

217/782-2113

CONSTRUCTION PERMIT - NSPS SOURCE - REVISED

PERMITTEE

CITGO Petroleum Corporation  
Attn: Claude Harmon  
135th Street and New Avenue  
Lemont, Illinois 60439-3659

Application No.: 01030085

I.D. No.: 197090AAI

Applicant's Designation:

Date Received: August 6, 2002

Subject: Tier 2 Project

Date Issued: August 21, 2002

Location: 135th Street & New Avenue, Lemont

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of a Tier 2 project, that is, various changes to the refinery to produce lower sulfur gasoline, as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

1.0 Unit Specific Conditions

1.1 Unit: Tier 2 Project

1.1.1 Description

The proposed project will allow the refinery to produce lower sulfur gasoline by 2004, as required by the USEPA Tier 2 gasoline sulfur requirements. Reduced sulfur in the fuels will be accomplished by construction of a new unit, Unit 102 - FCC Gasoline Hydrotreater, consisting of a Selective Hydrogenation Unit section and a Heavy FCC Gasoline section to further process heavy gasoline blendstock produced by the Fluidized Catalytic Cracking Unit (FCCU). These modifications will not result in an increase in crude throughput.

The sulfur recovery plant will experience an additional loading of sulfur due to the additional sulfur removed in the new FCC Gasoline Hydrotreater unit. In order to meet this demand, the C and D trains of Unit 121 will be modified to increase their sulfur production capacity.

The sour water processing units will experience an additional loading of sour water due to the operation of the FCC Gasoline Hydrotreater unit. In order to meet this demand, a 4<sup>th</sup> sour water stripper (119D-6) will be added to increase the total sour water processing capacity. Other than Fugitive Emissions, this stripper and its associated equipment will not add an emission source to the Tier 2 Project.

The new FCC Gasoline Hydrotreater unit will require hydrogen to operate. The hydrogen will come from a new hydrogen plant being constructed by BOC Gases.

1.1.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
102B-2	FCCU Hydrotreater ISAL Reactor Heater (New Process Heater with Ultra-Low NO <sub>x</sub> Burners)	None
103B-1	Unit 103 LSR Hydrotreater (Existing Heater to be Equipped with Ultra-Low NO <sub>x</sub> Burners)	None
331TK-480	Storage Tank for Various Types of Gasoline	Internal Floating Roof
331TK-484	Storage Tank for FCC Gasoline	Covered External Floating Roof
Fugitives	Fugitive Emissions from New Components Associated with the Tier 2 Project	None
420E-1	South Plant Cooling Tower	Drift Eliminators
Units 119 and 121	Sulfur Removal Plant	Beavon Stretford Tail-Gas Section on Unit 121

1.1.3 Applicability Provisions and Applicable Regulations

a. For the purpose of these unit-specific conditions, the affected emission units are the units described in Conditions 1.1.1 and 1.1.2.

i. A. This permit is issued based upon the affected heater 102B-2 being subject to the 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.

Note: Heater 103B-1 is already subject to Subpart J, as it was constructed in 1988 (Application No. 85090012). The requirements of the NSPS are addressed for heater 103B-1 in the source's CAAPP permit and are not affected by this project. This permit only addresses the NSPS requirements for the new heater 102B-2.

- B. The Permittee shall not burn in the affected heater 102B-2 any fuel gas that contains hydrogen sulfide (H<sub>2</sub>S) in excess of 230 mg/dscm (0.10 gr/dscf) [40 CFR 60.104(a)(1)].
- ii. A. The Permittee shall not cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from the affected heater 102B-2 except as provided below [35 IAC 212.123(a)].
  - B. The emission of smoke or other particulate matter from the affected heater 102B-2 may have an opacity greater than 30 percent but not greater than 60 percent for a period or periods aggregating 8 minutes in any 60 minute period provided that such opaque emissions permitted during any 60 minute period shall occur from only one such emission unit located within a 305 m (1000 ft) radius from the center point of any other such emission unit owned or operated by such person, and provided further that such opaque emissions permitted from each such emission unit shall be limited to 3 times in any 24 hour period [35 IAC 212.123(b)].
- b. This permit is issued based upon new individual drain systems associated with Unit 101 being subject to the NSPS for Standards of Performance for VOC Emissions From Petroleum Refinery Wastewater Systems, 40 CFR 60 Subparts A and QQQ. The Illinois EPA administers the NSPS for subject sources in Illinois pursuant to a delegation agreement with the USEPA. The Permittee shall comply with all applicable requirements of 40 CFR 60, Subpart QQQ.
- c. This permit is issued based upon the new pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, and flanges or other connectors in VOC service associated with Unit 101 being subject to the NSPS for Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries, 40 CFR 60 Subparts A and GGG. The Illinois EPA administers the NSPS for subject sources in Illinois pursuant to a delegation agreement with the USEPA. The Permittee shall comply with all applicable requirements of 40 CFR 60, Subpart GGG.

1.1.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on the affected heaters not being subject to 40 CFR 60 Subpart Db, NSPS for Industrial-Commercial-Institutional Steam Generating Units because they are not steam generating units.
- b.
  - i. The source has addressed the applicability and compliance of 40 CFR 52.21, Prevention of Significant Deterioration (PSD) and 35 IAC Part 203, Major Stationary Sources Construction and Modification (See Attachments 1 and 2). The limits established by this permit are intended to ensure that the modification addressed in this construction permit does not constitute a major modification pursuant to these rules.
  - ii. For this purpose, the source also addressed the potential emissions of the new plant that will be developed by an independent company to supply additional hydrogen to the refinery (Hydrogen Plant). The maximum annual emissions of the hydrogen plant, as accounted for in this permit are 47.02 tons of NO<sub>x</sub>, 0.12 tons of SO<sub>2</sub>, 31.15 tons of CO, 4.14 tons of PM/PM<sub>10</sub>, and 1.18 tons of VOM. Such plants are routinely developed adjacent to refineries with the owner and operator of the plant responsible for obtaining necessary air pollution control permits. Accordingly, the specific requirements for the hydrogen plant will be established in a separate construction permit.
- c. This permit is issued based upon 40 CFR 60 Subpart J for sulfur plants not being applicable, because this subpart's provisions for sulfur plants apply only to SO<sub>2</sub>, and the changes do not result in an increase in SO<sub>2</sub> emissions at the sulfur complex.

1.1.5 Operational and Production Limits and Work Practices

- a.
  - i. The affected heaters shall be equipped, operated, and maintained with low NO<sub>x</sub> burners. These burners shall be operated and maintained in conformance with good air pollution control practices.
  - ii. The firing rate of the affected heaters shall not exceed the following:

<u>Heater</u>	<u>Firing Rate (mmBtu/Hr, Daily Average)</u>
ISAL Reactor Heater (102B-2)	48.5
Unit 103 LSR Hydrotreater Heater (103B-1)	19.3

- iii. Only gaseous fuels shall be burned in the affected heater 102B-2.
- b. i. A. Throughput for Tank 331TK-480 shall not exceed 2,956,700 gallons/month and 35,480,000 gallons/year.
- B. Throughput for Tank 331TK-484 shall not exceed 18,812,500 gallons/month and 225,750,000 gallons/year.
- ii. A. Tank 331TK-480 shall be equipped with an internal floating roof with a mechanical shoe primary seal and a secondary seal.
- B. Tank 331TK-484 shall be equipped with a covered ("domed") external floating roof.
- c. i. These requirements, and the emission limitations in Condition 1.1.6, become effective following completion of the Tier 2 Project when the Refinery first begins to process low-sulfur gasoline for commercial sale.
- ii. Provided the Permittee complies with testing requirements specified in Condition 1.1.7, operation of the enhanced units addressed in this permit is allowed until renewal of the source's CAAPP permit under this construction permit.

1.1.6 Emission Limitations

- a. i. Emissions from affected heater 102B-2 shall not exceed the following limits:

<u>Pollutant</u>	<u>Emissions (Tons/Mo) (Tons/Year)</u>	
NO <sub>x</sub>	0.71	8.50
SO <sub>2</sub>	0.39	4.70
CO	1.46	17.49
VOM	0.10	1.15
PM/PM <sub>10</sub>	0.13	1.58

- ii. Emissions from affected heater 103B-1 shall not exceed the following limits:

<u>Pollutant</u>	<u>Emissions</u>	
	<u>(Tons/Mo)</u>	<u>(Tons/Year)</u>
NO <sub>x</sub>	0.70	8.45
SO <sub>2</sub>	0.16	1.87
CO	0.39	4.65
VOM	0.02	0.23
PM/PM <sub>10</sub>	0.05	0.63

- b. VOM emissions from the tanks 331TK-480 and 331TK-484 shall not exceed the following limits:

<u>Equipment</u>	<u>VOM Emissions</u> <u>(Tons/Yr)</u>
Tank 331TK-480	2.11
Tank 331TK-484	1.84

- c. Emissions of VOM from the new\* components (i.e., valves, pumps, flanges, etc.) associated with the Tier 2 Project shall not exceed 7.5 tons per year.

\* This limit does not address components that are already present at the refinery with the existing process units.

- d. Emissions from the south plant cooling tower shall not exceed the following limits (GPM = gallons per minute):

<u>Maximum Flow Rate</u> <u>(GPM, daily average)</u>	<u>Pollutant</u>	<u>Emissions</u>	
		<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>
60,380	VOM	0.93	11.11
	PM	2.58	31.00
	PM <sub>10</sub>	1.35	16.23

Note: the increase at the south plant cooling tower is calculated by comparing the future potential emissions to the past actual emissions. For emissions of PM, the past actual emissions (calendar years 1999 and 2000) are 13.97 tons per year which results in a contemporaneous increase of 31.00-13.97=17.03 tons. For emissions of PM<sub>10</sub>, the past actual emissions (calendar years 1999 and 2000) are 9.70 tons per year which results in a contemporaneous increase of 16.23-9.70=6.53 tons. Emission changes for VOM are addressed in Attachment 2.

- e. Emissions from the Sulfur Removal Plant, which includes Unit 119 (Trains A and B) and Unit 121 (Trains C and D) shall not exceed the following limits (limits are for all four trains combined):

<u>Pollutant</u>	<u>Emissions</u>	
	<u>(Tons/Mo)</u>	<u>(Tons/Year)</u>
NO <sub>x</sub>	4.25	42.56
SO <sub>2</sub>	700.00	7,000.00
CO	57.33	573.32
VOM	2.11	21.11
PM/PM <sub>10</sub>	0.28	2.81

- f. 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).

1.1.7 Testing Requirements

a. Hydrogen Sulfide Testing

In accordance with 40 CFR 60.8, within 60 days after achieving the maximum production rate at which the affected heater 102B-2 will be operated, but not later than 180 days after initial startup of the affected heater 102B-2 and at such other times as may be required by the Illinois EPA, the Permittee shall conduct performance test(s) in accordance with 40 CFR 60.106(e) and furnish the Illinois EPA a written report of the results of such performance test(s).

Note: The hydrogen sulfide testing requirement is not necessary if the H<sub>2</sub>S content of the fuel gas to the heater is monitored by an existing CEM.

b. Nitrogen Oxides Testing.

- i. Within 60 days after achieving the maximum production rate at which the affected heaters 102B-2 and 103B-1 will be operated, but not later than 180 days after initial startup, the NO<sub>x</sub> emissions of the affected heaters 102B-2 and 103B-1, shall be measured during conditions which are representative of maximum emissions.
- ii. The following methods and procedures shall be used for testing of 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

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.

#### 1.1.8 Monitoring Requirements

- a. The Permittee shall comply with the monitoring requirements specified in 40 CFR 60.105 for the affected heater 102B-2 by installing, calibrating, maintaining and operating either of the following continuous monitoring systems:
  - i. An instrument for continuously monitoring and recording the concentration by volume (dry basis, zero percent excess air) of SO<sub>2</sub> emissions into the atmosphere from each heater. The monitor shall include an oxygen monitor for correcting the data for excess air; or
  - ii. An instrument for continuously monitoring and recording the concentration (dry basis) of H<sub>2</sub>S in fuel gases before being burned in these heaters.
- b. For the affected heater 102B-2, the Permittee shall determine compliance with the H<sub>2</sub>S standard in 40 CFR 60.104(a)(1) as follows: Method 11, 15, 15A, or 16 shall be used to determine the H<sub>2</sub>S concentration in the fuel gas. The gases entering the sampling train should be at about atmospheric pressure. If the pressure in the refinery fuel gas lines is relatively high, a flow control valve may be used to reduce the pressure. If the line pressure is high enough to operate the sampling train without a vacuum pump, the pump may be eliminated from the sampling train. The sample shall be drawn from a point near the centroid of the fuel gas line [40 CFR 60.106(e)(1)].
- c. For the affected heater 102B-2, the Permittee shall maintain records of the following items to demonstrate compliance with Condition 1.1.3(b)(ii):

- i. For a SO<sub>2</sub> monitor: a record of the concentration by volume (dry basis, zero percent excess air) of SO<sub>2</sub> emissions into the atmosphere; or
  - ii. For a H<sub>2</sub>S monitor: a record of the concentration (dry basis) of H<sub>2</sub>S in fuel gases before being burned in the heater.
- d. The Permittee shall install, calibrate, maintain and operate a continuous emissions monitoring system to continuously monitor and record emissions of SO<sub>2</sub> from the Sulfur Removal Plant (measurements on each of the sulfur removal plant train stacks (Trains A-D)).

1.1.9 Recordkeeping Requirements

- a. The Permittee shall maintain records of the following items for the affected heaters:
- i. Firing rate of the affected heaters (mmBtu/hr on a daily average, based on higher heating value);
  - ii. NO<sub>x</sub>, CO, VOM, SO<sub>2</sub>, PM and PM<sub>10</sub> emissions from the affected heaters (tons/month and tons/year), as determined by methods in Condition 1.1.12(b); and
- b. The Permittee shall maintain monthly records of the following items for tanks 331TK-480 and 331TK-484:
- i. Material stored in each tank;
  - ii. Throughput of material for each tank (gallons/month and gallons/year);
  - iii. Emissions of VOM from each tank (tons/month and tons/year), based on the methods in Condition 1.1.12(c).
- c. The Permittee shall maintain records of the following items for fugitive emissions from components:
- i. Number of new components by unit or location and type in the Tier 2 Project; and
  - ii. Calculated VOM emissions including supporting calculations, attributable to these components (tons/year), based on the methods in Condition 1.1.12(d).

- d. The Permittee shall maintain monthly records of the following items for the south plant cooling tower:
  - i. Maximum flow rate through the cooling tower (gallons/minute, daily average);
  - ii. Measurements of the total dissolved solids in the cooling tower water (monthly average); and
  - iii. Calculated VOM, PM, and PM10 emissions including supporting calculations (tons/month and tons/year), based on the methods in Condition 1.1.12(e).
- e. The Permittee shall maintain records of the Sulfur Removal Plant SO<sub>2</sub> emissions on a daily basis (tons/month and tons/year), as determined by continuous monitoring in accordance with Condition 1.1.8(d).

#### 1.1.10 Reporting Requirements

- a. The Permittee shall notify the Illinois EPA of deviations of the affected heaters with the permit requirements as follows. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken.
- b. For affected heater 102B-2, the Permittee shall comply with the reporting requirements specified in 40 CFR 60.107(d), (e) and (f) and 40 CFR 60.105(e)(3).

#### 1.1.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

#### 1.1.12 Compliance Procedures

- a. Compliance with the particulate matter emission limitations specified in Condition 1.1.3(a)(ii) is considered inherent in the normal operation of an affected heater firing refinery fuel gas.
- b.
  - i. Compliance with the SO<sub>2</sub> limits in Condition 1.1.6(a) shall be based on the operating records required by Condition 1.1.9 and the sulfur content of refinery fuel gas as monitored in accordance with Condition 1.1.8.
  - ii. Compliance with the other emission limits in Condition 1.1.6(a)(i) for the affected heater

102B-2 shall be based on the operating records required by Condition 1.1.9 and appropriate emission factors:

<u>Pollutant</u>	<u>Emission Factor (Lbs/mmBtu)</u>
NO <sub>x</sub>	0.04
CO	0.0550
VOM	0.002696
PM/PM <sub>10</sub>	0.00745

If available, results from representative stack tests in accordance with the methods described in 1.1.7(b)(ii) or in 40 CFR Part 60, Appendix A shall be used in lieu of these emission factors to represent actual emissions.

- iii. Compliance with the other emission limits in Condition 1.1.6(a)(ii) for the affected heater 103B-1 shall be based on the operating records required by Condition 1.1.9 and appropriate emission factors:

<u>Pollutant</u>	<u>Emission Factor (Lbs/mmBtu)</u>
NO <sub>x</sub>	0.1
CO	0.0550
VOM	0.002696
PM/PM <sub>10</sub>	0.00745

If available, results from representative stack tests in accordance with the methods described in 1.1.7(b)(ii) or in 40 CFR Part 60, Appendix A shall be used in lieu of these emission factors to represent actual emissions.

- c. Compliance with the emission limitations for tanks 331TK-480 and 331TK-484 specified in Condition 1.1.6 shall be determined through the use of established USEPA methodology, such as the TANKS program.
- d. Compliance with the emission limits for VOM leaks in Condition 1.1.6 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).

- e. i. Compliance with the south plant cooling tower PM emission limits in Condition 1.1.6 shall be based on the recordkeeping requirements in Condition 1.1.9, the measured total dissolved solids and a tower-specific emission factor for drift.
- ii. Compliance with the south plant cooling tower PM10 emission limits in Condition 1.1.6 shall be based on the recordkeeping requirements in Condition 1.1.9, the PM emissions calculated under 1.1.12(e)(i), and the calculated fraction of PM<sub>10</sub>.
- iii. Compliance with the south plant cooling tower VOM emission limits in Condition 1.1.6 shall be based on the recordkeeping requirements in Condition 1.1.9 and an appropriate emission factor such as the USEPA's AP-42 emission factors for controlled, induced draft cooling towers at petroleum refineries (Chapter 5.1).
- f. i. Compliance with the SO<sub>2</sub> emission limits in Condition 1.1.6 for the Sulfur Removal Plant is demonstrated by continuous monitoring.
- ii. Compliance with the other emission limits in Condition 1.1.6(e) for the Sulfur Removal plant shall be based on the operating records required by Condition 1.1.9 and appropriate emission factors:

Unit 119, A and B Trains:

<u>Pollutant</u>	<u>Emission Factor (Lbs/long T S feed)</u>
NO <sub>x</sub>	0.921
CO	33.072
VOM	0.325
PM/PM <sub>10</sub>	0.070

Unit 121, C and D Trains:

<u>Pollutant</u>	<u>Emission Factor (Lbs/long T S feed)</u>
NO <sub>x</sub>	0.482
CO	2.269
VOM	0.266
PM/PM <sub>10</sub>	0.030

2. This permit does not relax any requirements for the existing equipment affected by the Tier 2 project as set forth in the Clean Air Act Permit Program (CAAPP) permit for the source, CAAPP Permit 96030079.
3. General requirements of the CAAPP permit with respect to retention and availability of records or submission of reports shall apply to recordkeeping and reporting requirements established by this permit.

This permit has been revised to reflect various changes including the following: Unit 101 has been re-engineering to a revised ISAL unit (Unit 102), two heaters that were in Unit 101 have been replaced with a single ISAL Unit 102 heater, some equipment has been redesignated, and the south plant cooling tower emission estimation methodology has been refined to provide more accurate information.

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:jar

cc: Region 1

Attachment 1

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

Contemporaneous Time Period of November 1996 Through November 2001

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

<u>Item of Equipment</u>	<u>Past Actual (Tons/Yr)</u>	<u>Future Potential (Tons/Yr)</u>	<u>Emissions Change (Tons/Year)</u>	<u>Permit Number</u>
Heater (102B-2)	0.00	8.50	8.50	01030085
Heater (103B-1)	4.55	8.45	3.90	01030085
Sulfur Removal Plant	30.34	42.56	12.22	01030085
Hydrogen Plant (BOC)*	0.00	47.02	<u>47.02</u>	01070058
		Total:	<u>71.64</u>	

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

<u>Item of Equipment</u>	<u>Commencement of Operation Date</u>	<u>Emissions Increase (Tons/Year)</u>	<u>Permit Number</u>
Vapor Recovery Unit w/Vapor Combustor	May 1998	14.80	98030075
Replacement Boiler (431B- Replacement)	November 2001	70.89	01070039
Heater (113B-1)	November 2002	4.18	01070060
Heater (113B-2)	November 2002	4.55	01070060
Heater (113B-3)	November 2002	6.24	01070060
FCCU Cat. Regen. (112D-1)	November 2002	<u>0.00</u>	01070060
	Total:	<u>100.66</u>	

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

<u>Item of Equipment</u>	<u>Commencement of Operational Change Date</u>	<u>Emissions Decrease (Tons/Year)</u>	<u>Permit Number</u>
Installed Ultra-Low NO <sub>x</sub> Burners in Heater (113B-1)	April 1998	27.71	98020008
Installed Ultra-Low NO <sub>x</sub> Burners in Heater (111B-2)	February 2000	58.01	00010016
Boiler No. 19 Removed	November 2001	37.46	01070039
Modified Heater (111B-1A)	November 2002	193.73	01070060
Modified Heater (111B-1B)	November 2002	<u>183.05</u>	01070060
	Total:	<u>499.96</u>	

**Table IV - Net Emissions Change**

	<u>(Tons/Year)</u>
Increases and Decreases Associated With The Proposed Modification	71.64
Creditable Contemporaneous Emission Increases	100.66
Creditable Contemporaneous Emission Decreases	<u>- 499.96</u>
	- 327.66

\* The emissions from the proposed hydrogen plant are taken from the application submitted by BOC Gases. A separate permit will be issued for the hydrogen plant.

Attachment 2

Nonattainment NSR Applicability - VOM Netting Analysis

Contemporaneous Time Period of 1997 Through 2001

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

<u>Item of Equipment</u>	<u>Past Actual (Tons/Yr)</u>	<u>Future Potential (Tons/Yr)</u>	<u>Emissions Change (Tons/Year)</u>	<u>Permit Number</u>
Heater (102B-2)	0.00	1.15	1.15	01030085
Heater (103B-1)	0.09	0.23	0.15	01030085
Tank (331TK-480)	0.18	2.11	1.93	01030085
Tank (331TK-484)	15.16	1.84	- 11.46	01030085
Fugitives (Unit 102)	0.00	6.1	6.1	01030085
South Plant Cooling Tower (420E-1)	8.62	11.11	2.49	01030085
Sulfur Recovery Plant (Units 119 and 121)	14.21	21.11	6.90	01030085
Hydrogen Plant (BOC)	0.00	1.18	<u>1.18</u>	
		Total:	8.86	

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

<u>Item of Equipment</u>	<u>Commencement of Operation Date</u>	<u>Emissions Increase (Tons/Year)</u>	<u>Permit Number</u>
Installed Ultra-Low NO <sub>x</sub> Burners on Heater (113B-1)	April 1998	0.47	98020008
Vapor Recovery Unit w/Vapor Combustor (335B-1)	May 1998	25.82	98030075
Ethanol Storage at Fuels Rack (335TK-ETOH)	July 1997	3.72	97050098
Replacement Boiler (431B- Replacement)	November 2001	5.88	01070039
Modified Heater (111B-1A)	November 2002	4.27	01070060
Modified Heater (111B-1B)	November 2002	4.28	01070060
Heater (113B-1)	November 2002	0.44	01070060
Heater (113B-2)	November 2002	0.47	01070060
Heater (113B-3)	November 2002	0.40	01070060
FCCU Cat. Regen. (112D-1)	November 2002	<u>0.00</u>	01070060
	Total:	45.75	

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

<u>Item of Equipment</u>	<u>Commencement of Operational Change Date</u>	<u>Emissions Decrease (Tons/Year)</u>	<u>Permit Number</u>
Tank (331TK-050) - Installed cover on floating roof	May 1999	12.44	99030103
Tank (331TK-406) - Installed cover on floating roof	May 1999	9.49	99030103
Removed fuels loading rack vapor recovery unit	June 1998	6.58	98030075
Heater 111B-2 - Installed Ultra-Low NO <sub>x</sub> Burners	February 2000	2.73	00010016
Boiler No. 19 Removed	November 2001	<u>0.27</u>	01070039
	Total:	31.51	

**Table IV - Net Emissions Change**

	<u>(Tons/Year)</u>
Increases and Decreases Associated With The Proposed Modification	8.86
Creditable Contemporaneous Emission Increases	45.75
Creditable Contemporaneous Emission Decreases	<u>- 31.51</u>
	23.10