

217/782-2113

CONSTRUCTION PERMIT
PREVENTION OF SIGNIFICANT DETERIORATION APPROVAL
NSPS AND NESHAP SOURCE

PERMITTEE

The Premcor Refining Group
Attn: Bill Irwin
201 East Hawthorne
Hartford, Illinois 62048

Application No.: 01100084 I.D. No.: 119050AAA
Applicant's Designation: FCSCRUBBER Date Received: October 23, 2001
Subject: Fluid Catalytic Cracking Unit Wet Gas Scrubber
Date Issued: August 5, 2002
Location: 201 East Hawthorne, Hartford

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of a wet gas scrubber controlling the existing fluid catalytic cracking unit (FCCU) as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

In conjunction with this permit, approval is given with respect to the Prevention of Significant Deterioration of Air Quality Regulations (PSD) for operation of the FCCU with a wet gas scrubber, in that the Illinois Environmental Protection Agency (Illinois EPA) finds that the application fulfills all applicable requirements of 40 CFR 52.21. This approval is issued pursuant to the Clean Air Act, as amended, 42 U.S.C. 7401 et. seq., the Federal regulations promulgated there under at 40 CFR 52.21 for Prevention of Significant Deterioration of Air Quality (PSD), and a Delegation of Authority agreement between the United States Environmental Protection Agency and the Illinois EPA for the administration of the PSD Program. This approval becomes effective in accordance with the provisions of 40 CFR 124.15 and may be appealed in accordance with the provisions of 40 CFR 124.19. This approval is also based upon and subject to the following findings and the conditions, which follow:

Findings

1. Premcor Refining Group (Premcor) has requested a permit to construct a wet gas scrubber to control the existing fluid catalytic cracking unit (FCCU), at its Hartford Refinery. This wet gas scrubber is being installed, pursuant to Consent Decree No. 99-87-GPM between Premcor, the USEPA and the Illinois EPA, that addresses changes that Premcor made to the FCCU without first obtaining a PSD/Construction Permit. These changes resulted in increases in emissions of particulate matter (PM), sulfur dioxide(SO₂) and nitrogen oxide (NO_x).
2. Premcor's Hartford Refinery is located in Hartford, Madison County. The area is currently designated as moderate nonattainment for ozone and nitrogen oxide and attainment for the rest of the criteria pollutants.

3.
 - a. As proposed, the FCCU controlled by the wet gas scrubber would be permitted to emit 100.7 tons/year of PM, 73.9 tons/year of SO₂ and 379.4 tons/year of NO_x. This represents a substantial decrease in emissions of PM and SO₂. (See Attachment A).
 - b. As proposed, the increase in NO_x emissions from the FCCU, from the prior changes will not trigger PSD or Major Stationary Sources Construction and Modification (MSSCAM) 35 IAC 203 because of creditable emission decreases beyond the requirements of the Consent Decree. (See Attachment B).
 - c. As proposed, the increase in carbon monoxide (CO) and volatile organic material (VOM) emissions from the FCCU, from the prior changes will not trigger PSD or MSSCAM, respectively because the increases are less than PSD net increase threshold. (See Attachment A).
 - d. Because emissions of NO_x, CO and VOM do not trigger applicability of PSD, the provisions of this permit that addresses or relate to emissions of NO_x, CO and VOM are not considered part of the PSD approval and are enforceable only as they are contained in a State Construction Permit.
4. After reviewing all the materials submitted by Premcor, the Illinois EPA has determined that the project, as proposed, would (i) be in compliance with applicable Illinois Pollution Control Board emission standards and (ii) utilize Best Available Control Technology (BACT) for PM and SO₂.
5. The air quality analysis submitted by Premcor and reviewed by the Illinois EPA shows that the proposed project will not cause violations of the ambient air quality standards for particulate matter, sulfur dioxide and nitrogen oxide.
6. The Illinois EPA has determined that the project, as proposed, would comply with applicable Illinois Air Pollution Control Regulations and the federal rules for Prevention of Significant Deterioration of Air Quality (PSD), 40 CFR 52.21.
7. A copy of the application and the Illinois EPA's formal review of the application and a draft of this permit were placed in a location in the vicinity of the project, and the public was given notice and an opportunity to examine this material and to submit comments and to request a public hearing on this matter.

The Illinois EPA is issuing this approval subject to the following conditions and consistent with the specifications and data included in the application. Any departure from the conditions of this approval or terms expressed in the application would need to receive prior written authorization by Illinois EPA.

1.0 Unit Specific Conditions

1.1 Unit: Fluid Catalytic Cracking Unit
 Control: Wet Gas Scrubber

1.1.1 Description

The Fluid Catalytic Cracking Unit (FCCU), converts gas-oil, an intermediate weight stream produced in the crude unit at the refinery, into a lighter stream that can be used in production of gasoline. The gas-oil is mixed in the FCCU reactor with a finely powdered catalyst, which promotes a cracking reaction to reduce the size of the molecules. During the cracking reaction, carbon is deposited on the catalyst. The catalyst is separated from the cracked products by internal cyclones in the reactor and sent to the regenerator section of the FCCU, where carbon deposited during the reaction is removed by combustion. The carbon free regenerated catalyst is returned to the reactor so that the FCCU operates as a continuous process. The emission of the FCCU comes from the regenerator section. This project includes the installation of a wet gas scrubber to control particulate matter and sulfur dioxide emissions in the regenerator. The wet gas scrubber will supplement the existing cyclones used to control particulate matter. Emissions of CO are controlled by in-situ combustion inside the regenerator itself.

1.1.2 List of Emission Units and Pollution Control Equipment

Unit	Description	Control Equipment
FCCU	Fluid Catalytic Cracking Unit designed for In-Situ Combustion of CO	Wet Gas Scrubber and cyclones

1.1.3 Applicability Provisions and Applicable Regulations

- a. The "affected FCCU" for the purpose of these unit specific conditions, is the fluid catalytic cracking unit described in Conditions 1.1.1 and 1.1.2.
- b. The affected FCCU is subject to the New Source Performance Standard (NSPS) for Petroleum Refineries, 40 CFR 60 Subparts A and J. The Illinois EPA administers the NSPS for subject sources in Illinois pursuant to a delegation agreement with the USEPA.

 Pursuant to Subpart J, the affected FCCU shall comply with the following standards, except as provided in 40 CFR 60.8(c).

- i. Particulate matter (PM): 1.0 kg/1000 kg (1.0 lb/1,000 lb) of coke burn-off in the catalyst regenerator [40 CFR 60.102(a)(1)].
- ii. Opacity: 30 percent opacity, except for one six-minute average opacity reading in any one hour period [40 CFR 60.102(a)(2)].
- iii. Carbon monoxide (CO): 500 ppm by volume (dry basis) [40 CFR 60.103(a)]. [See also Condition 1.1.3(d)].
- iv. Sulfur dioxide (SO₂): use an add-on control device, to reduce SO₂ emissions to the atmosphere by 90 percent or maintain SO₂ emissions to the atmosphere less than or equal to 50 ppm by volume, whichever is less stringent; with compliance determined daily on a 7-day rolling average using continuous emission monitoring, pursuant to 40 CFR 60.105 (Condition 1.1.8(a)) and the appropriate procedures outlined in 40 CFR 60.106. [40 CFR 60.104(b)(1) and (c)].

Note: This permit does not address other alternative SO₂ emission standards in Subpart J, which rely on processing of very low-sulfur content material by FCCU, rather than use of an add-on control device.

- c.
 - i. The affected FCCU is subject to 35 IAC 212.381, which provides that the PM emissions from the catalyst regenerators of an FCCU shall not exceed in any one hour period the rate determined using the equations contained in 35 IAC 212.381. For example, the allowable PM for an FCCU with catalyst recycle rate, including the amount of fresh catalyst added, of 1560 tons per hour, shall not exceed 83.5 lbs per hour.
 - ii. The affected FCCU is subject to 35 IAC 212.123(a), which provides that the emission of smoke or other particulate matter shall not have an opacity greater than 30 percent, except as allowed by 35 IAC 212.123(b) and 212.124.
- d. The affected FCCU, is subject to 35 IAC 216.361(c), which provides that the emission of a carbon monoxide waste stream into the atmosphere from any new petroleum process, as defined in 35 IAC 201.102, using catalyst regenerators of fluidized catalytic converters equipped with in-situ combustion of carbon monoxide, shall not

emit CO waste gas streams into the atmosphere in concentration of more than 350 ppm by volume corrected to 50 percent excess air.

- e. i. Operation of the affected FCCU with emissions in excess of the standards in Condition 1.1.3(c) and (d) is allowed during startup subject to the requirements in Condition 1.1.5(b).
- ii. Operation of the affected FCCU with CO emissions in excess of the standards of Condition 1.1.3(d) during malfunction or breakdown is allowed as necessary to prevent injury to personnel or severe damage of equipment until the affected FCCU can be repaired or shutdown, subject to the requirements in Condition 1.1.5(b).
- iii. As a condition to the operating permit for the affected FCCU, the Illinois EPA may impose additional conditions on operation during startup and malfunction and breakdown in accordance with 35 IAC 201.149.
- f. This permit is issued based on the affected FCCU being an existing affected FCCU subject to the National Emission Standard for Hazardous Air Pollutants (NESHAP), 40 CFR 63.1560, which also requires compliance with the particulate matter and carbon monoxide emission limitations in the New Source Performance Standards (NSPS) for Petroleum Refineries.
- g. This permit is issued based upon the equipment leaks associated with the affected FCCU being subject to the Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry, 40 CFR 60, Subparts A and VV. The Permittee shall comply with all applicable requirements of 40 CFR 60, Subpart VV.

Note: Applicability of Subpart VV is triggered because the refinery is subject to the National Emission Standards for Hazardous Air Pollutants From Petroleum Refineries, 40 CFR 63, Subparts A and CC and the Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries, 40 CFR 60, Subparts A and GGG. The Permittee has indicated that they will comply with the equipment leak requirements specified in 40 CFR 63, Subpart CC and 40 CFR 60, Subpart GGG by complying with 40 CFR 60, Subpart VV.

1.1.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on the emission reduction resulting from the installation of the wet gas scrubber in the FCCU, not counting as credit for further use in any emission banking, trading or netting program for PSD, Major Stationary Sources Construction and Modification (MSSCAM) or minor permit program, as provided by Paragraph 23 of the Consent Decree.
- b. The affected FCCU is not subject to 35 IAC Part 203, Major Stationary Sources Construction and Modification (MSSCAM) for emissions of VOM and NO_x, because the net emissions increases for VOM and NO_x have been and would be less than 40 tons per year. (See Attachments A and B).
- c. This permit is issued based on the affected FCCU not being subject to the NSPS for use of refinery gas. The regenerator does not burn refinery fuel gas and the affected FCCU does not have fuel gas combustion devices, as defined in 40 CFR 60.101(g).

1.1.5 Operation and Production Limits and Work Practices

- a. This permit is issued based on the wet gas scrubber being used to control PM and SO₂ emissions from the affected FCCU.
- b. At all times, the Permittee shall, to the extent practicable maintain and operate the affected FCCU including associated wet gas scrubber, in a manner consistent with good air pollution control practice for minimizing emissions. [40 CFR 60.11(d)]. Good air pollution control practice shall include the following measures:
 - i. Startup of the FCCU shall be conducted in accordance with written startup procedures that includes all reasonable measures to be taken to minimize the quantity of emissions, the length of each startup, and the number of startups, e.g., the regenerator air rates will be adjusted to minimize the carbon level on the circulating catalyst.
 - ii. The Permittee shall maintain the following operating parameters, on an hourly average within the range measured during emission testing that demonstrated compliance.
 - A. Pressure drop across the wet gas scrubber.

- B. Scrubbant flow rate, into the scrubber, gallons/minute or gallons/1000 standard cubic feet of flue gas.
- iii. A. The Permittee shall take all reasonable measures to minimize the quantity of excess emissions and the duration of the malfunction or breakdown including but not limited to reduction in affected FCCU operating rate.
- B. The Permittee shall comply with all reasonable and safe directives of the Illinois EPA regarding actions in response to malfunctions and breakdowns, pursuant to 35 IAC 201.263.

The above requirements represent Best Available Control Technology (BACT) for the affected FCCU.

- c. i. Feed rate of the affected FCCU shall not exceed 907,680 barrels per month and 10,687,200 barrels per year.
- ii. Maximum air blower rate for input to the affected FCCU regenerator shall not exceed 67,685 scf/minute, hourly average.
- iii. Coke burn-off in the affected FCCU regenerator shall not exceed 1104 thousands lb coke burned/day and 201,480 thousands lb coke burned/year.
- iv. 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).
- d. i. The operation of the affected FCCU, expressed in terms of daily feed rate and hourly average air blower rate, shall not exceed the levels during the most recent emission tests conducted in accordance with Condition 1.1.7 that demonstrated compliance.
- ii. The opacity of the exhaust from the FCCU regenerator shall not exceed a level that is consistent with compliance with particulate matter limits as demonstrated during the most

recent emission tests or as otherwise demonstrated by the Permittee.

Note: Visual observations of opacity shall be made using USEPA Method 9, which requires observation to be made at a point following the emission outlet at which condensed water vapor is not visible.

- iii. Notwithstanding the above, these limits may be exceeded during emission testing or preparation for emission testing as needed to reasonably evaluate operation of the FCCU at a higher level of throughput or opacity.

1.1.6 Emission Limitations

- a. Except during startup, authorized maintenance, and malfunction and breakdown as addressed by Condition 1.1.5(b), emissions from the affected FCCU shall not exceed the following limits:
 - i. PM: 1 lb/1000 pound of coke burned, with compliance determined by proper operation in Condition 1.1.5 and recordkeeping in Condition 1.1.10(See Condition 1.1.13).
 - ii. SO₂: 25 ppm by volume at 0% excess oxygen on a 365-day rolling average and 50 ppm by volume on a 7-day rolling average in the exhaust, with compliance determined by continuous monitoring in accordance with Condition 1.1.8(a).

The above requirements represent Best Available Control Technology (BACT) for emissions of the affected FCCU, as required by the PSD rules.

- b. i. Short-term emissions from the affected FCCU shall not exceed the following limits except, as a consequence of startup, authorized maintenance, and malfunction and breakdown as addressed by Condition 1.1.5(b). These limits are based on the maximum short-term emission rates set forth in the application.

<u>Pollutant</u>	<u>Lb/Day</u>
PM/PM ₁₀	552
SO ₂	405
NO _x	2,079
CO	457
VOM	322

- ii. Annual emission from the affected FCCU shall not exceed the following limits:

<u>Pollutant</u>	<u>Tons/Year</u>
PM/PM ₁₀	100.7
SO ₂	73.9
NO _x	379.4
CO	83.4
VOM	58.8

- c. i. The above requirements for the PM/PM₁₀ and SO₂ emissions in this Condition become effective after the emission test required in Condition 1.1.7 has been performed.
- ii. Until federally enforceable conditions are in effect prohibiting the use of fuel oil in all combustion units and the operation of the gas recovery system in the delayed coker unit during coke drum switches, the annual NO_x emission from the affected FCCU shall not exceed 350 tons/year. Once federally enforceable conditions have been established, annual NO_x emissions from the affected FCCU shall not exceed 379.4 tons/year (See Condition 1.1.6(b)(ii)).

1.1.7 Testing Requirements

- a. i. Following initial startup of the wet gas scrubber, within 60 days after achieving the maximum production rate at which the affected FCCU will be operated, but not later than 180 days after initial startup of the wet gas scrubber, the Permittee shall conduct applicable test(s) performance, pursuant to 40 CFR 60.8.
- ii. Upon request by the Illinois EPA, the wet gas scrubber controlling the FCCU shall be retested in accordance with applicable test(s) performance as set in Condition 1.1.7.
- b. i. The method and procedures specified by the NSPS, 40 CFR 60.106 and 60.108, shall be used for testing of PM, CO and SO₂ emissions and opacity, unless USEPA approves an alternative test method pursuant to 40 CFR 60.8.

- ii. The following methods and procedures shall be used for testing of NO_x and VOM emissions, unless another method is approved by the Illinois EPA: Refer to 40 CFR 60, Appendix A, for USEPA test methods.

Location of Sample Points	USEPA Method 1
Gas Flow and Velocity	USEPA Method 2
Flue Gas Weight	USEPA Method 3
Moisture	USEPA Method 4
Nitrogen Oxides	USEPA Method 7
Volatile Organic Material	USEPA Method 25A

The Reference Method listed above refers to the base method or any of its "sub-methods", e.g., Method 2 includes Methods 2, 2A, 2B, 2C, and 2D; Method 3 includes Methods 3 and 3A; and Method 7 includes Methods 7, 7A, 7B, 7C, 7D, and 7E.

- c. The Illinois EPA shall be notified prior to these tests to enable the Illinois EPA to observe these tests. Notification of the expected date of testing shall be submitted a minimum of 30 days prior to the expected date. Notification of the actual date and expected time of testing shall be submitted a minimum of 5 working days prior to the actual date of the test. The Illinois EPA may at its discretion accept notifications with shorter advance notice provided that the Illinois EPA will not accept such notifications if it interferes with the Illinois EPA's ability to observe testing.
- d. At least 60 days prior to the actual date of testing, a written test plan shall be submitted to the Illinois EPA for review. This plan shall describe the specific procedures for testing, including as a minimum:
 - i. The person(s) who will be performing sampling and analysis and their experience with similar tests.
 - ii. The specific conditions under which testing will be performed, including a discussion of why these conditions will be representative of maximum emissions and the means by which the operating parameters for the emission unit and any control equipment will be determined.
 - iii. The specific determinations of emissions and operation, which are intended to be made, including sampling and monitoring locations.

- iv. The test method(s) that will be used, with the specific analysis method, if the method can be used with different analysis methods.
 - v. Any minor changes in standard methodology proposed to accommodate the specific circumstances of testing, with justification.
- e. Copies of the Final Reports(s) for these tests shall be submitted to the Illinois EPA within 14 days after the test results are compiled and finalized. The Final Report shall include as a minimum:
- i. A summary of results.
 - ii. General information.
 - iii. Description of test method(s), including description of sample points sampling train, analysis equipment, and test schedule.
 - iv. Detailed description of test conditions, including:
 - A. Process information, e.g., FCCU feed rate and sulfur content, air blower rate, catalyst recycle rate and coke burn-off rate
 - B. Control equipment information, i.e., equipment condition and operating parameters during testing, including pressure drop across the wet gas scrubber and the liquid gas rates of the scrubber i.e. the ratio of the scrubbant flow in gallons to the flue gas flow in standard cubic feet, hourly average.
 - v. Data and calculations, including copies of all raw data sheets, opacity observation records and records of laboratory analyses, sample calculations, and data on equipment calibration.

1.1.8 Emission Monitoring Requirements

- a. For the affected FCCU, the Permittee shall monitor emissions of carbon monoxide and sulfur dioxide, and opacity in accordance with the applicable monitoring requirements of 40 CFR 60.105 and 60.107(b) and 35 IAC 201 Subpart L. Pursuant to 40 CFR 60.13(i), after receipt and consideration of written application, the

USEPA may approve alternatives to the above requirements including the following, which would substitute for above requirements: Alternative monitoring requirements when installation of a continuous monitoring system or monitoring device would not provide accurate measurements due to liquid water or other interferences caused by substances with the effluent gases. Any such approval by USEPA shall supersede otherwise applicable requirements. In addition, as applied to opacity monitoring, any alternative monitoring practices established by USEPA shall also be deemed to constitute continuous alternative monitoring practices approved by the Illinois EPA in accordance with 35 IAC 201.402(a).

- b. For the affected FCCU, the Permittee shall also install, operate and maintain a continuous monitoring device for emissions of nitrogen oxides. This device shall be operated in accordance with applicable requirements of the NSPS for gaseous emission monitoring, including 40 CFR 60.13 and Performance Specification 2 in Appendix B.

1.1.9 Monitoring, Recordkeeping and Reporting Pursuant to the NESHAP

- a. The Permittee shall comply with applicable monitoring, recordkeeping and reporting requirements of the NESHAP to the affected FCCU.
- b. Notwithstanding compliance date specified in the NESHAP, the Permittee shall begin complying with these requirements upon initial start up of the wet gas scrubber.

1.1.10 Operational Monitoring Requirements

- a. The Permittee shall monitor, i.e., continuously measure and record the air blower rate.
- b.
 - i. The Permittee shall monitor the pressure drop across the wet gas scrubber, which shall record hourly average of pressure drop.
 - ii. The Permittee shall monitor the scrubbant flow rate, which shall record hourly average of scrubbant flow rate.
- c. The Permittee shall monitor the operating temperature in the regenerator.

- d. i. The Permittee shall monitor the oxygen levels at the inlet of the regenerator.
- ii. In the CAAPP Permit for the source the Illinois EPA may eliminate the oxygen monitoring based upon demonstrated performance of the FCCU.

1.1.11 Recordkeeping Requirements

- a. The Permittee shall maintain the following records for the operation of the affected FCCU:
 - i. An operating log for the FCCU, which at a minimum identifies changes in type of catalyst supply e.g., use of different catalyst or catalyst additives as related to carryover of sulfur to the regenerator and formation of NO_x in the regenerator, and period of time when the FCCU is not operating in "full burn mode".
 - ii. Feed rate (barrels per month and barrels per year); and
 - iii. For the regenerator, recorded daily:
 - A. Hours of operation [40 CFR 60.105(c)];
 - B. Coke burn off rate (tons/hour) [40 CFR 60.105(c)]; and
 - C. The platinum concentration in the catalyst entering the regenerator (ppm).
 - iv. Air blower rate for input to the affected FCCU regenerator (scf/minute), recorded at least hourly;
 - v. In the CAAPP Permit for the source the Illinois EPA may eliminate the recordkeeping requirements under Conditions 1.1.11(a)(i) and (a)(iii)(C) based upon demonstrated performance of the FCCU.
- b. The Permittee shall maintain the following records for the affected FCCU:
 - i. A copy of the written startup procedures for the affected FCCU.
 - ii. A copy of the operating and maintenance procedures for the wet gas scrubber and other control devices.

- iii. An inspection and maintenance log for the multicyclones and wet gas scrubber.
- c. The Permittee shall maintain the following records for each startup of the affected FCCU and each occurrence of malfunction or breakdown of the affected FCCU that results in excess emissions.
 - i. Date and duration of the occurrence.
 - ii. A detailed description of the occurrence, including its nature, cause for significant events during the occurrence, and the date, time and means by which the occurrence was terminated.
 - iii. The pollutants affected by the occurrence and the applicable standards or limit that may have been exceeded.
 - iv. The feed rate to the FCCU (barrels/hr) and the coke burn-off rate (tons/hr) and air blow rate (scf/minute), on an hourly basis.
 - v. An estimate of the excess emissions, including the CO concentration corrected to 50% excess air.
 - vi. For malfunction and breakdowns, the steps taken to prevent similar malfunctions or breakdowns or reduce their frequency and severity.
- d. All records required by this permit shall be retained for a period no less than five years and shall be available for inspection and copying by the Illinois EPA.

1.1.12 Notification Requirements

- a. The Permittee shall notify the Illinois EPA within 15 days of initial startup of the FCCU with the new wet gas scrubber.
- b. A description of the startup procedure for the affected FCCU including time periods for each phase of start up, shall be submitted to the Illinois EPA's for review at least 30 days before any significant change to the startup procedures, including any venting of emissions by a stack not equipped with monitors.
- c. i. Within 7 days following any startup of the FCCU, the Illinois EPA shall be notified of the

estimated amount of catalyst lost to the atmosphere during the startup.

- ii. If startup of the affected FCCU results in operation in excess of an applicable emission standard or limit for 36 hours or more, the Permittee shall immediately notify the Illinois EPA's regional office by telephone of the additional length of time required to complete the startup, if any.
- d. i. The Permittee shall notify the Illinois EPA Regional Office by telephone as soon as possible during normal office hours, of malfunction or breakdowns of the FCCU, including the wet gas scrubber, that result in excess emissions as follow:
 - A. Any malfunction or breakdowns, involving the wet gas scrubber that lasts more than 3 hours, and
 - B. Any other malfunction or breakdowns.
- ii. The Permittee shall notify the Illinois EPA Regional Office as soon as possible during normal office hours after it has determined that the duration of exceedance will or may exceed 48 hours. This notification shall include the estimated amount of emissions during the continued malfunction or breakdown considering any reductions in the operating rate of the FCCU and the estimated amount of emission of the FCCU if it were shut down and restarted, following correction of the malfunction or breakdown.

1.1.13 Reporting Requirements

- a. The Permittee shall submit a written follow-up report to the Illinois EPA within 7 working days following an occurrence for which each notification is required pursuant to Condition 1.1.12(c) and (d). This report shall:
 - i. Identify the date, time and personnel involved in the notification;
 - ii. Provide summary of the records required by Condition 1.1.11(c).

- b. The Permittee shall fulfill applicable reporting requirements associated with operation of continuous monitoring system, pursuant to the NSPS, 40 CFR 60.105(e) and 35 IAC 201.405.
- c. The Permittee shall promptly report to the Illinois EPA of any noncompliance with the permit requirements that is not addressed by the above reporting pursuant to paragraph (a) or (b), by sending a report to the Illinois EPA within 30 days of the occurrence, as follows. Reports shall describe the deviation, the probable cause, and any corrective actions or preventive measures taken. The Permittee shall comply with the applicable reporting requirements of 40 CFR 60.107.
- d. Two copies of all reports, notifications and submissions required by this permit shall be sent to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

and one copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control
2009 Mall Street
Collinsville, Illinois 62234

1.1.14 Compliance Procedures

- a. Compliance with the CO and SO₂ emission standards in Condition 1.1.3 and CO, SO₂ and NO_x emission limits in Condition 1.1.6 shall be demonstrated by continuous monitoring in accordance with Condition 1.1.8.
- b. Compliance with the PM emission limits in Condition 1.1.6 shall be demonstrated by proper operation of the wet gas scrubber as addressed by Condition 1.1.5, 1.1.9 and 1.1.10 and coke burn-off rate calculation as addressed in Condition 1.1.11.
- c. Compliance with VOM emission limits in Condition 1.1.6 shall be based on the operating records required by Condition 1.1.11 and appropriate emission factors, such as the following from the USEPA Aerometric Information Retrieval System (AIRS).

<u>Pollutants</u>	<u>Emission Factor</u>
VOM	11 lb/1,000 Barrel

The Permittee should update their CAAPP application to include this new equipment by submitting form 505-CAAPP - "Supplement to CAAPP Application" along with all other appropriate information to accomplish this.

If you have any questions on this, please call Ricardo Ng at 217/782-2113.

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

DES:RNG:jar

cc: Region 3

ATTACHMENT A

Table 1
Changes in Emissions of FCCU Without the Wet Gas Scrubber

<u>Pollutants</u>	<u>Historic Emissions (Ton/Yr)</u>	<u>Estimated Emissions (Ton/Yr)</u>	<u>Increases (ton/yr)</u>
PM/PM ₁₀	284.6	345.7	61.2*
SO ₂	2133.2	3895.3	1762.1*
NO _x	312.3	379.4	67.1**
CO	68.6	83.4	14.7
VOM	48.4	58.8	10.4

* Without the wet gas scrubber, the changes to the FCCU resulted in emission increases for PM/PM₁₀ and SO₂, which are above the PSD thresholds.

** While the potential increase in NO_x emissions was above 40 tons/yr, the actual increase in NO_x did not exceed the PSD threshold of 40 Tons/yr.

Table 2
Change in Emissions of FCCU With the Proposed Wet Gas Scrubber

<u>Pollutants</u>	<u>Historic Emissions (Ton/Yr)</u>	<u>Future Permitted Emissions (Ton/Yr)</u>	<u>Changes (Ton/Yr)</u>
PM/PM ₁₀	284.6	100.7	- 183*
SO ₂	2133.2	73.9	- 2,059.3*
NO _x	312.3	379.4	67.1**
CO	68.6	83.4	14.8
VOM	48.4	58.8	10.4

* The installation of the wet gas scrubber would result in emission decreases for SO₂ and PM/PM₁₀.

** See Attachment B.

ATTACHMENT B

Changes in NO_x Emissions
Contemporaneous Time Period of 1998 Through 2002

Table I Emission Increases Associated With Changes to the FCCU

<u>Historic Emission*</u>	<u>Future Permitted</u>	<u>Emission Increase (Tons/Year)</u>
312.3	379.4	67.1

Table II Source-Wide creditable Contemporaneous Emission Increases

<u>Projects</u>	<u>Date</u>	<u>Permit</u>	<u>Permitted Emission (Tons/Year)</u>
Tier 2 Project	2002	01120009	29.18
Process Heater and Drum	2001	01040002	13.25
Distillate HDS Unit H-1 Process Heater	2001	01040031	3.80

Table III Source-Wide Creditable Contemporaneous Emission Decreases

<u>Item of Equipment</u>	<u>NO_x Emissions** (Tons/Year)</u>
Discontinuing Burn of Fuel Oil in Combustion Equipment	930.00
Reduced Flaring from Coke Drum Switch Cycles	242.00

Table IV Net Emission Change

	<u>(Tons/Year)</u>
Increases Associated with the FCCU Project	67.1
Creditable Contemporaneous Emission Increases	46.23
Creditable Contemporaneous Emission Decreases	<u>- 902.00***</u>
Total	<u>- 788.67</u>

* Historic NO_x emissions of the FCCU are based on USEPA Aerometric Information Retrieval System (AIRS) factors. Following installation and operation of the NO_x monitoring system required by Condition 1.1.8(b), it may be necessary for the Illinois EPA to re-evaluate the historic NO_x emission based upon the more accurate NO_x data gathered by the monitoring system.

** Estimated surplus reduction in NO_x emissions to be achieved from discontinuing the burning of fuel oil in the refinery combustion equipment and reduced flaring from coker drum switch cycles as addressed by Construction Permit 02060033.

*** Creditable emission decrease resulting from further emission reduction beyond the requirements of the Consent Decree.