraphs 70, 71, and 73 of the Consent Decree and the amendments to the CD filed on January 26, 2009. Paragraph 145 of the CD requires permit limits outlined within paragraphs 70, 71, and 73 to survive the termination of the CD. This permit action incorporated these specific limits as outlined. **MAQP #1564-23** was issued on August 5, 2010, and replaced MAQP #1564-22. **Operating Permit #OP1564-06** was issued on February 12, 2011, and replaced Operating Permit #OP1564-05.

D. Current Permit Action

On April 29, 2011, the Department received an application for concurrent modifications to MAQP #1564-23 and Title V operating permit #OP1564-06 from ExxonMobil to incorporate a number of different portable diesel engines certified to EPA Tier 3 emission standards into these permits. The application included proposed limits on annual hours of operation for some of the proposed engines in order to keep the combined emissions from the permitting action below any NSR/PSD major source modification significant emission rate (SER) thresholds. The Department replied with an incompleteness letter on June 7, 2011, indicating that the engine emissions needed to be based on the most conservative Tier 3 standards based on the proposed permit conditions and that ExxonMobil must provide compliance, recordkeeping, and reporting methods for a Title V modification. ExxonMobil responded with a letter received June 29, 2011, that addressed the issues presented in the Incompleteness Letter. The proposed engines and operating conditions are as follows:

- Project #1: Add two portable emergency backup diesel engines not to exceed 500-hp each and limited to 1,500 hours per year each that are certified to EPA Tier 3 emission standards or better. These engines are likely to drive either air compressors or electric generators and would be used as emergency backup engines to existing electrical equipment.
- Project #2: Add three portable remediation activity diesel engines not to exceed 250-hp each with no limits on annual hours of operation that are certified to EPA Tier 3 emission standards or better. These engines would likely drive either air compressors or other equipment used for remediation projects.
- Project #3: Add miscellaneous portable diesel engines not to exceed 500-hp each and limited to a combined 2,100,000-brake horsepower-hours (hp-hrs) per year that are certified to EPA Tier 3 emission standards or better. In order to maximize operational flexibility, ExxonMobil proposed a limit on total hp-hrs rather than annual hour limits for each engine. Hp-hrs is

equal to the engine's maximum rated hp multiplied by the actual hours of operation. The sum of the hp-hrs from each engine in Project #3 would be limited to 2,100,000-hp-hrs. These portable limited-use engines would likely drive either air compressors or electrical generators on an as-needed basis.

ExxonMobil submitted comments on the draft MAQP #1564-24 requesting that all permit conditions referencing the temporary B-8 boiler be removed from the MAQP and operating permit. ExxonMobil stated that a temporary B-8 boiler that was permitted in MAQP #1564-21 as part of the decommissioning and replacement project for this unit was never constructed or operated. Therefore, the use of the temporary B-8 is not needed and could be eliminated from the permits. The replacement B-8 boiler commenced operation on July 31, 2010.

On October 4, 2011, the Department sent a letter to ExxonMobil describing that periodic NO_x emissions reporting and NO_x CEMS performance reporting from the FCCU COB are not being routinely reported similar to all other refinery CEMS. The NO_x emission limits and CEMS installation is a Consent Decree requirement and the MAQP and Title V operating permit contain the appropriate NO_x emission limits and monitoring requirements; however there are no requirements prior to this permit action to report the NO_x emissions performance and NO_x CEMS performance such as monitor downtime and excess emissions reporting. Unlike the other pollutant CEMS operating on the FCCU COB, there are no applicable federal regulations (e.g. Subpart J) that address periodic NO_x emissions monitoring and CEMS performance reporting. The letter requested that ExxonMobil amend their MAQP and Title V operating permit to include periodic reporting of the NO_x emissions performance and CEMS performance in order to properly document compliance with the NO_x emission limits. On November 3, 2011, ExxonMobil submitted correspondence to the Department requesting that the MAQP and Title V operating permit be amended to include periodic NO_x emissions and CEMS performance reporting for the FCCU COB.

This permit action incorporates these engines and conditions, updates the B-8 boiler information, and establishes recordkeeping and reporting requirements for the FCCU COB NO_x emissions and CEMS performance. **MAQP #1564-24** was issued on September 13, 2011, and replaced MAQP #1564-23. **Operating Permit #OP1564-07** replaces #OP1564-06.

E. Taking and Damaging Analysis

HB 311, the Montana Private Property Assessment Act, requires analysis of every proposed state agency administrative rule, policy, permit condition or permit denial, pertaining to an environmental matter, to determine whether the state action constitutes a taking or damaging of private real property that requires compensation under the Montana or U.S. Constitution. As part of issuing an operating permit, the Department is required to complete a Taking and Damaging Checklist. As required by 2-10-101 through 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

YES	NO	
		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.

F. Compliance Designation

The last full compliance evaluation of ExxonMobil Refinery was conducted on September 19, 2011. ExxonMobil was found to be in compliance with the limits and conditions of MAQP #1564-23 and Title V Operating Permit #OP1564-06 at the time of the inspection.

SECTION II. SUMMARY OF EMISSION UNITS

A. Facility Process Description

ExxonMobil operates a greater than 52,000 barrel per day petroleum refinery designed to process high sulfur crude oil. Major processing equipment includes:

1. Atmospheric and vacuum crude distillation towers
2. Fluid Catalytic Cracking Unit
3. Hydrocracker/Hydrogen Plant
4. Fluid Coker
5. Naphtha Fractionator
6. Catalytic Reformer
7. Hydrofluoric Alkylation Unit
8. Three Hydrotreaters for polishing the distillate streams
9. Catalytic Hydrotreater Unit – Billings (CHUB Unit)

ExxonMobil does not have a sulfur recovery unit at this refinery. Refinery gases high in H₂S are piped to an off-site sulfur recovery plant owned and operated by MSCC. MSCC has an Amine unit to treat the sour fuel gas and return the sweet refinery fuel gas to ExxonMobil.

The refinery and the adjacent ExxonMobil bulk terminal are considered one facility for the purpose of any permitting completed in accordance with the New Source Review Program. In addition, according to EPA and Department interpretations, ExxonMobil's bulk terminal is considered a "support facility" for the refinery, and is therefore part of a Title V major source. At the request of the company, the bulk terminal will be permitted separately under the Title V operating permit program.

B. Emission Units and Pollution Control Device Identification

EU00: RFG – including 12 heaters & boilers not otherwise listed

This emitting unit incorporates all of the facility-wide refinery fuel gas requirements (including 40 CFR 60, Subpart J limitations, and requirements for monitoring, testing, recordkeeping and reporting). This emitting unit also includes the facility-wide Stipulation SO₂ limitations. Compliance is demonstrated for the 40 CFR, Subpart J requirements through use of a H₂S CEMS on the refinery fuel gas (RFG) header. Compliance is demonstrated for the lb/hr Stipulation limitations through use of a RFG fuel gas flow meter in addition to the H₂S CEMS.

EU1b: F-3 Heater Stack. This unit is a process heater that heats crude for the oil fractionation process.

EU2a: F-3x Heater Stack and EU2b F-5 Heater Stack. These units are process heaters that heat naphtha and/or distillates for the desulfurization process.

EU3b: F-202 - Heater Stack. This unit is a process furnace that super heats used steam in the fluid coking process.

EU4a: F-700 Heater Stack. This unit is a process heater that heats naphtha for the reforming process.

EU5a: F-402 Heater Stack. This unit is a hot oil heater that heats a circulating diesel material used to exchange heat to other hydrocarbons for fractionation and other process heating requirements.

EU7a: F-201 Heater Stack. This unit is a process heater that heats distillates and hydrogen for the desulfurization process.

EU11a: F-651 Heater Stack. This unit is a process heater that heats feedstock for the hydrocracking process.

EU12a: F-551 Heater Stack. This unit is a gas-fired, steam-reforming heater that contains a catalyst and manufactures hydrogen.

EU13: B-8 Backup Boiler

EU14b: F-10 Stack – Heater. This unit is a gas-fired storage tank heater which heats circulating oil. This unit fires only sweetened fuel.

EU16a: F-1201 Heater Stack. This unit is a process heater in support of the low sulfur motor gasoline process. This stack is required to have ultra low NO_x burners.

EU03a: Coker CO Boiler (KCOB) and EU09a: FCCU CO Boiler (CCOB) are included under the RFG requirements of this section, but are also regulated under individual emitting units.

EU01: Crude – Atmospheric Pipe Still (APS) and Vacuum Pipe Still (VPS)

The #1 Crude unit fractionates or separates petroleum crude oils into fractions including gas, naphtha, distillate, gas oil and residuum, with the lightest molecules at the top of the APS fractionating tower and the heaviest molecules at the bottom of the tower. The heavy "bottoms" from the first fractionation tower (APS) are further fractionated in a vacuum tower (VPS).

EU1a: F-2 Crude Vacuum Heater (F-1 Crude Furnace/ F-401 Vacuum Heater). This unit is a process heater that heats crude and reduced crude oil for the fractionation process.

EU1c: D-4 Drum Atmospheric Stack. This unit is a safety device to control and manage both routine and abnormal process unit releases.

EU02: HF #2/3 – Hydrofining Units #2 & #3 – *this EU was eliminated since the heaters are now included under EU00.*

EU03: Coker - Fluid Coker

This unit thermally cracks residuum into materials including gases, naphtha, gas oils and coke using a fluidized coke. The primary control is the YELP process.

EU3a: KCOB - Coker CO Boiler. This unit is a steam boiler, which may burn coker process gases in addition to supplemental fuel. There is an opacity and stack flow and SO₂ CEMS monitors on this stack.

EU3c: Coker Process Gas Vent. Collection of Group I Miscellaneous Process Vents.

EU04: Catalytic Reforming (POFO – Powerforming) Unit

This unit reforms low octane naphtha into high-octane gasoline using a catalyst.

EU05: Alky/Splitter/Rerun/Diene - Alkylation Unit, Alky Feed Treater, Rerun of Alkylate for Avgas – *this EU was eliminated since the heaters are now included under EU00.*

EU06: Treater - Cat Naphtha Caustic Treater (Merox Unit) after Cat Cracker – *this EU was eliminated since fugitive leak requirements under 40 CFR 63, Subpart CC are now included under a new EU17.*

EU07: HF#1 - *this EU was eliminated since the heaters are now included under EU00.*

EU08: DEC2 - Deethanizer Unit - *this EU was eliminated since fugitive leak requirements under 40 CFR 63, Subpart CC are now included under a new EU17*

EU09: FCCU - Catalytic Cracking Unit

This unit catalytically cracks heavy petroleum gas oils into lighter materials including gas, naphtha, olefins, and cycle oils using a circulation bed of fluidized catalyst.

EU9a: CCOB - FCC CO Boiler. This unit is a steam boiler, which may burn catalytic cracking process gases in addition to supplemental fuels. This stack has both an opacity monitor and an SO₂ CEMS.

EU9b: CCOB Bypass.

EU10: ULEB/SLEB - Unsaturated Light Ends Unit, Saturated Light Ends Unit, Sour Water Strippers, Gas Compression - *this EU was eliminated since fugitive leak requirements under 40 CFR 63, Subpart CC are now included under a new EU17*

EU11: HCBL - Hydrocracking Unit - *this EU was eliminated since the heaters are now included under EU00.*

EU12: H₂ Plant/HRUB - H₂ Plant, H₂ Upgrade (Recovery) Facility, MDU Replacement - *this EU was eliminated since the heaters are now included under EU00.*

EU13: Utilities - Air Compressors/Dryers, Boiler Feed Water - *this EU was eliminated since the boilers are now included under EU00.*

EU14: OM&U - Oil Movements & Utilities

This unit consists of the flare system

EU14a: Flare and Turnaround Flare. This unit is a flare for combustion of emergency gaseous hydrocarbon releases. The Turnaround flare is used only when the primary flare is not operating.

EU14c: Flare Seal Drum. This unit is a Group I Miscellaneous Process Vent.

EU15: OM&S/PMAU - Oil Movements & Shipping/Asphalt PMAU

This unit includes petroleum storage tank farms and the PMA unit. All non-unit specific storage tanks are included in this unit, which consists of about 80 tanks of various sizes and four spheres and four horizontal propane storage vessels.

EU15a: PMA Loading

EU16: Low Sulfur MoGas - *this EU was eliminated since fugitive leak requirements under 40 CFR 63, Subpart CC are now included under a new EU17*

EU17: Refinery-Wide Fugitive Emissions

This new unit includes all VOC, HAPs and benzene equipment leaks throughout the facility.

EU18 – Emergency/Backup Stationary and Portable Engines

EU18a: SE1-SE12, IEU6a & IEU6b: 12 or more diesel and 2 gasoline engines. Units SE1 through SE11 are individual diesel-fired engines. SE12 is comprised of one or more diesel-fired engines that are collectively regulated as a single emitting unit. IEU6a and IEU6b are individual gasoline-fired engines.

C. Categorically Insignificant Sources/Activities

Insignificant emission units under Title V are defined under ARM 17.8.1201(22) to mean any emissions unit with the potential to emit less than 5 tons per year (TPY) of a regulated pollutant, 500 TPY of lead, and 500 lbs/yr of hazardous air pollutants (HAPs); and are not regulated by an applicable requirement, other than a generally applicable requirement.

Appendix A of Operating Permit #OP1564-07 lists insignificant emission units at the facility. ExxonMobil is not required to update a list of insignificant emission units outside of renewal or significant modification applications; therefore, the emission units and/or activities may change from those specified in Appendix A.

Emission Unit ID	Description
IEU01	Warehouse building heater
IEU02	Mechanical building heater
IEU03	Operations Control Center building heater
IEU04	FCCU/HCBL Shelter heater
IEU07	Laboratory building heater
IEU08	Laboratory equipment testing emissions
IEU09	Gasoline knock engines (3)
IEU10	Main office building heater
IEU11	Trailer heating units (8)
IEU17	Propane odorant facility
IEU18	Operator's Shelter heater (natural gas-fired residential furnace rated at 10 scfm)

SECTION III. PERMIT CONDITIONS

A. Emission Limits and Standards

Emission limits and standards in the Title V operating permit were established by ExxonMobil's MAQP #1564-24, the Billings/Laurel SIP, NSPS requirements, NESHAP requirements, and MACT requirements. The definitions of terms apply to where the limit or condition was derived from. If a condition is placed in the permit from the SIP, then the definition that applies to that condition would be the SIP definition.

B. Monitoring Requirements

ARM 17.8.1212(1) requires that all monitoring and analysis procedures or test methods required under applicable requirements are contained in operating permits. In addition, when the applicable requirement does not require periodic testing or monitoring, periodic monitoring must be prescribed that is sufficient to yield reliable data from the relevant time period that is representative of the source's compliance with the permit.

The requirements for testing, monitoring, recordkeeping, reporting, and compliance certification sufficient to assure compliance do not require the permit to impose the same level of rigor for all emission units. Furthermore, they do not require extensive testing or monitoring to assure compliance with the applicable requirements for emission units that do not have significant potential to violate emission limitations or other requirements under normal operating conditions. When compliance with the underlying applicable requirement for an insignificant emissions unit is not threatened by lack of regular monitoring and when periodic testing or monitoring is not otherwise required by the applicable requirement, the status quo (**i.e., no monitoring**) will meet the requirements of ARM 17.8.1212(1). Therefore, the permit does not include monitoring for insignificant emission units.

The permit includes periodic monitoring or recordkeeping for each applicable requirement. The information obtained from the monitoring and recordkeeping will be used by the permittee to periodically certify compliance with the emission limits and standards. However, the Department may request additional testing to determine compliance with the emission limits and standards.

C. Test Methods and Procedures

The operating permit may not require testing for all sources if routine monitoring is used to determine compliance, but the Department has the authority to require testing if deemed necessary to determine compliance with an emission limit or standard. In addition, the permittee may elect to voluntarily conduct compliance testing to confirm its compliance status.

All requirements to perform any type of test in this permit were previously established by ExxonMobil's MAQP #1564-24, the Billings/Laurel SIP, NSPS requirements, NESHAP requirements, and MACT requirements, except for the requirement to perform test on the FCC CO boiler and the Coker CO boiler. This permit requires Method 9 tests (as required by the Department and Section III.A.1) and biannual Method 5 tests to be performed on the FCC CO boiler and the Coker CO boiler. These testing requirements were established by the Department's testing policy.

D. Recordkeeping Requirements

The permittee is required to keep all records listed in the operating permit as a permanent business record for at least 5 years following the date of the generation of the record.

E. Reporting Requirements

Reporting requirements are included in the permit for each emissions unit and Section V of the operating permit "General Conditions" explains the reporting requirements. ExxonMobil is required to submit quarterly, semi-annual, and annual monitoring reports to the Department and to annually certify compliance with the applicable requirements contained in the permit. The reports must also include a list of all emission limit and monitoring deviations, the reason for any deviation, and the corrective action taken as a result of any deviation.

To eliminate redundant reporting, a source may reference previously submitted reports (with at least the date and subject of the report) in the semi-annual and annual reports instead of resubmitting the information in monthly, quarterly, and/or other reports. However, a source must still certify continuous or intermittent compliance with each applicable requirement annually.

F. Public Notice

In accordance with ARM 17.8.1232, a public notice was published in the *Billings Gazette* newspaper on or before November 9, 2011. The Department provided a 30-day public comment period on the draft operating permit from November 9, 2011, to December 9, 2011. ARM 17.8.1232 requires the Department to keep a record of both comments and issues raised during the public participation process. The comments and issues received are summarized below, along with the Department's responses.

Summary of Public Comments

Person/Group Commenting	Comment	Department Response
	No Comments Received	

G. Draft Permit Comments

Summary of Permittee Comments

Permit Reference	Permittee Comment	Department Response
	No Comments Received	

Summary of EPA Comments

Permit Reference	EPA Comment	Department Response
	No Comments Received	

SECTION IV. NON-APPLICABLE REQUIREMENT ANALYSIS

A. Requirements Not Identified as Non-Applicable

Pursuant to ARM 17.8.1221, ExxonMobil requested a permit shield for all non-applicable regulatory requirements and regulatory orders identified in Section IV of the June 1, 2006, Title V Renewal application for Operating Permit #OP1564-02. In addition, that application also requested a permit shield for both the facility and for certain emission units. The Department determined that the requirements identified in the permit application for the individual emission units are non-applicable. These requirements are contained in the permit in Section IV – Non-applicable Requirements.

The following table outlines those requirements that ExxonMobil had identified as non-applicable in Permit Application #OP1564-02, but will not be included in the operating permit as non-applicable. The table includes both the applicable requirement and reason that the Department did not identify this requirement as non-applicable.

Applicable Requirement	Reason for Not Including
Administrative Rules of Montana (ARM)	
ARM 17.8.316 Incinerators ARM 17.8.770 Additional Requirements for Incinerators	The Department considers flares to be incinerators, and as such ExxonMobil is subject to ARM 17.8.316 and ARM 17.8.770.
ARM 17.8.322(2) – (4) Sulfur Oxide Emissions – Sulfur in Fuel	This rule may not be applicable to the source at this time; however, it may become applicable during the life of the permit.
Billings/Laurel SO ₂ Control Plan (approved into the SIP by EPA on May 2, 2002 and May 22, 2003)	
Exhibit A §3(E)(1) -3(E)(3), 4(C), 4(D)(2), 4(F), 4(G), 6(B)(4)(b), 6(B)(7), 7(B)(1)(j)	The Department does not have the authority to change the applicability of the SO ₂ SIP through this Title V action.
MAQP #1564-18	
Conditions #II.A.3, II.A.5, II.A.6, II.A.7, II.G, II.M.5, II.M.10, II.N.2, II.N.4, II.O.3 (F-700, only), II.O.4 (F-700 only), II.O. Notification required.	Since the Title V permit renewal application was submitted on June 6, 2006, the Department has issued a more recent MAQP #1564-19. The issues raised in Section IV.A. have all been removed from the permit and this comment is no longer relevant.

B. NSPS Standards

The following NSPS standards are not applicable to the ExxonMobil Refinery for the reasons identified in the table below.

Applicable Requirement	Reason Not Applicable
40 CFR 60, Subparts D, Da, Db and Dc Standard of Performance for Steam Generating Units	ExxonMobil's boilers were not constructed, reconstructed, or modified after the applicability date for Subpart Db, and do not have the maximum size design capacities to meet the relevant thresholds for Subparts D, Da, or Dc. In addition, "process heaters" are not regulated as "steam generating units" and are not subject to this regulation.
40 CFR 60, Subpart UU Standard of Performance for Asphalt Roofing Manufacture	This standard is not currently applicable because potentially affected facilities were constructed prior to the applicable date of the regulation of May 26, 1981. However, this standard will be applicable upon modification of Tank #55 to asphalt service,

Applicable Requirement	Reason Not Applicable
	as permitted under MAQP #1564-18.
40 CFR 60, Subpart VV Standard of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry	This requirement is not applicable because ExxonMobil does not operate affected facilities. However, ExxonMobil is required to comply with specific provisions within Subpart VV, as required under 40 CFR 63, Subpart CC.
40 CFR 60, Subpart XX Standard of Performance for Bulk Gasoline Terminals	These standards are not applicable to this permit because ExxonMobil Refinery is permitted separately from the bulk terminal (although they are considered to be one source for the purposes of New Source Review permitting). However, it is applicable to the ExxonMobil Bulk Terminal, permitted under preconstruction Permit #2967-00.
40 CFR 60, Subpart QQQ Standards of Performance for VOC Emissions from Petroleum Refinery Wastewater Systems	These standards are not applicable because affected facilities have not been constructed, modified, or reconstructed since May 4, 1987.

C. NESHAP Standards

The following NESHAP standards are not applicable to the ExxonMobil Refinery for the reasons identified in the table below.

Applicable Requirement	Reason Not Applicable
40 CFR 61, Subpart Y National Emission Standard for Benzene Emissions From Benzene Storage Vessels	These standards are not applicable because ExxonMobil has no benzene storage.
40 CFR 61, Subpart BB National Emission Standard for Benzene Emissions From Benzene Transfer Operations	These standards are not applicable because ExxonMobil has no benzene transfer facilities.

D. MACT Standards

The following MACT standards are not applicable to the ExxonMobil Refinery for the reasons identified in the table below.

Applicable Requirement	Reason Not Applicable
40 CFR 63, Subparts F, G, H & I National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks	The requirement is not applicable because the refinery is regulated under 40 CFR 63 Subpart CC.
40 CFR 63, Subpart Q National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers	These standards are not applicable. ExxonMobil does not operate industrial process cooling towers that use chromium-based treatment of chemicals.
40 CFR 63, Subpart R National Emission Standards for Gasoline Distribution Facilities (Bulk Gasoline Terminals and Pipeline Breakout Stations)	These standards are not applicable to this permit because ExxonMobil Refinery is permitted separately from the bulk terminal (although they are considered to be one source for the purposes of New Source Review permitting). However, it is applicable to the ExxonMobil Bulk Terminal, permitted under preconstruction Permit #2967-00.
40 CFR 63, Subpart EEEE, NESHAPs: Organic Liquids Distribution (non-gasoline) except for initial one-time notification	ExxonMobil operates a toluene transfer rack what does not require controls; therefore, there are no requirements other than initial one-time notification.
40 CFR 63, Subpart GGGGG NESHAPs: Site Remediation	Since site remediation activities at ExxonMobil are being performed under RCRA corrective action and meets the exemption from Subpart GGGGG, ExxonMobil is not currently subject to the requirements in this Subpart.
40 CFR 63, Subpart LLLLL NESHAPs: Asphalt Processing and Asphalt Roofing Manufacturing	Subpart LLLLL does not apply to any equipment that is subject to 40 CFR 63, Subpart CC and 40 CFR 60, Subparts K, Ka & Kb, therefore, ExxonMobil is not subject to any requirements in

Applicable Requirement	Reason Not Applicable
	this regulation.

E. Streamlined Requirements

Pursuant to ARM 17.8.1212, as of 1/23/09 when Operating Permit #OP1564-02 became final and effective, the federally-enforceable standards, monitoring, recordkeeping, reporting and other applicable requirements cited in the following table for the listed source or group of sources are subsumed by the more stringent requirement or by a “hybrid” compliance demonstration scheme. The Department has determined that compliance with the streamlined requirements listed below and elsewhere in this permit will assure compliance with the substantive provisions of the subsumed requirements.

Emission Unit ID	Subsumed Rule Citation	Streamlined Rule Citation	Reason
Fuel Gas Combustion Devices – <ul style="list-style-type: none"> • EU00 • EU03a (KCOB) • EU09a (CCOB) • EU14a (Flare and T/A Flare) 	ARM 17.8.322(4) Sulfur in Fuel - Liquid and Solid Fuel limited to 1 lb sulfur per million Btu fired.	ARM 17.8.749, Consent Decree paragraph 60: ExxonMobil not capable of combusting solid fuel, and is not allowed to fire fuel oil, except during periods of natural gas curtailment, and except for (i) the use of torch oil in an FCC Unit Regenerator to assist in starting, restarting, maintaining hot standby, or maintaining regenerator heat balance; or (ii) combustion of acid-soluble oil in a combustion device.	Compliance with 40 CFR 60, Subpart J and not firing fuel oil will ensure compliance with the more generous subsumed rule.
Fuel Gas Combustion Devices – <ul style="list-style-type: none"> • EU00 • EU03a (KCOB) • EU09a (CCOB) • EU14a (Flare and T/A Flare) 	ARM 17.8.322(5) Sulfur in Gaseous Fuel – 50 grains/100 cubic feet (1,144 milligrams H ₂ S/dry standard cubic meter fuel (mg H ₂ S/dscm fuel)) Refinery-wide block hourly fuel sulfur limit of 0.96 lb/MMBtu fired (13,234 mg H ₂ S/dscm fuel at a minimum RFG HHV of 810 Btu/scf)	40 CFR 60, Subpart J: 230 mg H ₂ S/dscm fuel (equivalent to 0.10 grains/dscf or ~160 ppmv H ₂ S @ STP)	The 40 CFR 60, Subpart J fuel sulfur (as H ₂ S) limit is much more stringent. Compliance with the NSPS limit assures compliance with the subsumed limits.
Fuel Gas Combustion Devices – <ul style="list-style-type: none"> • EU00 • EU03a (KCOB) • EU09a (CCOB) 	Billings/Laurel SO ₂ Control Plan (Exhibit A), Section 6(B)(3)	Hybrid Statement: NSPS Subpart J continuous monitoring (Fuel gas H ₂ S CEMS – §60.105(a)(4) and §60.13; and flow rate monitoring CEMS – Billings/Laurel SO ₂ Control Plan (Exhibit A), Section 6(B)(8).	The RFG H ₂ S CEMS required by 40 CFR 60, Subpart J meets or exceeds the performance specifications for the Fuel gas H ₂ S CEMS required by continuous monitoring provisions of the Billings/Laurel SO ₂ Control Plan (Exhibit A, Section 6(B)(3). The redundant RFG H ₂ S CEMS is eliminated.
	Billings/Laurel SO ₂ Control Plan (Exhibit A), Section 5 Emissions Testing: §5(B) Annual Source Testing Method 11 or equivalent.	Annual RATA (Method 11)	The annual source testing requirement is not necessary, as the annual RATA (Method 11) meets this requirement.

EU17 – Equipment Leaks Refinery-Wide	40 CFR 60, Subpart GGG; 40 CFR 61, Subparts J and V	40 CFR 63, Subpart CC (Petroleum Refinery MACT Rule)	Process units refinery-wide are subject to equipment and work practice standards, test methods and procedures, monitoring, recordkeeping and reporting requirements for equipment leaks set out in the Petroleum Refinery MACT Rule, which are at least equivalent or more stringent than the equipment leak standards and provisions of NSPS and NESHAPS.
EU15 – Group 1 Storage Vessels (Crude oil, gasoline, and petroleum distillate tanks > 65,000 gallons capacity)	ARM 17.8.324(1) – Hydrocarbon emissions – Petroleum products		All tanks with a storage capacity > 65,000 gallons and storing crude oil, gasoline, or distillates with a vapor pressure of 2.5 psia (17.2kPa) or greater are classified as Group I storage vessels, which are subject to the more stringent Petroleum Refinery MACT Rule.

SECTION V. FUTURE PERMIT CONSIDERATIONS

A. MACT Standards

40 CFR 63, Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines applies any stationary reciprocating internal combustion engine (RICE) located at a major source of HAP emissions; however, new or reconstructed compression ignition (CI) stationary RICE with a site rating of less than or equal to 500-hp located at major sources of HAP emissions meet the requirements of this subpart by meeting the requirements of 40 CFR 60, Subpart IIII. No further requirements apply for such engines under 40 CFR 63, Subpart ZZZZ ((§63.6590(c)(7)). The diesel engines added to the facility as part of this permitting action would be subject to this requirement.

For stationary RICE with a site rating of less than or equal to 500-hp located at a major source of HAP emissions, a unit is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006 (§63.6590(a)(1)(ii)). Existing stationary CI RICE with a site rating of less than or equal to 500-hp located at a major source of HAP emissions must comply with the applicable emission limitations and operating limitations no later than May 3, 2013. An existing stationary spark ignition RICE with a site rating of less than or equal to 500-hp located at a major source of HAP emissions must comply with the applicable emission limitations and operating limitations no later than October 19, 2013 (§63.6595(a)(1)). ExxonMobil has several permitted stationary RICE that would be subject to this requirement.

B. NESHAP Standards

The Department is unaware of any proposed or pending NESHAP standards, in addition to those already listed, that may be applicable to ExxonMobil.

C. NSPS Standards

The Department is not aware of any proposed or pending NSPS standards, in addition to those already listed, that may be applicable at this time. The diesel engines added to the facility as part of this permitting action would be subject to 40 CFR 60, Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines.

D. Risk Management Plan

If a facility has more than a threshold quantity of a regulated substance in a process, the facility must comply with 40 CFR 68 requirements no later than June 21, 1999; 3 years after the date on which a regulated substance is first listed under 40 CFR 68.130; or the date on which a regulated substance is first present in more than a threshold quantity in a process, whichever is later.

Because ExxonMobil exceeds the minimum threshold quantity for several regulated substances listed under 40 CFR 68.115, ExxonMobil was required to submit a Risk Management Plan to EPA by June 21, 1999. ExxonMobil submitted the plan to EPA on June 21, 1999.

The refinery has several regulated flammables such as propane, butane, etc. In addition, the refinery uses and/or processes anhydrous ammonia, aqueous ammonia (>20%), hydrofluoric (HF) acid and hydrogen sulfide, which are also regulated substances. Although the anhydrous ammonia, aqueous ammonia (>20%), and hydrogen sulfide are present in amounts less than the threshold quantities, ExxonMobil treats them in the same way by applying the accidental release prevention and the emergency response programs.

E. Compliance Assurance Monitoring (CAM) Plan

An emitting unit located at a Title V facility that meets the following criteria listed in ARM 17.8.1503 is subject to Subchapter 15 and must develop a CAM Plan for that unit:

- The emitting unit is subject to an emission limitation or standard for the applicable regulated air pollutant (other than emission limits or standards proposed after November 15, 1990, since these regulations contain specific monitoring requirements);
- The emitting unit uses a control device to achieve compliance with such limit; and
- The emitting unit has potential pre-control device emissions of the applicable regulated air pollutant that are greater than major source thresholds.

ExxonMobil currently has one emitting unit that meet all the applicability criteria in ARM 17.8.1503: EU03 KCOB (Coker Unit CO Boiler). The unit is required to meet the process weight rule for PM. A multiclone is used for PM control. ExxonMobil proposes to use opacity monitoring as the on-going method of assuring compliance.

F. Prevention of Significant Deterioration (PSD) and Title V Greenhouse Gas Tailoring Rule

On May 7, 2010, EPA published the “light duty vehicle rule” (Docket # EPA-HQ-OAR- 2009-0472, 75 FR 25324) controlling greenhouse gas (GHG) emissions from mobile sources, whereby GHG became a pollutant subject to regulation under the Federal and Montana Clean Air Act(s). On June 3, 2010, EPA promulgated the GHG “Tailoring Rule” (Docket # EPA-HQ-OAR-2009-0517, 75 FR 31514) which modified 40 CFR Parts 51, 52, 70, and 71 to specify which facilities are subject to GHG permitting requirements and when such facilities become subject to regulation for GHG under the PSD and Title V programs.

Under the Tailoring Rule, any PSD action (either a new major stationary source or a major modification at a major stationary source) taken for a pollutant or pollutants other than GHG that was not final prior to January 2, 2011, would be subject to PSD permitting requirements for GHG if the GHG increases associated with that action were at or above 75,000 tons per year (tpy) of carbon dioxide equivalent (CO₂e). Similarly, if such action were taken, any resulting requirements would be subject to inclusion in the Title V Operating Permit. Starting on July 1, 2011, PSD permitting requirements would be triggered for modifications that were determined to be major under PSD based on GHG emissions alone, even if no other pollutant triggered a major modification. In addition, sources that exceed the 100,000 tpy CO₂e threshold under Title V would be required to obtain a Title V Operating Permit if they were not already subject.

Based on information provided by ExxonMobil and calculations performed by the Department, ExxonMobil’s potential emissions for the current listed emitting units exceed the GHG major source threshold of 100,000 tpy of CO₂e for both Title V and PSD under the Tailoring Rule. Therefore, ExxonMobil may be subject to GHG permitting requirements in the future.

SECTION VI. OTHER CONSIDERATIONS

The Department has reviewed the refinery and ExxonMobil's bulk marketing terminal and has determined that for the purposes of New Source Review permitting, these facilities are one source. The refinery and the bulk marketing terminal are contiguous and adjacent, under common ownership and control and the terminal is a support facility to the refinery. Because the facilities meet these criteria, they meet the definition of source and will be considered one source under the requirements of ARM 17.8.749 and ARM 17.8.801(7). The emissions from both facilities will need to be considered when either facility makes a change.