

217/782-2113

CONSTRUCTION PERMIT - NSPS SOURCE - NESHAP SOURCE

PERMITTEE

ExxonMobil Oil Corporation  
Attn: Jeffrey L. Noga - Environmental Group Leader  
P.O. Box 874  
Joliet, Illinois 60434

Application No.: 03110060 I.D. No.: 197800AAA  
Applicant's Designation: Date Received: November 26, 2003  
Subject: Ultra Low Sulfur Diesel (uLSD) Project  
Date Issued: TO BE DETERMINED  
Location: I-55 & Arsenal Road, Joliet

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of the ultra low sulfur diesel (uLSD) project, that is, various changes to the refinery to produce lower sulfur diesel, as described in the above referenced application. This Permit is subject to standard conditions attached hereto and the following special conditions:

1.0 Unit Specific Conditions

1.1 Unit: uLSD Project

1.1.1 Description

The ultra low sulfur diesel (uLSD) project will enable the refinery to produce low sulfur diesel fuel for on-road motor vehicles, as required by federal regulation. Diesel is made from a number of distinct blend stocks or streams produced at the refinery. This project allows the refinery to remove more sulfur from one of these streams, to the level needed to produce ultra low sulfur diesel by enhancing the sulfur removing capabilities of the existing catalytic hydrodesulfurization (CHD) unit.

The CHD unit is a continuous operation that improves the quality of high sulfur feedstock by removing sulfur, nitrogen and metal compounds. Additional reactors will be installed to accomplish the enhanced sulfur removing capabilities. The piping and fittings for these reactors will involve additional valves and other components with the potential for VOM emissions, due to leaks to the atmosphere. Emissions are controlled by a leak detection and repair program.

The additional reactors will require additional heat which will be provide by increasing the firing of the CHD Charge Heater, CHD Stripper Reboiler and Auxiliary Boiler. These units currently have sufficient capacity to handle this increased firing.

The south sulfur recovery unit (SSRU) will experience an additional loading of sulfur due to the incremental sulfur removed in the CHD Unit. The SSRU currently has sufficient sulfur production capacity to handle this increased loading.

Several individual drain systems for stormwater and process wastewater will be installed or modified as part of the project. Emissions will be controlled by the design and operation of these systems. In addition, the Refinery will seal several existing drains within the same individual drain system. Therefore, there will be no net increase in emission from the individual drain systems. New individual drain systems are classified as Group 2 wastewater streams as defined in 40 CFR 63.641.

This project does not involve modifications to other process units at the refinery, including the Fluidized Catalytic Cracking Unit (FCCU) and Coker Unit.

1.1.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Components	New Fugitive Components (valves, flanges, etc)	None

1.1.3 Applicability Provisions and Applicable Regulations

- a. An "affected component" for the purpose of these unit-specific conditions, is a new component installed as part of the uLSD Project as described in Conditions 1.1.1 and 1.1.2.
- b. This permit is issued based upon the affected components being subject to National Emission Standards for Hazardous Air Pollutants From Petroleum Refineries, 40 CFR 63, Subparts A and CC. The Illinois EPA administers the NESHAP for subject sources in Illinois pursuant to a delegation agreement with the USEPA. The Permittee shall comply with all applicable requirements of 40 CFR 63, Subparts A and CC.

Note: The Permittee has indicated that it generally has chosen to comply with the equipment leak requirements specified in 40 CFR 63, Subpart CC by complying with the Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry 40 CFR 60, Subpart

VV. This is one of the options for compliance set forth by 40 CFR 63, Subpart CC.

- c. This permit is issued based upon certain individual drain systems (IDS) associated with the uLSD Project being subject to the NSPS for Standards of Performance for VOC Emissions From Petroleum Refinery Wastewater Systems, 40 CFR 60 Subparts A and QQQ. The Illinois EPA administers the NSPS for subject sources in Illinois pursuant to a delegation agreement with the USEPA. The Permittee shall comply with all applicable requirements of 40 CFR 60, Subparts A and QQQ.

#### 1.1.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on this project not triggering the applicability of New Source Performance Standards (NSPS) for Petroleum Refineries, 40 CFR Part 60, Subpart J for the South Sulfur Recovery Plant because it has the capacity to handle additional acid gas without a capital expenditure.
- b. This permit is issued based on this project not triggering the New Source Performance Standards (NSPS) for Industrial- Commercial-Institutional Steam Generating Units, 40 CFR Part 60, Subpart Db for the Auxiliary Boiler because the increased firing of the boiler is within its capacity and there will be no physical changes or a capital expenditure.
- c. This permit is issued based on this project not triggering the New Source Performance Standards (NSPS) for Petroleum Refineries, 40 CFR Part 60, Subpart J for the CHD Charge Heater and the CHD Stripper Reboiler because the increased firing of these units is within the capacity of the units and there will be no physical changes or a capital expenditure.
- d. Pursuant to 40 CFR 60.692-2(d), except as provided in 40 CFR 60.692-2(e), each modified or reconstructed individual drain system that has a catch basin in the existing configuration prior to May 4, 1987 shall be exempt from the provisions 40 CFR 60.692-2.
- e. The Permittee has addressed the applicability of 40 CFR 52.21, Prevention of Significant Deterioration (PSD) and 35 IAC Part 203, Major Stationary Sources Construction and Modification (MSSCAM) to this project. The limits in this permit are intended to

ensure that the project addressed in this construction permit does not constitute a major modification pursuant to these rules, as further explained in Attachments 1 and 2.

- i. This permit is issued based upon a negligible increase of 0.1 tons of volatile organic material (VOM) per year attributable to an incremental increase in barge loading of materials.
- ii. This permit is issued based upon a negligible increase of 0.1 tons of VOM per year attributable to an incremental increase in various tank throughputs.
- iii. This permit is issued based upon a negligible increase of 0.35 tons of particulate matter (PM) per year attributable to an incremental increase in coke handling operations.
- iv. This permit is issued based upon an increase of 3.5 tons of VOM per year attributable to the new affected components.
- v. This permit is issued based upon an increase of 232.62 tons of sulfur dioxide (SO<sub>2</sub>) emissions attributable to the additional sulfur loading at the SSRU.
- vi. This permit is issued based upon increases in emissions from equipment attributable to additional firing of equipment as follows:

<u>Equipment</u>	<u>Emissions</u>				
	<u>NO<sub>x</sub></u> <u>(T/Yr)</u>	<u>CO</u> <u>(T/Yr)</u>	<u>VOM</u> <u>(T/Yr)</u>	<u>SO<sub>2</sub></u> <u>(T/Yr)</u>	<u>PM/PM<sub>10</sub></u> <u>(T/Yr)</u>
3-B-1	0.58	0.15	0.78	0.12	0.01
3-B-2	0.58	0.15	0.82	0.12	0.01
17-B-1	0.18	0.07	----	0.12	0.01
8B-1	2.37	0.79	----	1.41	0.15
55-B-100	13.79	14.05	1.08	5.30	0.89
SSRU	0.18	0.00	----	----	0.01

- f. The above requirements and the limitations in Conditions 1.1.9, and 1.1.10 become effective when the Permittee begins operation of units in the uLSD Project to produce ultra low sulfur diesel for commercial sale.

1.1.5 Operational and Production Limits and Work Practices

None

1.1.6 Emission Limitations

None

1.1.7 Testing Requirements

None

1.1.8 Monitoring Requirements

None

1.1.9 Recordkeeping Requirements

a. For the units identified in Condition 1.1.4(e) (vi), the following records shall be kept:

i. Before beginning actual construction of the project, the Permittee shall document and maintain a record of the following information [40 CFR 52.21(r) (6) (i)]:

A. A description of the project;

B. Identification of the emissions unit(s) whose emissions of a regulated PSD pollutant could be affected by the project; and

C. A description of the applicability test used to determine that the project is not a major modification for any regulated PSD pollutant, including the baseline actual emissions, the projected actual emissions, the amount of emissions excluded under 40 CFR 52.21(b) (41) (ii) (c) and an explanation for why such amount was excluded, and any netting calculations, if applicable.

ii. The Permittee shall keep records for the emissions of any regulated PSD pollutant (NO<sub>x</sub>, CO, SO<sub>2</sub>, PM/PM<sub>10</sub>) that could increase as a result of the project and that is emitted by any emissions unit identified in 40 CFR 52.21(r) (6) (i) (b) (See also Condition 1.1.9(a) (i) (B)); and calculate and maintain a record of the annual emissions, in tons per

year on a calendar year basis, for a period of 5 years following resumption of regular operations after the change, or for a period of 10 years following resumption of regular operations after the change if the project increases the design capacity of or potential to emit that regulated PSD pollutant at such emissions unit [40 CFR 52.21(r) (6) (iii)].

- b. The Permittee shall maintain records of the following items for affected components:
  - i. Number of new components by unit or location and type in the uLSD Project; and
  - ii. VOM emissions from affected components, (tons/year), based on the methods in Condition 1.1.12(a), with supporting calculations.

#### 1.1.10 Reporting Requirements

- a. The Permittee shall notify the Illinois EPA of any deviations with the permit requirements within 30 days, except as otherwise required by the Refinery's CAAPP Permit. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken.
- b. For the units identified in Condition 1.1.4(e) (vi), the Permittee shall submit a report to the Illinois EPA and USEPA if the annual emissions, in tons per year, from the project identified in 40 CFR 52.21(r) (6) (i) (See also Condition 1.1.9(a) (i)), exceed the baseline actual emissions (as documented and maintained pursuant to 40 CFR 52.21(r) (6) (i) (c), by a significant amount (as defined in 40 CFR 52.21(b) (23) for that regulated PSD pollutant (NO<sub>x</sub>, CO, SO<sub>2</sub>, PM/PM<sub>10</sub>), and if such emissions differ from the preconstruction projection as documented and maintained pursuant to 40 CFR 52.21(r) (6) (i) (c). Such report shall be submitted to the Illinois EPA and USEPA within 60 days after the end of such year. The report shall contain the following [40 CFR 52.21(r) (6) (v)]:
  - i. The name, address and telephone number of the major stationary source;
  - ii. The annual emissions as calculated pursuant to 40 CFR 52.21(r) (6) (iii); and

iii. Any other information that the Permittee wishes to include in the report (e.g., an explanation as to why the emissions differ from the preconstruction projection).

c. The Permittee shall notify the Illinois EPA within 30 days of producing ultra low sulfur diesel for commercial sale, pursuant to this permit.

1.1.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

1.1.12 Compliance Procedures

a. Emission from affected components shall be based on the recordkeeping requirements in Condition 1.1.9 and applicable standard emission estimate methodology published by USEPA in "Protocol for Equipment Leak Emission Estimates", EPA-453/R-95-017 (November 1995).

2. The new/modified emission units addressed by this construction permit may be operated under this permit until renewal of the CAAPP permit or a modification of the CAAPP permit is issued provided the Permittee submits a timely application to amend the current CAAPP permit to incorporate this project.

If you have any questions on this permit, please contact Jason Schnepf at 217/782-2113.

Donald E. Sutton, P.E.  
Manager, Permit Section  
Division of Air Pollution Control

DES:JMS:

cc: Region 1  
Lotus Notes

Attachment 1

PSD Applicability - SO<sub>2</sub> Netting Analysis

Contemporaneous Time Period of January 1999 Through January 2004

**Table I - Emissions Increases and Decreases Associated With The Proposed Modification**

<u>Item of Equipment</u>	<u>Emission Change*</u> <u>(Tons/Year)</u>
CHD Charge Heater (3-B-1)	0.12
CHD Stripper Reboiler (3-B-2)	0.12
PreTreater Chg Heater (17-B-1)	0.12
PreTreater Deb. Reb. (17-B-2)	-0.82
Lean Oil Still Reb. (8-B-1)	1.41
Aux Boiler (55-B-100)	5.30
SSRU	<u>232.62</u>
	238.87

\* Calculated using the Actual-to-projected-actual applicability test

**Table II - Source-Wide Creditable Contemporaneous Emission Increases**

<u>Item of Equipment</u>	<u>Commencement of</u> <u>Operation Date</u>	<u>Emissions</u> <u>Increase</u> <u>(Tons/Year)</u>	<u>Permit Number</u>
FCC Jumpover Line Project	5/2002	32.23	02030040
FCC Expander Turbine Replacement Project	10/2003	2.36	02040013
Coker B/D Tank	3/2004	<u>21.81</u>	03060085
	Total:	56.40	

**Table III - Source-Wide Creditable Contemporaneous Emission Decreases**

<u>Item of Equipment</u>	<u>Commencement of</u> <u>Operational</u> <u>Change Date</u>	<u>Emissions</u> <u>Decrease</u> <u>(Tons/Year)</u>	<u>Permit Number</u>
Low Sulfur Mogas Project	10/2003	576.83	01030070
Coker B/D Recovery Project	9/2004	<u>2593.00</u>	02030040
	Total:	3169.83	

**Table IV - Net Emissions Change**

	<u>(Tons/Year)</u>
Increases and Decreases Associated With Proposed Modification	238.87
Creditable Contemporaneous Emission Increases	56.40
Creditable Contemporaneous Emission Decreases	<u>-3169.83</u>
	-2874.57

Attachment 2

Nonattainment NSR Applicability - VOM Netting Analysis

Contemporaneous Time Period of 2001 Through 2005

**Table I - Emissions Increases and Decreases Associated With The Proposed Modification**

<u>Item of Equipment</u>	<u>Emission Change (Tons/Year)</u>
CHD Charge Heater (3-B-1)	0.78*
CHD Stripper Reboiler (3-B-2)	0.53*
PreTreater Chg Htr. (17-B-1) & PreTreater Deb. Reb. (17-B-2)	0.00**
Lean Oil Still Reb. (8-B-1)	0.00**
Aux Boiler (55-B-100)	1.08***
Barge Loading	0.10
Increase at Storage Tanks	0.10
New Fugitive Components	<u>3.50</u>
	6.09

**Table II - Source-Wide Creditable Contemporaneous Emission Increases**

<u>Item of Equipment</u>	<u>Commencement of Operation Date</u>	<u>Emissions Increase (Tons/Year)</u>	<u>Permit Number</u>
FCC Jumpover Line Project	5/2002	0.22	02030040
Low Sulfur Mogas Project	10/2003	17.28	01030070
FCC Expander Turbine Replacement Project	10/2003	0.25	02040013
Coker B/D Tank	3/2004	<u>0.00</u>	03060085
	Total:	17.75	

**Table III - Source-Wide Creditable Contemporaneous Emission Decreases**

<u>Item of Equipment</u>	<u>Commencement of Operational Change Date</u>	<u>Emissions Decrease (Tons/Year)</u>	<u>Permit Number</u>
Coker B/D Recovery Project	9/2004	5.90	02030040

**Table IV - Net Emissions Change**

	<u>(Tons/Year)</u>
Increases and Decreases Associated With Proposed Modification	6.09
Creditable Contemporaneous Emission Increases	17.75
Creditable Contemporaneous Emission Decreases	<u>-5.90</u>
	17.94

\* Emission increase based on past actual to future potential comparison where the future potential emissions from 3-B-1 are based on a future maximum firing rate of 132 mmBtu/hr and the future potential emissions from 3-B-2 are based on a future maximum firing rate of 116 mmBtu/hr, both of which are less than the maximum design firing rates of these units.

\*\* For purposes of nonattainment area NSR, the allowable emissions established in the LSM Project Construction Permit represent past actual emissions as there is not two years worth of operating data after the LSM project to establish representative past actual emissions. There are no revisions to these limits as part of this project, and as a result the net change from this project is 0 tons/yr for these emission units.

\*\*\* The increase in VOM emissions from the Aux Boiler is based on a past actual to future potential analysis for the Aux Boiler where the past actual emissions are equal to the allowable emissions established as part of the LSM Construction permit since there is not two years of operating data available. The future potential emissions are based on a revised maximum daily average firing rate of 340 mmBtu/hr. This is an increase of 45 mmBtu/hr in the maximum hourly (on a daily average basis) firing rate established in the LSM Construction Permit.