

217/782-2113

CONSTRUCTION PERMIT - NSPS SOURCE - NESHAP SOURCE - REVISED

PERMITTEE

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

Application No.: 03110060 I.D. No.: 197800AAA  
Applicant's Designation: Date Received: March 22, 2005  
Subject: Ultra Low Sulfur Diesel (uLSD) and CSO Stripper Projects  
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, and the Clarified Slurry Oil (CSO) Stripper Project as described in the above referenced application. This Permit is subject to standard conditions attached hereto and the following special conditions:

Findings

- 1a. ExxonMobil Oil Corporation is seeking a revision to the original construction permit for the uLSD and CSO Stripper projects to address a change in the projects related to the supply of hydrogen needed for these projects. That permit was issued based upon the projects resulting in a less than significant increase in volatile organic material (VOM) emissions.
- b. ExxonMobil has subsequently determined that the current hydrogen production capacity of the refinery is inadequate for these projects and that additional supply is needed. The hydrogen for this project would be supplied by a new hydrogen plant located at the Refinery but will be owned and operated by Air Products (Construction Permit Application 05020063). The operation of the new hydrogen plant would be accompanied by volatile organic material (VOM) emissions that by themselves would not be considered significant. The Illinois EPA is considering ExxonMobil's uLSD project and Air Products' Hydrogen Plant a single project for purposes of New Source Review.
- c. This change does not affect the CSO Stripper Project, which increases production of diesel fuel feed stock streams but does not involve the use of hydrogen.
- d. The VOM emissions from this project (uLSD Project and CSO Stripper Project, including associated Hydrogen Plant) when combined with all other net increases in VOM emissions from the source over the calendar years 2002 through 2006 exceed 25 tons, therefore this project results in a significant net emissions increase triggering the requirements for LAER and offsets.

2. The ExxonMobil Refinery is located in an area designated nonattainment for ozone and PM<sub>2.5</sub>.
3. The overall project, the uLSD project, CSO Stripper Project and the hydrogen plant, has potential emissions, when combined with the net emission increases from other contemporaneous projects at the source, that are more than 25 tons/year for VOM. The project is therefore subject to 35 IAC 203: Major Stationary Sources Construction and Modification (MSSCAM).
- 4a. After reviewing all materials submitted by ExxonMobil, the Illinois EPA has determined that the project will comply with all applicable Board emissions standards.
- b. The new and modified emission units involved in the project will meet the Lowest Achievable Emission Rate (LAER) for VOM as required by MSSCAM. The case-by-case determination of LAER for this project is contained in the Control Requirements and the Work Practices for components and individual drain systems contained in Conditions 1.1.5-2 and 1.1.5-3 of this Permit.
- c. Emission units which experience an increase in emissions but do not undergo a physical change or change in the method of operations are not subject to LAER. These units are further identified in Condition 1.1.4 of this Permit.
5. The Illinois EPA has broadly considered alternatives to this project, as required by 35 IAC 203.306. ExxonMobil's uLSD project is the result of a federally mandated program to reduce sulfur in diesel fuel. As the refinery is an existing source and requires the uLSD project to reduce sulfur in the diesel fuel it produces to the new federally mandated standard, the benefits of the proposed project significantly outweigh its environmental and social costs.
6. Pursuant to 35 IAC 203.305, the Permittee has demonstrated that all major stationary sources which he or she owns or operates in Illinois are in compliance or on a schedule for compliance with all applicable state and federal air pollution control requirements, as further identified in Condition 1.1.13 of this permit.
7. A copy of the application and the Illinois EPA's review of the application and a draft of this permit was forwarded to a location in the vicinity of the plant, and the public was given notice and opportunity to examine this material, to submit comments, and to request and participate in a public hearing on this matter.

**1.0 UNIT SPECIFIC CONDITIONS FOR SPECIFIC EMISSION UNITS**

1.1 Unit: uLSD and CSO Stripper Projects

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. This is accomplished by "stripping" the sulfur and other compounds from the feedstock by reactions with hydrogen. Additional reactors will be installed to accomplish the enhanced sulfur removing capabilities. The reactors are closed and do not vent to the atmosphere. The piping and fittings for these reactors will involve additional valves and other components with the potential for VOM emissions to the atmosphere, due to leaks. These emissions are controlled by a leak detection and repair program.

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

The south sulfur recovery unit (SSRU) will experience an additional loading of sulfur, as hydrogen sulfide ( $H_2S$ ) due to the incremental sulfur removed in the CHD Unit. The SSRU currently has sufficient sulfur production capacity to handle this increased loading.

To ensure diesel fuel production levels can be maintained, supplemental hydrogen will be provided by a new Hydrogen Plant being constructed by Air Products at the refinery in conjunction with this project. The construction of the Hydrogen Plant, and associated tie-ins, are addressed in a separate permit (application number 05020063).

Several individual drain systems (IDS) for stormwater and process wastewater will be installed or modified as part of the project. Emissions of VOM, which potentially occur from materials entrained in wastewater systems, will be controlled by the design and operation of these systems. In addition, the ExxonMobil will re-route tank water draws from certain existing storage tanks (221, 222, 223, 224, and 225) to the closed light slop system to allow for recovery of organic materials, instead of directly to the oil-water separation portions of the Refinery's wastewater treatment plant. Therefore, there will be a net decrease in emissions from the aggregate drain facility. New individual drain systems are classified as Group 2 wastewater streams as defined in 40 CFR 63.641.

The CSO Stripper Project is a related product uplift project that allows for greater recovery of "light cycle oil," a higher

value material that is a feedstock that can be used for production of diesel fuel.

These projects do 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 Air Pollution Control Equipment

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

1.1.3 Applicable Provisions and Regulations

- a. i. An "affected component" for the purpose of these unit-specific conditions, is a new component installed as part of the uLSD Project or the CSO Stripper Project as described in Conditions 1.1.1 and 1.1.2, and any subsequent replacement of such new component.
- ii. 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. However, for affected components the Permittee must comply with applicable provisions of 40 CFR Part 63, Subpart H. (See Condition 1.1.5-2.)

- b. i. An "affected individual drain system" for the purpose of these unit-specific conditions, is a new or modified individual drain system (IDS) installed as part of the uLSD Project as described in Conditions 1.1.1 and 1.1.2, and any subsequent replacement of such new IDS.
- ii. This permit is issued based upon affected individual drain systems 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. For these IDS, the Permittee shall comply with all applicable requirements of 40 CFR 60, Subparts A and QQQ.

- iii. This permit is issued based upon affected individual drain systems associated with the uLSD Project also being subject to the National Emission Standards for Hazardous Air Pollutants From Petroleum Refineries, 40 CFR 63 Subparts A and CC. For these IDS, the Permittee shall comply with all applicable requirements of 40 CFR 63, Subparts A and CC.

Note: If the affected individual drain systems meet the criteria for Group 2 wastewater streams as defined in 40 CFR 63.641, as planned by the Permittee, there would be no control requirements under 40 CFR 63, Subpart CC.

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

- a.
  - i. 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.
  - ii. This permit is issued based on this project not triggering the 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.
  - iii. This permit is issued based on this project not triggering the 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.
- b. 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.
- c. Pursuant to 40 CFR 63.640(p), components that would be also subject to the provisions of 40 CFR Parts 60 and 61 are

required only to comply with the provisions of 40 CFR Part 63 Subpart CC, rather than Parts 60 and 61.

- d. Notwithstanding the fact that the affected components are subject to 35 IAC 218.445 through 218.452, which require a leak monitoring and repair program, the source is not required to address the provisions of these state rules. This action was based on the Illinois EPA's finding, pursuant to action in the CAAPP permit, following review of the various requirements of these state rules and the federal rules at 40 CFR Part 63, Subpart H, that compliance with these federal rules, as is required, will assure compliance with these state rules. (Refer to 40 CFR 63.640(q)).
- e.
  - i. 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, except for VOM as addressed with respect to MSSCAM, as further explained in Attachments 1 and 2.
  - ii. For this purpose, this permit is issued based upon:
    - A. A negligible increase of 0.1 tons of volatile organic material (VOM) per year attributable to an incremental increase in barge loading of materials.
    - B. A negligible increase of 0.1 tons of VOM per year attributable to an incremental increase in various tank throughputs.
    - C. A negligible increase of 0.35 tons of particulate matter (PM) per year attributable to an incremental increase in coke handling operations.
    - D. An increase of 232.62 tons of sulfur dioxide (SO<sub>2</sub>) emissions attributable to the additional sulfur loading at the SSRU.
    - E. Increases in emissions attributable to additional firing of existing equipment as follows:

	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM/PM <sub>10</sub>
<u>Equipment</u>	<u>(T/Yr)</u>	<u>(T/Yr)</u>	<u>(T/Yr)</u>	<u>(T/Yr)</u>

3-B-1	0.58	0.15	0.12	0.01
3-B-2	0.58	0.15	0.12	0.01
17-B-1	0.18	0.07	0.12	0.01
8-B-1	2.37	0.79	1.41	0.15
55-B-100	13.79	14.05	5.30	0.89
SSRU	0.18	0.00	----	0.01

iii. As certain units addressed by Condition 1.1.4(e) (ii) (E) were included in previous construction permit limitations (Construction Permit 01030070), the projected emissions provided by the Permittee for these groups of units after the uLSD, are as follows:

A. Combined emissions from the PreTreater Unit Charge Heater (17-B-1), PreTreater Unit Debutanizer Reboiler (17-B-2), Reformer Unit Charge Heaters (2-B-3, 4, 5, 6), Reformer Unit Debutanizer Reboiler (2-B-7), Lean Oil Still Reboiler (8-B-1), Auxiliary Boiler (55-B-100) and the Hot Oil Heater (21-B-1):

<u>Pollutant</u>	<u>(Tons/Year)</u>
NO <sub>x</sub>	339.99
SO <sub>2</sub>	177.4
CO	182.95
PM	22.09
PM <sub>10</sub>	22.09

B. Combined emissions from the Crude Unit Feed Preheater (1-B-3/13-B-4), PreTreater Unit Charge Heater (17-B-1), Reformer Unit Charge Heaters (2-B-3, 4, 5, 6), CHD Unit Charge Heater (3-B-1), and Coker Unit Heaters (16-B-1A, 1B):

<u>Pollutant</u>	<u>(Tons/Year)</u>
NO <sub>x</sub>	420.7
SO <sub>2</sub>	190.6
CO	111.0
PM	20.3
PM <sub>10</sub>	19.7

C. Combined emissions from the FCC Unit, North Sulfur Recovery Plant, and South Sulfur Recovery Plant: 2,130.8 tons NO<sub>x</sub>, 20,958.42 tons SO<sub>2</sub>, 2,816 tons CO, 3.4 tons VOM, and 469.1 tons PM/PM<sub>10</sub>.

1.1.5-1 Control Requirements and Work Practices

a. The operation of the Co-Generation Unit (Gas Turbine Generator [20-N-1] and Waste Heat Steam Generator [20-B-1]) shall be coordinated with the operation of the Auxiliary Boiler and the East and West CO Boilers (14-B-3, 14-B-4) as follows:

i. When the Co-Generation Unit and East and West CO Boilers are operating, the Auxiliary Boiler shall be operated at a rate not to exceed 340 mmBtu/hr on a daily average basis.

ii. Notwithstanding the above, the Auxiliary Boiler (55-B-100) may be operated in excess of 340 mmBtu/hour for purposes of shakedown/lineout and/or testing. The emissions from such additional firing shall be included when determining compliance with the annual emission limitations for the Auxiliary Boiler.

iii. A. When the Co-Generation Unit is shutdown or one or both of the East and West CO Boilers is shutdown (including the time period to bring a unit down), the Auxiliary Boiler may be operated at a firing rate above 340 mmBtu/hr (daily average) as needed to make up for reduced operation of the CO boiler(s) or Co-Generation Unit due to equipment failure or unit outage.

B. For purposes of determining compliance with the emission limits in Condition 1.1.6(b), emissions from the Auxiliary Boiler (55-B-100) associated with the "additional generation" addressed above may be excluded.

Note: This Condition establishes new operating requirements for the Auxiliary Boiler as related to the uLSD Project that will supersede the requirements established by Condition 1.1.5(c) of Construction Permit 01030070, which addresses the configuration of the Auxiliary Boiler after the LSM Project. The 45 mmBtu/hr increase in the current limit (295 mmBtu/hr, as established in the LSM Project Construction Permit) for the Auxiliary Boiler, accounts for increased steam production associated with the uLSD Project. This limit may be revised in the future as part of the permitting of other projects at the source to account for steam production associated with such other projects.

b. Operation of the following emission units shall not exceed the following limits:

<u>Emission Unit</u>	<u>Maximum Firing Rate* (mmBtu/Hr)</u>
CHD Charge Heater (3-B-1)	132
CHD Stripper Reboiler (3-B-2)	116

\* Annual Average

#### 1.1.5-2 Requirements for Affected Components

- a. i. Affected components shall comply with the applicable standards in 40 CFR 63, Subpart H, including:
  - A. Affected compressors shall comply with the standards for compressors in 40 CFR 63.164.
  - B. Affected open-ended lines (gas service) shall comply with the standards for open-ended valves or lines in 40 CFR 63.167.
  - C. Affected valves (gas service and liquid service) shall comply with the standards for valves in gas/vapor service and in light liquid service in 40 CFR 63.168.
  - D. Affected pumps, valves, connectors shall comply with the standards for pumps, valves, and connectors in heavy liquid service in 40 CFR 63.169.
  - E. Affected connectors (gas service and light liquid service) shall comply with the standards for connectors in gas/vapor service and in light liquid service in 40 CFR 63.174.

Note: All of the components that are in volatile organic compound service at the source's petroleum refining process units are considered to be in organic HAP service.

- ii. For affected compressors, open-ended lines, valves and connectors, the Permittee shall monitor the component to detect leaks by the method specified in 40 CFR 63.180(b), except that a more stringent definition of a leak shall apply, i.e., an instrument reading of 500 parts per million or greater from components shall be considered a leak.
- iii. Each affected component shall be identified in a manner that distinguishes the affected components from other existing components, and allows the appropriate definition of a leak to be utilized.

1.1.5-3 Requirements for Affected Individual Drain Systems

- a.
  - i. Each affected individual drain system shall be equipped with water seal controls [40 CFR 60.692-2(a)(1)].
  - ii. Each affected individual drain system in active service shall be checked by visual or physical inspection initially and monthly thereafter for indications of low water levels or other conditions that would reduce the effectiveness of the water seal controls [40 CFR 60.692-2(a)(2)].
  - iii. Except as provided in 40 CFR 60.692-2(a)(4), each affected individual drain system out of active service shall be checked by visual or physical inspection initially and weekly thereafter for indications of low water levels or other problems that could result in VOC emissions [40 CFR 60.692-2(a)(3)].
  - iv. As an alternative to the requirements in 40 CFR 60.692-2(a)(3), if an owner or operator elects to install a tightly sealed cap or plug over an affected individual drain system that is out of service, inspections shall be conducted initially and semiannually to ensure caps or plugs are in place and properly installed [40 CFR 60.692-2(a)(4)].
  - v. Whenever low water levels or missing or improperly installed caps or plugs are identified at an affected individual drain system, water shall be added or first efforts at repair shall be made as soon as practicable, but not later than 24 hours after detection, except as provided in 40 CFR 60.692-6 [40 CFR 60.692-2(a)(5)].
- b.
  - i. Junction boxes shall be equipped with a cover and may have an open vent pipe. The vent pipe shall be at least 90 cm (3 ft) in length and shall not exceed 10.2 cm (4 in) in diameter [40 CFR 60.692-2(b)(1)].
  - ii. Junction box covers shall have a tight seal around the edge and shall be kept in place at all times, except during inspection and maintenance [40 CFR 60.692-2(b)(2)].
  - iii. Junction boxes shall be visually inspected initially and semiannually thereafter to ensure that the cover is in place and to ensure that the cover has a tight seal around the edge [40 CFR 60.692-2(b)(3)].
  - iv. If a broken seal or gap is identified, first effort at repair shall be made as soon as practicable, but

not later than 15 calendar days after the broken seal or gap is identified, except as provided in 40 CFR 60.692-6 [40 CFR 60.692-2(b)(4)].

- c. i. Sewer lines shall not be open to the atmosphere and shall be covered or enclosed in a manner so as to have no visual gaps or cracks in joints, seals, or other emission interfaces [40 CFR 60.692-2(c)(1)].
- ii. The portion of each unburied sewer line shall be visually inspected initially and semiannually thereafter for indication of cracks, gaps, or other problems that could result in VOC emissions [40 CFR 60.692-2(c)(2)].
- iii. Whenever cracks, gaps, or other problems are detected, repairs shall be made as soon as practicable, but not later than 15 calendar days after identification, except as provided in 40 CFR 60.692-6 [40 CFR 60.692-2(c)(3)].
- 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 of 40 CFR 60.692-2 [40 CFR 60.692-2(d)].
- e. Refinery wastewater routed through new process drains and a new first common downstream junction box, either as part of a new individual drain system or an existing individual drain system, shall not be routed through a downstream catch basin [40 CFR 60.692-2(e)].

Note: Conditions 1.1.5-2 and 1.1.5-3 represent the Lowest Achievable Emissions Rate (LAER) for emissions of VOM as applied to affected components and affected drains, pursuant to 35 IAC 203.301. For this purpose, as LAER is based on the adopted provisions of 40 CFR Part 63 Subpart H and shall not be subject to revision or relaxation by USEPA on a case-by-case basis, without parallel revision to the LAER requirement as set by the Illinois EPA in this Permit.

1.1.6 Production and Emission Limitations

- a. Emissions and operation of equipment shall not exceed the following limits. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).

<u>Emission Unit</u>	VOM Emissions <u>(Tons/Yr)</u>
CHD Charge Heater (3-B-1)	1.54

CHD Stripper Reboiler (3-B-2) 1.35

- b. Combined annual emissions from the PreTreater Unit Charge Heater (17-B-1), PreTreater Unit Debutanizer Reboiler (17-B-2), Reformer Unit Charge Heaters (2-B-3, 4, 5, 6), Reformer Unit Debutanizer Reboiler (2-B-7), Lean Oil Still Reboiler (8-B-1), Auxiliary Boiler (55-B-100) and the new Hot Oil Heater (21-B-1) shall not exceed the following limits. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).

<u>Pollutant</u>	<u>Emissions (Tons/Year)</u>
VOM	22.48

Note: this limit supersedes the limit in Condition 1.1.6(a)(i) of Permit 01030070 (LSM Construction Permit) and reflects the increase in VOM emissions (1.08 tons/yr) associated with a potential increase in firing rate of 45 mmBtu/hr at the Auxiliary Boiler attributable to this project.

- c. Combined annual emissions from the Crude Unit Feed Preheater (1-B-3/13-B-4), PreTreater Unit Charge Heater (17-B-1), Reformer Unit Charge Heaters (2-B-3, 4, 5, 6), CHD Unit Charge Heater (3-B-1), and Coker Unit Heaters (16-B-1A, 1B) shall not exceed the following limits. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).

<u>Pollutant</u>	<u>Emissions (Tons/Year)</u>
VOM	17.6

Note: this limit supersedes the limit in Condition 1.1.6(a)(ii) of Permit 01030070 (LSM Construction Permit).

- d. i. This permit supersedes limits for NO<sub>x</sub>, CO, SO<sub>2</sub>, PM, and PM<sub>10</sub> previously established in Conditions 1.1.6(a)(i), (ii), and (b) of Construction Permit 01030070, as the Permittee will be undertaking a new modification with this project.
- ii. The projected actual emissions with this project, as calculated by the Permittee, are listed in Condition 1.1.4(e)(ii)(E). The revised limits for the Sulfur Recovery Plants are as follows: Combined maximum emissions from the North Sulfur Recovery Plant and

South Recovery Plant of SO<sub>2</sub>, when both the North Sulfur Recovery Plant and South Sulfur Recovery Plant are operating, shall not exceed the following: 1,899.9 lb/hr and 8,321.42 tons/year. When the North Sulfur Recovery Plant is out of service, the South Sulfur Recovery Plant emissions shall not exceed 2,482.7 lb/hr of SO<sub>2</sub>.

- e. Emissions of volatile organic material (VOM) from the affected components (i.e., valves, flanges, etc.) shall not exceed 4.1 tons per year. For purposes of this condition, the new affected components only include new components associated with the uLSD and CSO stripper projects and do not include any components associated with the Hydrogen Plant, including components tying the Hydrogen Plant to the refinery process units, which are accounted for in the Hydrogen Plant permit.

1.1.7 Testing/Inspection Requirements

- a. Before using any affected drain installed in compliance with the requirements of 40 CFR 60.692-2, the owner or operator shall inspect such equipment for indications of potential emissions, defects, or other problems that may cause the requirements of 40 CFR Part 60 Subpart QQQ not to be met. Points of inspection, as applicable, shall include, but are not limited to, seals, flanges, joints, gaskets, hatches, caps, and plugs [40 CFR 60.696(a)].

1.1.8 Monitoring Requirements

For affected components, the Permittee shall comply with monitoring requirements identified in 40 CFR 63.168 and 63.174. For this purpose, the Permittee shall utilize the test methods and procedures identified in 40 CFR 63.180.

1.1.9 Recordkeeping Requirements

- a. For the units identified in Condition 1.1.4(e)(ii)(E), 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 comply with the recordkeeping requirements identified in 40 CFR 63.181. In these records, the Permittee shall include such other information as is needed to assure that the repair requirements in this permit are met.
- c. 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 CSO Stripper Project; and
  - ii. VOM emissions from affected components, (tons/year), based on the methods in Condition 1.1.12(a), with supporting calculations.
- d. The Permittee shall maintain a file that contains the following information for affected components. This file may be kept in either paper or electronic copy:
  - i. The applicable identification number for each component;
  - ii. Results from initial leak monitoring of the affected component;
  - iii. Leak definition for each affected component; and
  - iv. Monitoring frequency (i.e., when monitoring is due).
- e. For times that the Auxiliary Boiler is fired above 340 mmBtu/hr (daily average), the reason why (e.g., the Co-

Generation Unit and/or a CO Boiler was shutdown, etc.), and quantification of the emissions resulting from the additional generation allowed by Condition 1.1.5(a) (iii), that are not included in monthly or annual emission records. This condition superseded Condition 1.1.9(b) (vi) established in the LSM Construction Permit (01030070).

- f. For the affected IDS, the Permittee shall comply with the applicable recordkeeping requirements of 40 CFR 60.697.

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) (ii) (E), 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. For affected components, the Permittee shall comply with the reporting provisions identified in 40 CFR 63.182. Specifically, the Permittee shall submit the following reports:
  - i. An Initial Notification described in 40 CFR 63.182 (b),

- ii. A Notification of Compliance Status described in 40 CFR 63.182(c) submitted no later than 90 days after initial startup of the uLSD project, and
  - iii. Periodic Reports described in 40 CFR 63.182(d).
- d. With the initial compliance report required by Condition 1.1.10(c)(ii), the Permittee shall submit:
- i. Records of the number and type of affected components, and;
  - ii. Calculated VOM emissions for affected components using the predicted leak rate and emission factors provided in the permit application.

Note: This information will be used to evaluate variation between predicted and as-built component counts, which may have an impact on projected emissions (i.e., emission limits and required offsets).

- e. The Permittee shall notify the Illinois EPA within 30 days of producing ultra low sulfur diesel for commercial sale, pursuant to this permit.
- f. For the affected IDS, the Permittee shall comply with the applicable reporting requirements of 40 CFR 60.698.

1.1.11 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected components.

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) or API Publication Number 337 for components in heavy liquid service.
- b. The above requirements of this Permit for the uLSD and CSO Projects become effective when the Permittee begins operation of units in the uLSD Project to produce ultra low sulfur diesel for commercial sale.

1.1.13 Compliance Schedules

The Permittee is subject to and shall take the actions required in the schedules of compliance established for the following emission units. These schedules may be adjusted through a

revision of this permit in the event an unforeseen delay beyond the Permittee's control occurs.

Group 1 Miscellaneous Process Vents (MPVs) - 40 CFR Part 63, Subpart CC.

Compressor Environmental Upgrades - 40 CFR Part 63, Subpart CC.

a. Group 1 MPVs:

i. The Permittee shall submit a Notice of Compliance Status Report, in accordance with the requirements of 40 CFR 63.654(f) that includes the test results demonstrating that the flare used to control HAP emissions from Group 1 MPVs subject to 40 CFR 63 Subpart CC meets the requirements of 40 CFR 63.11(b) by July 31, 2005.

b. Compressor Environmental Upgrades

i. The Permittee shall achieve compliance with all applicable requirements of 40 CFR Part 63, Subpart CC for Compressors 19-G-3A/B no later than November 25, 2005 and 20-G-1A/B no later than December 22, 2005.

ii. The Permittee shall achieve compliance with all applicable requirements of 40 CFR Part 63, Subpart CC for Compressors 1-G-1A/B, 2-G-2A/B and 3-G-2A/B no later than May 31, 2006.

Note: The Permittee has submitted a permit application for the Compressor Environmental Upgrades required by 40 CFR Part 63 Subpart CC dated May 13, 2005.

Note: Pursuant to 35 IAC 203.305, the Permittee must demonstrate that it is in compliance, or on a schedule for compliance, with all applicable state and federal air pollution control requirements. As part of this application, the Permittee has proposed schedules of compliance for certain emission units, which are now made enforceable by this Condition. These schedules become effective upon issuance of this revised Construction Permit.

2a. The Permittee, either alone or coordinated with Air Products and Chemicals, Inc., shall maintain 23.0 tons of VOM emission offsets generated by other sources in the Chicago nonattainment area such that the total is 1.3 times the VOM emissions allowed from this overall project (Hydrogen Plant and uLSD Project combined).

b. These VOM emission reduction credits are provided by permanent emission reductions that occurred at the following source, as identified below. These emission reductions have been relied upon by the Illinois EPA to issue this permit and the Air Products Hydrogen Plant permit (Construction Permit Application 05020063) and cannot be used as

emission reduction credits for other purposes. The reductions at the sources identified below have been made enforceable by the withdrawal of the air pollution control permits for the source.

Viskase, Bedford Park, I.D. No. 031012ABQ

Or

ASF Keystone, Hammond, IN

Permanent Shutdown of Facility

23.0 tons/year

- c. The acquisition of VOM emission offsets shall be completed either 90 days after issuance of this Construction Permit or prior to commencement of construction of the Hydrogen Plant to support the uLSD project, whichever occurs later.

Condition 2 represents the actions identified in conjunction with this project to ensure that the project is accompanied by emission offsets and does not interfere with reasonable further progress for VOM.

Emission offsets are being required in conjunction with the issuance of the permit because USEPA has not approved provisions of the ERMS that would allow compliance with the ERMS to satisfy the offset requirements for a major modification in 35 IAC Part 203. For this purpose, the Illinois EPA has applied provisions of 35 IAC Part 203 that were applicable when a permit was originally issued for the uLSD project. This requires that offsets be provided in a ratio of 1.3 to 1.

3. 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.

It should be noted that this permit has been revised to account for emissions increases from an Air Products Hydrogen Plant being constructed in conjunction with the uLSD project, as described in the findings.

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: January 1999 Through April 2006

**Table I - Project Emissions Increases and Decreases**

<u>Item of Equipment</u>	<u>Emissions (Tons/Year)</u>
Hydrogen Plant	0.56
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>
	239.43

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

<u>Item of Equipment</u>	<u>Date</u>	<u>Emissions (Tons/Year)</u>	<u>Permit Number</u>
FCC Jumpover Line	5/2002	32.23	02030040
Repl. FCC Expander Turbine	10/2003	2.36	02040013
Coker B/D Tank	3/2004	7.02	03060085
Temporary Coker Diesel Pump	12/2004	<u>0.28</u>	04100043
	Total:	41.89	

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

<u>Item of Equipment</u>	<u>Date</u>	<u>Emissions (Tons/Year)</u>	<u>Permit Number</u>
Low Sulfur Mogas	10/2003	576.83	01030070
Coker B/D Recovery	9/2004	<u>2,593.00</u>	03060091
	Total:	3,169.83	

**Table IV - Net Emissions Change**

	<u>(Tons/Year)</u>
Increases and Decreases Associated With Proposed Modification	239.43
Creditable Contemporaneous Emission Increases	41.89
Creditable Contemporaneous Emission Decreases	<u>-3,169.83</u>
	-2,888.51

Attachment 2a

PSD Applicability - NO<sub>x</sub> Netting Analysis

Contemporaneous Time Period: January 1999 Through April 2006

**Table I - Project Emissions Increases and Decreases**

<u>Item of Equipment</u>	<u>Emission Change (Tons/Year)</u>
Hydrogen Plant	41.88
CHD Charge Heater (3-B-1)	0.58
CHD Stripper Reboiler (3-B-2)	0.58
PreTreater Chg Heater (17-B-1)	0.18
PreTreater Deb. Reb. (17-B-2)	-1.23
Lean Oil Still Reb. (8-B-1)	2.37
Aux Boiler (55-B-100)	13.79
SSRU	<u>0.18</u>
Total:	58.33

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

<u>Item of Equipment</u>	<u>Date</u>	<u>Emissions (Tons/Year)</u>	<u>Permit Number</u>
FCC Jumpover Line	5/2002	8.19	02030040
Low Sulfur Mogas	10/2003	39.04	01030070
FCC Expander Turbine	10/2003	12.26	02040013
Coker Blowdown Tank	3/2004	3.21	03060085
Temporary Coker Diesel Pump	12/2004	<u>4.19</u>	04100043
Total:		66.89	

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

<u>Item of Equipment</u>	<u>Date</u>	<u>Emissions (Tons/Year)</u>	<u>Permit Number</u>
Coker B/D Recovery	11/2004	219.00	03060091

**Table IV - Net Emissions Change**

	<u>(Tons/Year)</u>
Increases and Decreases Associated With Proposed Modification	58.33
Creditable Contemporaneous Emission Increases	66.89
Creditable Contemporaneous Emission Decreases	<u>-219.00</u>
	-93.78

Attachment 2b

Non-attainment NSR Applicability - NO<sub>x</sub> Netting Analysis (8-hour Ozone)

Contemporaneous Time Period: November 1998 through April 2006

**Table I - Project Emissions Increases and Decreases**

<u>Item of Equipment</u>	<u>Emission Change* (Tons/Year)</u>
Hydrogen Plant	41.88
CHD Charge Heater (3-B-1)	35.19
CHD Stripper Reboiler (3-B-2)	29.49
PreTreater Chg Heater (17-B-1)	0.00
PreTreater Deb. Reb. (17-B-2)	0.00
Lean Oil Still Reb. (8-B-1)	0.00
Aux Boiler (55-B-100)	13.79
SSRU	<u>0.00</u>
Total:	120.36

\* Calculated using the Actual-to-Potential applicability test. For units that did not have 2 years of operating data since the most recently permitted modification, permitted allowable from the prior project was used to represent past actual in the applicability test.

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

<u>Item of Equipment</u>	<u>Date</u>	<u>Emissions Increase (Tons/Year)</u>	<u>Permit Number</u>
FCC Jumpover Line	5/2002	8.19	02030040
Low Sulfur Mogas	10/2003	39.04	01030070
FCC Expander Turbine	10/2003	12.26	02040013
Coker Blowdown Tank	3/2004	3.21	03060085
Temporary Coker Diesel Pump	12/2004	<u>4.19</u>	04100043
Total:		66.89	

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

<u>Item of Equipment</u>	<u>Date</u>	<u>Emissions Decrease (Tons/Year)</u>	<u>Permit Number</u>
Coker B/D Recovery	11/2004	219.00	03060091

**Table IV - Net Emissions Change**

	<u>(Tons/Year)</u>
Increases and Decreases Associated With Proposed Modification	120.36
Creditable Contemporaneous Emission Increases	66.89
Creditable Contemporaneous Emission Decreases	<u>-219.00</u>
	-31.75

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