

217/785-1705

CONSTRUCTION PERMIT -- REVISED
NSPS SOURCE -- NESHAP SOURCE

PERMITTEE

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

Application No.: 09040008 I.D. No.: 197800AAA
Applicant's Designation: Date Received: February 28, 2014
Subject: NSR Controls Phase II and Other Construction
Date Issued: March 27, 2014
Location: I-55 and Arsenal Road, Channahon

This Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of an NSR Controls Phase II and Other Construction Project, as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

1.0 OVERALL PROJECT CONDITIONS

1.1 Project Description

This permit addresses installation of a Selective Catalytic Reduction (SCR) control system on the Fluid Catalytic Cracking (FCC) Unit to control its emissions of nitrogen oxides (NO_x). This permit also addresses other changes at or related to the FCC Unit.

The FCC Unit is a continuous operation that uses a fluidized catalyst to convert larger molecules into smaller molecules by a "cracking" process. This enables various intermediate streams at the refinery that contain molecules that are otherwise too large to be used for production of higher quality products, to be directed into such products, notably gasoline. The SCR System will control emissions of NO_x by treating the flue gas using a catalytic reaction and ammonia. The ammonia for the SCR System will be handled in a new ammonia receiving and storage facility. An SCR System must be installed on the FCC Unit pursuant to a Consent Decree (*United States of America, State of Illinois, State of Louisiana, and the State of Montana v. Exxon Mobil Corporation and ExxonMobil Oil Corporation*, United States District Court for the Northern District of Illinois, No. 05 C 5809) (Consent Decree). Among other matters, this Consent Decree addresses alleged violations of New Source Review involving FCC Units.

This Consent Decree sets forth a phased approach to additional emission control equipment that must be installed at the Joliet refinery. Accordingly, Exxon Mobil outlined a phased approach to the installation of the emission control equipment required by the Consent Decree in a previous permit application. In addition, this previous application specifically addressed the control equipment initially required to be

installed by the Consent Decree. The resulting permit, Construction Permit 06100002, addressed the initial phase of Exxon Mobil's program to comply with the Consent Decree, i.e., the installation of a scrubber on the FCC Unit for control of emissions of sulfur dioxide (SO₂), as well as a tail gas clean up unit on the South Sulfur Recovery Unit, to also improve control of SO₂ emissions. Given that the SCR system would be located upstream of the scrubber in the control train for the FCC Unit, that permit also allowed for construction of the framework for the SCR system in conjunction with the construction of the scrubber. The combination of Construction Permit 06100002 and this permit are considered to address a single project at the source.

In addition to the installation of the SCR System on the FCC Unit, physical changes will be made to the FCC Unit to enable it to operate at its physical capacity and enable increased utilization of the unit. A mechanical stop on the main air blower will be removed. This will enable more air flow into the catalyst regenerator of the FCC Unit, increasing its operating rate. Also, an on-line cleaning system will be installed for the wet gas compressors at the FCC Unit, which will use a water-solvent cleaning solution to remove deposits from compressor rotors. This on-line system will enable cleaning while compressors are in operation, rather than having to take compressors out of service for cleaning.

Certain operational and physical constraints at upstream and downstream units, including the Crude, Coker and Selective Hydrogenation Units, that relate to the FCC Unit will also be removed. Higher operational limits for the Crude Unit and Coker Unit, consistent with their design capacity, will enable additional feed material to be produced for the FCC Unit. Physical changes to the Selective Hydrogenation Unit will enable this unit to handle its byproduct gas stream without sending the stream to the FCC Unit. This will lower the backpressure on the FCC Unit's main air blower, also helping enable the blower to function at its full capacity.

These changes to the FCC Unit and other units at the refinery will result in an increase in the volume of acid gas, which is primarily hydrogen sulfide, that must be processed. Changes will be made to the North Train of the Sulfur Recovery Unit (NSRU) to enable the source to fully and reliably process this additional acid gas.

This project will involve installation of piping and associated components and new wastewater drain systems. The potential exists for volatile organic material (VOM) emissions to occur from leaks associated with this equipment. These emissions will be controlled by the established inspection and repair programs.

1.2 Coordination with Other Permits

Except as specifically identified, this permit does not affect applicable requirements for the source that are established in the Clean Air Act Permit Program (CAAPP) permit for the source or in subsequent construction permits for the projects at the source, whose requirements have not yet been included in the CAAPP permit for the source.

1.3 Applicability of New Source Review

This permit is issued based on this project not being a major modification for purposes of the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21 and state rules for Major Stationary Sources Construction and Modification (MSSCAM), 35 IAC Part 203. This is because this project will not result in significant increases in emissions of PSD and MSSCAM pollutants. (See also Attachments 1 and 2.)

1.4 Overall Provisions for Existing Affected Equipment

1.4.1 Process Heaters

- a. The Permittee shall comply with the established requirements for the process heaters listed in Attachment 1 (the "affected heaters") associated with this project, as identified in the source's CAAPP permit.
- b. i. As related to the increase in capacity and utilization of the FCC Unit and other units at the source as part of this project, operation of the affected heaters shall not exceed the following limits.

Unit	Firing Rate (mmBtu/hour, annual average)
1-B-1A	389
1-B-1B	389
1-B-3 & 13-B-4	240
13-B-2	277
16-B-1A	183
16-B-1B	183
17-B-1	112
17-B-2	164
2-B-3, 4, 5, & 6	680
2-B-7	78
3-B-1	132
3-B-2	116
8-B-1	61
21-B-1	73
7-B-1	138

- ii. A. Emission from the affected heaters shall not exceed the limits in Attachment 1.
- B. Beginning May 1, 2015, emissions of NO_x from Heaters 8-B-1 and 21-B-1 during the ozone season (May 1 through September 30) shall each not exceed 4.9 tons.
- C. Compliance with these limits shall be determined using appropriate emission factors or data, such as factors developed from unit-specific emission testing data or monitored emission data. Beginning March 15, 2010, these procedures for

determinations of NO_x emissions replace procedures in Conditions 7.1.12(c), 7.9.12(e) and 7.9.12(f) of the source's CAAPP Permit, Permit No. 95120304, which specify that particular numerical factors shall be used for determination of NO_x emissions.

- iii. Upon completion of installation and startup of all new control equipment on the FCC Unit addressed in Construction Permits 06100002 and 09040008, the operational requirements in Condition 1.4.1(b)(i) and emission limits in Attachment 1 supersede the previous operational limits and emission limits for the affected heaters, which requirements addressed the operation of the affected heaters prior to this project.
- c. The Permittee shall maintain records of the following items for the affected heaters.
 - i. For each affected heater, firing rate (mmBtu/hour, annual average).
 - ii. For each affected heater, emissions of NO_x, CO, SO₂, VOM, PM, PM₁₀, and PM_{2.5} (tons/month and tons/year) with supporting documentation and calculations.
 - iii. Beginning May 1, 2015, for Heaters 8-B-1 and 21-B-1, NO_x emissions during each ozone season (tons) with supporting documentation and calculations.

1.4.2 Coker Unit

- a. This permit authorizes changes to improve cooling of the Coker main fractionator overhead. These changes to the Coker Unit will allow an increase in the feed rate to the FCC Unit.
- b. Emissions from coke handling shall not exceed the limits in Attachment 1.

Note: Emission consequences of these changes to the Coker are also addressed in Condition 1.4.1 (for the Coker Unit Heaters), and Condition 1.4.4 (for the utilization increases at the FCC Unit).

1.4.3 Crude Unit

- a. i. This permit authorizes installation of upgraded heat exchanger bundles and installation of a water overspray system on the overhead fin-fan heat exchangers (the water overspray system is addressed by Section 2.1 of this permit). Removal of these Crude Unit constraints will result in an increase in feed for the FCC Unit.

- ii. This permit authorizes installation and operation of the heat exchanger bundles and/or the water overspray system prior to startup of the SCR. During this time period, the throughput of the Crude Unit shall not exceed 255 kbbbl/day. This rate is consistent with the historical operating rate of the Crude Unit.

Note: Emission consequences of these changes are addressed in Section 2.1 of this permit (for the Water Overspray System), Condition 1.4.1 (for the Crude Unit Heaters), and Condition 1.4.4 (for the FCC Unit).

1.4.4 FCC Unit

- a.
 - i. This permit authorizes the installation of SCR on the FCC Unit to reduce NO_x emissions.
 - ii. This permit authorizes removal of the mechanical and computer stops on the Main Air Blower of the FCC Unit. If the removal of the mechanical stop occurs prior to the SCR startup, the Permittee shall continue to be subject to the requirements that limit the FCC Unit through the use of a computer stop (i.e., software) until the SCR is in operation. (See Permit No. 03030025.)
 - iii. This permit authorizes installation of a Wet Gas Compressor cleaning system.

Note: Emission consequences of the Wet Gas Compressor cleaning system fugitive components are addressed in Condition 1.4.7 (for components).

- b.
 - i. The daily coke burn rate of the FCC Unit shall not exceed 1,200 tons, annual average basis.
 - ii.
 - A. Emissions of PM from the FCC Unit shall not exceed 0.79 lb/1000 lb coke burned, annual average.
 - B.
 - 1. Emission from the FCC Unit shall not exceed the limits in Attachment 1.
 - 2. This permit is issued based on no increase in H₂SO₄ emissions.

Note: A decrease in H₂SO₄ emissions is expected; however, the Permittee is not relying on this decrease for issuance of this permit.

- iii. Upon completion of installation and startup of all new control equipment on the FCC Unit included in construction permits 06100002 and 09040008, the operational requirements in Condition 1.4.4(b)(i) and emission limits in Condition 1.4.4(b)(ii) and Attachment 1 supersede the previous operational limits

and emission limits for the FCC Unit, which requirements addressed the operation of the FCC Unit prior to this project. This includes the combined emission limits from the FCC Unit, NSRU, and SSRU in Condition 1.5(c) of Crude/Coker Utilization Project Construction Permit (Permit Number 05030076), as referenced in Condition 1.4.6(b)(i)(B) of this permit.

Note: The FCC Unit is also subject to limits for SO₂ and NO_x emissions established by the Consent Decree and requirements to monitor emissions using Continuous Emissions Monitoring Systems (CEMS). These limits and monitoring requirements have previously been incorporated into Construction Permit 06030044.

- c. The Permittee shall maintain records of the following items for the FCC Unit.
 - i. Emissions of NO_x, CO and SO₂ based on CEMS data* (tons/month and tons/year).
 - * During outage of CEMS, emissions shall be determined from representative monitoring data or an appropriate emission factor developed from CEMS data.
 - ii. Emissions of VOM, PM, PM₁₀, and PM_{2.5} based on appropriate site specific emission factors (tons/month and tons/year) with supporting documentation and calculations.

1.4.5 Selective Hydrogenation Unit (SHU)

- a. i. This permit authorizes installation of an additional bypass to the SHU compressor which will enable additional flexibility when venting overhead SHU gas. It is anticipated that these changes at the SHU will facilitate an increase in FCC Unit feed rate.

Note: Emission consequences of the changes to the SHU are addressed in Condition 1.4.1 (for the Hot Oil Heater), Condition 1.4.4 (for the FCC Unit), and Condition 1.4.7 (for components).

- ii. The operation the SHU compressor with this bypass may begin prior to startup of the SCR on the FCC Unit, subject to the following restrictions during the period until the startup of the SCR on the FCC Unit:
 - A. The coke burn rate of the FCC Unit shall not exceed 998 tons/day, monthly average basis.
 - B. The firing rate of the Hot Oil Heater (21-B-1) shall not exceed 44.7 mmBtu/hour, monthly average basis.

Note: These restrictions limit operation of units to historical rates.

1.4.6 North Train of the Sulfur Recovery Unit (NSRU)

- a. This permit authorizes changes to the blower capacity of the NSRU. These changes will increase the acid gas capacity such that the Sulfur Recovery Unit is sufficient to accommodate the additional acid gas from the FCC Unit and other units at the refinery.
- b. The feed of acid gas and sour water stripper gas to the NSRU shall not exceed 13.2 million standard cubic feet per day, annual average basis.
 - i. Emissions from the NSRU shall not exceed the annual limits in Attachment 1.
 - ii.
 - A. Upon completion of installation and startup of all new control equipment on the FCC Unit included in Construction Permits 06100002 and 09040008, the operational requirements in Condition 1.4.6(b)(i) and emission limits in Condition 1.4.6(b)(ii) and Attachment 1 supersede the previous operational limits and emission limits for the NSRU, which requirements addressed the operation of the NSRU prior to this project.
 - B. Upon completion of installation and startup of all new control equipment on the FCC Unit, NSRU, and SSRU included in Construction Permits 06100002 and 09040008, the combined emission limits from the FCC Unit, NSRU, and SSRU and for SO₂ emissions from the NSRU and SSRU in Condition 1.5(c) of the Crude/Coker Utilization Project Construction Permit (Permit Number 05030076) shall cease to apply. Instead of those limits, the NSRU is subject to the emission limits in Attachment 1. The SSRU is subject to Attachment 1 of Construction Permit 06030044, which requires that the SSRU comply with 40 CFR 60.104(a)(2), (i.e., for an oxidation control system or a reduction control system followed by incineration, 250 ppm by volume (dry basis) of sulfur dioxide (SO₂) at zero percent excess air).
- c. The Permittee shall maintain records of the following items.
 - i. Records of total amount of acid gas and sour water stripper gas flow to the NSRU (million standard cubic feet per day).
 - ii.
 - A. Emissions of NO_x, CO, SO₂, VOM, PM, PM₁₀, and PM_{2.5} based on site specific emission factors

(tons/month and tons/year) with supporting documentation.

- B. Combined SO₂ emissions from the NSRU and SSRU (tons/month and tons/year).

1.4.7 Components

- a. The Permittee shall comply with the established requirements for components (valves, flanges, etc.) associated with this project, as identified in the source's CAAPP permit, for all new or modified components affected by this project.

Note: All components associated with this project that are in volatile organic compound service are also assumed to be "in organic hazardous air pollutant service" as defined in 40 CFR 63, Subpart CC.

- b. This permit is issued based upon increases in emissions of VOM attributable to the new components of 2.15 tons/year.
- c.
 - i. The Permittee shall maintain a file that contains the following information for the new components installed as part of this project:
 - A. The applicable identification number for each component.
 - B. Results from initial leak monitoring of the component.
 - C. Leak definition for each component.
 - D. Monitoring frequency (i.e., when monitoring is due).
 - ii. The Permittee shall maintain records of the following items for new components:
 - A. Number of components by unit or location and type.
 - B. A file containing the maximum VOM emissions including supporting calculations, attributable to these components (tons/year).

1.4.8 Individual Drain Systems (IDS)

- a. New IDS that are part of this project, i.e., the new IDS associated with the SCR System, are subject to and shall comply with the New Source Performance Standards (NSPS) for VOC Emissions From Petroleum Refinery Wastewater Systems, 40 CFR 60 Subpart QQQ and the General Provisions of the NSPS, 40 CFR 60, Subpart A.

- b. i. This permit is issued based upon increases in emissions of VOM attributable to the new IDS of 0.11 tons/year.

Note: This emissions limit applies to the IDS installed as part of the NSR Controls Phase 1 (See also Construction Permit 06100002) and NSR Controls Phase 2.

- ii. A. 1. Each drain shall be equipped with water seal controls. [40 CFR 60.692-2(a)(1)]
 - 2. Each drain 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)]
 - 3. Except as provided in 40 CFR 60.692-2(a)(4), each drain 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 volatile organic compound (VOC) emissions. [40 CFR 60.692-2(a)(3)]
 - 4. 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 a drain 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)]
 - 5. Whenever low water levels or missing or improperly installed caps or plugs are identified, water shall be added or first efforts at repair shall be made as soon as practicable, but no later than 24 hours after detection, except as provided in 40 CFR 60.692-6. [40 CFR 60.692-2(a)(5)]
- B. 1. 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)]
 - 2. Junction box covers shall have a tight seal around the edges and shall be kept in place at all times, except during

- inspection and maintenance. [40 CFR 60.692-2(b)(2)]
3. Junction boxes shall be visually inspected initially and semiannually thereafter to ensure that the cover has a tight seal around the edge. [40 CFR 60.692-2(b)(3)]
 4. 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.
1. 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)]
 2. The portion of each unburied sewer line shall be visually inspected initially and semiannually thereafter for indications of cracks, gaps, or other problems that could result in VOC emissions. [40 CFR 60.692-2(c)(2)]
 3. Whenever cracks, gaps or other problems are detected, repairs shall be made as soon as practicable, but no later than 15 calendar days after identification, except as provided in 40 CFR 60.692-6. [40 CFR 60.692-2(c)(3)]
- D. Refinery wastewater routed through new process drains and a new first common downstream junction box, either as part of a new IDS or an existing IDS, shall not be routed through a downstream catch basin. [40 CFR 60.692-2(e)]
- iii. Before using any equipment 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 60, Subpart QQQ not to be met. Points of inspection shall include, but are not limited to hatches, caps, and plugs. [40 CFR 60.696(a)]
 - iv. The Permittee shall comply with the applicable recordkeeping requirements specified by 40 CFR 60.697.
 - v. The Permittee shall comply with the applicable reporting requirements specified by 40 CFR 60.698.

- vi. The Permittee shall maintain records of the following items for the new IDS:
 - 1. Number of IDS by unit or location and type.
 - 2. A file containing the maximum VOM emissions including supporting calculations, attributable to these IDS (tons/year).

1.5 Non-Applicability Provisions

- a. This permit is issued based on the changes made at the NSRU, i.e., replacing two blower motors and installation of pressure indicators for control valves, not triggering the applicability of NSPS for Petroleum Refineries, 40 CFR Part 60, Subpart Ja because the change will not entail a capital expenditure. [40 CFR 60.14(e)(2)]
- b. This permit is issued based on the installation of a replacement rotor on the main air blower with mechanical and computer stops (Permit No. 03030025) and the removal of the mechanical and computer stops (Permit No. 09040008), not triggering the applicability of NSPS for Petroleum Refineries, 40 CFR Part 60, Subpart Ja because these changes will not entail a capital expenditure. [40 CFR 60.14(e)(2)]
- c. This permit is issued based on the installation of a replacement identical rotor not triggering the applicability of NSPS for Petroleum Refineries, 40 CFR Part 60, Subpart Ja because the change is not considered a modification, rather it is routine replacement. [40 CFR 60.14(e)(1)]
- d. This permit is issued based on the installation of the new IDS associated with the SCR system not resulting in a modification of the aggregate facility under 40 CFR Part 60, Subpart QQQ because the VOM emission increases from the new IDS associated with this project (including the new IDS installed as allowed by the Emission Reduction Project Construction Permit (06100002)) are less than the decreases achieved from the installation of the vacuum truck connection and offload piping as allowed by the Emission Reduction Project Construction Permit (06100002).
- e. This permit is issued based on the installation of the new components associated with the Wet Gas Compressor cleaning system and the SHU compressor bypass not constituting a modification of this unit for purposes of the NSPS for Equipment Leaks of VOC in Petroleum Refineries, 40 CFR Part 60, Subpart GGGa. This is because these changes will be accomplished without a capital expenditure. [40 CFR 60.14(e)(2)]
- f. Pursuant to 40 CFR 63.640(p)(1), components that would also be subject to the provisions of 40 CFR 60 and 61 as in effect before September 4, 2007, are required only to comply with the provisions of 40 CFR 63 Subpart CC, rather than Parts 60 and 61.

- g. 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 CC, that compliance with these federal rules, as is required, will assure compliance with these state rules. (Refer to 40 CFR 63.640(q)) The Permittee has chosen to comply with the equipment leak requirements of 40 CFR 63 Subpart CC by complying with the provisions of 40 CFR 60 Subpart VV pursuant to 40 CFR 63.648(a).
- h. This permit is issued based on the Heaters 8-B-1 and 21-B-1 not being subject to the requirements of 35 IAC 217 Subparts D (NO_x General Requirements) and F (Process Heaters). This is because each heater is subject to limits that restrict NO_x emissions to less than 15 tons per year and less than five tons per ozone season, in accordance with 35 IAC 217.150(a)(1)(B) and 217.182.

1.6 Annual Limits

Unless specified in a particular condition, compliance with annual limits set by this permit shall be determined from a running total of 12 months of data.

1.7 Overall Project Recordkeeping Requirements

- 1.7.1 The Permittee shall maintain records of the cost of changes to the North Sulfur Recovery Unit and to the main air blower and other features of the FCC Unit and a demonstration that these costs do not entail capital expenditures for purposes of the NSPS, 40 CFR 60.14(a)(2).
- 1.7.2 Retention and Availability of Records
 - a. All records and logs required by this permit shall be retained for at least five years from the date of entry (unless a longer retention period is specified by the particular recordkeeping provision herein), shall be kept at a location at the source that is readily accessible to the Illinois EPA or USEPA, and shall be made available for inspection and copying by the Illinois EPA or USEPA upon request.
 - b. The Permittee shall retrieve and print, on paper during normal source office hours, any records retained in an electronic format (e.g., computer) in response to an Illinois EPA or USEPA request for records during the course of a source inspection.

1.8 Overall Project Reporting Requirements

1.8.1 Reporting of Deviations

Except as specified in a particular provision of this permit or in a subsequent CAAPP Permit for the refinery, notifications and reports for deviations from applicable emission standards and control requirements and other requirements of this permit shall include at least the following information: the date and time of the event, a description of the event, information on the magnitude of the deviation, a description of the corrective measures taken, and a description of any preventive measures taken to prevent future occurrences.

1.9 Authorization to Operate

The equipment addressed by this project may be operated under this construction permit until renewal of the source's CAAPP permit. This condition supersedes Standard Condition 6.

2.0 UNIT-SPECIFIC CONDITIONS

2.1 Unit: Crude Unit Water Overspray System

2.1.1 Description

This permit authorizes a permanent water overspray system on the existing fin-fan heat exchangers, which air cools the overhead stream of the Crude Unit. This system will enable the Crude Unit to maintain design throughput rates during warm weather conditions. This system is currently permitted on a temporary basis to help compensate for operational constraints with the Crude Unit (See Construction Permit 09040038).

2.1.2 List of Emission Units

Emission Unit	Description
Water Overspray System	Overspray system will improve cooling performance of the fin fans so as to maintain operating capacity of the Crude Unit during warm weather.

2.1.3 Applicability Provisions and Emission Standards

- a. The "affected unit" for the purpose of these unit-specific conditions is the water overspray system described in Conditions 2.1.1 and 2.1.2.
- b. The affected unit is subject to 35 IAC 212.123, which provides that no person shall cause or allow the emission of smoke or other particulate matter with an opacity greater than 30 percent into the atmosphere from any emission unit.

2.1.4 Non-Applicability Provisions

None.

2.1.5 Control Requirements and Work Practices

None.

2.1.6 Production and Emission Limitations

- a. i. The water flow to the affected unit shall not exceed 16,416,000 gallons/year.
- ii. During operation of the affected unit, the average total dissolved solids (TDS) content of the water used in the affected unit shall not exceed 482 ppmw.
- b. Emissions from the affected unit shall not exceed 33.00 tons PM/year, 32.60 tons PM₁₀/year and 10.95 tons PM_{2.5}/year.

2.1.7 Testing Requirements

None.

2.1.8 Sampling Requirements

The Permittee shall sample and analyze the water used for the affected unit for total dissolved solids on at least a weekly basis during weeks when the affected unit is in operation.

2.1.9 Recordkeeping Requirements

The Permittee shall maintain the following records for the affected unit:

- a. Log that identifies periods of time when the affected unit operated.
- b. Records and total amount of the water flow to the affected unit (gallons/month and gallons/year).
- c. Records for the results from the sampling and analysis of water used in the affected unit including total dissolved solids content and date samples were taken.
- d. Emissions of PM, PM₁₀ and PM_{2.5} from the affected unit with supporting documentation and sample calculations (tons/month and tons/year).

2.1.10 Reporting Requirements

- a. The Permittee shall promptly notify the Illinois EPA of deviations of the affected unit with the permit requirements as follows. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:
 - i. Operation or emissions from the affected unit in excess of the limits in Condition 2.1.6 within 30 days of such occurrence.
 - ii. Notifications for other deviations from this permit in a semi-annual report.

It should be noted that this permit has been revised at the request of the Permittee to include limits for NO_x emissions during the ozone season for Heaters 8-B-1 and 21-B-1 so that these heaters will not be subject to the control requirements of 35 IAC 217 Subparts D and F. If you have any questions on this permit, please contact Jason Schnepf at 217/524-3724.

Raymond E. Pilapil
Acting Manager, Permit Section
Division of Air Pollution Control

Date Signed: _____

Page 16

REP:JMS:psj

cc: Region 1
Lotus Notes

Attachment 1: Annual Emission Limits and Increases^a In Emissions For the Project (Tons/Year)
Updated March 2010

Affected Units	NO _x		CO		SO ₂		VOM		PM/PM ₁₀ /PM _{2.5} ^c	
	Limit	Increase	Limit	Increase	Limit	Increase	Limit	Increase	Limit	Increase
1-B-1A	374.83	122.52	59.63	19.49	45.75	36.63	4.77	1.56	5.11	1.67
1-B-1B	374.83	122.81	59.63	19.54	45.75	36.67	4.77	1.56	5.11	1.67
1-B-3 & 13-B-4	42.00	12.37	19.10	6.53	50.40	45.74	2.94	0.50	4.50/3.90/3.90	1.88/1.28/1.28
13-B-2	212.68	87.24	42.46	18.52	32.58	27.14	3.40	1.48	3.64	1.59
16-B-1A & 16-B-1B	176.34	37.68	28.86	6.17	46.00	35.91	4.49	0.91	4.81	0.98
17-B-1	19.62	10.73	7.36	3.41	13.17	11.37	1.37	0.65	1.47	0.70
17-B-2	28.73	16.86	10.77	5.96	19.29	17.15	2.01	1.15	2.15	1.23
2-B-3, 4, 5, & 6	148.92	45.65	44.68	13.70	79.97	64.04	8.34	2.47	8.94	2.64
2-B-7	13.67	7.10	5.12	1.22	9.17	7.85	0.96	0.45	1.02	0.48
3-B-1	98.29	50.63	19.27	9.93	15.52	13.59	1.62	0.87	1.65	0.85
3-B-2	86.37	35.14	16.94	6.89	13.64	11.37	1.42	0.62	1.45	0.59
8-B-1	12.02 ^e	2.95	4.01	0.79	7.17	5.65	0.75	0.21	0.80	0.23
21-B-1	12.79 ^e	6.06	4.80	1.13	8.59	6.94	0.90	0.43	0.96	0.24
7-B-1	103.62	40.39	51.38	40.04	306.54	277.13	1.69	0.84	8.63/4.32/4.32	4.62/3.57/3.57
FCCU & CO Boiler	231.30	b	710.63	b	399.37	b	3.00	0.73	346.07/346.07/232.53	b
NSRU	50.88	37.13	57.07	32.93	361.55	341.80	0.57	0.20	1.16	0.50
Coke Handling	n/a	---	n/a	---	n/a	---	n/a	---	32.68/21.20/2.34	10.31/6.69/0.74
Components	n/a	---	n/a	---	n/a	---	n/a	2.15	n/a	---
Fin-Fan Overspray	n/a	---	n/a	---	n/a	---	n/a	---	33.00/32.60/10.95	33.00/32.60/10.95
IDS (Phase 1 & 2)	n/a	---	n/a	---	n/a	---	n/a	0.11	n/a	---
Total ^a :		635.29		186.25		938.98		16.93		63.18/57.51/29.91
Significance Threshold:		40		100		40		40		25/15/10
Greater Than Significant?		Yes		Yes		Yes		No		Yes

Notes:

--- Minimal or no increase.

- a. Increases in emissions are calculated by comparing the permitted emissions (or "limit") with the baseline or actual emissions. Baseline emissions (for attainment pollutants CO, PM, and PM₁₀) are from the period July

2006 through June 2008. Actual emissions (for nonattainment pollutants NO_x, SO₂, VOM and PM_{2.5}) are from the period July 2006 through June 2008.

- b. A decrease in emissions is expected.
- c. Filterable PM₁₀/PM_{2.5} quantified only, in accordance with the final rule for Implementation of the NSR Program for PM_{2.5}, 73 FR 28321.
- d. Totals may not match sum of individual unit totals due to rounding.
- e. NO_x emissions also limited to 4.9 tons in each ozone season, beginning with the ozone season in 2015. (See Condition 1.4.1(b)(ii)(B))

Attachment 2: Netting Analysis (Tons/Year)^a
Updated March 2010

	Date	Permit	NO _x	CO	SO ₂	PM	PM ₁₀	PM _{2.5}
Project Emissions Increases			635.29	186.25	938.98	63.18	57.51	29.91
Project Emissions Decreases			-961.46	-136.99	-14,916.61	-51.56	-51.56	-34.65
Project Subtotal:			-326.17	49.26	-13,977.63	11.62	5.95	-4.74
Contemporaneous ^b Increases/Decreases								
Jumpover Line Project	5/2002	02030040	c	c	32.23	c	c	c
LS Mogas Project	10/2003	01030070	c	c	-576.83	c	c	c
FCC Expander Turbine Replacement	10/2003	02040013	c	c	2.36	c	c	c
Alky SOFT Project	10/2003	03050050	c	c	---	c	c	c
Coker B/D Tank	3/2004	03060085	c	c	21.81	c	c	c
Coker B/D Recovery Project	9/2004	03060091	c	c	-2,593.00	c	c	c
Bladder Tank System	10/2004	04070064	c	c	---	c	c	c
Asphalt Railcar Loading	3/2005	04090004	c	c	---	c	c	c
uLSD/CSO Stripper Project	4/2006	03110060	c	c	238.87	c	c	c
Air Products Hydrogen Plant	4/2006	05020063	c	c	0.55	c	c	c
Crude/Coker Utilization Project	4/2006	05030076	c	c	2,519.53	c	c	c
SSRU Afterburner Reliability Improvements	4/2006	06020051	---	---	---	---	---	---
Compressor Reliability Upgrades	4/2006	05050088	0.12	---	---	---	---	---
Compressor Upgrades	4/2006	05050045	---	---	---	---	---	---
BRU Sump Control Improvements	9/2005	05050017	---	---	---	---	---	---
NSR CD CEMS	6/2007	06030044	---	---	---	---	---	---
River Water Diesel	11/2008	07060025	0.42	0.23	0.08	0.01	0.01	0.01
CHD Liquid Quench	11/2009	07120041	0.59	0.11	8.09	0.01	0.01	0.01
Lean Oil Still Reboiler	10/2009	07120057	3.94	0.78	5.96	0.28	0.28	0.28
DeSO _x Catalyst	5/2008	08040067	---	---	---	0.01	0.01	0.01
Heater Firing Reduction	10/2009	08080027	---	---	---	---	---	---
MSAT II	Est. 6/2011	08100065	30.61	26.43	10.35	1.15	1.15	1.15
Contemporaneous Changes Subtotal ^d :			35.68	27.55	-330.00	1.47	1.47	1.47
NET EMISSIONS CHANGE ^d :			-290.49	76.81	-14,307.63	13.08	7.41	-3.28
Significance Threshold:			40	100	40	25	15	10
Greater Than Significant?			No	No	No	No	No	No

Notes:

--- Minimal or no increase.

- a. Netting is not performed for VOM emissions because the project increase for this pollutant is less than significant (See Attachment 1).
- b. The contemporaneous time period for PSD pollutants is April 2002 through January 2011. The contemporaneous time period for Nonattainment Area NSR pollutants subject to 35 IAC Part 203 is October 2001 through January 2011. The contemporaneous time period for Nonattainment Area NSR pollutants subject to 40 CFR 51 Appendix S is April 2002 through January 2011.
- c. These changes have been relied upon for issuance of a New Source Review permit (05030076).
- d. Totals may not match sum of individual unit totals due to rounding.