

217/782-2113

TITLE V - CLEAN AIR ACT PERMIT PROGRAM (CAAPP) PERMIT
and
TITLE I PERMIT¹

PERMITTEE

ConocoPhillips Wood River Refinery
Attn: Neal Sahni
Post Office Box 76
Roxanna, Illinois 62084

Application No.: 95120306

I.D. No.: 119090AAA

Applicant's Designation: WRR

Date Received: December 27, 1995

Operation of: Petroleum Refinery

Date Issued: November 7, 2003

Expiration Date²: November 7, 2008

Source Location: 900 South Central Avenue, Roxanna, Madison County

Responsible Official: Herman L. Seedorf III, Refinery Manager

This permit is hereby granted to the above-designated Permittee to OPERATE a petroleum refinery, pursuant to the above referenced permit application. This permit is subject to the conditions contained herein.

If you have any questions concerning this permit, please contact Dan Punzak at 217/782-2113.

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

DES:DGP:jar

cc: Illinois EPA, FOS, Region 3

¹ This permit may contain terms and conditions which address the applicability, and compliance if determined applicable, of Title I of the CAA and regulations promulgated thereunder, including 40 CFR 52.21 - federal PSD and 35 IAC Part 203 - Major Stationary Sources Construction and Modification. Any such terms and conditions are identified within this permit.

² Except as provided in Condition 8.7 of this permit.

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1.0 SOURCE IDENTIFICATION

1.1 Source

ConocoPhillips Wood River Refinery
900 South Central Avenue
Roxanna, Illinois 62084
618/255-2478

I.D. No.: 119090AAA
Standard Industrial Classification: 2911

1.2 Owner/Parent Company

ConocoPhillips Company
600 North Dairy Ashford
Houston, Texas 77079

1.3 Operator

ConocoPhillips Wood River Refinery
900 South Central Avenue
Roxanna, Illinois 62084

Gina Nicholson
618/255-2512

1.4 General Source Description

The Wood River Refinery is located at 900 South Central Avenue in Roxanna (Wood River Township). The source produces a wide range of petroleum products from liquid propane, gasoline, aviation fuel, diesel fuel for transportation, distillate and residual oils for heating purposes, and asphalt. In addition petroleum refinery requires large amounts of heat. This can be supplied from steam produced in boilers or in process heaters which heat the fluid directly. The boilers and process heaters burn along or a combination of refinery fuel gas and purchased natural gas. In addition, the source has many storage tanks for storage of crude oil, intermediates and finished products and a logistics department where trucks are loaded for shipment of the products. The source also has many water cooling towers, a sulfur recovery plant and a wastewater treatment plant.

2.0 LIST OF ABBREVIATIONS/ACRONYMS USED IN THIS PERMIT

| | |
|------------------|--|
| Act | Environmental Protection Act [415 ILCS 5/1 et seq.] |
| AP-42 | Compilation of Air Pollutant Emission Factors, Volume 1, Stationary Point and Other Sources (and Supplements A through F), USEPA, Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711 |
| AVO | Audio, Visual or Olfactory |
| BACT | Best Available Control Technology |
| BAT | Best Available Technology |
| bbl | Barrels |
| Btu | British thermal unit |
| °C | Degrees Celsius |
| CAA | Clean Air Act [42 U.S.C. Section 7401 et seq.] |
| CAAPP | Clean Air Act Permit Program |
| CFR | Code of Federal Regulations |
| cm | Centimeter |
| cm ² | square centimeter |
| CO | Carbon Monoxide |
| CO ₂ | Carbon Dioxide |
| COM | Continuous Opacity Monitor |
| CSRP | Claus Sulfur Recovery Plant |
| CT | Cooling Towers |
| CWT | Cooling Water Towers |
| dscf | dry standard cubic foot |
| ESPs | Electrostatic Precipitator(s) |
| °F | degrees Fahrenheit |
| FCC(U) | Fluid Catalytic Cracking (Unit) |
| ft | feet |
| gal | gallon |
| gr | grains |
| HAP | Hazardous Air Pollutant |
| HF | Hydrofluoric Acid |
| HON | Hazardous Organic NESHAP |
| hr | hour |
| H ₂ S | Hydrogen Sulfide |
| IAC | Illinois Administrative Code |
| I.D. No. | Identification Number of Source, assigned by Illinois EPA |
| Illinois EPA | Illinois Environmental Protection Agency |
| °K | degrees Kelvin |
| kg | kilogram |
| kPa | Kilopascals |
| kW | kilowatts |
| LAER | Lowest Achievable Emission Rate |
| lb | pound |
| LEL | Lower Explosive Limit |
| LDAR | Leak Detection and Repair |
| LPG | Liquefied propane gas |
| m | meter |
| MACT | Maximum Available Control Technology |
| mg | milligram |
| mmBtu | Million British thermal units |

| | |
|------------------|--|
| mmscf | million standard cubic feet |
| mo | month |
| NESHAP | National Emission Standards for Hazardous Air Pollutants |
| NO _x | Nitrogen Oxides |
| NSPS | New Source Performance Standards |
| OM | Organic Material |
| OWS | Oil/Water Separator |
| PM | Particulate Matter |
| PM ₁₀ | Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 microns as measured by applicable test or monitoring methods |
| ppm | parts per million |
| PSD | Prevention of Significant Deterioration |
| psi | pounds per square inch |
| psia | pounds per square inch absolute |
| RMP | Risk Management Plan |
| RVP | Reid Vapor Pressure |
| scf | standard cubic feet |
| SCOT | Shell Claus Offgas Treatment |
| sec | second |
| SIP | State Implementation Plan |
| SO ₂ | Sulfur Dioxide |
| SRU | Sulfur Recovery Unit |
| T | Ton |
| TC | Total Carbon |
| TOC | Total Organic Carbon |
| T1 | Title I B identifies Title I conditions that have been carried over from an existing construction permit |
| T1N | Title I New B identifies Title I conditions that are being established in this permit |
| T1R | Title I Revised B identifies Title I conditions that have been carried over from an existing construction permit and subsequently revised in this permit |
| USEPA | United States Environmental Protection Agency |
| VOL | Volatile Organic Liquid |
| VOM | Volatile Organic Material |
| VPL | Volatile Petroleum Liquid |
| wt. % | weight percent |
| WWTP | Wastewater Treatment Plant |
| yr | year |

3.0 INSIGNIFICANT ACTIVITIES

3.1 Identification of Insignificant Activities

The following activities at the source constitute insignificant activities as specified in 35 IAC 201.210:

- 3.1.1 Activities determined by the Illinois EPA to be insignificant activities, pursuant to 35 IAC 201.210(a)(1) and 201.211, as follows:

Petroleum Product Storage Tanks, numbered as follows:
000005, 000007, 000014, 890554, 901130, 920835,
930416, 940023, TK-B109, TK-CH110, TK-CH193,
TK-CH249, TK-CH261, TK-931035, TK-931036, TK-940279,
TK-B111, TK-B113, TK-B114, TK-CH160, TK-CH248,
TK-CH250, TK-CH251, TK-CH252, TK-CH254, TK-CH266,
TK-880147, TK-900621, TK-920012, TK-920464, TK-CH038,
TK-CH191, TK-CH192, TK-CH196, TK-940888, TK-CH277,
TK-CH208, TK-ADD003 TO 012, TK-E033, TK-D009-1

- 3.1.2 Activities that are insignificant activities based upon maximum emissions, pursuant to 35 IAC 201.210(a)(2) or (a)(3), as follows:

TK-B083, TK-B138, TK-CH237 to 240, TK-CH262,
TK-CH271, TK-CH272, TK-CH287, TK-C057, TK-C058,
TK-L008, TK-L009, TK-M001, TK-M008, TK-M064, TK-M065,
TK-P077

- 3.1.3 Activities that are insignificant activities based upon their type or character, pursuant to 35 IAC 201.210(a)(4) through (18), as follows:

Direct combustion units designed and used for comfort heating purposes and fuel combustion emission units as follows: (A) Units with a rated heat input capacity of less than 2.5 mmBtu/hr that fire only natural gas, propane, or liquefied petroleum gas; (B) Units with a rated heat input capacity of less than 1.0 mmBtu/hr that fire only oil or oil in combination with only natural gas, propane, or liquefied petroleum gas; and (C) Units with a rated heat input capacity of less than 200,000 Btu/hr which never burn refuse, or treated or chemically contaminated wood [35 IAC 201.210(a)(4)].

Equipment used for filling drums, pails, or other packaging containers, excluding aerosol cans, with soaps, detergents, surfactants, lubricating oils, waxes, vegetable oils, greases, animal fats, glycerin, sweeteners, corn syrup, aqueous salt solutions, or aqueous caustic solutions [35 IAC 201.210(a)(8)].

Storage tanks of organic liquids with a capacity of less than 10,000 gallons and an annual throughput of less than 100,000 gallons per year, provided the storage tank is not used for the storage of gasoline or any material listed as a HAP pursuant to Section 112(b) of the CAA [35 IAC 201.210(a)(10)].

Storage tanks of any size containing virgin or re-refined distillate oil, hydrocarbon condensate from natural gas pipeline or storage systems, lubricating oil, or residual fuel oils [35 IAC 201.210(a)(11)].

Printing operations with aggregate organic solvent usage that never exceeds 750 gallons per year from all printing lines at the source, including organic solvent from inks, dilutents, fountain solutions, and cleaning materials [35 IAC 201.210(a)(14)].

Gas turbines and stationary reciprocating internal combustion engines of less than 112 kW (150 horsepower) power output [35 IAC 201.210(a)(15)].

Gas turbines and stationary reciprocating internal combustion engines of between 112 kW and 1,118 kW (150 and 1,500 horsepower) power output that are emergency or standby units [35 IAC 201.210(a)(16)].

Storage tanks of any size containing exclusively soaps, detergents, surfactants, glycerin, waxes, vegetable oils, greases, animal fats, sweeteners, corn syrup, aqueous salt solutions, or aqueous caustic solutions, provided an organic solvent has not been mixed with such materials [35 IAC 201.210(a)(17)].

Loading and unloading systems for railcars, tank trucks, or watercraft that handle only the following liquid materials, provided an organic solvent has not been mixed with such materials: soaps, detergents, surfactants, lubricating oils, waxes, glycerin, vegetable oils, greases, animal fats, sweetener, corn syrup, aqueous salt solutions, or aqueous caustic solutions [35 IAC 201.210(a)(18)].

3.1.4 Activities that are considered insignificant activities pursuant to 35 IAC 201.210(b).

3.2 Compliance with Applicable Requirements

Insignificant activities are subject to applicable requirements notwithstanding status as insignificant activities. In particular, in addition to regulations of general applicability, such as 35 IAC 212.301 and 212.123 (Condition 5.2.2), the

Permittee shall comply with the following requirements, as applicable:

- 3.2.1 For each cold cleaning degreaser, the Permittee shall comply with the applicable equipment and operating requirements of 35 IAC 215.182, 218.182, or 219.182.
- 3.2.2 For each particulate matter process emission unit, the Permittee shall comply with the applicable particulate matter emission limit of 35 IAC 212.321 or 212.322. For example, the particulate matter emissions from a process emission unit shall not exceed 0.55 pounds per hour if the emission unit's process weight rate is 100 pounds per hour or less, pursuant to 35 IAC 266.110.
- 3.2.3 For each organic material emission unit that uses organic material, e.g., a mixer or printing line, the Permittee shall comply with the applicable VOM emission limit of 35 IAC 215.301, 218.301, or 219.301, which requires that organic material emissions not exceed 8.0 pounds per hour or do not qualify as photochemically reactive material as defined in 35 IAC 211.4690.
- 3.2.4 For each storage tank over 250 gallons capacity that stores an organic material with a vapor pressure exceeding 2.5 psia, the tank shall be equipped with a permanent submerged loading pipe. [35 IAC 219.122(b) and (c)]

3.3 Addition of Insignificant Activities

- 3.3.1 The Permittee is not required to notify the Illinois EPA of additional insignificant activities present at the source of a type that is identified in Condition 3.1, until the renewal application for this permit is submitted, pursuant to 35 IAC 201.212(a).
- 3.3.2 The Permittee must notify the Illinois EPA of any proposed addition of a new insignificant activity of a type addressed by 35 IAC 201.210(a) and 201.211 other than those identified in Condition 3.1, pursuant to Section 39.5(12)(b) of the Act.
- 3.3.3 The Permittee is not required to notify the Illinois EPA of additional insignificant activities present at the source of a type identified in 35 IAC 201.210(b).

4.0 SIGNIFICANT EMISSION UNITS AT THIS SOURCE

| Permit Emission Unit Number | Permittee Unit Number | Description and Permittee Equipment Number | Construction Date | Firing ^a Rate (mmBtu/hr) | Emission Control Equipment |
|----------------------------------|-----------------------|---|-------------------|-------------------------------------|----------------------------|
| Units Subject to NSPS Subpart J | | | | | |
| 01 | WRR-31 | Acetone Unit HTR-ACETONE-H1 | 1978 | 29 | None |
| 02 | WRR-31 | Acetone Unit HTR-ACETONE-H2 | 1978 | 29 | None |
| 03 | WRR-6 | Vacuum Flasher No. 1 North Heater HTR-VF-1-NORTH | 1983 | 100 | None |
| 04 | WRR-6 | Vacuum Flasher No. 1 South Heater HTR-VF-1-SOUTH | 1983 | 100 | None |
| 05 | WRR-69 | Heavy Catalytic Naphtha Hydrotreater F-1 Charge Heater HTR-HCNHT | 1986 | 25 | None |
| 06 | WRR-27 | Utility Boilers Boiler 18 BLR-18 | 1979 | 249 | None |
| Unit Subject to NSPS Subpart D | | | | | |
| 07 | WRR-27 | Utility Boilers Boiler 17 BLR-17 | 1973 | 700 | None |
| Units Subject to NSPS Subpart Dc | | | | | |
| 08 | WRR-61 | Rental Package Boiler Rental Boiler No. 1 BLR-RENT-1 | 1997 | 99 | None |
| 09 | WRR-61 | Rental Package Boiler Rental Boiler No. 2 BLR-RENT-2 | 1997 | 99 | None |
| Units Not Subject to NSPS | | | | | |
| 10 | WRR-6 | Visbreaker Unit East Heater HTR-VBU-EAST | Pre-1972 | 55 | None |
| 11 | WRR-6 | Visbreaker Unit West Heater HTR-VBU-WEST | Pre-1972 | 55 | None |
| 12 | WRR-16 | Alkylation Unit HTR-ALKY-HM1 | Pre-1972 | 37.5 | None |
| 13 | WRR-16 | Alkylation Unit HTR-ALKY-HM2 | Pre-1972 | 110 | None |
| 14 | WRR-17 | Precursor Unit HTR-Precursor | Pre-1972 | 67.4 | None |
| 15 | WRR-19 | Benzene Extraction Unit HTR-BEU-HM1 | Pre-1972 | 110 | None |
| 16 | WRR-19 | Benzene Extraction Unit HTR-BEU-HM2 | Pre-1972 | 110 | None |
| 17 | Control 0007 | CO Heater HTR-CCU1-CO | Pre-1972 | 155 | None |

| Permit Emission Unit Number | Permittee Unit Number | Description and Permittee Equipment Number | Construction Date | Firing ^a Rate (mmBtu/hr) | Emission Control Equipment |
|-----------------------------|-----------------------|--|-------------------|-------------------------------------|----------------------------|
| 18 | Control 0011 | CO Heater HTR-CCU2-CO | Pre-1972 | 155 | N/A |
| 18a | WRR-7 | CCU-1 Startup Heater B-1 (Used only during startup) | Pre-1972 | 80 | None |
| 18b | WRR-8 | CCU-2 Startup Heater B-1 (Used only during startup) | Pre-1972 | 80 | None |
| 19 | WRR-8 | Catalytic Feed Hydrotreater Unit HTR-CFH | Pre-1972 | 32 | None |
| 20 | WRR-5 | Cracked Absorption Unit HTR-CAU-ROSTILL | Pre-1972 | 95 | None |
| 21 | WRR-1 | Distilling Unit HTR-DU1-F301 | Pre-1973 | 120 | None |
| 22 | WRR-1 | Distilling Unit HTR-DU1-F302 | Pre-1972 | 200 | None |
| 23 | WRR-2 | Distilling Unit 2, Lube Crude Heater HTR-DU2-F200 | Pre-1972 | 151 | None |
| 24 | WRR-2 | Distilling Unit, West Crude Heater HTR-DU2-F202 | Pre-1972 | 231 | None |
| 25 | WRR-2 | Distilling Unit 2, East Crude Heater HTR-DU2-F203 | Pre-1972 | 231 | None |
| 26 | WRR-68 | Rectified Absorption Unit Reboiler Heater HTR-RAU-DEBUT | Pre-1972 | 68.5 | None |
| 27 | WRR-6 | Vacuum Flasher No. 2 West Heater HTR-VF-2-F204 | Pre-1972 | 61 | None |
| 28 | WRR-21 | Vacuum Flasher No. 2 East Heater HTR-VF2-F205 | Pre-1972 | 61 | None |
| 29 | WRR-6 | Vacuum Flasher No. 3 Visbreaker Heater HTR-VF-3 | Pre-1972 | 50 | None |
| 30 | WRR-21 | Cat Reformer No. 1 Feed Preheater HTR-CR1-H1 | Pre-1972 | 165 | None |
| 31 | WRR-21 | Cat Reformer No. 1 First Interreactor Heater HTR-CR1-H2 | Pre-1972 | 162 | None |
| 32 | WRR-21 | Cat Reformer No. 1 Second Interreactor Heater HTR-CR1-H3 | Pre-1972 | 78 | None |
| 33 | WRR-21 | Cat Reformer No. 1 Stabilizer Reboiler HTR-CR1-H4 | Pre-1972 | 40 | None |
| 34 | WRR-21 | Cat Reformer No.1 Regeneration Gas Heater HTR-CR1-H5 | Pre-1972 | 37.8 | None |

| Permit Emission Unit Number | Permittee Unit Number | Description and Permittee Equipment Number | Construction Date | Firing ^a Rate (mmBtu/hr) | Emission Control Equipment |
|-----------------------------|-----------------------|--|-------------------|-------------------------------------|----------------------------|
| 35 | WRR-21 | Cat Reformer No. 1 Third Interreactor Heater HTR-CR1-H7 | Pre-1972 | 100 | None |
| 36 | WRR-26 | Cat Reformer No. 2 Charge Reheater HTR-CR2-N | Pre-1972 | 275 | None |
| 37 | WRR-25 | Cat Reformer No. 3 Stabilizer Reboiler HTR-CR3-H2 | Pre-1972 | 31.5 | None |
| 38 | WRR-25 | Cat Reformer No.3 Regeneration Gas Heater HTR-CR3-H3 | Pre-1972 | 25.4 | None |
| 39 | WRR-25 | Cat Reformer No. 3 Charge Heater HTR-CR3-H4 | Pre-1972 | 144.7 | None |
| 40 | WRR-25 | Cat Reformer No. 3 First Interreactor Heater HTR-CR3-H5 | Pre-1972 | 141 | None |
| 41 | WRR-25 | Cat Reformer No. 3 Second Interreactor Heater HTR-CR3-H6 | Pre-1972 | 74 | None |
| 42 | WRR-23 | Distillate Hydrotreater F-1 Charge Heater HTR-DHT | Pre-1972 | 108 | None |
| 43 | WRR-20 | Hydrocracking Unit First Stage Charge Heater HTR-HCU-H1 | Pre-1972 | 70 | None |
| 44 | WRR-20 | Hydrocracking Unit Second Stage Charge Heater HTR-HCU-H2 | Pre-1972 | 70 | None |
| 45 | WRR-20 | Hydrocracking Unit Fractionator Reboiler HTR-HCU-H3 | Pre-1972 | 235 | None |
| 46 | WRR-26 | Hydrodesulfurization Unit 1 Charge Heater HTR-HDU1 | Pre-1972 | 67.3 | None |
| 47 | WRR-25 | Hydrodesulfurization Unit 2 Charge Heater HTR-HDU2 | Pre-1972 | 81 | None |
| 48 | WRR-24 | Kerosene Hydrotreater KHT Heater HTR-KHT | Pre-1972 | 109 | None |
| 49 | WRR-24 | Kerosene Hydrotreater Mineral Spirits Heater HTR-KH2 | 1972 | 94.2 | None |
| 50 | WRR-22 | Saturates Gas Plant RO Stabilizer Reboiler HTR-SGP | Pre-1972 | 59.5 | None |

| Permit Emission Unit Number | Permittee Unit Number | Description and Permittee Equipment Number | Construction Date | Firing ^a Rate (mmBtu/hr) | Emission Control Equipment |
|-----------------------------|------------------------------------|--|-------------------|-------------------------------------|--|
| 51 | WRR-20 | Steam Methane Reformer SMR Heater HTR-SMR | Pre-1972 | 460 | None |
| 52 | WRR-11 | Lube Extract Unit LEU Extract Heater HTR-LEU-EXT | Pre-1972 | 63.5 | None |
| 53 | WRR-11 | Lube Extract Unit LEU Raffinate Heater HTR-LEU-RAFF | Pre-1972 | 20.8 | None |
| 54 | WRR-11 | Lube Extract Unit F-1 Charge Heater HTR-LHT | Pre-1972 | 20 | None |
| 55 | WRR-6 | Vacuum Fractionator Column Charge Heater HTR-VFC | Pre-1972 | 89.1 | None |
| 56 | WRR-13 | Asphalt Processing Asphalt Thermo Heater HTR-ASPHAT-THE | Pre-1972 | 8 | None |
| 57 | WRR-13 | Asphalt Blending Converter Preheater HTR-ASHALT-PRE | Pre-1972 | 3.9 | None |
| 58 | WRR-27 | Utility Boilers Boiler 15 BLR-15 | Pre-1972 | 360 | None |
| 59 | WRR-27 | Utility Boilers Boiler 16 BLR-16 | Pre-1972 | 360 | None |
| 60 | Catalytic Cracking Unit #1 (CCU-1) | Heavy Molecular weight hydrocarbons are cracked into lower molecular weight products. The catalyst regeneration part of the unit vents to through the control equipment. | Pre-1972 | | CO Heater (0007) ^a , ESP (0006) |
| 61 | Catalyst Loading | Catalyst is loaded onto trucks from CCU-1 | Pre-1972 | | None |
| 62 | Supplemental Air Compressor Engine | Diesel-fired compressor engines provide supplemental air for catalyst regeneration for CCU-1 | Pre-1972 | | None |
| 63 | Catalytic Cracking Unit #2 (CCU-2) | Heavy molecular weight hydrocarbons are cracked into lower molecular weight products. The catalyst regeneration part of the unit vents to through the control equipment. | Pre-1972 | | CO Heater (0011) ^a , ESP (0010) |
| 64 | Catalyst Loading | Catalyst is loaded onto trucks from CCU-2 | Pre-1972 | | None |

| Permit Emission Unit Number | Permittee Unit Number | Description and Permittee Equipment Number | Construction Date | Firing ^a Rate (mmBtu/hr) | Emission Control Equipment |
|-----------------------------|-------------------------------------|--|-------------------|-------------------------------------|--|
| 65 | Supple-mental Air Compressor Engine | | Pre-1972 | | |
| 66 | WRR-21 | Catalytic Reformer #1 | Pre-1972 | | None during material processing; to flare when depressurizing or hydrogen introduction; to scrubber during catalyst reactivation with chloriding agent |
| 67 | WRR-26 | Catalytic Reformer #2 | Pre-1972 | | None during material processing; to flare when depressurizing or hydrogen introduction; to scrubber during catalyst reactivation with chloriding agent |
| 68 | WRR-25 | Catalytic Reformer #3 | Pre-1972 | | None during material processing; to flare when depressurizing or hydrogen introduction; to scrubber during catalyst reactivation with chloriding agent |
| 69 | WRR-16 | Alkylation Unit | Pre-1972 | | Flare System |
| 69a | WRR-16 | Sulfuric Acid Handling System | 1989 | | Caustic Scrubber |
| 70 | WRR-8 | Catalytic Feed Hydrotreater | Pre-1972 | | Flare System |
| 71 | BT | Butane Treaters/Caustic Regenerators | Pre-1972 | | Flare System |
| 72 | CAU WRR-5 | Cracked Absorption Unit/Stabilizers | Pre-1972 | | Flare System |
| 73 | DIH No. 2 | Diesohexanizer No. 2 | Pre-1972 | | Flare System |

| Permit Emission Unit Number | Permittee Unit Number | Description and Permittee Equipment Number | Construction Date | Firing ^a Rate (mmBtu/hr) | Emission Control Equipment |
|-----------------------------|---------------------------------|--|-------------------|-------------------------------------|----------------------------|
| 74 | DU-1 WRR-1 | Distilling Unit No.1 | Pre-1972 | | Flare System |
| 75 | DU-2 WRR-2 | Distilling Unit No. 2 | Pre-1972 | | Flare System |
| 76 | WRR-5 | Light Oil Treaters, Closed Vents | Pre-1972 | | Flare System |
| 77 | C3 Treaters | Propane/Propylene Treaters, to RFG | Pre-1972 | | Flare System |
| 78 | RAU WRR-4 | Rectified Absorption System, to RFG | Pre-1972 | | Flare System |
| 79 | SW5 | Gas Plant Sour Water Stripper, to RFG | Pre-1972 | | Flare System |
| 80 | VF-1, VF-2, VF-3 WRR-6 | Vacuum Flasher Units 1, 2, and 3, to RFG | Pre-1972 | | Flare System |
| 81 | VBU WRR-6 | Visbreaker Unit | Pre-1972 | | Flare System |
| 82 | DHT WRR-23 | Distillate Hydroreater, to RFG | Pre-1972 | | Flare System |
| 83 | HCU WRR-20 | Hydrocracker Unit, to RFG Also | Pre-1972 | | Flare System |
| 84 | HDU-1 and 2 WRR-25 | Hydrosulfurization Unit 1 and 2 | Pre-1972 | | Flare System |
| 85 | KHT WRR-24 | Kerosene Hydrotreater, Vent to H ₂ System | Pre-1972 | | Flare System |
| 86 | SGP WRR-22 | Saturates Gas Plant, to RFG | Pre-1972 | | Flare System |
| 87 | SMR WRR-20 | Steam Methane Reformer, to H ₂ System | Pre-1972 | | Flare System |
| 88 | LEU WRR-11 | Lubricants Extraction Unit | Pre-1972 | | Flare System |
| 89 | LHT WRR-12 | Lubricants Hydrotreater, to H ₂ System | Pre-1972 | | Flare System |
| 90 | VFC WRR-6 | Vacuum Fractionator Column, Vent Directly to Heater of this Unit | Pre-1972 | | Flare System |
| 91 | CNS WRR-69 | Catalytic Naphtha Splitter | 1997 | | Flare System |
| 92 | HCNHT WRR-69 | Heavy Catalytic Naphtha Hydrotreater | 1997 | | Flare System |
| 93 | GHT WRR-60 | Gasoline Hydrotreater | 1997 | | Flare System |
| 94 | WRR-19 | Benzene Extraction Unit (BEU). Benzene is extracted from aromatic feedstocks | Pre-1972 | | Flare |
| 95 | Alkylation Unit Flare | Hydrocarbons are preferably recovered by compressor system or unrecoverable amount is sent to flare. | Pre-1972 | | None |

| Permit Emission Unit Number | Permittee Unit Number | Description and Permittee Equipment Number | Construction Date | Firing ^a Rate (mmBtu/hr) | Emission Control Equipment |
|-----------------------------|------------------------------------|--|-------------------|-------------------------------------|----------------------------------|
| 96 | Distilling Flare | Hydrocarbons are preferably recovered by compressor system or unrecoverable amount is sent to flare. | Pre-1972 | | None |
| 97 | North Property Ground Flare | Hydrocarbons are preferably recovered by compressor system or unrecoverable amount is sent to flare. | Pre-1972 | | None |
| 98 | Aromatics Low Pressure Flare | Hydrocarbons are preferably recovered by compressor system or unrecoverable amount is sent to flare. | Pre-1972 | | None |
| 99 | Aromatics High Pressure Flare | Hydrocarbons are preferably recovered by compressor system or unrecoverable amount is sent to flare. | Pre-1972 | | None |
| 100 | Sulfur Recovery Unit No. 1 (SRU-1) | Production of Sulfur from Various Hydrogen Sulfide rich Refinery Streams | Pre-1972 | | SCOT Unit, Thermal Oxidizers |
| 101 | Sulfur Recovery Unit No. 2 (SRU-2) | Production of Sulfur from Various Hydrogen Sulfide rich Refinery Streams | Pre-1972 | | SCOT Unit, Thermal Oxidizers |
| 102a | LDG-TT-NEWRACK | Light Oil Truck Rack, Gasoline Mode | Pre-1972 | | Vapor Recovery System (Absorber) |
| 102b | LDG-TT-NEWRACK | Light Oil Truck Rack, Petroleum Products Other Than Gasoline | Pre-1972 | | None |
| 103 | LDG-TC-OLD-RACK | Light Oil Tank Car Rack | Pre-1972 | | None |
| 104a | LDG-TT-ASPHALT | Asphalt Truck Rack | Pre-1972 | | None |
| 104b | LDG-TC-ASPHALT | Asphalt Tank Car Rack | Pre-1972 | | None |
| 105a | LDG-Barge-01 and 02 | Barge Loading, Gasoline Mode | Pre-1972 | | None |
| 105b | LDG-Barge-01 and 02 | Barge Loading (Non-Gasoline and Non-Benzene) | Pre-1972 | | None |
| 106 | LDG-Barge-03 | Barge Loading Benzene | Pre-1972 | | Flare |
| 107 | APU | Asphalt Processing Unit | Pre-1972 | | Thermal Oxidizer ^a |
| 108 | LDG-TC-PROP/BUT | East Tank Car Rack | Pre-1972 | | North Property Ground Flare |
| 109 | LDG-TT-PROP/BUT | East Truck Rack | Pre-1972 | | North Property Ground Flare |
| 110 | CWT-11A | Non-Contact Process Water Cooling Tower | Pre-1972 | | None |

| Permit Emission Unit Number | Permittee Unit Number | Description and Permittee Equipment Number | Construction Date | Firing ^a Rate (mmBtu/hr) | Emission Control Equipment |
|-----------------------------|-----------------------|---|-------------------|-------------------------------------|--|
| 111 | CWT-12B | Non-Contact Process Water Cooling Tower | Pre-1972 | | None |
| 112 | CWT-13 | Non-Contact Process Water Cooling Tower | Pre-1972 | | None |
| 113 | CWT-14 | Non-Contact Process Water Cooling Tower | Pre-1972 | | None |
| 114 | CWT-15 | Non-Contact Process Water Cooling Tower | Pre-1972 | | None |
| 115 | CWT-16 | Non-Contact Process Water Cooling Tower | Pre-1972 | | None |
| 116 | CWT-17 | Non-Contact Process Water Cooling Tower | Pre-1972 | | None |
| 117 | CWT-19 | Non-Contact Process Water Cooling Tower | Pre-1972 | | None |
| 118 | CWT-2 | Non-Contact Process Water Cooling Tower | Pre-1972 | | None |
| 119 | CWT-20 | Non-Contact Process Water Cooling Tower | Pre-1972 | | None |
| 120 | CWT-2A | Non-Contact Process Water Cooling Tower | Pre-1972 | | None |
| 121 | CWT-7 | Non-Contact Process Water Cooling Tower | Pre-1972 | | None |
| 122 | CWT-9C | Non-Contact Process Water Cooling Tower | Pre-1972 | | None |
| 123 | WWTS | Units to Flare ^a : Primary Treatment/Lift Station/Collection/Bar Screen/Neutralization/CPI Oil Separators/Air Disengageent/DNF-1 and 3/DNF Sump/Two Centrifuge Holding Tanks (C-63 and C-64) and Ancillary Equipment as Part of Solids Dewatering/Tanks A-140, B-121, CH-278, C-46 and 47, D-52 through 54, F-10 | 1993 | | Primary Flare and Installed Flare |
| 124 | WWTS | Biotreaters/Clarifiers/Ponds and Lagoons | Pre-1972 | | None |
| 125 | Point 0096 | Two Fixed Roof Tanks TK-H032 and TK-H033, 5700 gallons each | Pre-1972 | | Submerged Loading Pipe and Vapor Balance |

5.0 OVERALL SOURCE CONDITIONS

5.1 Source Description

5.1.1 This permit is issued based on the source requiring a CAAPP permit as a major source (as defined in the CAA) of NO_x, SO₂, CO, PM, VOM, and HAP emissions.

5.1.2 For purposes of the CAAPP, the ConocoPhillips Wood River Refinery is considered a single source with the following other ConocoPhillips sources located in the vicinity of the refinery:

| <u>I. D. No.</u> | <u>Location</u> |
|------------------|---|
| 119050AAK | Hartford Lubricant Plant 2300 South Delmar, Hartford |
| 119115ABB | Conoco, Inc. Route 111, Wood River |
| 119801AAL | Conoco, Inc. |
| 119050AAN | Wood River Products Terminal 2150 South Delmar |

This determination is based on information provided by the refiner4y that these other sources do not serve as main distribution facilities for the Wood River Refinery and only handle materials refined at the refinery on an infrequent basis. If this status changes, the Illinois EPA must be notified.

5.2 Applicable Regulations

5.2.1 Specific emission units at this source are subject to particular regulations as set forth in Section 7 (Unit-Specific Conditions) of this permit.

5.2.2 In addition, emission units at this source are subject to the following regulations of general applicability:

- a. No person shall cause or allow the emission of fugitive particulate matter from any process, including any material handling or storage activity, that is visible by an observer looking generally overhead at a point beyond the property line of the source unless the wind speed is greater than 40.2 kilometers per hour (25 miles per hour), pursuant to 35 IAC 212.301 and 212.314.

Unless otherwise stated in Section 7, compliance with this requirements is considered to be assured by the inherent nature of operations at this source, as demonstrated by historical operation.

- b.
 - i. Emission units identified in 35 IAC 212.304 through 212.308 shall be operated under the provisions of an operating program prepared by the Permittee and submitted to the Illinois EPA for its review. Such operating program shall be designed to significantly reduce fugitive particulate matter emissions [35 IAC 212.309(a)].
 - ii. The operating program shall be amended from time to time by the Permittee so that the operating program is current. Such amendments shall be consistent with the requirements set forth by this condition and shall be submitted to the Illinois EPA [35 IAC 212.312].
 - iii. All normal traffic pattern roads and parking facilities located at this source shall be paved or treated with water, oils, or chemical dust suppressants. All paved areas shall be cleaned on a regular basis. All areas treated with water, oils, or chemical dust suppressants shall have the treatment applied on a regular basis, as needed, in accordance with the operating program [35 IAC 212.306].
- c. 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 other than those emission units subject to the requirements of 35 IAC 212.122, pursuant to 35 IAC 212.123(a), except as allowed by 35 IAC 212.123(b) and 212.124. The 35 IAC 212.122 exception only applies to fuel combustion emission units with a firing rate in excess of 250 mmBtu/hr and constructed after April 14, 1972. The Permittee does not have any units that meet this exception.
- d. Except as provided by 35 IAC 214, no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission unit to exceed 2,000 ppm [35 IAC 214.301]. This provision shall not apply to existing processes designed to remove sulfur compounds from the flue gases of petroleum and petrochemical processes. [35 IAC 214.382(a)]
- e. PM Emission Limits for Process Sources
 - i. Except as further provided by 35 IAC Part 212, no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any process emission unit for which construction or modification

commenced prior to April 14, 1972, which, either alone or in combination with the emission of particulate matter from all other similar process emission units at a source or premises exceeds the allowable emission rates using the following equations (35 IAC 212.322):

$$E = 4.10(P)^{0.67}$$

for P less than or equal to 30 ton/hr

$$E = (55.0(P)^{0.11}) - 40.0$$

for P greater than 30 ton/hr

Where:

E = Allowable emission rate in lbs/hr; and

P = Process weight rate in ton/hr

- ii. For process emission units for which construction or modification commenced after April 14, 1972 (35 IAC 212.321):

$$E = 2.54(P)^{0.534}$$

for P less than or equal to 450 ton/hr

$$E = 24.8(p)^{0.16}$$

for P greater than 450 ton/hr

- iii. For P less than 0.05 (100 lb/hr), the allowable is 0.55 lb/hr (35 IAC 266.110).
- iv. Note that the above limits do not apply to the catalytic cracking operations. See Condition 7.3.3(d) for the PM rule that applies to those operations.

- 5.2.3 a. Except as provided in section (iv) or (v) of this Condition, no person shall cause or allow the discharge of organic materials in excess of 100 ppm equivalent methane (molecular weight 16.0) into the atmosphere from:

- i. Any catalyst regenerator of a petroleum cracking system; or
- ii. Any petroleum fluid coker; or
- iii. Any other waste gas stream from any petroleum or petrochemical manufacturing process.

- iv. Exception. Existing sources subject to Condition 5.2.3(a)(iii) may, alternatively, at their election, comply with the organic material emission limitations imposed by 35 IAC 219.301 or 219.302; provided, however, that there shall be no increase in emissions from such sources above the level of emissions in existence on May 3, 1979.
- v. New Sources. Sources subject to Condition 5.2.3(a)(iii), construction of which commenced on or after January 1, 1977, may at their election, comply with the following emission limitations:
 - A. A maximum of eight pounds per hour of organic material; or
 - B. Emissions of organic material in excess of the limitation of Condition 5.2.3(a)(v)(A) of this Section is allowable if such emissions are controlled by air pollution control methods or equipment approved by the Illinois EPA capable of reducing by 85 percent or more the uncontrolled organic material that would otherwise be emitted to the atmosphere. Such methods or equipment must be approved by the Illinois EPA and approved by the USEPA as a SIP revision. (35 IAC 219.441)
- b. No owner or operator of a petroleum refinery shall cause or allow the operation of any vacuum producing system unless the condensers, hot wells and accumulators of any such system are equipped with vapor loss control equipment including, but not limited to, piping, valves, flame arresters and hot well covers, to vent any VOM with a vapor pressure of 1.5 psia or greater at 70°F to a heater, fire box, flare, refinery fuel gas system, or other equipment or system of equal emission control as approved by the Illinois EPA and approved by the USEPA as a SIP revision. This Section shall not apply to vacuum producing systems on lube units. (35 IAC 219.442)
- c. Pursuant to 35 IAC 219.443, the owner or operator of a petroleum refinery shall not process organic material with a vapor pressure of 10.34 kPa (1.5 psia) or greater at 294.3 K (70°F) in any wastewater (oil/water) separator at a petroleum refinery unless the separator is equipped with air pollution control equipment capable of reducing uncontrolled organic material emissions into the atmosphere by 85%.

Compliance with this requirement is considered to be assured by the inherent nature of operations at this source, as demonstrated by historical operation.

- d. Pursuant to 35 IAC 219.444, the Permittee shall not cause or allow a refinery process unit turnaround except in compliance with an operating procedure approved by the Illinois EPA. Except for procedures that were on file with the Illinois EPA no later than November 1, 1979, the procedure shall be designed to reduce emissions of VOM during refinery process unit turnarounds from organic material with a vapor pressure of 10.34 kPa (1.5 psia) or greater at 294.3EK (70°F) and shall at a minimum include depressurization of the refinery process unit or vessel to a flare, refinery fuel gas system, or other equipment or system of equal emission control, as approved by the Illinois EPA, until the internal pressure from the vessel or unit is less than 5.0 psig before allowing the vessel to be vented to the atmosphere.

- e. Pursuant to 35 IAC 219.143, no person shall cause or allow the emission of organic material into the atmosphere from any vapor blowdown system or any safety relief valve, except such safety relief valves not capable of causing an excessive release, unless such emission is controlled:
 - i. To 10 ppm equivalent methane (molecular weight 16.0) or less; or
 - ii. By combustion in a smokeless flare; or
 - iii. By other air pollution control equipment approved by the Illinois EPA according to the provisions of 35 IAC 201, and further processed consistent with 35 IAC 219.108.

Currently the Illinois EPA has not approved other air pollution control equipment for use in controlling vapor blowdown emissions at this source.

- f. Pursuant to 35 IAC 219.144, Condition 5.2.3(e) shall not apply to any set of unregulated safety relief valves capable of causing excessive releases, provided the owner or operator thereof, by October 1, 1972, supplied the Illinois EPA with the following:
 - i. A historical record of each such set (or, if such records were unavailable, of similar sets which, by virtue of operation under similar

circumstances, may reasonably have been presumed to have the same or greater frequency of excessive releases) for a three-year period immediately preceding October 1, 1972, indicating:

- A. Dates on which excessive releases occurred from each such set; and
 - B. Duration in minutes of each such excessive release; and
 - C. Quantities (in pounds) of mercaptans and/or hydrogen sulfide emitted into the atmosphere during each such excessive release.
- ii. Proof, using such three-year historical records, that no excessive release is likely to occur from any such set, either alone or in combination with such excessive releases from other sets owned or operated by the same person and located within a ten-mile radius from the center point of any such set, more frequently than 3 times in any 12 month period; and
 - iii. Accurate maintenance records for such safety relief valves.
- g. No person shall cause or allow the emission of a carbon monoxide waste gas stream into the atmosphere from a petroleum or petrochemical process unless such waste gas stream is burned in a direct flame afterburner or carbon monoxide boiler so that the resulting concentration of carbon monoxide in such waste gas stream is less than or equal to 200 ppm corrected to 50 percent excess air, or such waste gas stream is controlled by other equivalent air pollution control equipment approved by the Illinois EPA according to the provisions of 35 IAC 201 [35 IAC 216.361(a)].

5.2.4 Certain petroleum refining process units at the refinery are subject to 40 CFR 63 Subpart CC, NESHAP for Petroleum Refineries. However, Subpart CC exempts certain units from applicability of the rule. For instance, units that are subject to the HON rule are exempt from applicability of Subpart CC. Within the overall standard are specific standards for various classifications as follows:

- a. Miscellaneous process vents.
- b. Storage vessels.

- c. Wastewater streams and wastewater treatment operations.
- d. Equipment leaks.
- e. Gasoline loading racks.
- f. Marine vessel loading operations.

Within some of the above classifications there are two groupings. Group 1 units generally require control equipment or emission minimization methods. Group 2 units do not require control equipment or emission minimization methods. In Section 7 of this permit, specific emission units are identified as being Group 1 or Group 2 units.

5.2.5 Future Regulations

- a. Adopted Rule with Future Compliance Date

This source is subject to 40 CFR 63 Subpart UUU, [63.1560 et. seq.] a NESHAP for Catalytic Cracking Units (CCUs), Catalytic Reforming Units (CRUs) and Sulfur Recovery Units (SRUs) at Petroleum Refineries. This Subpart has been promulgated as a final rule but the source does not have to achieve compliance with the emission limitations until April 11, 2005. An extension beyond that date is allowed for CCUs until the date that Tier 2 gasoline sulfur control standard is met provided that certain interim requirements are met as described in 40 CFR 63.1563.

- b. New Regulations

- i. Should this stationary source become subject to a regulation under 40 CFR Part 63 or 35 IAC after the date this permit is issued, then the owner or operator shall, in accordance with the applicable regulation(s), comply with the applicable requirements by the date(s) specified and shall certify compliance with the applicable requirements of such regulation(s) as part of the annual compliance certification, as required by 40 CFR Part 70 or 71.
- ii. No later than upon the submittal for renewal of this permit, the owner or operator shall submit, as part of an application, the necessary information to address either the non-applicability of, or demonstrate compliance with all applicable requirements of any potentially applicable regulation which

was promulgated after the date this permit is issued.

5.2.6 Episode Action Plan

- a. If the source is required to have an episode action plan pursuant to 35 IAC 244.142, the Permittee shall maintain at the source and have on file with the Illinois EPA a written episode action plan (plan) for reducing the levels of air contaminants during yellow alerts, red alerts, and emergencies, consistent with safe operating procedures. The plan shall contain the information specified in 35 IAC 244.144.
- b. The Permittee shall immediately implement the appropriate steps described in this plan related to the declared episode stage and contaminant (35 IAC 244.169(b)) should an air pollution alert or emergency be declared.
- c. If an operational change occurs at the source which invalidates the plan, a copy of the revised plan shall be submitted to the Illinois EPA for review within 30 days of the change. Such plans shall be further revised if disapproved by the Illinois EPA. [35 IAC 244.143(d) and 244.145(b)]
- d. For sources required to have a plan pursuant to 35 IAC 244.142, a copy of the original plan and any subsequent revisions shall be sent to:
 - i. Illinois EPA, Compliance Section; and
 - ii. For sources located in Cook County and outside of the city of Chicago: Cook County Department of Environmental Control.

5.2.7 Benzene Waste Operations

- a. The requirements of 40 CFR 61 Subpart FF, Benzene Waste Operations, are applicable because the source is a petroleum refinery with a total annual benzene quantity in its waste streams in excess of 10 megagrams per year. The Permittee has currently chosen to comply with 40 CFR 61.342(e)(2) which states that the benzene quantity for the wastes described below shall not exceed 6 megagrams per year:

The owner or operator shall manage and treat facility waste (including remediation and process unit turn-around waste) with a flow-weighted annual average water content of 10 percent or greater, on a volume basis as

total water, and each waste stream that is mixed with water or wastes at any time such that the resulting mixture has an annual water content greater than 10 percent.

However, all other options for compliance under 40 CFR 61.342 remain available.

- b. The determination of benzene quantity for each waste stream shall be made in accordance with 40 CFR 61.355(k).
- c. Recordkeeping shall be in accordance with 40 CFR 61.356.
- d. Reporting shall be in accordance with 40 CFR 61.357.
- e. Any benzene stored in the fuels blending CCU oil storage tanks (TK-B141 and B142), fuels blending blend tank (TK-B146) and the fuels blending storage tank (TK-B145) shall be counted toward the 6 Mg/yr uncontrolled benzene limit of 40 CFR 61.342(e).

5.2.8 Risk Management Plan

- a. This stationary source, as defined in 40 CFR Section 68.3, is subject to 40 CFR Part 68, the Accidental Release Prevention regulations [40 CFR 68.215(a)(1)].
- b. The owner or operator of a stationary source shall revise and update the RMP submitted, as specified in 40 CFR 68.190.

5.3 Non-Applicability of Regulations of Concern

The safety relief valves at the refinery are not subject to 35 IAC 219.301 (8 lb/hr rule) because they are covered by more specific regulations, 35 IAC 219.143 (vapor blowdown requirements) and 219.144 (safety relief valve requirements).

5.4 Source-Wide Operational and Production Limits and Work Practices

In addition to the source-wide requirements in the Standard Permit Conditions in Section 9, the Permittee shall fulfill the following source-wide operational and production limitations and/or work practice requirements:

- a. The following is not truly a source-wide limit, but it is a limit that covers a combination of many areas of the refinery that resulted in an emission reduction of 5,589 lb/day.

- i. The Permittee has converted the following oil/water separators to junction boxes and will continue to operate them as junction boxes. Gas Plant OWS (included as a portion of the Vapor Blowdown System, aromatics east and west OWSs, separator boxes 2, 5, 6, 8 and 11, and alkylation plant OWS.
 - A. The Permittee shall maintain fixed covers on all junction boxes identified in Condition 5.4(a) (i).
 - B. Junction box cover(s) shall have a tight seal(s) around the edge and the cover(s) shall be kept in place at all times, except during inspection and/or maintenance.
 - C. If a cover has access doors or hatches, such access doors or hatches shall be kept closed at all times except during inspection and/or maintenance.
 - D. The Permittee shall keep a written record of any inspection and/or maintenance, excluding routing sampling and gauging activities, which requires removal of any junction box cover or opening of any access door or hatch on a junction box cover.
- ii. The reduction value listed above was necessary to meet the reduction required by 35 IAC 219.762(c) (2). At the same time a limit was placed on throughput of gasoline and crude oil at the marine terminal. That limit is listed in Condition 7.9.5.
- b. The above limit is from a Federally Enforceable State Operating Permit, No. 87120058, for the Hartford Dock.

5.5 Source-Wide Emission Limitations

5.5.1 Permitted Emissions for Fees

No emission limitations are being imposed on this source for the purpose of permit fees. The Permittee will be required to pay the maximum fee of \$250,000.00/year in accordance with Section 39.5(18) (a) (ii) (A) of the Act.

5.5.2 Emissions of Hazardous Air Pollutants

Source-wide emission limitations for HAPs as listed in Section 112(b) of the CAA are not set. This source is considered to be a major source of HAPs.

5.5.3 Other Source-Wide Emission Limitations

Source-wide emission limitations are not set for this source pursuant to either the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21, Illinois EPA rules for Major Stationary Sources Construction and Modification, 35 IAC Part 203, or Section 502(b)(10) of the CAA. However, there may be unit specific emission limitations set forth in Section 7 of this permit pursuant to these rules.

5.6 General Recordkeeping Requirements

5.6.1 General Records for Process Unit Turnarounds

The Permittee shall maintain records of the following items for the source to demonstrate compliance with Condition 5.2.3(d):

- a. Each date that a refinery unit or vessel is shutdown for turnaround;
- b. The total estimated quantity of VOM emitted to the atmosphere resulting from the turnaround and the duration of the emissions in hours, with supporting information (Emissions associated with process unit turnaround shall not be included when determining compliance with any hourly or annual emission limitation); and
- c. Any occurrence of depressurization of a refinery unit or vessel with a pressure of 5.0 psig or greater containing a material with a vapor pressure of 10.34 kPa (1.5 psia) or greater at 294.3°K (70°F) by venting directly to the atmosphere, and the reason for such venting.

5.6.2 Records for Safety Relief Valves

The Permittee shall maintain records of all safety relief valves which are excluded from the control requirements of Condition 5.2.3(e) pursuant to Condition 5.2.3(f) because they are capable of causing excessive releases, but no excess release is likely to occur based on historical information as previously submitted to the Illinois EPA. These records shall include, as a minimum, the following:

- a. Identification of such safety relief valves or sets of safety relief valves; and
- b. Historical information that demonstrates that no excessive releases are likely to occur from any such set of valves, either alone or in combination with such excessive releases from other sets owned or operated by the Permittee and located within a ten-

mile radius from the center point of any such set, more frequently than 3 times in any 12 month period.

5.6.3 Retention and Availability of Records

- a. All records and logs required by this permit shall be retained for a 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 at all reasonable times by the Illinois EPA or USEPA upon request.
- b. The Permittee shall retrieve and print, on paper, during normal source office hours, any required records retained in an electronic format (e.g., computer) in response to an Illinois EPA or USEPA request for required records during the course of a source inspection.
- c. Records for Units Exempt from Subpart TT Control Requirements

The Permittee shall maintain a list of all units that are subject to 35 IAC 219 Subpart TT which are not required to comply with the control requirements of 35 IAC 219.986(a) by meeting the exemption in 35 IAC 219.980(c), that is, individual emission units with VOM emissions of less than 2.5 tons per calendar year if the total emissions from all such units not complying with 35 IAC 219.986 do not exceed 5.0 tons per calendar year. Within 30 days of the end of each calendar year the emissions from each unit exempt from the control requirement shall be updated to include the most recent calendar year.

- d. The Permittee shall kept records of emissions of all pollutants in order to be able to submit the Annual Emission Report required by Condition 5.7.2. This includes records of specific HAPs.

5.7 General Reporting Requirements

5.7.1 General Source-Wide Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section of deviations with the permit requirements in accordance with Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken.

With regard to specific limits in Section 5, the Permittee shall report any failure to operate any of the oil/water separators listed in Condition 5.4(a) as junction boxes.

5.7.2 Annual Emissions Report

The annual emissions report required pursuant to Condition 9.7 shall contain emissions information for the previous calendar year.

5.8 General Operational Flexibility/Anticipated Operating Scenarios

Changes in feed stock and quality, including but not limited to changes in gravity and sulfur content are not considered operational changes and do not require notification to the Illinois EPA (Section 39.5(12) of the Act).

5.9 General Compliance Procedures

5.9.1 Process Unit Turnaround

- a. Compliance with the source-wide operational requirements specified in Condition 5.2.3(d) shall be based on the recordkeeping requirements of Conditions 5.6.1.
- b. Compliance with the source-wide operational requirements specified in Condition 5.2.3(e) shall be based on the recordkeeping requirements of Condition 5.6.3.
- c. For the purpose of estimating HAP emissions from equipment at the source, the vapor weight percent (based on a 1992 USEPA survey) of each HAP for each organic liquid times the VOM emissions contributed by that organic liquid is acceptable.

5.10 Special Permit Shield

The Permittee is hereby shielded from any obligation to measure the volume of leaking liquid from a pump or compressor for purposes of determining compliance with 35 IAC 219.142 as Condition 7.8.5 establishes appropriate compliance procedures for this rule that do not rely on such measurements.

6.0 EMISSIONS CONTROL PROGRAMS

6.1 NO_x Trading Program

6.1.1 Description of NO_x Trading Program

The NO_x Trading Program is a regional "cap and trade" market system for large sources of NO_x emissions in the eastern United States, including Illinois. It is designed to reduce and maintain NO_x emissions from the emission units covered by the program within a budget to help contribute to attainment and maintenance of the ozone ambient air quality standard in the multi-state region covered by the program, as required by Section 126 of the CAA. The NO_x Trading Program applies in addition to other applicable requirements for NO_x emissions and in no way relaxes these other requirements.

Emission units that are subject to the NO_x Trading Program are referred to as "budget units." Sources that have one or more budget unit subject to the NO_x Trading Program are referred to as budget sources.

The NO_x Trading Program controls NO_x emissions from budget units during a seasonal control period from May 1 through September 30 of each year, when weather conditions are conducive to formation of ozone in the ambient air. (In 2004, the first year that the NO_x Trading Program is in effect, the control period will be May 31 through September 30.) By November 30 of each year, the allowance transfer deadline, each budget source must hold "NO_x allowances" for the actual NO_x emissions of its budget units during the preceding control period. The USEPA will then retire NO_x allowances in the source's accounts in amounts equivalent to its seasonal emissions. If a source does not have sufficient allowances in its accounts, USEPA would subtract allowances from the source's future allocation for the next control period and impose other penalties as appropriate. Stringent monitoring procedures developed by USEPA apply to budget units to assure that actual emissions of NO_x emissions are accurately determined.

The number of NO_x allowances available for budget sources is set by the overall budget for NO_x emissions established by USEPA. This budget requires a substantial reduction in NO_x emissions from historical levels as necessary to meet air quality goals. In Illinois, separate rules have been established for the budget units that are electrical generating units (EGU) and for large units at manufacturing plants and institutions (non EGU), like the boilers at this source. Under these rules, the allocation or share of the NO_x allowances for non-EGU is set in an amount established by rule [35 IAC Part 217, Appendix E].

New budget unit, for which limited operating data may be available, may obtain NO_x allowances from the new source set-aside (NSSA), a portion of the overall budget reserved for new budget units.

In addition to directly receiving or purchasing NO_x allowances as described above, budget sources may transfer NO_x allowances from one of their units to another. They may also purchase allowances in the marketplace from other sources that are willing to sell some of the allowances that they have received. Each budget source must designate an account representative to handle all its allowance transactions. The USEPA, in a central national system, will maintain allowance accounts and record transfer of allowances among accounts.

The ability of sources to transfer allowances will serve to minimize the costs of reducing NO_x emissions from budget units to comply with the overall NO_x budget. In particular, the NO_x emissions of budget units that may be most economically controlled will be targeted by sources for further control of emissions. This will result in a surplus of NO_x allowances from those units that can be transferred to other units at which it is more difficult to control NO_x emissions. Experience with reduction of sulfur dioxide emissions under the federal Acid Rain program has shown that this type of trading program not only achieves regional emission reductions in a more cost-effective manner but also results in greater overall reductions than application of traditional emission standards to individual emission units.

The USEPA developed the plan for the NO_x Trading Program with assistance from affected states. Illinois' rules for the NO_x Trading Program are located at 35 IAC Part 217, Subpart U and W, for non-EGUs and EGUs, respectively. These rules have been approved by the USEPA. These rules provide for interstate trading of NO_x allowances, as mandated by Section 9.9 of the Act. Accordingly, these rules refer to and rely upon federal rules at 40 CFR Part 96, which have been developed by USEPA for certain aspects of the NO_x Trading Program, and which an individual state must follow to allow for interstate trading of allowances.

Note: This narrative description of the NO_x Trading Program is for informational purposes only and is not enforceable.

6.1.2 Applicability

- a. The following emission units are budget units for purposes of Illinois' NO_x Trading Program. Accordingly, this source is a budget source and the Permittee is the owner or operator of a budget source

and budget units. In this section of this permit, these emission units are addressed as budget units.

Boilers BLR-15, 16 and 17 (Emission Units 07, 58 and 59)

- b. This Permit does not provide "low-emitter status" for the above emission units pursuant to 35 IAC 217.472.

6.1.3 General Provisions of the NO_x Trading Program

- a. This source and the budget units at this source shall comply with all applicable requirements of Illinois' NO_x Trading Program, i.e., 35 IAC Part 217, Subpart U, and 40 CFR Part 96 (excluding 40 CFR 96.4(b) and 96.55(c), and excluding 40 CFR 96, Subparts C, E and I), pursuant to 35 IAC 217.456(a) and 217.456(f) (2).
- b. Any provision of the NO_x Trading Program that applies to a budget source (including any provision applicable to the account representative of a budget source) shall also apply to the owner and operator of such budget sources and to the owner and operator of each budget unit at the source, pursuant to 35 IAC 217.456(f) (3).
- c. Any provision of the NO_x Trading Program that applies to a budget EGU (including any provision applicable to the account representative of a budget unit) shall also apply to the owner and operator of such budget unit. Except with regard to requirements applicable to budget units with a common stack under 40 CFR 96, Subpart H, the owner and operator and the account representative of one budget unit shall not be liable for any violation by any other budget unit of which they are not an owner or operator or the account representative, pursuant to 35 IAC 217.456(f) (4).

6.1.4 Requirements for NO_x Allowances

- a. Beginning in 2004, by November 30 of each year, the allowance transfer deadline, the account representative of each budget unit at this source must hold allowances available for compliance deductions under 40 CFR 96.54 in the budget unit's compliance account or the source's overdraft account in an amount that shall not be less than the budget unit's total NO_x emissions for the preceding control period (rounded to the nearest whole ton), as determined in accordance with applicable monitoring requirements, plus any number of allowances necessary to account for actual utilization (e.g., for testing, start-up, malfunction, and shut down) under 40 CFR 96.42(e) for the control period, pursuant to 35 IAC 217.456(d) (1). For purposes of this requirement, an allowance may not be utilized for a control period in

a year prior to the year for which the allowance is allocated, pursuant to 35 IAC 217.456(d) (4).

- b. The account representative of a budget unit that has excess emissions in any control period, i.e., NO_x emissions in excess of the number of NO_x allowances held as provided above, shall surrender allowances as required for deduction under 40 CFR 96.54(d) (1), pursuant to 35 IAC 217.456(f) (5). In addition, the owner or operator of a budget unit that has excess emissions shall pay any fine, penalty, or assessment, or comply with any other remedy imposed under 40 CFR 96.54(d) (3) and the Act, pursuant to 35 IAC 217.456(f) (6). Each ton of NO_x emitted in excess of the number of NO_x allowances held as provided above for each budget unit for each control period shall constitute a separate violation of 35 IAC Part 217 and the Act, pursuant to 35 IAC 217.456(d) (3).
- c. An allowance allocated by the Illinois EPA or USEPA under the NO_x Trading Program is a limited authorization to emit one ton of NO_x in accordance with the NO_x Trading Program. As explained by 35 IAC 217.456(d) (5), no provisions of the NO_x Trading Program, the budget permit application, the budget permit, or a retired unit exemption under 40 CFR 96.5 and no provision of law shall be construed to limit the authority of the United States or the State of Illinois to terminate or limit this authorization. As further explained by 35 IAC 217.456(d) (6), an allowance allocated by the Illinois EPA or USEPA under the NO_x Trading Program does not constitute a property right. As provided by 35 IAC 217.456(d) (2), allowances shall be held in, deducted from, or transferred among allowances accounts in accordance with 35 IAC Part 217, Subpart U, and 40 CFR 96, Subparts F and G.

6.1.5 Monitoring Requirements for Budget Units

- a. The Permittee shall comply with the monitoring requirements of 40 CFR Part 96, Subpart H, for the budget unit and the compliance of the budget unit with the emission limitation under 6.1.4(a) shall be determined by the emission measurements recorded and reported in accordance with 40 CFR 96, Subpart H, pursuant to 35 IAC 217.456(c) (1) and (c) (2).
- b. The account representative for the source and the budget unit at the source shall comply with those sections of the monitoring requirements of 40 CFR 96, Subpart H, applicable to an account representative, pursuant to 35 IAC 217.456(c) (1).

Note: Pursuant to 40 CFR 96.70(b), existing budget units are to begin complying with applicable monitoring requirements of 40 CFR Part 96 at least one year in advance of the start of the first control period governed by the NO_x Trading Program.

6.1.6 Recordkeeping Requirements for Budget Units

Unless otherwise provided below, the Permittee shall keep on site at the source each of the following documents for a period of 5 years from the date the document is created. This 5-year period may be extended for cause at any time prior to the end of the 5 years, in writing by the Illinois EPA or the USEPA.

- a. The account certificate of representation of the account representative for the source and each budget unit at the source and all documents that demonstrate the truth of the statements in the account certificate of representation, in accordance with 40 CFR 96.13, as provided by 35 IAC 217.456(e) (1) (A). These certificates and documents must be retained on site at the source for at least 5-years after they are superseded because of the submission of a new account certificate of representation changing the account representative.
- b. All emissions monitoring information, in accordance with 40 CFR 96, Subpart H, (provided that to the extent that 40 CFR 96, Subpart H, provides for a 3-year period for retaining records, the 3-year period shall apply), pursuant to 35 IAC 217.456(e) (1) (B).
- c. Copies of all reports, compliance certifications, and other submissions and all records made or required under the NO_x Trading Program or documents necessary to demonstrate compliance with requirements of the NO_x Trading Program, pursuant to 35 IAC 217.456(e) (1) (C).
- d. Copies of all documents used to complete a budget permit application and any other submission under the NO_x Trading Program, pursuant to 35 IAC 217.456(e) (1) (D).

6.1.7 Reporting Requirements for Budget Units

- a. The account representative for this source and each budget unit at this source shall submit to the Illinois EPA and USEPA the reports and compliance certifications required under the NO_x Trading Program, including those under 40 CFR 96, Subparts D and H, and 35 IAC 217.474, pursuant to 35 IAC 217.456(e) (2).

- b. Notwithstanding the provisions for CAAPP permits, these submittals need only be signed by the designated representative, who may serve in place of the responsible official for this purpose, as provided by Section 39.5(1) of the Act, and submittals to the Illinois EPA need only be made to the Illinois EPA, Air Compliance Section.

6.1.8 Allocation of NO_x Allowances to Budget Units

- a. As the budget units identified in Condition 6.1.2(a) are "existing" units listed in 35 IAC Part 217, Appendix E, these units are entitled to NO_x allowances as specified by Appendix E, subject to transfers of allowances from the source made in accordance with 35 IAC 217.462(b). (The portion of Appendix E that applies to the Permittee is provided in Condition 6.1.12.) The number of NO_x allowances actually allocated for these budget units shall be the number of NO_x allowances allocated by the Illinois EPA in accordance with 35 IAC 217.466(a) and issued by USEPA, which may reflect adjustments to the overall allocations to budget units as provided for by 35 IAC 217.460 and 217.462(c).
- b. To the extent that NO_x allowances remain in the NSSA after any allocation for new budget units, the Permittee is also entitled to a pro-rata share of such remaining allowances as provided by 35 IAC 217.466(d).

6.1.9 Eligibility to Obtain NO_x Allowances from the New Source Set-Aside (NSSA)

The Permittee is not eligible to obtain NO_x allowances from the NSSA for the budget units identified in Condition 6.1.2(a), as provided by 35 IAC 217.468, because the units are "existing" budget units.

6.1.10 Eligibility for Early Reduction Credits (ERC)

The Permittee is not eligible to request NO_x allowances for the budget units identified in Condition 6.1.2(a) for any early reductions in NO_x emissions prior to the 2004 control period, as provided by 35 IAC 217.470, because these units are not equipped with continuous emission monitoring systems for NO_x.

6.1.11 Budget Permit Required by the NO_x Trading Program

- a. For this source, this segment of the CAAPP Permit, i.e., Section 6.1, is the Budget Permit required by the NO_x Trading Program and is intended to contain

federally enforceable conditions addressing all applicable NO_x Trading Program requirements. This Budget Permit shall be treated as a complete and segregable portion of the source's permit, as provided by 35 IAC 217.458(a) (2).

- b. The Permittee and any other owner or operator of this source and each budget unit at the source shall operate the budget units in compliance with this Budget Permit, pursuant to 35 IAC 217.456(b) (2).
- c. No provision of this Budget Permit or the associated application shall be construed as exempting or excluding the Permittee, or other owner or operator and, to the extent applicable, the account representative of a budget source or budget unit from compliance with any other regulation or requirement promulgated under the CAA, the Act, the approved State Implementation Plan, or other federally enforceable permit, pursuant to 35 IAC 217.456(g).
- d. Upon recordation by USEPA under 40 CFR 96, Subpart F or G, every allocation, transfer, or deduction of an allowance to or from the budget units' compliance accounts or to or from the source's general or overdraft account is deemed to amend automatically and become part of this budget permit, pursuant to 35 IAC 217.456(d) (7). This automatic amendment of this budget permit shall be deemed an operation of law and will not require any further review.
- e. No revision of this Budget Permit shall excuse any violation of the requirements of the NO_x Trading Program that occurs prior to the date that the revision to this permit takes effect, pursuant to 35 IAC 217.456(f) (1).
- f. The Permittee, or other owner or operator of the source, shall reapply for a Budget Permit for the source as required by 35 IAC Part 217, Subpart U and Section 39.5 of the Act. For purposes of the NO_x Trading Program, the application shall contain the information specified by 35 IAC 217.458(b) (2).

6.1.12 References

35 IAC Part 217 Appendix E - Provisions Applicable to the Permittee, originally identified as "TOSCO", now ConocoPhillips.

| Company I.D. No./ Name | Unit Designation | Unit Description | Budget Allocation | Budget Allocation Less 3% NSSA |
|------------------------------|---------------------|---------------------|----------------------|---|
| 119090AAA | 72110633080 | Boiler No. 15 | 40 | 38 |
| 119090AAA | 72110633081 | Boiler No. 16 | 40 | 39 |
| 119090AAA | 72110633082 | Boiler No. 17 | 80 | 78 |
| Company Total Allocation: | | | 160 | 155 |

7.0 UNIT SPECIFIC CONDITIONS

7.1 Unit: Process Heaters and Boilers
Control: None

7.1.1 Description

Process heaters are used to heat the petroleum material being processed. The heaters use as a fuel either alone or in combination fuel gas generated on site or purchased natural gas. The following list of emission units is divided into those subject to NSPS and those not subject to an NSPS. The primary NSPS requirement is on H₂S content of the fuel gas. There are several fuel gas systems at the site. Any system that does not feed an NSPS heater is not required to meet the same H₂S requirement. There are also some boilers that produce steam for process heat. The boilers burn the same gaseous fuels as the process heaters.

7.1.2 List of Process Heaters, Boilers, and Pollution Control Equipment

| Permit Emission Unit Number | Permittee Unit Number | Description and Permittee Equipment Number | Firing ^a Rate (mmBtu/hr) | Emission Control Equipment |
|----------------------------------|-----------------------|---|-------------------------------------|----------------------------|
| Units Subject to NSPS Subpart J | | | | |
| 01 | WRR-31 | Acetone Unit HTR-ACETONE-H1 | 29 | None |
| 02 | WRR-31 | Acetone Unit HTR-ACETONE-H2 | 29 | None |
| 03 | WRR-6 | Vacuum Flasher No. 1 North Heater HTR-VF-1-NORTH | 100 | None |
| 04 | WRR-6 | Vacuum Flasher No. 1 South Heater HTR-VF-1-SOUTH | 100 | None |
| 05 | WRR-69 | Heavy Catalytic Naphtha Hydrotreater F-1 Charge Heater HTR-HCNHT | 25 | None |
| 06 | WRR-27 | Utility Boilers Boiler 18 BLR-18 | 249 | None |
| Units Subject to NSPS Subpart D | | | | |
| 07 | WRR-27 | Utility Boilers Boiler 17 BLR-17 | 700 | None |
| Units Subject to NSPS Subpart Dc | | | | |
| 08 | WRR-61 | Rental Package Boiler Rental Boiler No. 1 BLR-RENT-1 | 99 | None |

| Permit Emission Unit Number | Permittee Unit Number | Description and Permittee Equipment Number | Firing ^a Rate (mmBtu/hr) | Emission Control Equipment |
|-----------------------------|-----------------------|--|-------------------------------------|----------------------------|
| 09 | WRR-61 | Rental Package Boiler Rental Boiler No. 2 BLR-RENT-2 | 99 | None |
| Units Not Subject to NSPS | | | | |
| 10 | WRR-6 | Visbreaker Unit East Heater HTR-VBU-EAST | 55 | None |
| 11 | WRR-6 | Visbreaker Unit West Heater HTR-VBU-WEST | 55 | None |
| 12 | WRR-16 | Alkylation Unit HTR-ALKY-HM1 | 37.5 | None |
| 13 | WRR-16 | Alkylation Unit HTR-ALKY-HM2 | 110 | None |
| 14 | WRR-17 | Precursor Unit HTR-Precursor | 67.4 | None |
| 15 | WRR-19 | Benzene Extraction Unit HTR-BEU-HM1 | 110 | None |
| 16 | WRR-19 | Benzene Extraction Unit HTR-BEU-HM2 | 110 | None |
| 17 | WRR-7 | CO Heater ^b HTR-CCU1-CO | 175 | None |
| 18 | WRR-8 | CO Heater ^b HTR-CCU2-CO | 175 | N/A |
| 18a | WRR-7 | CCU-1 Startup Heater B-1 (Used only during startup) | 80 | None |
| 18b | WRR-8 | CCU-2 Startup Heater B-1 (Used only during startup) | 80 | None |
| 19 | WRR-8 | Catalytic Feed Hydrotreater Unit HTR-CFH | 32 | None |
| 20 | WRR-5 | Cracked Absorption Unit HTR-CAU-ROSTILL | 95 | None |
| 21 | WRR-1 | Distilling Unit HTR-DU1-F301 | 120 | None |
| 22 | WRR-1 | Distilling Unit HTR-DU1-F302 | 200 | None |
| 23 | WRR-2 | Distilling Unit 2, Lube Crude Heater HTR-DU2-F200 | 151 | None |
| 24 | WRR-2 | Distilling Unit, West Crude Heater HTR-DU2-F202 | 231 | None |

| Permit Emission Unit Number | Permittee Unit Number | Description and Permittee Equipment Number | Firing ^a Rate (mmBtu/hr) | Emission Control Equipment |
|-----------------------------|-----------------------|--|-------------------------------------|----------------------------|
| 25 | WRR-68 | Distilling Unit 2, East Crude Heater HTR-DU2-F203 | 231 | None |
| 26 | WRR-68 | Rectified Absorption Unit Reboiler Heater HTR-RAU-DEBUT | 68.5 | None |
| 27 | WRR-6 | Vacuum Flasher No. 2 West Heater HTR-VF-2-F204 | 61 | None |
| 28 | WRR-6 | Vacuum Flasher No. 2 East Heater HTR-VF2-F205 | 61 | None |
| 29 | WRR-6 | Vacuum Flasher No. 3 Visbreaker Heater HTR-VF-3 | 50 | None |
| 30 | WRR-21 | Cat Reformer No. 1 Feed Preheater HTR-CR1-H1 | 165 | None |
| 31 | WRR-21 | Cat Reformer No. 1 First Interreactor Heater HTR-CR1-H2 | 162 | None |
| 32 | WRR-21 | Cat Reformer No. 1 Second Interreactor Heater HTR-CR1-H3 | 78 | None |
| 33 | WRR-21 | Cat Reformer No. 1 Stabilizer Reboiler HTR-CR1-H4 | 40 | None |
| 34 | WRR-21 | Cat Reformer No.1 Regeneration Gas Heater HTR-CR1-H5 | 37.8 | None |
| 35 | WRR-21 | Cat Reformer No. 1 Third Interreactor Heater HTR-CR1-H7 | 100 | None |
| 36 | WRR-26 | Cat Reformer No. 2 Charge Reheater HTR-CR2-N | 275 | None |
| 37 | WRR-25 | Cat Reformer No. 3 Stabilizer Reboiler HTR-CR3-H2 | 31.5 | None |
| 38 | WRR-25 | Cat Reformer No.3 Regeneration Gas Heater HTR-CR3-H3 | 25.4 | None |
| 39 | WRR-25 | Cat Reformer No. 3 Charge Heater HTR-CR3-H4 | 144.7 | None |

| Permit Emission Unit Number | Permittee Unit Number | Description and Permittee Equipment Number | Firing ^a Rate (mmBtu/hr) | Emission Control Equipment |
|-----------------------------|-----------------------|--|-------------------------------------|----------------------------|
| 40 | WRR-25 | Cat Reformer No. 3 First Interreactor Heater HTR-CR3-H5 | 141 | None |
| 41 | WRR-25 | Cat Reformer No. 3 Second Interreactor Heater HTR-CR3-H6 | 74 | None |
| 42 | WRR-23 | Distillate Hydrotreater F-1 Charge Heater HTR-DHT | 108 | None |
| 43 | WRR-20 | Hydrocracking Unit First Stage Charge Heater HTR-HCU-H1 | 70 | None |
| 44 | WRR-20 | Hydrocracking Unit Second Stage Charge Heater HTR-HCU-H2 | 70 | None |
| 45 | WRR-20 | Hydrocracking Unit Fractionator Reboiler HTR-HCU-H3 | 235 | None |
| 46 | WRR-26 | Hydrodesulfurization Unit 1 Charge Heater HTR-HDU1 | 67.3 | None |
| 47 | WRR-25 | Hydrodesulfurization Unit 2 Charge Heater HTR-HDU2 | 81 | None |
| 48 | WRR-24 | Kerosene Hydrotreater KHT Heater HTR-KHT | 109 | None |
| 49 | WRR-24 | Kerosene Hydrotreater Mineral Spirits Heater HTR-KH2 | 94.2 | None |
| 50 | WRR-22 | Saturates Gas Plant RO Stabilizer Reboiler HTR-SGP | 59.5 | None |
| 51 | WRR-20 | Steam Methane Reformer SMR Heater HTR-SMR | 460 | None |
| 52 | WRR-11 | Lube Extract Unit LEU Extract Heater HTR-LEU-EXT | 63.5 | None |
| 53 | WRR-11 | Lube Extract Unit LEU Raffinate Heater HTR-LEU-RAFF | 20.8 | None |
| 54 | WRR-11 | Lube Extract Unit F-1 Charge Heater HTR-LHT | 20 | None |

| Permit Emission Unit Number | Permittee Unit Number | Description and Permittee Equipment Number | Firing ^a Rate (mmBtu/hr) | Emission Control Equipment |
|-----------------------------|-----------------------|--|-------------------------------------|----------------------------|
| 55 | WRR-6 | Vacuum Fractionator Column Charge Heater HTR-VFC | 89.1 | None |
| 56 | WRR-13 | Asphalt Processing Asphalt Thermo Heater HTR-ASPHAT-THE | 8 | None |
| 57 | SRR-13 | Asphalt Blending Converter Preheater HTR-ASHALT-PRE | 3.9 | None |
| 58 | WRR-27 | Utility Boilers Boiler 15 BLR-15 | 360 | None |
| 59 | WRR-27 | Utility Boilers Boiler 16 BLR-16 | 360 | None |

^a Firing rates listed are for descriptive purposes and are not permit limits unless stated as such in Condition 7.1.5.

^b While acting as a process heater, this unit is also a control device, using process generated CO as its fuel.

7.1.3 Applicability Provisions and Applicable Regulations

- a. An "affected process heater or boiler" for the purpose of these unit-specific conditions, is a process heater, boiler, preheater, or reboiler that burns gaseous fuel, classified as a fuel combustion emission unit and is identified in Condition 7.1.2.
- b.
 - i. Pursuant to the Petroleum Refinery NSPS, 40 CFR 60 Subpart J, emissions units 01-06 listed in Condition 7.1.2 shall not burn any fuel gas that contains H₂S in excess of 0.10 gr/dscf on an average 3-hour rolling basis. (40 CFR 60.104(a)(1) and 60.105(e)(3)(ii))
 - ii. The remaining fuel combustion units, that is those not specified in Condition 7.1.3(b)(i), are subject to 35 IAC 214.382(c)(2) and (d). These rules require that the fuel gas not contain H₂S in excess of 0.39 gr/dscf demonstrated on a three-hour block average basis.
- c. No person shall cause or allow the emission of carbon monoxide (CO) into the atmosphere from any fuel combustion emission source with actual heat input

greater than 10 mmBtu/hr to exceed 200 ppm, corrected to 50 percent excess air (35 IAC 216.121).

- d. No person shall cause or allow the emission of nitrogen oxides into the atmosphere in any one hour period from any existing fuel combustion emission source with an actual heat input equal to or greater than 250 mmBtu/hr, located in the St. Louis major metropolitan area when firing gaseous fuel to exceed 0.3 lbs/mmBtu of actual heat input. Due to their firing rates, this provision only applies to permit Emission Unit Nos. 07 (Boiler 17), 51 (SMR), 58 (Boiler 15) and 59 (Boiler 16). (35 IAC 217.141)
- e. Emission Unit Nos. 07, 58, and 59 (Boilers 15, 16 and 17) are subject to the NO_x Control and Trading Program, 35 IAC 217, Subpart U (217.450 et. seq.). The requirements for that program are in Section 6.0 of this permit.
- f. Malfunction and Breakdown Provisions

In the event of a malfunction or breakdown of fuel gas treaters or sulfur recovery system, the Permittee is authorized to continue operation of the process heaters or boilers in violation of the applicable requirements of 35 IAC 214.382(c)(2) and (d), as necessary to prevent risk of injury to personnel or severe damage to equipment. This authorization is subject to the following requirements:

- i. Whenever the sulfur recovery system has not recovered at least 75% of the total sulfur available for a four hour period, the Permittee shall institute SO₂ emission reduction procedures. The procedures shall reduce uncontrolled SO₂ emissions to no more than 16.0 tons/hr. These procedures shall include:
 - A. All necessary changes in refinery operations; and
 - B. Any other reasonable action to reduce SO₂ emissions.
- ii. The Permittee shall fulfill the applicable recordkeeping and reporting requirements of Conditions 7.1.9(b) and 7.1.10(a).
- iii. The Permittee shall monitor the system daily and perform preventative maintenance to minimize the frequency of malfunctions of the sulfur recovery system.

- g. Emission Units Nos. 08 and 09 (Rental Boilers Nos. 1 and 2) are subject to 40 CFR 60, Subparts A and Dc. However, since only gaseous fuels are burned there are no applicable emission standards. See Section 7.1.9 for recordkeeping requirements.
- h. Emission Unit No. 07 (Boiler 17) is subject to 40 CFR 60, Subparts A and D. This rule requires that emissions of NO_x not exceed 0.20 lb/mmBtu of heat input from combustion of gaseous fossil fuel. [40 CFR 60.44(a)(1)] Emissions of PM shall not exceed 0.10 lb/mmBtu. [40 CFR 60.42(a)(i)]

7.1.4 Non-Applicability of Regulations of Concern

- a. The refinery NESHAP (40 CFR 63 Subpart CC) only applies to certain "petroleum refining process units." The emission units listed in 7.1.2 are fuel combustion devices and do not qualify as petroleum refining process units.
- b. 35 IAC 217.121 limits NO_x emissions from new fuel combustion emission units with a firing rate equal to or greater than 250 mmBtu/hr. None of the new units listed in Condition 7.1.2 have a firing rate greater than 250 mmBtu/hr. For the purposes of this rule, new is defined as constructed after April 14, 1972.
- c. The rule for SO₂ limits from a combination of fuels (35 IAC 214.162) does not apply since all of these units burn gaseous fuels only and not liquid or solid fuels. [35 IAC 214.382(c)]
- d. This permit is issued based on the affected process heaters not being subject to 35 IAC 214.301 because the process heaters and boilers are not process emission sources, but rather fuel combustion emission units.
- e. Pursuant to Civil Action No. 98-652-GPM, the Permittee has discontinued use of refinery fuel pitch as a fuel in all fuel combustion units listed in Condition 7.1.2. Therefore, 35 IAC 214.382(c)(1) is no longer applicable.
- f. NSPS Subpart J is not applicable to the rental package boilers (Emission Unit Nos. 08 and 09) because the boiler are only fired with natural gas.
- g. i. Unit No. 07 (Boiler 17) is not subject to an SO₂ standard with NSPS Subpart D (Steam Generators) because the boiler fires only gaseous fuels and there are only standards for

liquid and solid fuels (or solid in combination with wood residue). [40 CFR 60.43]

- ii. In addition, steam generators that fire only gaseous fuels are not required to have continuous monitoring system for opacity or SO₂. [40 CFR 60.45(b)(1)]

7.1.5 Operational Limits

- a. Although the RAU steam reboiler is not an emission unit listed in Condition 7.1.2 since it uses steam rather than generates it, the following limits are included here since most of the steam it uses is from Boiler 17.
 - i. Boiler 17 shall supply no more than 25,000 lb/hr on a daily average to the RAU steam reboiler.
 - ii. Refinery fuel usage (or alternatively natural gas) to generate the amount of steam in (a) above shall not exceed 39 mmBtu/hr, on a daily average, or 340 mmscf/year.
 - iii. Maximum steam input to the RAU steam reboiler shall not exceed 40,000 lb/hr. The difference between the total and Boiler 17 is provided by piping steam from the sulfur condensers (A, C and D trains). This steam was previously vented to the atmosphere.
 - iv. These limitations are from state permit 01060090 [T1].
- b. The two rental package boilers shall only be fired with natural gas as required by State Permit 97020044.

7.1.6 Emission Limitations

In addition to Condition 5.2.2, the affected process heaters are subject to the following:

- a. Emissions from the affected heaters as indicated shall not exceed the following limits [T1]:

| <u>Pollutant</u> | <u>E M I S S I O N S</u> (Tons/Year) | | |
|------------------|---|-----------|-----------|
| | <u>Heater No.</u> | | |
| | <u>03</u> | <u>04</u> | <u>05</u> |
| NO _x | 122.1 | 122.1 | 10.74 |

| <u>Pollutant</u> | E M I S S I O N S (Tons/Year) | | |
|---------------------------|----------------------------------|-----------|-----------|
| | Heater No. | | |
| | <u>03</u> | <u>04</u> | <u>05</u> |
| SO ₂ | 8.8 | 8.8 | 0.06 |
| CO | 36.6 | 36.6 | 9.02 |
| PM | 3.3 | 3.3 | 0.59 |
| VOM | 2.4 | 2.4 | 0.82 |
| Firing Rate (mmBtu/hr) | 100 | 100 | 25 |
| Construction Permit | 83070045 | 83070045 | 01120044 |

- b. The limits in Condition 7.1.6(a) are based on the maximum firing rate, continuous operation, and AP-42 emission factors for pollutants not set by the permit (e.g., NO_x or NSPS).

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).

The limitations for emission Units 03 and 04 contain revisions to previously issued Construction Permit 83070045. The source has requested that the Illinois EPA establish conditions in this permit that allow various refinements from the conditions of this construction permit, consistent with the information provided in the CAAPP application. The source has requested these revisions to the units' hours of operation and firing rate and has addressed the applicability and compliance of Title I of the CAA, specifically 35 IAC Part 203, Major Stationary Sources Construction and Modification and/or 40 CFR 52.21, Prevention of Significant Deterioration (PSD). These limits contained in Condition 7.1.6(a) continue to ensure that the construction and/or modification addressed in the above construction permit does not constitute a new major source or major modification pursuant to these rules. These limits are the primary enforcement mechanism for the equipment and activities permitted in this construction permit and the information in the CAAPP application contains the most current and accurate information for the source. Specifically, the original limits included use of refinery fuel pitch as a fuel. This fuel is no longer permitted and therefore the SO₂ emission rate was lowered to the use of refinery fuel gas as the fuel. The emission rate was also adjusted to the most recent AP-42 emission factors. The NO_x emission

- e. Emissions attributable to the additional steam load placed on Boiler 17 and heat input required to preheat the feed entering the GHT Unit for the Tier 2 gasoline sulfur requirements project shall not exceed the following:

| <u>Pollutant</u> | <u>Boiler 17 Emissions (Tons/Yr)</u> | <u>HTR-ALKY-HM1^a Emissions (Tons/Yr)</u> |
|---------------------|--|---|
| SO ₂ | 83.03 | 3.42 |
| NO _x | 2.89 | 0.17 |
| CO | 47.77 | 2.87 |
| PM/PM ₁₀ | 4.32 | 0.26 |
| VOM | 3.13 | 0.19 |

* The HTR-ALKY-HM1 heater will be used to preheat the feed entering the GHT.

The above limitations were established in Permit 01120044, pursuant to 40 CFR 52.21, Prevention of Significant Deterioration (PSD). These limits ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the CAA, specifically the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21 [T1].

7.1.7 Testing Requirements

Within 90 days of a written request from the Illinois EPA, the Permittee shall conduct an emissions test to demonstrate compliance with the emission rate in Condition 7.1.3 or 7.1.6.

7.1.8 Monitoring Requirements

- a. Fuel Gas Analysis for Gas Systems that Serve NSPS Heaters

Pursuant to the requirements of the NSPS specified in Condition 7.1.3(b) and Civil Action No. 98-652-GPM, the Permittee has chosen to monitor and record the fuel gas H₂S concentration rather than SO₂ concentration. The Permittee has also chosen to continuously monitor at one or more locations that accurately represents the concentration of H₂S in the fuel gas being burned, even the units not subject to NSPS. Any performance evaluation required pursuant to 40 CFR 60.13(c) for the H₂S monitor shall use Performance Specification 7. Method 11 shall be used for conducting the relative accuracy evaluations (40 CFR 60.105(a)(4)).

- b. Fuel Gas Analysis for Gas Systems that Do Not Serve NSPS Heaters

Any fuel gas system that does not provide fuel to heaters subject to the NSPS may determine compliance on a block three hour average basis.

- c. Pursuant to 40 CFR 60.45(a), Emission Unit 07 (Boiler 17) shall be equipped with a continuous monitoring system for measurement of NO_x emissions and either O₂ or CO₂. Note that the NO_x monitor required by the NO_x Trading Program (Condition 6.1.5) may be sufficient to meet this requirements.

7.1.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for each affected process heater and boilers to demonstrate compliance with Conditions 7.1.3, 7.1.6, and 7.1.8, pursuant to Section 39.5(7)(b) of the Act:

- a. A continuous record of the H₂S concentration in the fuel gas systems used for the process heaters. From this continuous "recording", the Permittee shall calculate a rolling 3-hour average for units subject to NSPS. Only the rolling 3-hour averages are required to be kept for five years. Note that there are 24 three-hour averages. If a fuel gas system does not serve an NSPS heater, a block three-hour average basis may be used. There are 8 three-hour block averages.
- b. Total gas burned in all units combined (scf/mo) for each type of fuel (refinery gas and natural gas).
- c. Records showing the design firing rate of each unit with backup calculations.
- d. NO_x, CO, SO₂, PM, and VOM emissions (ton) for individual units or groups of units combined as necessary to determine compliance with Condition 7.1.6, using the compliance procedures in Condition 7.1.12.
- e. Records for Malfunctions and Breakdowns of Sulfur Recovery System

The Permittee shall maintain records, pursuant to 35 IAC 201.263, of continued operation of a process heater or boiler subject to 35 IAC 214.382(c)(2) or (d) during malfunctions and breakdown of the fuel gas treaters or sulfur recovery system, which as a minimum, shall include:

- i. Date and duration of malfunction or breakdown;
 - ii. A detailed explanation of the malfunction or breakdown;
 - iii. An explanation why the damaged feature(s) could not be immediately repaired and whether the actions required by Condition 7.1.3(g) were implemented;
 - iv. The measure used to reduce the quantity of emissions and the duration of the event;
 - v. The steps taken to prevent similar malfunctions or breakdowns or reduce their frequency and severity; and
 - vi. The amount of release above typical emissions during malfunction/breakdown.
- f. RAU Reboiler Project
- i. Steam demand for the RAU Reboiler (lb/hr, daily average);
 - ii. Amount of steam generated (lb/hr, daily average) from the sulfur condensers (A-Train, C-Train, and D-Train; and
 - iii. Emissions of SO₂, NO_x, CO, PM, and VOM from Boiler 17 attributable to the additional firing required by the RAU Steam Reboiler, with supporting calculations (lb/mo).
- g. Rental Package Boilers Project
- i. Refinery steam demand, as supplied by the two rental package boilers and Boilers 13, 15, 16, 17, and 18;
 - ii. Fuel usage of the two rental package boilers, mmft³/mo; and
 - iii. Each period of time that an existing boiler, e.g., Boiler #13, is out of service for maintenance and a description of the maintenance performed.
- h. Tier 2 Gasoline Sulfur Requirements Project
- i. Firing rate of the F-1 Charge Heater (mmBtu/hr on a daily average);

- ii. Steam demand for the naphtha splitter column reboilers (T-5032/T-5033) from Boiler 17 (lb/hr, daily average);
 - iii. Emissions of NO_x, CO, VOM, SO₂, PM and PM₁₀ from Boiler 17 attributable to the additional steam demand required by the naphtha splitter column reboilers (T-5032/T5033) (tons/month and tons/year);
 - iv. Emissions of NO_x, CO, VOM, SO₂, PM and PM₁₀ from HTR-ALKYHm1 heater attributable to the increased firing rate required to preheat the feed to the GHT (tons/month and tons/year); and
 - v. Emissions of NO_x, CO, VOM, SO₂, PM and PM₁₀ from HTR-HCNHT (tons/month and tons/year).
- i. Records of monitored values required by Condition 7.1.8(c), i.e., 40 CFR 60.45(a).

7.1.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section of deviations of the affected process heater with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

- a. For NSPS units as identified in Condition 7.1.2, any exceedance of the concentration of H₂S in the fuel gas above the NSPS allowable level of 0.1 gr/dscf (160 ppmv). Pursuant to 40 CFR 60.105(e)(3)(ii), exceedances are determined using rolling 3-hour periods. For non-NSPS units exceedances are determined on block three-hour averages and the allowable is 0.39 gr/dscf.
- b. Any exceedance of the firing rate or emission rate allowed by Condition 7.1.6 within 30 days of a record showing such an occurrence.
- c. Reporting of Malfunctions and Breakdowns

The Permittee shall provide the following notification and reports to the Illinois EPA, Compliance Section and Regional Field Office, pursuant to 35 IAC 201.263, concerning continued operation of the process heaters and boilers subject to Condition 7.1.3(g) during malfunction or breakdown of the control features of the fuel gas treaters or sulfur recovery system.

- i. The Permittee shall notify the Illinois EPA's regional office by telephone as soon as possible during normal working hours, but no later than three (3) days, upon the occurrence of noncompliance due to malfunction or breakdown.
 - ii. Upon achievement of compliance, the Permittee shall give a written follow-up notice to the Illinois EPA, Compliance Section and Regional Field Office, providing a detailed explanation of the event, an explanation why continued operation of the process heaters or boilers was necessary, the length of time during which operation continued under such conditions, the measures taken by the Permittee to minimize and correct deficiencies with chronology, and when the repairs were completed or when the process heaters or boilers was taken out of service.
 - iii. If compliance is not achieved within 5 working days of the occurrence, the Permittee shall submit interim status reports to the Illinois EPA, Compliance Section and Regional Field Office, within 5 days of the occurrence and every 14 days thereafter, until compliance is achieved. These interim reports shall provide a brief explanation of the nature of the malfunction or breakdown, corrective actions accomplished to date, actions anticipated to occur with schedule, and the expected date on which repairs will be complete or the process heaters or boilers will be taken out of service.
- d. Steam usage to the RAU reboiler exceeding 40,000 lb/hr or 25,000 lb/hr attributable to Boiler 17.

7.1.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.1.12 Compliance Procedures

- a. Compliance with applicable rules is assured by operation of the heaters and boilers according to manufacturer's recommended practices.
- b. Except for SO₂ emissions from the combustion of refinery fuel gas, emissions shall be calculated using either site-specific emission factors (e.g., stack test results or CEMS), if available or AP-42 emission factors (Tables 1.4-1 and 1.4-2, 5th Edition, March, 1998) for natural gas boilers. These factors are as follows:

| | Emission Factor (lb/10 ⁶ scf) | |
|-----------------|--|-------------------------------------|
| | Firing Rate | |
| | Less Than <u>100 mmBtu/hr</u> | Greater Than <u>100 mmBtu/hr</u> |
| NO _x | 100 | 280 |
| CO | 84 | 84 |
| PM | 7.6 | 7.6 |
| VOM | 5.5 | 5.5 |

- c. SO₂ emissions from the combustion of refinery fuel gas shall be calculated using the monitored H₂S content of the gas, the Btu value of the gas, gas usage, and stoichiometric conversion of H₂S to SO₂, as follows:

Fuel Gas Combustion Emissions, Lb/Hour SO₂ =

$$\frac{\text{Fuel Gas Flow * (mmscf/day)} \times \text{H}_2\text{S Content (gr/100 scf)} \times 64 \times \text{lb SO}_2/\text{mol}}{7000 \text{ Grain/lb} \times 34 \text{ lb H}_2\text{S/mol} \times 24 \text{ hr/day}}$$

- d. Emissions (lb/mo) = Gas Usage (mmscf/mo) x Heating Value of Gas (Btu/scf) x Emission Factor (lb/mmBtu)

7.2 Unit: Storage Tanks
Control: See Section 7.2.2

7.2.1 Description

The Wood River Refinery is typical of refineries in that it has many storage tanks. These may contain liquids at standard conditions such as crude oil, gasoline tanks that store fuel oils and other materials that have a low vapor pressure are included in Section 3 as insignificant emission units. Also not included in this section are those in the wastewater treatment system that are more process tanks than storage and two gasoline dispensing tanks that are subject to special rules and are in Section 7.13.

Here is an explanation of the list of storage tanks in several tables in Attachment 1.

Table 1 is a list of external floating roof tanks in the Logistics Department and these tanks only contain volatile petroleum liquids with a vapor pressure up to 12.5 psia.

Table 2 is a list of external floating roof tanks in locations other than Logistics. There are three maximum vapor pressures (MVP) listed in the table. If the MVP is 12.5 psia and the actual vapor pressure is over 11.1 psia then the material may only be a VPL and not a VOL. If the MVP is 11.1 then a VOL is permitted but it may be a VPL. If the MVP is 1.5 then the tank is treated more like a fixed roof tank because it has indicated that there is no secondary seal.

Table 3 is a list of internal floating roof tanks. The same criteria with regard to VPL and VOL applies as for Table 2.

Table 4 is a list of fixed roof tanks and these may not contain a VOM with a MVP over 1.5 psia. These are also Group 2 storage vessels with regard to 40 CFR 63 Subpart CC (Refinery MACT).

All of the tanks in Tables 1, 2 and 3, except the two in Table 3 with a vapor pressure limit of 1.5 psia may store materials that classify the tank as a Group 1 storage vessel pursuant to the definition in 40 CFR 63.641.

7.2.2 List of Emission Units and Air Pollution Control Equipment
See Attachment 1

7.2.3 Applicability Provisions and Applicable Regulations

- a. An "affected storage tank" for the purpose of these unit-specific conditions, is an existing tank capable of storing a VOM and listed in Attachment 1.
- b. All of the tanks in Tables 1 to 3 in Attachment 1 are subject to the control requirements of 35 IAC 219.122(b) and 40 CFR 63 Subpart CC, which in turn reference the requirements of 40 CFR 63 Subpart G except the two tanks in Table 3 with a specified maximum vapor pressure of 1.5 psia which can only be operated as Group 2 tanks due to having only one seal.
- c. Each storage tank subject to 40 CFR 63 Subpart CC (40 CFR 63 Subpart G) is hereby shielded from compliance with 35 IAC 219.121, 123 and 124, except for the requirements of Conditions 7.2.5. This shield is issued to streamline the applicable requirements for the source based on the Illinois EPA's finding that compliance with 40 CFR 63 Subpart CC assures compliance with 35 IAC 219.121, 123 and 124.
- d. For each tank that is not a Petroleum Refinery NESHAP Group 1 tank solely due to HAP content, the Permittee must either comply with 40 CFR 63 Subpart CC, or the requirements of 35 IAC 219.121, 123 and 124 will apply.
- e. Neither 40 CFR 63 Subpart CC or 35 IAC 219 Subpart have any requirements that apply to the tanks in Table 4 of Attachment 1.
- f. Tanks A-62, A-63, and A-64 are subject to the control requirements of 40 CFR 61, Subpart Y.
- g. Tank A-156 is subject to NSPS 40 CFR 60, Subpart UU.

7.2.4 Non-Applicability of Regulations of Concern

- a. Except as provided for in the regulations, 35 IAC 219.122(b) requires the use of a permanent submerged loading pipe if the vapor pressure of the liquid in a tank is above 2.5 psia. Since all tanks at the source that hold liquid with a vapor pressure over 2.5 psia have floating roofs, the liquids must enter the tanks below the surface of the liquid.
- b. Tanks subject to 40 CFR 63 Subpart CC (40 CFR 63 Subpart G) are not subject to 40 CFR 60 Subpart Kb. Accordingly, because Tanks TK-CH290, TK-A150, and TK-A151 are subject to 40 CFR 63 Subpart CC, they are not subject to the requirements of 40 CFR 60 Subpart Kb.

7.2.5 Control Requirements

- a. i. Each affected tank subject to 40 CFR 63 Subpart G (as incorporated by 40 CFR 63 Subpart CC) equipped with an external floating roof shall comply with the requirements of 40 CFR 63.119(c), which requires the use of an external floating roof that is equipped with a primary and secondary seal.
 - A. The primary seal shall be either a metallic shoe seal or a liquid mounted seal; and
 - B. The primary seal and secondary seal shall completely cover the annular space between the external floating roof and the wall of the storage vessel in a continuous fashion except during the inspections required by Condition 7.2.8 (40 CFR 63.120(c) (a) (iii)):
- ii. All drains (for drainage of rainwater, also know as "stub drains") in the floating roof deck shall be provided with slotted membrane fabric covers or equivalent covers across at least 90 percent of the area of the opening [35 IAC 219.124(a) (3)];
- iii. All openings of the floating roof deck, other than drains, shall be equipped with projections into the tank which remain below the liquid surface at all times except when supported on the roof legs and be equipped with covers, lids, or seals [35 IAC 219.123(b) (3) and 219.124(a) (4)];
- iv. Covered external floating roof tanks may comply with the requirements for internal floating roof tanks. See Condition 7.2.5(b).
- b. Each affected internal floating roof tank shall comply with the requirements of 40 CFR 63.119(b), which requires the use of an internal floating roof or an external floating roof converted to an internal floating roof by the addition of a fixed roof (cover), either of which is equipped with one of the following:
 - i. A primary seal that is either a metallic shoe seal or a liquid mounted seal; or
 - ii. A primary seal and secondary seal that completely cover the annular space between the

floating roof and the wall of the storage vessel in a continuous fashion except during the inspections required by Condition 7.2.8. The primary seal may be vapor-mounted.

7.2.6 Emission Limitations

- a. In addition to Condition 5.2.2, some specific affected tanks are subject to the following maximum values:

| <u>Tanks Combined</u> | <u>Throughput (Gal/Year)</u> | <u>Vapor Pressure (psia)</u> | <u>VOM Emissions (Tons/Year)</u> |
|-----------------------|------------------------------|------------------------------|----------------------------------|
| TK-A150 and TK-A151 | 66,150,000 | 7.51 | 11.11 |
| TK-F057 and TK-F059 | 22,000,000 | 5.00 | 6.20 |

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) [T1].

The above limitations were established in Permit 73010832 and 72110615, pursuant to 35 IAC Part 203. These limits ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the CAA, specifically 35 IAC Part 203 [T1].

- b. Emissions from Tank A-157 shall not exceed the following limits.

| <u>VOM Emissions</u> | |
|----------------------|------------------|
| <u>(Tons/Mo)</u> | <u>(Tons/Yr)</u> |
| 0.9 | 8.36 |

7.2.7 Operating Requirements

- a. Each affected tank subject to 40 CFR 63 Subpart G (as incorporated by 40 CFR 63 Subpart CC) equipped with an external floating roof shall be operated in compliance with the operating requirements of 40 CFR 63.119(c), (d), and 63.120(b) as follows:

- i. The external floating roof shall be floating on the liquid surface at all times, except during those intervals when the storage tank is being completely emptied and subsequently refilled and the roof rests on its leg supports. When the roof is resting on its leg supports, the process of emptying or refilling

shall be continuous and shall be accomplished as rapidly as possible. [40 CFR 63.119(c) (3) and (4)]

- ii. For primary seals that use a metallic shoe seal, one end of the metallic shoe shall extend into the stored liquid and the other end shall extend a minimum vertical distance of 61 centimeters above the stored liquid surface and there shall be no holes, tears, or other openings in the shoe, seal fabric, or seal envelope. [40 CFR 63.120(b) (5)]
- iii. The secondary seal shall completely cover the space between the roof edge and the vessel wall except as provided in (v), and there shall be no holes, tears, or other openings in the seal or seal fabric. [40 CFR 63.120(b) (6)]
- iv. The accumulated area of gaps between the vessel wall and the primary seal shall not exceed 212 square centimeters per meter of vessel diameter and the width of any portion of any gap shall not exceed 3.81 centimeters. [40 CFR 63.120(b) (3)]
- v. The accumulated area of gaps between the vessel wall and the secondary seal shall not exceed 21.2 square centimeters per meter of vessel diameter and the width of any portion of any gap shall not exceed 1.27 centimeters. These seal gap requirements may be exceeded during the measurement of the primary seal gaps as required by Condition 7.4.8. [40 CFR 63.120(b) (4)]
- vi. The covers, lids or seals on openings of the floating roof deck other than stub drains shall be operated such that the following requirements are met:
 - A. The cover, lid or seal is in the closed position at all times except when the cover or lid must be open for access. [40 CFR 63.646(f) (1)]
 - B. Rim space vents, if provided, are set to open when the roof is not floating or when the pressure beneath the rim seal exceeds the manufacturer=s recommended setting. [40 CFR 63.646(f) (2)]

- C. Automatic bleeder vents are closed at all times except when the roof is floated off or landed on the roof leg supports [40 CFR 63.646(f)(3)];
- vii. No person shall cause or allow the emissions of air contaminants into the atmosphere from any gauging or sampling devices attached to an affected tank, except during sampling or maintenance operations [35 IAC 219.121(b)(1)].
- viii. A tank that is in-service shall be repaired or emptied upon identification in an inspection that the accumulated area of gaps between the tank wall and primary seal exceed 212 cm² per meter of tank diameter and the width of any portion of any gap exceeds 3.81 cm, the secondary seal does not completely cover the space between the tank wall, the accumulated area of gaps between the tank wall and the secondary seal exceeds 21.2 cm² per meter of tank diameter and the width of any portion of any gap exceed 1.27 cm, or there are holes or tears in the seal fabric or seal envelope of either the primary or secondary seal. These actions shall be completed within 45 days of the inspection unless an extension is granted. [40 CFR 63.120(b)(8)]
- ix. A tank that is empty shall be repaired prior to refilling the tank upon identification in an inspection that the floating roof has defects, the primary seal has holes, tears or other openings in the seal or seal fabric, or the secondary seal has holes, tears or other openings in the seal or seal fabric. [40 CFR 63.120(b)(10)(i)]
- b. Each internal floating roof affected tank shall be operated in compliance with the operating requirements of 40 CFR 63.119(b) or (d) and 63.120(a) as follows:
 - i. The internal floating roof shall be floating on the liquid surface at all times, except during those intervals when the storage tank is being completely emptied and subsequently refilled and the roof rests on its leg supports. When the roof is resting on its leg supports, the process of filling, emptying or refilling shall be continuous and shall be accomplished as rapidly as possible. [40 CFR 63.119(b)(1)]

- ii. The covers, lids or seals on openings of the floating roof deck other than stub drains shall be operated such that the following requirements are met:
 - A. The cover, lid or seal is in the closed position at all times except when the cover or lid must be open for access. [40 CFR 63.646(f) (1)]
 - B. Rim space vents, if provided, are set to open when the roof is not floating or when the pressure beneath the rim seal exceeds the manufacturer=s recommended setting. [40 CFR 63.646(f) (2)]
 - C. Automatic bleeder vents are closed at all times except when the roof is floated off or landed on the roof leg supports [40 CFR 63.646(f) (3)];
- iii. No person shall cause or allow the emissions of air contaminants into the atmosphere from any gauging or sampling devices attached to an affected tank, except during sampling or maintenance operations [35 IAC 219.121(b) (1)].
- iv. A tank that is in-service shall be repaired or emptied upon identification in an inspection that the internal floating roof is not resting on the surface of the liquid inside the affected storage tank, and is not resting on the leg supports, there is liquid on the floating roof, the seal is detached, or there are visible gaps between the seal and the wall of the affected tank. These actions shall be completed within 45 days of the inspection unless an extension is utilized. [40 CFR 63.120(a) (4)]
- v. A tank that is empty shall be repaired prior to refilling the tank upon identification in an inspection that the floating roof has defects, the primary seal has holes, tears or other openings in the seal or seal fabric, or the secondary seal (if one is present) has holes, tears or other openings in the seal or seal fabric. [40 CFR 63.120(b) (7)]

7.2.8 Inspection Requirements

- a. The Permittee shall fulfill the applicable testing and procedures requirements of 40 CFR 63.120(b) for each affected tank subject to 40 CFR 63 Subpart G (as incorporated by 40 CFR 63 Subpart CC) equipped with an external floating roof equipped with an external floating roof as follows:
 - i. Except as provided in (ii) below, the Permittee shall measure gaps between the tank wall and the secondary seal at least once per year (Annual Inspection) and the primary seals at least once every five years (Five Year Inspection). The measurement shall be conducted in accordance with the following methods and procedures: [40 CFR 63.120(b) (1), (2), (3), and (4)]
 - A. Measure seal gaps, if any, at one or more floating roof levels when the roof is not resting on the roof leg supports;
 - B. Measure seal gaps around the entire circumference of the vessel in each place where a 0.32-cm diameter uniform probe passes freely (without forcing or binding against seal) between the seal and the wall of the storage vessel and the circumferential distance of each such location;
 - C. The total surface area of each gap shall be determined by using probes of various widths to measure accurately the actual distance from the tank wall to the seal and multiplying each such width by its respective circumferential distance;
 - D. Add the gap surface area of each gap location for the primary and secondary seal individually and divide the sum by the nominal diameter of the tank and compare each ratio to the respective requirement of Conditions 7.2.7(a) (iv) and (a) (v).
 - E. Prior notification for the above inspection shall be given to the Illinois EPA as specified in Condition 7.2.10(b).
 - ii. If the owner or operator determines that it is unsafe to perform the seal gap measurements or to inspect the vessel to determine compliance

with Conditions 7.2.7(a) (iv) or (a) (v) because the floating roof appears to be structurally unsound and poses an imminent or potential danger to inspecting personnel, the owner or operator shall comply with the following requirements:

- A. The owner or operator shall measure the seal gaps or inspect the storage vessel no later than 30 calendar days after the determination that the roof is unsafe, or
 - B. The owner or operator shall empty and remove the storage vessel from service no later than 45 calendar days after determining that the roof is unsafe unless the vessel cannot be emptied and the owner or operator has elected to utilize an extension of up to 30 calendar days and maintains the records required by Condition 7.2.9(c). A maximum of two extensions may be utilized for an occurrence.
- iii. A. Visually inspect the external floating roof, the primary seal, the secondary seal, and fittings each time the storage vessel is emptied and degassed (Out-of-Service Inspection) to identify any deficiency or shortcoming in the roof=s features, (i.e., external floating roof has defects, the primary seal has holes, tears, or other openings in the seal or the seal fabric, or the secondary seal has holes, tears, or other openings in the seal or the seal fabric) that the Permittee shall repair the features prior to refilling the storage tank with VOL. [40 CFR 63.120(b) (10)]
- B. Prior notification for the above inspection shall be given to the Illinois EPA as specified in Condition 7.2.10(a).
- b. The Permittee shall fulfill the applicable testing and procedures requirements of 40 CFR 63.120(a) for each affected internal floating roof tank equipped with an internal floating roof or an external floating roof converted to an internal floating roof as follows:
- i. For each affected tank equipped with only a primary seal, the Permittee shall visually inspect the internal floating roof and the

seal through manholes and roof hatches on the fixed roof at least once per year (Annual Inspection) and visually inspect the internal floating roof and the seal each time the affected tank is emptied and degassed, and at least once every 10 years (Out-of-Service Inspection);

- ii. For each affected tank equipped with a double-seal system:
 - A. The Permittee shall visually inspect the internal floating roof, the primary seal, and the secondary seal each time the affected tank is emptied and degassed and at least once every 5 years (Five-Year Inspection).
 - B. The Permittee shall visually inspect the internal floating roof and the secondary seal through the manholes and roof hatches at least once per year (Annual Inspection) and visually inspect the internal floating roof, the primary seal, and the secondary seal each time the affected tank is emptied and degassed, and at least once every 10 years (Out-of-Service Inspection).
- iv. Prior notification for the above inspection shall be given to the Illinois EPA as specified in Condition 7.2.10(b).

7.2.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for each affected tank to demonstrate compliance with Conditions 7.2.3 through 7.2.8, pursuant to Section 39.5(7)(b) of the Act:

- a. The Permittee shall fulfill the applicable recordkeeping requirements of 40 CFR 63.123 for each affected tank as follows:
 - i. Keep readily accessible records showing the dimensions of each affected tank for as long as the tank is in operation. [40 CFR 63.123(a)]
 - ii. Keep a record of all reports submitted in accordance with 40 CFR 63.654(e) including the Notification of Compliance Status, Periodic Reports, and other reports. [40 CFR 63.123(b)]

- iii. Keep a record of each Annual, Five Year and Out-of-Service Inspection performed as required by Condition 7.2.8(a) (i) and (a) (iii). The records shall include the following information: [40 CFR 63.123(d)]
 - A. The date the measurement was performed;
 - B. Who performed the measurement;
 - C. The raw data obtained in the measurement;
 - D. The calculations described in Condition 7.2.8(a) (i) (C and D); and
 - E. Summary of compliance.
- b. The Permittee shall maintain records of the following for each affected tank to demonstrate compliance with the Out-of-Service Inspection requirements of Condition 7.2.8(a) (iii):

Records that are sufficient to identify whenever the tank is empty for any reason or whenever repairs are made as a result of regular inspection or incident of roof damage or defect.
- c. The Permittee shall maintain records of the following for each seal inspection in which the decision was made to utilize an extension (as identified in Condition 7.2.8(b)) because a determination was made that the roof was unsafe:
 - i. Explanation of why it was unsafe to perform the inspection or seal gap measurement;
 - ii. Documentation that alternative storage was unavailable; and
 - iii. Specify a schedule of actions that will ensure the control equipment will be repaired or the affected tank will be emptied as soon as possible.
- d. The Permittee shall maintain records of the following for each seal inspection in which the decision was made to utilize an extension (as identified in Condition 7.2.7(b) (iv)) to repair the failure or empty the affected tank:
 - i. Description of the failure;

- ii. Documentation that alternative storage was unavailable; and
 - iii. Specify a schedule of actions that will ensure the control equipment will be repaired or the affected tank will be emptied as soon as possible.
- e. The Permittee shall maintain records to demonstrate compliance with the limits in Condition 7.2.6.
- f. The Permittee shall maintain records of the following equipment items for each affected storage tank to allow calculation of VOM emissions from the storage tanks so as to demonstrate compliance with the annual emission limitations in Condition 7.2.6 and for the purpose of quantifying emissions for the annual emission report. These records shall be updated whenever there is a change in status of a storage tank that is brought about by actions at the source, such as painting, and during periodic inspection;
- i. The color of each affected tank;
 - ii. The condition of each storage tank; and
 - iii. The type and number of fittings, or a statement that the default settings regarding type and number of fittings in the most recent version of the TANKS program are used for emission estimates.
- g. The Permittee shall maintain records of the following items for each affected storage tank to allow calculation of VOM emissions from the storage tanks so as to demonstrate compliance with the annual emission limitations in Condition 7.2.6 and for the purpose of quantifying emissions for the annual emission report.
- i. The identification and properties of each organic liquid stored at the source, as related to emissions, i.e., vapor pressure and molecular weight;

The following items shall be maintained on a monthly basis for the previous month:

- ii. The throughput (or change in tank level) of each organic liquid through each tank; and
- iii. The volatile organic material emissions attributable to each organic liquid stored in each tank, with supporting calculations,

calculated utilizing an approved USEPA methodology, such as the TANKS4 program;

h. Optional Notification Concerning Actual Contents of Tanks

All tanks are assumed to contain materials that require compliance with rules specified in Condition 7.4.3. The Permittee may submit to the Illinois EPA an annual written statement prior to the beginning of each year (calendar or otherwise specified) of the contents of selected tanks that may negate part of the requirements specified in Condition 7.4.3. This applies to both 35 IAC and 40 CFR 60 and 63 rules. For instance, the statement may list a low vapor pressure material (e.g., diesel oil) in tanks with floating roofs or the current material stored in a tank makes that tank not a Group 1 tank pursuant to the definition in 40 CFR 63 Subpart CC. The statement may then list ongoing requirements that will not have to be performed as a consequence of the different material, such as seal inspection. During the year the Permittee may revise individual tanks with a written notification, but the annual notification must list all tanks using this provision as the previous years statement will expire after one year. Notification is not required if the tank is switched to a material with less stringent requirements but continues to comply with the more stringent requirements.

i. For any fixed roof tank listed in Table 4 of Attachment 1 that was constructed after June 11, 1973, the Permittee shall keep records to verify that the tank is not subject to floating roof or seal requirement of a NSPS, 40 CFR 60 Subparts K, Ka or Kb. These records may be capacity of the tank showing that it is below the applicable capacity or the vapor pressure of the material stored showing that it is below the applicable vapor pressure.

7.2.10 Reporting and Notification Requirements

a. The Permittee shall notify the Illinois EPA, Compliance Unit and Regional Field Office, when an affected storage tank has been emptied and degassed, and at least 30 days before the planned refilling of the tank with organic HAPs, pursuant to 40 CFR 63.654(h)(2)(i) so the Illinois EPA may inspect the affected tank prior to refilling, except as allowed in 40 CFR 63.654(h)(2)(i)(B).

b. The Permittee shall notify the Illinois EPA, Compliance Unit and Regional Field Office, at least

30 days before the planned performance of seal gap measurements on external floating roof tanks, pursuant to 40 CFR 63.654(h)(2)(ii), so the Illinois EPA may observe the measurements. Note that one notification may be made for a group of tanks and is valid for 90 days from the date the first tank in the group has the gap measurements made.

c. The Permittee shall promptly notify the Illinois EPA, Compliance Unit of noncompliance with the control, operating, or inspection requirements, as follows pursuant to Section 39.5(7)(f)(ii) of the Act:

i. Any storage of VPL in an affected tank that is not in compliance with the control requirements (due to absence of the features required by Condition 7.2.5), e.g., "no rim-mounted secondary seal," within 5 days of becoming aware of the non-compliance status. This notification shall include a description of the event, the cause for the non-compliance, actions taken to correct the non-compliance, and the steps to be taken to avoid future non-compliance.

ii. Any storage of VPL in an affected tank that is out of compliance with the control requirements (Condition 7.2.5) due to damage, deterioration, or other condition of the tank, within 30 days of becoming aware of the non-compliance status. This notification shall include a description of the event, the cause for the non-compliance, actions taken to correct the non-compliance, and the steps to be taken to avoid future non-compliance.

d. Pursuant to 40 CFR 63.654, the Permittee shall submit Periodic Reports no later than 60 days after each seal gap measurement required by Condition 7.2.8(a)(i), (ii), (iii), (iv), or (v) as follows:

i. When the requirements of Condition 7.2.7(a) are not met. This documentation shall include the following:

A. The date of the seal gap measurement;

B. The raw data obtained in the seal gap measurement and the calculations described in Condition 7.2.8(a);

C. A description of any seal condition specified in Condition 7.2.7(a)(ii) or (iii) that is not met;

- D. A description of the nature of and date the repair was made, or the date the vessel was emptied.
 - ii. If an extension is utilized in accordance with Condition 7.2.8(a)(ii), the following shall be provided in the next periodic report:
 - A. Identification of the vessel;
 - B. The documentation required in Condition 7.2.9(c);
 - C. The date the vessel was emptied;
 - D. The nature of and date the repair was made.
 - iii. If an extension is utilized in accordance with Condition 7.2.7(b)(iv), the following shall be provided in the next periodic report:
 - A. Identification of the vessel;
 - B. The documentation required in Condition 7.2.9(d);
 - C. The date the vessel was emptied;
 - D. The nature of and date the repair was made.
 - iv. Any time in which the external floating roof has defects; or the primary seal has holes or other openings in the seal or seal fabric; or the secondary seal has holes, tears or other openings in the seal fabric that is identified during the visual inspections required by Condition 7.2.8(a)(iii), the following information shall be included:
 - A. Date of inspection;
 - B. Identification of storage vessel(s) with failure;
 - C. Description of failure;
 - D. Nature of and date of repair.
- e. The Permittee shall report if the annual emissions of VOM from Storage Tanks TK-A150, 151 or TK-F057, 059 exceed the allowable limits of Condition 7.2.6.

7.2.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.2.12 Compliance Procedures

- a. Compliance with the control and operating requirements of Condition 7.2.5 and 7.2.7 shall be demonstrated by the inspection, recordkeeping and reporting requirements of Condition 7.2.8, 7.2.9(a), (b), (c), (d), 7.2.10(a), (b), (c), and (d).
- b. Compliance with the emission limitations of Condition 7.2.6 shall be demonstrated by the recordkeeping and reporting requirements of Conditions 7.2.9(e) and 7.2.10(e).
- c. Emissions shall be calculated using the USEPA TANKS program and calculation procedures described in USEPA's AP-42, 5th ed., (September 1997) and average monthly ambient air data.

7.3 Unit: Catalytic Cracking Operations
 Control: CO Heater and Electrostatic Precipitators

7.3.1 Description

This facility operates two Catalytic Cracking Units (CCUs). The CCUs are continuous operations that use a fluidized catalyst to crack gas oils and resids into lower molecular weight products. There are two main sections in these units; the catalyst section which includes the riser/reactor and the catalyst regenerator, and the fractionation section which separates the product stream into various components. Coke forms on the catalyst when regenerated catalyst comes in contact with the feed stream in the riser/reactor and cracking occurs. After cracking, the product stream and "spent" catalyst are separated by the reaction cyclones with the product stream going to the fractionator and the catalyst returning to the regenerator. Catalyst is regenerated by burning the coke off the "spent" catalyst. The fractionator is a closed-vent process.

In addition to the emissions from the two CCUs, emissions of PM result from loading catalyst onto trucks and from operating supplemental air compressor engines to provide air to the CCUs.

Emissions of all regulated air pollutants result from these processes. All emissions resulting from burning coke in the catalyst regenerators are vented to CO heaters, and then electrostatic precipitators (ESPs). The multiclones are not classified as control equipment since the catalyst is reused. The ESPs control emissions of PM. The CO heaters (boilers) control emissions of CO further oxidizing it to CO₂. The CO heaters may also burn refinery fuel gas as a supplemental fuel.

7.3.2 List of Emission Units and Pollution Control Equipment

| Permit Emission Unit Number | Permittee Unit Number | Description | Emission Control Equipment |
|-----------------------------|--|---|------------------------------|
| 60 | Catalytic Cracking Unit #1 (CCU-1) WRR-7 | Heavy molecular weight hydrocarbons are cracked into lower molecular weight products. The catalyst regeneration part of the unit vents to multiclones and then through the control equipment. | CO Heater (0007), ESP (0006) |
| 61 | Catalyst Loading | Catalyst is loaded onto trucks from CCU-1. | None |

| Permit Emission Unit Number | Permittee Unit Number | Description | Emission Control Equipment |
|-----------------------------|--|---|------------------------------|
| 62 | Supplemental Air Compressor Engine | Diesel-fired compressor engines provide supplemental air for catalyst regeneration for CCU-1. | None |
| 63 | Catalytic Cracking Unit #2 (CCU-2) WRR-8 | Heavy molecular weight hydrocarbons are cracked into lower molecular weight products. The catalyst regeneration part of the unit vents to multiclones and then through the control equipment. | CO Heater (0011), ESP (0010) |
| 64 | Catalyst Loading | Catalyst is loaded onto trucks from CCU-2. | None |
| 65 | Supplemental Air Compressor Engine | Diesel fired compressor engines provide supplemental air for catalyst regeneration for CCU-2. | None |

7.3.3 Applicability Provisions and Applicable Regulations

- a.
 - i. The "affected catalytic cracking operations" for the purpose of these unit-specific conditions, are the catalytic cracking operations described in Conditions 7.3.1 and 7.3.2.
 - ii. The "affected catalyst loading operations" for the purpose of these unit-specific conditions, are the catalyst loading operations described in Conditions 7.3.1 and 7.3.2.
 - iii. The "affected compressor engines" for the purpose of these unit-specific conditions, are the air compressor engines described in Conditions 7.3.1 and 7.3.2.
- b. The affected catalytic cracking operations are subject to the emission limits and requirements identified in Section 5 of this permit. Note especially Section 5.2.3. The operations are also subject to the LDAR requirements in Section 7.10.
- c. Components associated with the affected catalytic cracking operations are subject to the fugitive emission regulations as addressed by Section 7.10, which includes inspection, recordkeeping, reporting requirements, and compliance procedures for fugitive emissions.

- d. Pursuant to 35 IAC 212.381, no person shall cause or allow the particulate matter emission rate from catalyst regenerators of fluidized catalytic converters to exceed in any one hour period, the rate determined using the following equations:

$$E = 4.10(P)^{0.67} \quad \text{for } P \text{ less than or equal to } 30 \text{ T/hr}$$

$$E = (55.0(P)^{0.11}) - 40.0 \quad \text{for } P \text{ greater than } 30 \text{ T/hr}$$

Where:

E = Allowable emission rate in lbs/hr; and

P = Catalyst recycle rate, including the amount of fresh catalyst added, in T/hr

- e. Except as further provided by 35 IAC 214, no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any affected catalytic cracking operation to exceed 2000 ppm [35 IAC 214.301].

- f. Pursuant to 35 IAC 214.382(c)(3), no person shall cause or allow the total emission of sulfur dioxide into the atmosphere from the following source groupings to exceed the following amounts:

All catalytic cracking units – 3,430 lbs/hr
(1,560 kg/hr) [35 IAC 214.382(c)(3)(I)].

Pursuant to 35 IAC 214.382(d), compliance with the above limit shall be demonstrated on an three-hour block average basis.

- g. Notwithstanding 35 IAC 216.361(a) [cited in Condition 5.2.3(g)], any existing petroleum or petrochemical process using catalyst regenerators of fluidized catalytic converters equipped for in situ combustion of carbon monoxide, may emit a carbon monoxide waste gas stream into the atmosphere if the carbon monoxide concentration of such waste gas stream is less than or equal to 750 ppm corrected to 50 percent excess air [35 IAC 216.361(b)].

- h. Catalyst Loading Provisions

The affected catalyst loading operations are subject to 35 IAC 212.322(a), which provides that no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any process emission unit for which construction or modification

commenced prior to April 14, 1972, which, either alone or in combination with the emission of particulate matter from all other similar process emission at a source or premises, exceeds the allowable emission rates specified in subsection (c) of 35 IAC 212.322 (see Condition 5.2.2(e)) [35 IAC 212.322(a)].

i. Compressor Engine Provisions

i. No person shall cause or allow the discharge of more than 3.6 Kg/Hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in the following exception: If no odor nuisance exists the limitation of this Condition shall apply only to photochemically reactive material [35 IAC 215.301].

ii. The each affected compressor engine is subject to Condition 7.3.3(e) (35 IAC 214.301).

j. Startup Provisions

Pursuant to 35 IAC 201.262, the Permittee is authorized to operate the affected catalytic cracking operations in violation of the applicable board emission limits of 35 IAC 212.381 and 216.361(a) (Conditions 7.3.3(d) and (g)), to the extent necessary to conduct a normal startup of the affected catalytic cracking operations. The Permittee has affirmatively demonstrated that all reasonable efforts have been made to minimize startup emissions, duration of individual starts, and frequency of startups. This authorization is subject to the following:

i. The authorization to exceed the PM emission standard only extends for a period of up to 48 hours following initial start-up of the unit during each normal startup event. The authorization to exceed the CO emission standard only extends for a period of up to 24 hours following initial start-up of the unit during each normal startup event, or until the CO heater is in service. If the startup period is expected to exceed these periods for a specific normal startup, the Illinois EPA's regional office shall be notified of the expected additional length of time required to complete the startup. The length of time may be extended if the Permittee can demonstrate that the emissions will be less during the extended period than if the unit is shutdown and restarted.

- ii. The Permittee shall take the following measures to minimize emissions resulting from startups, the duration of startups, and the frequency of startups:
 - A. Ammonia injection shall be used for conditioning the ESPs until they are fully energized, in order to increase the ESPs PM control efficiency.
 - B. The ESP shall be warmed to the maximum possible temperature prior to feed introduction in order to increase the ESPs PM control efficiency.
 - C. Implementation of additional established written startup procedures, including a pre-check of the unit, so as to minimize the duration of startups and the emissions associated with startups.
 - D. Implementation of established maintenance practices so as to minimize the duration of startups and the frequency of startups. These maintenance practices shall include maintenance activities before the unit is started up, when the unit is in operation, and when the unit is shut down.
- iii. The Permittee shall fulfill the applicable recordkeeping requirements of Condition 7.3.9(e).
- iv. Any startup which exceeds applicable board limits more than the extent necessary to conduct a normal startup, or any startup which does not meet the requirements of this Condition 7.3.3(j) shall be considered an exceedance of the requirements of this permit and subject to the reporting requirements for exceedances in Condition 7.3.10.
- k. Malfunction and Breakdown Provisions
 - i. 35 IAC Requirements

Pursuant to 35 IAC 201.262, the Permittee is authorized to continue operation of the affected catalytic cracking operations in excess of the applicable board emission limits of 35 IAC 212.381 and 216.361(a) (Conditions 7.3.3(d) and (g) as a result of a malfunction or breakdown of a CO heater and/or ESP, as

necessary to prevent injury to persons or severe damage to equipment. This authorization is subject to the following:

- A. This authorization only extends for a period of up to 72 hours following the initial malfunction or breakdown event. If continued operation to prevent injury to persons or severe damage to equipment in excess of board limits is expected to exceed this period for a specific malfunction or breakdown, the Illinois EPA's regional office shall be notified of the expected additional length of time operation will continue. The length of time may be extended if the Permittee can demonstrate that the emissions will be less during the extended period than if the unit is shutdown and restarted.
- B. The Permittee shall take the following measures to minimize emissions resulting from malfunctions or breakdowns, the frequency of malfunctions or breakdowns, and the duration of operation in excess of board limits as a result of a malfunction or breakdown:
 - 1. Implementation of established written malfunction or breakdown procedures, so as to minimize the duration of continued operation resulting from malfunctions or breakdowns and the emissions associated with malfunctions or breakdowns.
 - 2. Implementation of established maintenance practices so as to minimize the duration of continued operation resulting from malfunctions or breakdowns and the frequency of malfunctions or breakdowns. These maintenance practices shall include maintenance activities before the unit is started up, when the unit is in operation, and when the unit is shut down.
- C. The Permittee shall fulfill the applicable recordkeeping requirements of Condition 7.3.9(f).

- D. The Permittee shall fulfill the applicable reporting requirements of Condition 7.3.10(b).
- E. Any excess emissions resulting from malfunction or breakdown which does not meet the requirements of this Condition 7.3.3(k) shall be considered an exceedance of the requirements of this permit and subject to the reporting requirements for exceedances in Condition 7.3.10.

- ii. NESHAP Requirements

After the date when the SSM Plan and OM & M Plan discussed in Condition 7.3.3(1) are required to be implemented, the Permittee shall follow the plans during any malfunction or breakdown of the process or control equipment that increases emissions above that allowed by the applicable NESHAP rule.

- 1. NESHAP Provisions

- i. Each catalytic cracking unit is subject to 40 CFR 63 Subpart UUU, but with a future compliance date of April 11, 2005 and a possible extension if interim requirements are met. There are compliance standards for metal HAPs and organic HAPs [40 CFR 63.1563-1565]. There are several options for compliance. Many of the rules for compliance in 40 CFR Subpart A, general provisions for NESHAP, are also applicable to this process. Table 44 of Subpart UUU states which provisions of Subpart A are applicable.
- ii. Startup, Shutdown and Malfunction (SSM) Plan

The Permittee is required to have a written Startup, Shutdown and Malfunction (SSM) Plan for the equipment subject to the Petroleum Refinery rule as described in Condition 7.3.3(1) (i). The SSM plan is not required until the date that compliance is required, April 11, 2005. [40 CFR 63.6(e) (3)]
- iii. Operation, Maintenance and Monitoring (OM&M) Plan

The Permittee is required to have a written operation, maintenance and monitoring plan for any control system and any continuous monitoring system employed for achieving and

determining compliance with the NESHAP listed above.

This OM&M plan must be submitted to the Illinois EPA with the notification of compliance status for review and approval. The contents of the OM&M plan and dates for submittal are listed in 40 CFR 63.1574(f).

7.3.4 Non-Applicability of Regulations of Concern

- a. 35 IAC 212.321 and 212.322 shall not apply to catalyst regenerators of fluidized catalytic converters [35 IAC 212.381].
- b. The provisions of 35 IAC 219.301 and 302, Use of Organic Material, shall not apply to fuel combustion emission sources [35 IAC 219.303]. Furthermore, the provisions of 35 IAC 219.301 and 302 does not apply to petroleum or petrochemical manufacturing processes pursuant to 35 IAC 219.441, except as stated in Condition 7.3.3(h).
- c. This permit is issued based on the affected catalytic cracking operations not being subject to 35 IAC 219 Subpart TT, because the affected catalytic cracking operations are subject to 35 IAC 219 Subpart R [Condition 5.2.3(a)], pursuant to 35 IAC 219.980(a)(1).
- d. The FCCUs are exempt from 40 CFR 63 Subpart CC (Refinery NESHAP) pursuant to 40 CFR 63.640(d)(4).

7.3.5 Operational and Production Limits and Work Practices

- a. The Permittee shall route and combust all waste gas streams generated by the affected catalytic cracking operations in a carbon monoxide boiler required in Condition 7.3.3(g), except as allowed by Conditions 7.3.3(j) and (k).
- b. The Permittee shall route all catalyst regenerator emissions from the affected catalytic cracking operations to an ESP at all times when the affected catalytic cracking operations are operating, except as provided in Conditions 7.3.3(j) and (k).
- c. The Permittee shall route and combust all waste gas streams generated by vapor blowdown in the flare (see Section 7.7) required in Condition 7.3.3(b).
- d. Diesel fuel shall be the only fuel used in the affected compressor engines. [T1]

- e. i. The daily coke burn rate of CCU-1 shall not exceed 490 tons.
- ii. The annual coke burn rate of CCU-1 shall not exceed 146,000 tons. Compliance with this limit shall be determined from a running total of 12 months of data. This limit shall remain in effect until June 30, 2004 at such time the continuous emissions monitoring system for NO_x shall be installed and certified.

7.3.6 Emission Limitations

- a. i. NO_x emissions from the CCU-1 shall not exceed 55.0 tons/month and 500.78 tons/year. This limitation is based on baseline emissions calculated for calendar years 2001 and 2002.
- ii. This permit is issued based on negligible emissions of VOM from the CCU-1. For this purpose, emissions shall not exceed 1.0 tons/month and 4.4 tons/year.

The above limitations were established in Permit 03030069, pursuant to 40 CFR 52.21, Prevention of Significant Deterioration (PSD). These limits ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the CAA, specifically the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21. [T1]

7.3.7 Testing Requirements

- a. Upon request by the Illinois EPA and/or USEPA, pursuant to Section 39.5(7)(b) of the Act and 35 IAC 219.105 and 212 Subpart A, the Permittee shall conduct testing of the affected catalytic cracking operations for purposes of demonstrating compliance to conditions of this permit according to USEPA approved methods of 40 CFR 60 Appendix A or other appropriate methods approved by the Illinois EPA or USEPA, at such reasonable times as may be specified by the Illinois EPA and/or USEPA. This test shall meet the following requirements:
 - i. The test shall be conducted by an approved independent testing service.
 - ii. The test shall be conducted during conditions which are representative of maximum emissions.
 - iii. The test shall be designed to measure the following parameters, as necessary:

- A. The emission rate of PM, so as to determine compliance with Condition 7.3.3(d).
 - B. The emission concentration of SO₂, so as to determine compliance with Condition 7.3.3(e).
 - C. The emission rate of SO₂, so as to determine compliance with Condition 7.3.3(f)
 - D. The emission concentration of CO, so as to determine compliance with Condition 7.3.3(g).
- b. The Permittee is required to conduct performance tests on these units to demonstrate compliance with the applicable standards within 150 days of the compliance date specified in 40 CFR 63.1563. See § 63.1571 for performance testing requirements or alternative dates.

7.3.8 Monitoring Requirements

- a. The Permittee shall maintain and operate a continuous opacity monitoring system (COM) on each CCU. This system shall be used to demonstrate compliance with Condition 5.2.2 (35 IAC 212.123) [35 IAC 201.401(a)(4)].
 - i. These monitoring systems shall meet the Performance Specifications in Sections 3.1 through 3.8 of 40 CFR 51, Appendix P (1987);
 - ii. The monitor(s) shall be the basis for quarterly reporting of exceedances of Condition 7.3.3(d), in accordance with 35 IAC 201.405 (See also Condition 7.3.10(b)); and
 - iii. Notwithstanding the above, monitoring and recording are not applicable during any period of a monitoring system or device malfunction if the Permittee demonstrates that the malfunction was unavoidable and is being repaired as expeditiously as practicable, pursuant to 35 IAC 201.404.
- b. The Permittee shall comply with the monitoring requirements of 40 CFR 63.1572 or alternatives in § 63.1573. The monitors specified above in Conditions 7.1.8(a) or (b) may be acceptable if the monitors meet the requirements of Table 40 in Subpart UUU, which in turn reference 40 CFR 60 Appendix B.

- c. By June 30, 2004, the Permittee shall install, calibrate, maintain and operate continuous emissions monitoring systems for emissions of SO₂ and NO_x from the CCU-1. These monitoring systems shall be operated in accordance with 40 CFR 60.13 and Performance Specification 2, Appendix B, including associated recordkeeping and reporting requirements.

7.3.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected catalytic cracking operations to demonstrate compliance with Conditions 7.3.3, 7.3.5, and 7.3.6, pursuant to Section 39.5(7)(b) of the Act:

- a. The Permittee shall maintain records of the following items to demonstrate compliance with the PM emission limits in Condition 7.3.3(d):
 - i. Catalyst recycle rate, T/hr.
 - ii. Allowable PM emission rate by 7.3.3(d), lbs/hr.
- b. The Permittee shall maintain records of the following items to demonstrate compliance with the SO₂ emission limits in Conditions 7.3.3(f):
 - i. Average hourly concentration of SO₂ in the flue gas of the regenerator of each catalytic cracking unit as measured by the monitors required in Condition 7.3.8(c), % volume.
 - ii. Hourly average air flow rate into the regenerator of each catalytic cracking unit as measured by the monitoring systems required in Condition 7.3.8(c), mmscf/min.
 - iii. The sulfur content in the fresh feed to each catalytic cracking unit, % weight.
 - iv. Fresh feed rate, bbl/day.
 - v. Sulfur content of the hydrotreated feed to each catalytic cracking unit, % weight.
 - vi. Hydrotreated feed rate, bbl/day.
 - vii. RFG usage in CO heater, mmscf/hr.
 - viii. Sulfur content of the RFG used in CO boiler, % weight or ppm.

- ix. Sour water flow rate to each catalytic cracking unit, gpm.
 - x. Sulfur content of sour water, % weight.
 - xi. Combined emissions of SO₂ from the affected catalytic cracking operations as calculated by the compliance procedure described in Condition 7.3.12(k) on a three-hour block average basis, lbs/hr.
- c. The Permittee shall maintain records of the following items to quantify emissions from the affected catalytic cracking operations:
- i. Fresh feed rate to the affected catalytic cracking operations, bbl/day.
 - ii. Hours of operations from the affected catalytic cracking operations.
 - iii. Hours of operation of the affected compressor engines.
 - iv. Amount of catalyst loaded into trucks, tons/day.
 - v. Annual aggregate emissions of NO_x, CO, VOM, SO₂, and PM from the affected catalytic cracking operations as calculated by the compliance procedure described in Condition 7.3.12(k), ton/year.
- d. The Permittee shall maintain records of the following items for each Startup to demonstrate compliance with Condition 7.3.3(j):
- i. Date and duration of the startup, i.e., start time and time normal operation was achieved.
 - ii. Verification that the startup procedures, including a pre-check, were performed and met the requirements of Condition 7.3.3(j).
 - iii. Records of maintenance activities performed.
 - iv. If normal operation was not achieved within the authorized times of Condition 7.3.3(j), an explanation of why startup could not be achieved within the authorized time with the date and time the Illinois EPA's regional office was contacted, the person spoken to, items discussed, and follow-up instructions.

e. The Permittee shall maintain records of the following items for Malfunction and Breakdown to demonstrate compliance with Condition 7.3.3(k):

- i. Date and duration of the malfunction or breakdown, i.e., start time and time normal operation was achieved or time operation was shutdown.
- ii. The contaminants emitted, the measurements of all monitors required in Condition 7.3.8, and an estimate of the quantity of emissions, including supporting calculations.
- iii. Verification that the malfunction and breakdown procedures were performed and met the requirements of Condition 7.3.3(k).
- iv. Records of maintenance activities performed.
- v. If normal operation or shutdown was not achieved within the authorized time of Condition 7.3.3(k), an explanation of why normal operation or shutdown could not be achieved within the authorized time with the date and time the Illinois EPA's regional office was contacted, the person spoken to, items discussed, and follow-up instructions.

f. Records for Continuous Opacity Monitoring Systems

Pursuant to 35 IAC 201.407 and Section 39.5(7) of the Act, the Permittee shall maintain records for the opacity monitoring system of each affected FCC Unit required by Condition 7.3.8(a) that as a minimum shall include:

- i. Operating records for opacity monitoring system, including:
 - A. Opacity measurements;
 - B. Continuous monitoring system performance testing measurements;
 - C. Performance evaluations;
 - D. Calibration checks;
 - E. Maintenance and adjustment performed; and
 - F. Quarterly reports submitted in accordance with Condition 7.3.10(e).

- ii. Records to verify compliance with Condition 7.3.3(b) [Condition 5.2.2(c)], including:
 - A. Each 6-minute period when the opacity was above the limitation of Condition 7.3.3(b) (30 percent opacity) with date, time, whether it occurred during startup, malfunction/breakdown, or shutdown, and further explanation of the incident; and
 - B. Each hour when the measured opacity of an affected FCC Unit/affected CO heater was above the normal range, as specified in Condition 5.2.2, with date, time, operating condition if startup, malfunction/breakdown, or shutdown, further explanation of the incident, and whether the particulate matter standard of Condition 7.3.3(d) may have been exceeded, with explanation.
- g. The Permittee shall maintain appropriate records for each affected heater and affected CO heater (when operating independent of the associated FCC unit) so as to demonstrate compliance with 35 IAC 212.123 (Condition 7.3.3(b)).
- h. The Permittee shall maintain records of the following items for each exceedance of the limits in Conditions 7.3.3, 7.3.5, or 7.3.6, which shall include:
 - i. Identification of the limit that may have been exceeded.
 - ii. Duration of the possible exceedance.
 - iii. An estimate of the amount of emissions in excess of the applicable standard.
 - iv. A description of the cause of the possible exceedance.
 - v. When compliance was reestablished.
- i. The Permittee shall maintain records of the most recent tests required in Condition 7.3.7(a), which include the following pursuant to Section 39.5(7)(e) of the Act:
 - i. The date, place and time of sampling or measurements.
 - ii. The date(s) analyses were performed.

- iii. The company or entity that performed the analyses.
 - iv. The analytical techniques or methods used.
 - v. The results of such analyses.
 - vi. The operating conditions as existing at the time of sampling or measurement.
- j. The Permittee shall keep records of those items specified in the NESHAP, 40 CFR 63.1576.
- k. The Permittee shall maintain a file for the CCU-1 that contains the following information:
- i. The Permittee's determination of "Projected Actual Emissions" of PSD pollutants for the CCU-1 determined in accordance with 40 CFR 52.21(b)(41), that is, the maximum annual rate, in tons per year, at which the CCU-1 is projected to emit each pollutant regulated under PSD in any one of the ten years (12-month period) following the date the CCU-1 resumes regular operation after this project, with supporting documentation and calculations. In determining the projected actual emissions, the Permittee:
 - A. Shall consider all relevant information, including but not limited to, historical operational data, the source's own representations, the source's expected business activity and the source's highest projections of business activity, the source's filings with the State or Federal regulatory authorities, and compliance plans under the USEPA approved State Implementation Plan;
 - B. Shall include fugitive emissions to the extent quantifiable and emissions associated with startups, shutdowns, and malfunctions (if not otherwise excluded pursuant to paragraph (c)); and
 - C. Shall exclude, in calculating any increase in emissions that results from the particular project, that portion of the unit's emissions following the project that an existing unit could have accommodated during the consecutive 24-month period used to establish the baseline actual emissions under 40 CFR

52.21(b)(48) and that are also unrelated to the particular project, including any increased utilization due to product demand growth.

- ii. The Permittee's determination of "Baseline Actual Emissions" for each pollutant regulated under PSD determined in accordance with 40 CFR 52.21(b)(48)(ii), with supporting documentation and calculations.
 - iii. The Permittee's demonstration that the "actual-to-projected-actual" applicability test for this project does not show a net emissions increase for any pollutant regulated by PSD. An emissions increase is projected to occur if the sum of the difference between the projected actual emissions (as defined in 40 CFR 52.21(b)(41)) and the baseline actual emissions (as defined in 40 CFR 52.21(b)(48)(ii)) exceed zero.
1. i. The Permittee shall maintain the following operating records related to the CCU-1 on at least a daily basis:
- A. Total feed rate (barrels);
 - B. Coke burn rate;
 - C. Density and sulfur content of feed, until the continuous monitoring required by Condition 7.3.8(c) is operational;
 - D. Residue rate; and
 - E. Operating parameters for the CCU-1 cyclones and electrostatic precipitator.
- ii. The Permittee shall maintain records of monthly and annual coke burn rates.
- iii. The Permittee shall maintain the following emission records for CCU-1:
- A. SO₂ and NO_x emissions on a daily basis, as determined by continuous monitoring in accordance with Condition 4 (or daily operating records and emission calculations, until such monitors are operational).
 - B. SO₂, NO_x, CO and PM/PM₁₀ emissions on a monthly basis (tons/month and tons/year).

7.3.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section of deviations of the affected catalytic cracking operations with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

- a. Within 30 days of exceedance of the limits in Conditions 7.3.3, 7.3.5, or 7.3.6, the notification shall include:
 - i. Identification of the limit that may have been exceeded.
 - ii. Duration of the possible exceedance.
 - iii. An estimate of the amount of emissions in excess of the applicable standard.
 - iv. A description of the cause of the possible exceedance.
 - v. When compliance was reestablished.
- b. Reporting of Malfunctions and Breakdowns
 - i. Pursuant to 35 IAC 201.263, the Permittee shall immediately report to the Illinois EPA, Compliance Section and Regional Field Office by telephone or fax concerning continued operation of an emission source during a malfunction or breakdown of the emission source or related pollution control equipment when such continued operation would cause a violation of the standards or limitations of this Permit, the Act or regulations promulgated thereunder.
 - ii. Pursuant to 35 IAC 201.302, upon achievement of compliance, the Permittee shall give a written follow-up report within five (5) business days to the Illinois EPA, Compliance Section and Regional Field Office, providing a detailed explanation of the event and explanation why continued operation of the emission source was necessary, the length of time during which operation continued under such conditions, the measures by the Permittee to minimize and correct deficiencies with chronology, and when the repairs were

completed or when the emission source was taken out of service.

- c. The Permittee shall submit the following information along with its annual emission report:
 - i. A summary of exceedances of the limits in Conditions 7.3.3, 7.3.5, or 7.3.6, if any, which required notification to the Compliance Section in accordance with Condition 7.3.10(a).
 - ii. A summary of malfunctions and breakdowns which required notification to the Compliance Section in accordance with Condition 7.3.10(b).
- d. The Permittee shall fulfill the following reporting requirements for each test performed pursuant to Condition 7.3.7(a):
 - i. At least 30 days prior to the expected 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:
 - A. The expected date and time of the test.
 - B. The person(s) who will be performing the sampling and analysis and their experience with similar tests.
 - C. 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 will be determined.
 - D. The specific determinations of emissions and operation which are intended to be made, including sampling and monitoring locations.
 - E. The specific sampling, analytical, and quality control procedures which will be used, with an identification of the standard methods upon which they are based.
 - F. Any minor changes in standard methodology proposed to accommodate the specific circumstances of testing, with justification.

- G. Any proposed use of an alternative test method, with detailed justification.
- ii. Notification of the actual date and time of the testing shall be submitted to the Illinois EPA at least 5 working days prior to the actual date of the test, so the Illinois EPA can arrange to have an observer present.
 - iii. The results of the test shall be submitted to the Illinois EPA within 90 days after the testing is complete. These results shall be included in a final report, which shall include the following:
 - A. A summary of results.
 - B. A description of the test methods used, including a description of sampling points, sampling train, analysis equipment, and test schedule.
 - C. A detailed description of test conditions, including:
 - 1. Process information including the mode(s) of operation.
 - 2. A discussion of any preparatory actions taken, i.e., inspections, maintenance, and repair.
 - D. Data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration.
 - E. An explanation of any discrepancies among individual tests or anomalous data.
 - F. The results of all quality control evaluations, including a copy of all quality control data.
 - e. Within 30 days of the end of each calendar quarter, the Permittee shall submit to the Illinois EPA, a report for the preceding calendar quarter listing any and all opacity measurements which exceed 30%, averaged over a 6 minute period. If one 6 minute interval exceeds 30% opacity, that 6 minute interval shall be considered the beginning of an hour. For each such incident, these reports shall provide the following items:

- i. The date and time;
- ii. The opacity of individual measurements, based on 3 minute or smaller intervals;
- iii. Whether it occurred during startup, shut-down, or malfunction;

These reports shall also specify, the dates and times in which a COM was not in operation.

- f. The Permittee shall submit all notifications and reports required by the NESHAP, 40 CFR 63.1574 and 63.1575.
- g. Within 90 days of startup of the new regenerated catalyst standpipes and feed nozzles on CCU-1 (by October 30, 2003), the Permittee shall submit a report to the Illinois EPA, Bureau of Air containing a summary of the information required by Condition 7.3.9(k).
- h. The Permittee shall report to the Illinois EPA within 60 days after the end of any calendar year if actual emissions of any PSD pollutant exceed the baseline actual emissions by a significant amount and if such emissions differ from the preconstruction projections, in accordance with 40 CFR 52.21(r) (6) (v).

7.3.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to an affected catalytic cracking operation without prior notification to the Illinois EPA or revision of this permit. This condition does not affect the Permittee's obligation to properly obtain a construction permit in a timely manner for any activity constituting construction or modification of the source, as defined in 35 IAC 201.102:

None

7.3.12 Compliance Procedures

- a. Compliance with the opacity requirements in Condition 5.2.2 shall be demonstrated by the monitoring requirements in Condition 7.3.8(a) and the recordkeeping requirements in Condition 7.3.9(f).
- b. Compliance with the PM emission limits in Condition 7.3.3(d) shall be demonstrated by the testing requirements in Condition 7.3.7(a), the operational requirements in Condition 7.3.5(c) and the recordkeeping requirements in Condition 7.3.9(a).

Emissions tests that met the requirements of Condition 7.3.7(a) was performed on both CCU-1 and CCU-2 on February 1, 1998. This test demonstrated that the affected catalytic cracking operations were in compliance with 7.3.3(d).

- d. Compliance with the SO₂ requirements of Condition 7.3.3(e) shall be demonstrated by the testing requirements in Condition 7.3.7(a).

Emissions tests that met the requirements of Condition 7.3.7(a) was performed on both CCU-1 and CCU-2 on February 1, 1998. This test demonstrated that the affected catalytic cracking operations were in compliance with 7.3.3(e).

- e. Compliance with the SO₂ requirements of Condition 7.3.3(f) shall be demonstrated by the records required in Conditions 7.3.9(b) and the emissions calculation procedure described in Condition 7.3.12(k).

- f. Compliance with the CO requirements of Condition 7.3.3(g) shall be demonstrated by the testing requirements in Condition 7.3.7(a), the operational requirements in Condition 7.3.5(a).

Emissions tests that met the requirements of Condition 7.3.7(a) was performed on both CCU-1 and CCU-2 on February 1, 1998. This test demonstrated that the affected catalytic cracking operations were in compliance with 7.3.3(g).

- g. Compliance with the VOM requirements of Condition 7.3.3(h) is considered to be assured if the Permittee meets the requirements of Condition 7.3.5(b) and (c).

- h. Compliance with the blowdown requirements of Condition 7.3.3(k) is considered to be assured if the Permittee meets the requirements of Condition 7.3.5(c).

- i. Compliance with the PM requirements for the affected catalyst loading operations in Condition 7.3.3(i) shall be demonstrated by the emissions calculation procedure in Condition 7.3.12(k).

- j. Compliance with the emission limitations for the affected compressor engines in Condition 7.3.3(j) is considered to be assured if the Permittee meets the requirements of Condition 7.3.5(d).

k. Emissions from the affected catalytic cracking operations shall be calculated using the following procedures:

i. Emissions of SO₂ from the affected catalytic cracking operations shall be determined by the following procedure:

$$E_T = E_{SW} + E_{COB} + E_R$$

Where:

E_T = Total SO₂ emissions from the affected catalytic cracking operations (lbs/hr).

E_{SW} = Emissions of SO₂ resulting from sour water sprays (lbs/hr).

E_{COB} = Emissions of SO₂ resulting from usage of RFG in CO boilers (lbs/hr).

E_R = Emissions of SO₂ resulting from the burning of coke in catalyst regenerators (lbs/hr).

A. SO₂ emissions resulting from sour water sprays, E_{SW} , shall be determined by the following equation:

$$E_{SW} = SW \times \frac{8.34 \text{ lbs}}{\text{gal}} \times \frac{S_{SW}}{100} \times \frac{60 \text{ min}}{\text{hr}} \times \frac{64 \text{ lb SO}_2}{32 \text{ lb S}}$$

Where:

SW = The total sour water flow rate into the affected catalytic cracking operations (gpm).

S_{SW} = The percent weight sulfur of the sour water.

B. SO₂ emissions resulting from the use of RFG in the CO boiler, E_{COB} , shall be determined using the following equation:

$$E_{COB} = U \times 950 \times S_c$$

Where:

U = The total RFG usage in the CO boilers (mmscf/hr).

S_G = The percent weight sulfur in the RFG.

- C. Emissions resulting from the burning of coke in the catalyst regenerators, E_R , shall be determined using the following procedure:

First calculate the sulfur content of the coke

$$S_C = \frac{FF(S_{FF}) + HF(S_{HF})}{FF + HF} \times 1.1 + (RF - 7.0) \times 0.0195$$

Where:

S_C = The percent weight sulfur of the coke.

S_{FF} = The percent weight sulfur in the fresh feed.

S_{HF} = The percent weight sulfur in the hydrotreated feed.

FF = The fresh feed flow rate (bbl/day).

HF = The hydrotreated feed flow rate (bbl/day).

RF = Total residue feed rate to unit (bbl/day)

Then calculate the flue gas flow rate:

$$FG = \frac{79(A)}{100 - V_{O_2} - V_{CO_2} - V_{CO}}$$

Where:

FG = The flue gas flow rate (mmscf/min).

A = The air flow rate into the regenerator (mmscf/min).

V_{O_2} = The percent volume of O_2 in flue gas.

V_{CO} = The percent volume of CO in flue gas.

V_{CO_2} = The percent volume of CO_2 in flue gas.

Then calculate the coke burn rate:

$$CB = \left[\frac{V_{CO} + V_{CO_2}}{100} FG \times \frac{12 \text{ lbs}}{\text{lb - mol}} \times \left(\frac{1}{1 - H} \right) \right] \\ \times \frac{1,000,000 \text{ scf}}{\text{mmscf}} \times \frac{60 \text{ min}}{\text{hr}} \times \frac{\text{lb - mol}}{379 \text{ scf}} \times \frac{2000 \text{ lb}}{\text{ton}}$$

Where:

CB = The coke burn rate (lbs/hr).

H = Weight % hydrogen on coke, assumed to be equal to 0.06

Finally, calculate the emissions of SO₂ resulting from burning coke:

$$E_s = CB \times \frac{S_i}{100} \times \frac{64 \text{ lb SO}_2}{32 \text{ lb S}}$$

- ii. Emissions of VOM, CO, PM, and NO_x from both CCUs shall be determined using either emission factors from AP-42 Table 5.1-1 or site-specific emission factors (e.g., stack test results):

| <u>Pollutant</u> | <u>AP-42 Emission Factor (After Control)</u> |
|------------------|--|
| PM | 45 lb/1,000 Barrels Fresh Feed |
| NO _x | 71 lb/1,000 Barrels Fresh Feed |
| VOM | Negligible |
| CO | Negligible |

- iii. Emissions resulting from the affected compressor engines shall be determined using manufacturer specified emission factors:

| <u>Pollutant</u> | <u>Emission Factor (Lbs/Hr)</u> |
|------------------|-------------------------------------|
| PM | 0.17 |
| NO _x | 3.97 |
| VOM | 0.26 |
| CO | 0.71 |
| SO ₂ | 1.74 |

- iv. Emissions resulting from the affected catalyst loading operations shall be determined using emission factors from AP-42 Table 11.12-2:

| <u>Pollutant</u> | AP-42 Emission Factor <u>(Lbs/Ton)</u> |
|------------------|---|
| PM | 0.61 |

7.4 Unit: Catalytic Reforming Units (3)
Control: None

7.4.1 Description

Catalytic reforming is a process for upgrading low octane materials into higher octane products. The three catalytic reformers at this refinery operate in slightly different manners. CR-1 and CR-3 both have reaction and reformat stabilization sections and a regeneration section. They both have five reactors but CR-1 has six heaters while CR-3 has five heaters. In some phases hydrogen (H₂) is used but in others it is generated and then recycled. In the regeneration section coke that forms on the catalyst is burned off. One of the reactors is regenerated while the other four reactors are operating. Perchloroethylene is used for catalyst reactivation.

CR-2 has only two heaters and no regeneration section. Regeneration is performed during a turnaround and uses a different chloriding agent.

The process heaters for these units are included in Section 7.1

Other than regeneration, each system is a closed-vent process.

7.4.2 List of Emission Units and Air Pollution Control Equipment

| Permit Emission Unit Number | Permittee Unit Number | Description and Permittee Equipment Number | Emission Control Equipment |
|-----------------------------|-----------------------|--|--|
| 66 | WRR-21 | Catalytic Reformer #1 | None during material processing; to flare when depressurizing or hydrogen introduction; to scrubber during catalyst reactivation with chloriding agent |
| 67 | WRR-26 | Catalytic Reformer #2 | None during material processing; to flare when depressurizing or hydrogen introduction; to scrubber during catalyst reactivation with chloriding agent |

| Permit Emission Unit Number | Permittee Unit Number | Description and Permittee Equipment Number | Emission Control Equipment |
|-----------------------------|-----------------------|--|--|
| 68 | WRR-25 | Catalytic Reformer #3 | None during material processing; to flare when depressurizing or hydrogen introduction; to scrubber during catalyst reactivation with chloriding agent |

7.4.3 Applicability Provisions and Applicable Regulations

- a. An "affected catalytic reformer" for the purpose of these unit-specific conditions, is a petroleum process unit identified in Condition 7.4.2. There are no open vents when processing petroleum.
- b. i. These affected units are subject to a Refinery NESHAP, 40 CFR 63 Subpart UUU, but with a future compliance date of April 11, 2005. The regeneration process may require control equipment to be installed. Currently, as well as after 40 CFR 63 Subpart UUU becomes effective, these affected units are and will be subject to the equipment leaks provisions of 40 CFR 63 Subpart CC since they are petroleum refinery units in organic HAP service as identified in 40 CFR 63.640(a) and located at a source that is major for HAPs. See Section 7.8.

There are compliance standards for both organic HAP emissions and inorganic HAP emissions (40 CFR 63.1566 - 1567). The organic HAP emission standard is similar to 35 IAC 219.544 [Condition 5.2.3(d)] in that it requires the unit to be depressurized to a flare. Many of the rules for compliance in 40 CFR 63.6, general provisions for NESHAP, are also applicable to this process.

- ii. Startup, Shutdown and Malfunction (SSM) Plan

The Permittee is required to have a written Startup, Shutdown and Malfunction (SSM) Plan for the equipment subject to the Petroleum Refinery rule as described in Condition 7.3.3(b) (i). The SSM plan is not required until the date that compliance is required, April 11, 2005. [40 CFR 63.6(e) (3)]

iii. Operation, Maintenance and Monitoring (OM & M) Plan

The Permittee is required to have a written operation, maintenance and monitoring plan for any control system and any continuous monitoring system employed for achieving and determining compliance with the NESHAP listed above.

This OM & M plan must be submitted to the Illinois EPA with the notification of compliance status for review and approval. The contents of the OM & M plan and dates for submittal are listed in 40 CFR 63.1574(f).

- c. Catalytic Reforming Units 1 and 3 (CR-1, CR-3) are subject to the equipment leaks provisions of 40 CFR 61 Subpart J, which incorporates 40 CFR 61 Subpart V. It is also subject to the equipment leak provisions of 35 IAC 219 Subpart R (Section 219.445-463). See Section 7.10 on Fugitive Emissions.

7.4.4 Non-Applicability of Regulations of Concern

This permit is issued based on the affected catalytic reforming units not being subject to the New Source Performance Standards (NSPS), 40 CFR Part 60, Subpart J, GGG or QQQ for the following reasons:

- a. The affected catalytic reforming units are not subject to Subpart J, because the units are not Claus sulfur recovery units or fluid catalytic cracking units. Applicability or non-applicability of the rule to fuel combustion devices is addressed in Section 7.1 of this permit.
- b. This permit is issued based on the affected catalytic reforming units not being subject to 35 IAC 219 Subpart TT, because the affected catalytic reforming units are subject to 35 IAC 219 Subpart R [Condition 5.2.3(a)], pursuant to 35 IAC 219.980(a)(1).
- c. The affected catalytic reforming unit vents are exempted from 40 CFR 63 Subpart CC pursuant to 40 CFR 63.640(d)(4).

7.4.5 Control Requirements

There are no current control requirements but when the date for compliance with NESHAP is reached, control equipment or operating changes may be required. Although not currently required, any existing scrubber used during catalyst reactivation shall be operated properly to reduce emissions of chlorine/chlorides.

7.4.6 Emission Limitations

In addition to Condition 5.2.2 and the source wide emission limitations in Condition 5.5, the affected catalytic reforming units are subject to the following:

N/A

7.4.7 Testing Requirements

- a. These units may be required to conduct performance tests to demonstrate compliance with the applicable standards within 150 days of the compliance date specified in 40 CFR 63.1563. See § 63.1571 for performance testing requirements.
- b. Upon request by the Illinois EPA and/or USEPA, pursuant to Section 39.5(7)(b) of the Act, 35 IAC 219.105, and 40 CFR 63.571, the Permittee shall conduct testing of the affected catalytic cracking operations for purposes of demonstrating compliance to conditions of this permit according to USEPA approved methods of 40 CFR 60 Appendix A or other appropriate methods approved by the Illinois EPA or USEPA, at such reasonable times as may be specified by the Illinois EPA and/or USEPA. This test shall meet the following requirements:
 - i. The test shall be conducted by an approved independent testing service.
 - ii. The test shall be conducted during conditions which are representative of maximum emissions.

7.4.8 Monitoring Requirements

- a. The Permittee shall comply with the monitoring requirements of 40 CFR 63.1572 or alternatives in § 63.1573 after the dates specified by Subpart UUU.
- b. The Permittee shall comply with the equipment leaks monitoring requirements of 40 CFR 61 Subpart J, which incorporates Subpart V, and of 35 IAC 219 Subpart R. Further details are given in Section 7.10 of this permit.

7.4.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain the following records for the affected catalytic reforming units to demonstrate compliance with Condition 7.4.3(b), pursuant to Section 39.5(7)(b) of the Act:

- a. The Permittee shall keep records of those items specified in the NESHAP, 40 CFR 63.1576.
- b. Emissions of PM and chlorides during catalyst reactivation.

7.4.10 Reporting Requirements

The Permittee shall submit all notifications and reports required by the NESHAP, 40 CFR 63.1574 and 63.1575.

7.4.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.4.12 Compliance Procedures

- a. Since at the current time there is no emission standard for regeneration, compliance is assumed by following standard regeneration procedure. Emissions may be calculated from previous tests, engineering judgment or design standards and after performance testing using the results of the test.
- b. After implementation of the NESHAP Subpart UUU, compliance is met by conducting an initial performance test and then following the monitoring, recordkeeping and reporting requirements of Condition 7.4.8, 7.4.9 and 7.4.10.

7.5 Unit: Other Petroleum Processing Units
 Control: Flare on Some Units

7.5.1 Description

The previous two petroleum processes had special rules that apply to them during a process called regeneration. The numerous units in this section have no vents directly to atmosphere. Vent gas is directed to a flare gas recovery system or the refinery fuel gas system (RFG) discussed in Section 7.7. One exception is a sulfuric acid handling system as part of one unit.

In the description only the name of the entire unit is listed and not the specific piece of equipment that vents to the refinery's gas recovery system.

Also by no vents this means process vents. Most of these processes have fuel combustion units that are included in Section 7.1. Fuel combustion emissions exit through their own stacks.

In addition to the vents that go to the flare, flue gas system, or plant hydrogen system these processes also have safety relief valves that vent to either a flare, the fuel gas system, or directly to atmosphere. Also, when the process is shutdown and the vessel emptied, if it is a pressurized vessel it must be vented to a flare or the fuel gas system to comply with 35 IAC 219.444 [Condition 5.2.3(d)].

7.5.2 List of Emission Units and Air Pollution Control Equipment

| Permit Emission Unit Number | Permittee Unit Number | Description | Emission Control Equipment |
|-----------------------------|-----------------------|--------------------------------------|----------------------------|
| 69 | WRR-16 | Alkylation Unit | Flare System |
| 69a | WRR-16 | Sulfuric Acid Handling System | Caustic Scrubber |
| 70 | CFH WRR-8 | Catalytic Feed Hydrotreater | Flare System |
| 71 | BT | Butane Treaters/Caustic Regenerators | Flare System |
| 72 | CAU WRR-5 | Cracked Absorption Unit/Stabilizers | Flare System |
| 73 | DIH No. 2 | Diesohexanizer No. 2 | Flare System |
| 74 | DU-1 WRR-1 | Distilling Unit No. 1 | Flare System |
| 75 | DU-2 WRR-2 | Distilling Unit No. 2 | Flare System |

| Permit Emission Unit Number | Permittee Unit Number | Description | Emission Control Equipment |
|-----------------------------|------------------------|--|----------------------------|
| 76 | LOT WRR-5 | Light Oil Treaters, Closed Vents | Flare System |
| 77 | C3 Treaters | Propane/Propylene Treaters, to RFG | Flare System |
| 78 | RAU WRR-4 | Rectified Absorption System, To RFG | Flare System |
| 79 | SWS | Gas Plant Sour Water Stripper, to RFG | Flare System |
| 80 | VF-1, VF-2, VF-3 WRR-6 | Vacuum Flasher Units 1, 2, and 3, to RFG | Flare System |
| 81 | VBU WRR-6 | Visbreaker Unit | Flare System |
| 82 | DHT WRR-23 | Distillate Hydro-treater, to RFG | Flare System |
| 83 | HCU WRR-20 | Hydrocracker Unit, to RFG also | Flare System |
| 84 | HDU-1 and 2 WRR-25 | Hydrosulfurization Unit 1 and 2 | Flare System |
| 85 | KHT WRR-24 | Kerosene Hydrotreater, Vent to H ₂ System | Flare System |
| 86 | SGP WRR-22 | Saturates Gas Plant, to RFG | Flare System |
| 87 | SMR WRR-20 | Steam Methane Reformer, to H ₂ System | Flare System |
| 88 | LEU WRR-11 | Lubricants Extraction Unit | Flare System |
| 89 | LHT WRR-12 | Lubricants Hydrotreater, to H ₂ System | Flare System |
| 90 | VFC WRR-6 | Vacuum Fractionator Column, Vent Directly to Heater of this Unit | Flare System |
| 91 | CNS WRR-69 | Catalytic Naphtha Splitter | Flare System |
| 92 | HCNHT WRR-69 | Heavy Catalytic Naphtha Hydrotreater | Flare System |
| 93 | GHT WRR-60 | Gasoline Hydrotreater | Flare System |

7.5.3 Applicability Provisions and Applicable Regulations

- a. An "affected petroleum processing unit" for the purpose of these unit-specific conditions, is a petroleum processing unit that vents only to a flare, the refinery fuel gas system, a hydrogen system or provides fuel for the unit itself.

b. Each affected petroleum processing unit is subject to the emission limits identified in Condition 5.2.2, 5.2.3, and 5.2.4 and the LDAR requirements in Section 7.10.

c. Malfunction and Breakdown Provisions

There are no malfunction or breakdown provisions for the process vents in these units. However, there are malfunction or breakdown provisions for the system that remove H₂S from the fuel combustion units that serve these processes. Those provisions are addressed in the process heaters section of this permit (Section 7.1).

d. Startup and Shutdown Provisions

All of these units are subject to the process turnaround requirement in Condition 5.2.3(d), that is, before any unit is opened it must be vented to a flare down to 5 psig.

e. The sulfuric acid handling system and associated caustic scrubber as part of the alkylation unit are subject to 35 IAC 214.303. This rule limits emissions of sulfuric acid or sulfur trioxide to 0.10 lbs/hr for sulfuric acid usage less than 1300 tons/year (100 percent acid basis) or to less than 0.5 lb/ton of acid for usage equal to or greater than 1300 tons/year.

7.5.4 Non-Applicability of Regulations of Concern

a. This permit is issued based on the affected petroleum process vents not being subject to 40 CFR 60 Subpart J because that subpart applies to only specific processes and these process vents are not among them. The fuel combustion units within these processes that are subject to Subpart J have applicability discussed in Section 7.1.

b. This permit is issued based on the affected petroleum processes not being subject to the miscellaneous process vent provisions of 40 CFR 63 Subpart CC because all streams from these processes are routed to the fuel gas system. See Condition 7.7.4 for more information.

c. This permit is issued based on the affected benzene extraction unit operations not being subject to 35 IAC 219 Subpart TT, because the affected benzene extraction unit operations are subject to 35 IAC 219 Subpart R, pursuant to 35 IAC 219.980(a)(1).

7.5.5 Control Requirements

None

7.5.6 Emission Limitations

There are no specific emission limitations for these units.

7.5.7 Testing Requirements

- a. Upon request by the Illinois EPA and/or USEPA, pursuant to Section 39.5(7)(b) of the Act, 35 IAC 219.105, and 40 CFR 63.571, the Permittee shall conduct testing of the affected petroleum processing operations for purposes of demonstrating compliance to conditions of this permit according to USEPA approved methods approved by the Illinois EPA or USEPA, at such reasonable times as may be specified by the Illinois EPA and/or USEPA. This test shall meet the following requirements:
 - i. The test shall be conducted by an approved independent testing service.
 - ii. The test shall be conducted during conditions which are representative of maximum emissions.
- b. Any testing of the flares, specified as control equipment in Condition 7.5.2, is discussed in Section 7.7.

7.5.8 Monitoring Requirements

Any monitoring for the flares which act as control equipment for process vents as specified in Condition 7.5.2, is discussed in Section 7.7 of this permit.

7.5.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for each affected petroleum process unit to demonstrate compliance with Conditions 5.5.1 and 5.2.4, pursuant to Section 39.5(7)(b) of the Act:

- a. Any records required by the NESHAP, 40 CFR 63.654; and
- b. VOM are considered part of flare emissions as all process vents are ducted to a flare. See Section 7.7.

7.5.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of an affected petroleum

processing unit with the permit requirements as follows, pursuant to Section 39.5(7) (f) (ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

Any reports required by the NESHAP, 40 CFR 63.654.

7.5.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.5.12 Compliance Procedures

- a. Compliance with the requirements of Conditions in 7.5.3 is determined by meeting the operating requirements of Condition 7.5.5, the testing requirements of Condition 7.5.7, the monitoring requirements of Condition 7.5.8, the recordkeeping requirements of 7.5.9 and the reporting requirements of Condition 7.5.10.
- b. Since the process vents are ducted to the fuel gas system/flare in Section 7.7 of this permit, emissions are included in the calculations presented there.

7.6 Unit: Benzene Extraction Unit (BEU)
Control: Flare

7.6.1 Description

The Benzene Extraction Unit recovers benzene from light reformat or other feedstock. First, the benzene in the feed is concentrated by distillation, then benzene is extracted from the benzene rich overhead using a solvent. The "fat" solvent is sent to a solvent recovery system where the benzene and other components are removed from the solvent. This unit is discussed separately because it is subject to some rules that do not apply to the remainder of the refining process. These rules are collectively called the HON Rule for Hazardous Organics NESHAP and include 40 CFR 63 Subparts F, G, and H plus the general provisions of the NESHAP, Subpart A.

In addition to the HON, this process is also subject to 40 CFR 61 Subparts J (Equipment Leaks of Benzene), Y (Benzene Storage Vessels), and FF (Benzene Waste Operations). Some of these rules are addressed in this section but others are covered elsewhere, i.e. equipment leaks in fugitive emission section and storage vessels in that section.

Two process heaters that are part of this unit are listed in Section 7.1.

7.6.2 List of Emission Units and Air Pollution Control Equipment

| Permit Emission Unit Number | Permittee Unit Number | Description | Emission Control Equipment |
|-----------------------------|-----------------------|--|----------------------------|
| 94 | WRR-19 | Benzene Extraction Unit (BEU). Benzene is extracted from aromatic feedstocks | Flare |

7.6.3 Applicability Provisions and Applicable Regulations

- a. An "affected chemical manufacturing unit" for the purpose of these unit specific conditions is a process in which one or more chemicals listed in Table 2 of 40 CFR 63 Subpart F is produced. This process is identified in Condition 7.6.2 but specific equipment in the process is not identified.
- b. The BEU is subject to 40 CFR 63 Subpart F, G, and H. The applicability for various requirements is as follows:
 - i. The heat exchange system requirements of 40 CFR 63.104 are applicable.

- ii. The maintenance wastewater requirements of 40 CFR 63.105 are applicable.
- iii. The storage vessel provisions of 40 CFR 63.120-123 are applicable to Group 1 storage vessels. Storage vessels for material sin this unit are included in Section 7.2. Other storage vessels may be Group 2 vessels.
- iv. The process wastewater provisions of 40 CFR 63.132-145 are not applicable because the wastewater streams are classified as Group 2 wastewater streams, but they are subject to 40 CFR 61 Subpart FF.
- v. The leak inspection provisions of 40 CFR 63.148 and Subpart H and 40 CFR 61 Subpart J are applicable but are addressed in Section 7.10, which covers all fugitive emission requirements.
- vi. Although control technology and monitoring requirements do not apply to Group 2 units as stated previously, certain recordkeeping requirements to verify that a unit is classified as Group 2 unit are applicable.
- c. The affected benzene extraction unit operations are subject to the emission limits and requirements identified in Section 5 of this permit (Note: especially 5.2.3).

7.6.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on the affected benzene extraction unit operations not being subject to 35 IAC 219 Subpart TT, because the affected benzene extraction unit operations are subject to 35 IAC 219 Subpart R, pursuant to 35 IAC 219.980(a)(1).
- b. The BEU is exempt from 40 CFR 63 Subpart CC (Refinery NESHAP) pursuant to 40 CFR 63.640(g)(7).
- c. This permit is issued based on the BEU process vents not being Group 1 process vents based on the definition in 40 CFR 63.111. This definition is as follows. Group 1 process vent means a process vent for which the flow rate is greater than or equal to 0.005 standard cubic meter per minute, the total organic HAP concentration is greater than or equal to 50 parts per million by volume, and the total resource effectiveness index value, calculated according to § 63.115, is less than or equal to 1.0.

Therefore, the flare is not required to comply with 40 CFR 63.11(b).

7.6.5 Control Requirements

The flare shall be operated to assure that the unit complies with Condition 5.2.3(a). See Section 7.7 for operation of the flare.

7.6.6 Emission Limitations

In addition to Section 5 the affected BEU is subject to the following:

There are no specific emission limitations for this unit.

7.6.7 Operating and Testing Requirements

a. Startup, Shutdown and Malfunction (SSM) Plan

The Permittee is required to have a written startup, shutdown, and malfunction (SSM) plan for the BEU unit on site under 40 CFR 63.6(e) (3).

The SSM Plan and any revision to that plan is incorporated by reference and is enforceable as a term and condition of this permit.

Revisions to the SSM Plan are automatically incorporated by reference into this permit and do not require a permit revision.

b. Upon request by the Illinois EPA and/or USEPA, pursuant to Section 39.5(7) (b) of the Act and 35 IAC 219.105, the Permittee shall conduct testing of the affected benzene extraction unit operations for purposes of demonstrating compliance to conditions of this permit according to USEPA approved methods approved by the Illinois EPA or USEPA, at such reasonable times as may be specified by the Illinois EPA and/or USEPA. This test shall meet the following requirements:

- i. The test shall be conducted by an approved independent testing service.
- ii. The test shall be conducted during conditions which are representative of maximum emissions.

7.6.8 Monitoring Requirements

a. The flare shall be equipped with a device capable of continuously detecting the presence of a pilot flame

as required by 40 CFR 63.114(a) (2) and the general NESHAP monitoring requirements of 40 CFR 63.8.

- b. The equipment leaks monitoring provisions are discussed in Section 7.10.

7.6.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected BEU unit to demonstrate compliance with Condition 7.6.3, pursuant to Section 39.5(7)(b) of the Act:

- a. Records that demonstrate that emission units classified as Group 2 units continue to maintain that status.
- b. Records that meet the requirements of the general recordkeeping provisions of the NESHAP, 40 CFR 63.10, the general recordkeeping provisions of the HON, 40 CFR 63.103, and the following specific provisions:
 - i. Records required by 40 CFR 63.104(f) (1) which relate to leak detection and repair of heat exchanger components in which a leak is detected.
 - ii. Records required by 40 CFR 63.105(e) which describe procedures for management of wastewater.
 - iii. Process vent recordkeeping requirements of 40 CFR 63.117 demonstrating that process vents are Group 2 and not Group 1.
 - iv. Storage vessel recordkeeping requirements of 40 CFR 63.123.
 - v. Process wastewater recordkeeping requirements of 40 CFR 63.147.
 - vi. Continuous record requirements of 40 CFR 63.152.
- c. Records required by the Part 61 NESHAP:
 - i. Equipment Leaks, 40 CFR 61.246
 - ii. Storage Vessels, 40 CFR 61.276
 - iii. Waste Operations, 40 CFR 61.356

7.6.10 Reporting Requirements

- a. The Permittee shall promptly notify the Illinois EPA, Compliance Section, of noncompliance of the affected BEU unit with the permit requirements as follows,

pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measure taken:

N/A

- b. The Permittee shall submit any reports required by the following NESHAP requirements, including changes in status of any unit currently a Group 2 unit to a Group 1 unit:
 - i. General requirements: 40 CFR 63.10;
 - ii. Heat exchange requirements: 40 CFR 63.104(f)(2);
 - iii. Process vent requirements: 40 CFR 63.117;
 - iv. Storage vessel requirements: 40 CFR 61.275 and 63.122;
 - v. Process wastewater requirements: 40 CFR 63.146;
 - vi. General HON requirements: 40 CFR 63.152; and
 - vii. Equipment leaks requirements: 40 CFR 61.247.

7.6.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.6.12 Compliance Procedures

- a. Performing the required equipment leaks inspections, operating the flare in accordance with Section 7.7 of this permit, meeting the heat exchange requirements of 40 CFR 63.104, keeping the records required by Condition 7.6.9, submitting reports required by Condition 7.6.10, and maintaining status of units as Group 2 units assures compliance with the regulations.
- b. Emissions to flare are accounted for in the section of this permit that covers operation of the flares.

7.7 Unit: Refinery Flare System Consisting of Gas Recovery System, Fuel Gas Treaters, Fuel Gas System and Flares
Control: None

7.7.1 Description

The Flare System is a safety device that collects and disposes of releases of process gas from safety relief valves, test instruments and monitors, waste process gas and blowdown, and gases collected via vents and drains during depressurization of vessels or equipment in preparation for turnaround or maintenance. The gases that are collected are usually of sufficient quantity that most of it may be compressed and recovered and then used in heaters and boilers after passing through amine absorbers to remove H₂S. The excess amount that cannot be compressed and recovered is sent to a flare. The process gases are generally hydrocarbons but may be hydrogen or any combination of hydrogen, hydrocarbon, sulfur compounds and inert gases. The flares burn the gases to form carbon dioxide, sulfur dioxide, and water. Only recovered gases are treated through the amine absorbers. If the compressor capacity is exceeded then these gases go directly to a flare and those gases are likely to contain more H₂S.

Hydrocarbon emissions to flare systems are kept to a minimum to prevent product loss. Some processes require a minor amount of venting during normal operation to eliminate non-condensables, such as nitrogen, as dictated by the nature of the process.

Except for the flare itself, which has a flame that discharges to the ambient air, the piping systems to the flare, including the gas recovery system and the amine fuel gas treaters, do not have open vents and are not listed as emission units. The purpose of the absorbers is to remove hydrogen sulfide (H₂S) from the major H₂S-rich fuel gas streams. This is accomplished by countercurrent contact of the fuel gas streams with a circulating, regenerated (i.e., "lean"), aqueous amine solution.

The H₂S rich (or "fat") amine solution is pumped to the sulfur plant (Section 7.8) for H₂S removal and conversion of the H₂S into elemental sulfur. The regenerated amine is circulated back to the absorbers.

The fuel gas generated on site may be blended with purchased natural gas before being used as fuel in process heaters and boilers. Blending is also a process with no vents.

Although the flares are stated to have no control equipment, they are equipped with a system for using steam

(i.e., steam-assisted) to assure more complete combustion and therefore are defined as smokeless.

There are no specifications on destruction efficiency or monitoring for flares that are used solely for safety releases. However, all of these flares are also control devices for process gases and to comply with the NESHAP process vent rule they must be operated in compliance with NESHAP flare requirements.

The wastewater treatment system has its own flare which is a control device and not included here.

7.7.2 List of Emission Units and Pollution Control Equipment

| Permit Emission Unit Number | Permittee Unit Number | Description | Emission Control Equipment |
|-----------------------------|-------------------------------|--|----------------------------|
| 95 | Alkylation Unit Flare | Hydrocarbons are preferably recovered by compressor system or unrecoverable amount is sent to flare. | None |
| 96 | Distilling Flare | Hydrocarbons are preferably recovered by compressor system or unrecoverable amount is sent to flare. | None |
| 97 | North Property Ground Flare | Hydrocarbons are preferably recovered by compressor system or unrecoverable amount is sent to flare. | None |
| 98 | Aromatics Low Pressure Flare | Hydrocarbons are preferably recovered by compressor system or unrecoverable amount is sent to flare. | None |
| 99 | Aromatics High Pressure Flare | Hydrocarbons are preferably recovered by compressor system or unrecoverable amount is sent to flare. | None |

7.7.3 Applicability Provisions and Applicable Regulations

- a. An "affected flare" for the purposes of these unit-specific conditions, is a smokeless flare identified in Condition 7.7.2 that is used to safely

destruct releases from safety relief valves, vapor blowdown systems, process vents, etc.

- b. Pursuant to 35 IAC 219.143, each affected flare operated as a control device for the purposes of controlling emissions from safety relief valves and vapor blowdown systems shall be smokeless. Pursuant to the definition of a smokeless flare in 35 IAC 211.6050, the PM emitted to the atmosphere shall not have an appearance density or shade darker than No. 1 on the Ringlemann Chart, that is equivalent to an opacity of 20%.
- c. The affected flare systems are subject to the emission limits and requirements identified in Section 5 of this permit.
- d. To assure compliance with the smokeless flare requirement cited above, the Permittee has agreed to operate all of the flares in accordance with 40 CFR 60.18, as follows:
 - i. Flares shall be designed for and operated with no visible emissions as determined by the methods specified in Condition 7.7.7(b) (i) (40 CFR 60.18(f)), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours [40 CFR 60.18(c) (1)].
 - ii. Flares shall be operated with a flame present at all times, as determined by the methods specified in Condition 7.7.8(a) (40 CFR 60.18(f)) [40 CFR 60.18(c) (2)].
 - iii. An owner/operator has the choice of adhering to either the heat content specifications in Condition 7.7.3(d) (iii) (B) (40 CFR 60.18(c) (3) (ii)) and the maximum tip velocity specifications in Condition 7.7.3(d) (iv) (40 CFR 60.18(c) (4)), or adhering to the requirements in Condition 7.7.3(d) (iii) (A) (40 CFR 60.18(c) (3) (i)) [40 CFR 60.18(c) (3)].
 - A. 1. Pursuant to 40 CFR 60.18(c) (3) (i) (A), flares shall be used that have a diameter of 3 inches or greater, are nonassisted, have a hydrogen content of 8.0 percent (by volume), or greater, and are designed for and operated with an exit velocity less than 37.2 m/sec (122 ft/sec) and less than the velocity, V_{max} , as determined by the following equation:

$$V_{max} = (XH_2 - K_1) \times K_2$$

Where:

- V_{max} = Maximum permitted velocity, m/sec.
- K_1 = Constant, 6.0 volume-percent hydrogen.
- K_2 = Constant, 3.9 (m/sec) / volume-percent hydrogen.
- XH_2 = The volume-percent of hydrogen, on a wet basis, as calculated by using the American Society for Testing and Materials (ASTM) Method D1946-77. (Incorporated by reference as specified in 40 CFR 60.17).

2. The actual exit velocity of a flare shall be determined by the method specified in Condition 7.7.7(b) (iii) (40 CFR 60.18(f) (4)) [40 CFR 60.18(c) (3) (i) (B)].
- B. Flares shall be used only with the net heating value of the gas being combusted being 11.2 MJ/scm (300 Btu/scf) or greater if the flare is steam-assisted or air-assisted; or with the net heating value of the gas being combusted being 7.45 MJ/scm (200 Btu/scf) or greater if the flare is nonassisted. The net heating value of the gas being combusted shall be determined by the methods specified in Condition 7.7.7(b) (ii) (40 CFR 60.18(f) (3)) [40 CFR 60.18(c) (3) (ii)].
- iv. A. Steam-assisted and nonassisted flares shall be designed for and operated with an exit velocity, as determined by the methods specified in Condition 7.7.7(b) (iii) (40 CFR 60.18(f) (4)), less than 18.3 m/sec (60 ft/sec), except as provided in Conditions 7.7.3(d) (iv) (B) and (C) (40 CFR 60.18(c) (4) (ii) and (iii)) below [40 CFR 60.18(c) (4) (i)].

- B. Steam-assisted and nonassisted flares designed for and operated with an exit velocity, as determined by the methods specified in Condition 7.7.7(b) (iii) (40 CFR 60.18(f) (4)), equal to or greater than 18.3 m/sec (60 ft/sec) but less than 122 m/sec (400 ft/sec) are allowed if the net heating value of the gas being combusted is greater than 37.3 MJ/scm (1,000 Btu/scf) [40 CFR 60.18(c) (4) (ii)].
- C. Steam-assisted and nonassisted flares designed for and operated with an exit velocity, as determined by the methods specified in Condition 7.7.7(b) (iii) (40 CFR 60.18(f) (4)), less than the velocity, V_{max} , as determined by the method specified in Condition 7.7.7(b) (iv) (40 CFR 60.18(f) (5)), and less than 122 m/sec (400 ft/sec) are allowed [40 CFR 60.18(c) (4) (iii)].
- v. Air-assisted flares shall be designed and operated with an exit velocity less than the velocity, V_{max} , as determined by the method specified in Condition 7.7.7(b) (v) (40 CFR 60.18(f) (6)) [40 CFR 60.18(c) (5)].
- vi. Flares used to comply with this section shall be steam-assisted, air-assisted, or nonassisted [40 CFR 60.18(c) (6)].
- e. Owners or operators of flares used to comply with the provisions of 40 CFR 60.18 shall monitor these control devices to ensure that they are operated and maintained in conformance with their designs. Applicable subparts will provide provisions stating how owners or operators of flares shall monitor these control devices [40 CFR 60.18(d)].
- f. Flares used to comply with provisions of 40 CFR 60.18 shall be operated at all times when emissions may be vented to them [40 CFR 60.18(e)].
- g. No person shall cause or allow the emission of sulfur dioxide into the atmosphere from any affected flare to exceed 2000 ppm [35 IAC 214.301].

7.7.4 Non-Applicability of Regulations of Concern

The five flares (Permit Emission Unit Nos. 95-99) are not subject to the performance and monitoring requirements of

40 CFR 63.11 because each of the flares is preceded by a fuel gas recovery system. Pursuant to 40 CFR 63.641 (definition of miscellaneous process vents), gaseous streams that are routed to a fuel gas system do not qualify as miscellaneous process vents under the Refinery NESHAP. However, the requirements of 40 CFR 60.18 are very similar if not identical to 40 CFR 63.11.

7.7.5 Operational and Production Limits and Work Practices

- a. In accordance with the terms of the 1998 Consent Decree in Civil Action 98-652-GPM, the Permittee shall minimize sulfur dioxide emissions from the affected flares by maintaining the flare gas recovery system such that the mechanical availability of each flare gas recovery compressor (units C-7733, C-69031, and C-81075) is at least 90% on an annual basis.
- b. The Permittee shall not vent any gas stream to an affected flare containing greater than 2000 ppm of reduced sulfur compounds. This limit ensures that the affected flares meet the emission limits in Condition 7.7.3(h) (35 IAC 214.301).
- c. Each flare shall be equipped with an auto ignition system.

7.7.6 Emission Limitations

There are no specific emission limitations for these units.

7.7.7 Testing Requirements

- a. Upon request by the Illinois EPA and/or USEPA, pursuant to Section 39.5(7)(b) of the Act and 35 IAC 219.105, the Permittee shall conduct testing of the affected flare for purposes of demonstrating compliance to conditions of this permit according to USEPA approved methods of 40 CFR 60 Appendix A or other appropriate methods approved by the Illinois EPA or USEPA, at such reasonable times as may be specified by the Illinois EPA and/or USEPA. This test shall meet the following requirements:
 - i. The test shall be conducted by an approved independent testing service.
 - ii. The test shall be conducted during conditions which are representative of maximum emissions.
- b.
 - i. USEPA Reference Method 22 shall be used to determine the compliance of flares with the visible emission provisions of Condition 7.7.3(d)(i) (40 CFR 60.18). The observation

period is 2 hours and shall be used according to Method 22 [40 CFR 60.18(f)(1)].

- ii. Pursuant to 40 CFR 60.18(f)(3), the net heating value of the gas being combusted in a flare shall be calculated using the following equation:

$$H_T = K \sum_{i=1}^n C_i H_i$$

Where:

- H_T = Net heating value of the sample, MJ/scm; where the net enthalpy per mole of offgas is based on combustion at 25°C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20°C;
- C_i = Concentration of sample component i in ppm on a wet basis, as measured for organics by Reference Method 18 and measured for hydrogen and carbon monoxide by ASTM D1946-77 (Incorporated by reference as specified in 40 CFR 60.17); and
- H_i = Net heat of combustion of sample component i , kcal/g mole at 25°C and 760 mm Hg. The heats of combustion may be determined using ASTM D2382-76 (incorporated by reference as specified in 40 CFR 60.17) if published values are not available or cannot be calculated.

- iii. The actual exit velocity of a flare shall be determined by dividing the volumetric flowrate (in units of standard temperature and pressure), as determined by USEPA Reference Methods 2, 2A, 2C, or 2D as appropriate; by the unobstructed (free) cross sectional area of the flare tip [40 CFR 60.18(f)(4)].

- iv. Pursuant to 40 CFR 60.18(f)(5), the maximum permitted velocity, V_{max} , for flares complying with Condition 7.7.3(d)(iv)(C) (40 CFR 60.18(c)(4)(iii)) shall be determined by the following equation:

$$\text{Log}_{10}(v_{max}) = \frac{(H_T + 28.8)}{31.7}$$

Where:

- V_{max} = Maximum permitted velocity, M/sec

28.8 = Constant

31.7 = Constant

H_T = The net heating value as determined in Condition 7.7.7(b) (ii) (40 CFR 60.18(f) (3)).

- v. Pursuant to 40 CFR 60.18(f) (6), the maximum permitted velocity, V_{max} , for air-assisted flares shall be determined by the following equation:

$$V_{max} = 8.704 + 0.7084H_T$$

Where:

V_{max} = Maximum permitted velocity, m/sec

8.706 = Constant

0.7084 = Constant

H_T = The net heating value as determined in Condition 7.7.7(b) (ii) (40 CFR 60.18(f) (3)).

7.7.8 Monitoring Requirements

The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame [40 CFR 60.18(f) (2)].

7.7.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected flares to demonstrate compliance with Conditions 5.5.1, 7.7.3, 7.7.5, and 7.7.6, pursuant to Section 39.5(7) (b) of the Act:

- a. Date and duration of any time when the pilot flame monitoring equipment of an affected flare was not in operation, with explanation.
- b. Date and duration of any time when there was no pilot flame present at an affected flare, with explanation.
- c. The Permittee shall maintain records of the following items for each exceedance of the limits in Conditions 7.7.3, 7.7.5, or 7.7.6, which shall include:

- i. Identification of the limit that may have been exceeded.
 - ii. Duration of the possible exceedance.
 - iii. An estimate of the amount of emissions in excess of the applicable standard.
 - iv. A description of the cause of the possible exceedance.
 - v. When compliance was reestablished.
- d. The Permittee shall maintain records of the most recent tests required in Condition 7.7.7(a), which include the following pursuant to Section 39.5(7)(e) of the Act:
- i. The date, place and time of sampling or measurements.
 - ii. The date(s) analyses were performed.
 - iii. The company or entity that performed the analyses.
 - iv. The analytical techniques or methods used.
 - v. The results of such analyses.
 - vi. The operating conditions as existing at the time of sampling or measurement.
- e. VOM, NO_x, SO₂, and CO emissions from the flare (ton/yr).

7.7.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section of deviations of the affected flares with the permit requirements as follows, pursuant to Section 39.5(7)(f)(iii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

- a. In accordance with the terms of the 1998 Consent Decree in Civil Action 98-652-GPM, the Permittee shall submit a written report to the USEPA and Illinois EPA that sets forth the mechanical availability of each flare gas recovery compressor for the previous calendar year. In the event the mechanical availability of any flare gas recovery compressor is less than 90% on an annual basis, the Permittee shall include in the report the reasons that the mechanical availability was less than 90%

and the corrective measures that have been and will be undertaken to improve the mechanical availability of the flare gas recovery compressor.

- b. Within 30 days of exceedance of the limits in Conditions 7.7.3, 7.7.5, or 7.7.6, the notification shall include:
 - i. Identification of the limit that may have been exceeded.
 - ii. Duration of the possible exceedance.
 - iii. An estimate of the amount of emissions in excess of the applicable standard.
 - iv. A description of the cause of the possible exceedance.
 - v. When compliance was reestablished.
- c. The Permittee shall submit the following information along with its annual emission report:
 - i. A summary of exceedances of the limits in Conditions 7.7.3, 7.7.5, or 7.7.6, if any, which required notification to the Compliance Section in accordance with Condition 7.7.10(a).
- d. The Permittee shall fulfill the following reporting requirements for each test performed pursuant to Condition 7.7.7(a):
 - i. At least 30 days prior to the expected 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:
 - A. The expected date and time of the test.
 - B. The person(s) who will be performing the sampling and analysis and their experience with similar tests.
 - C. 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 will be determined.

- D. The specific determinations of emissions and operation which are intended to be made, including sampling and monitoring locations.
 - E. The specific sampling, analytical, and quality control procedures which will be used, with an identification of the standard methods upon which they are based.
 - F. Any minor changes in standard methodology proposed to accommodate the specific circumstances of testing, with justification.
 - G. Any proposed use of an alternative test method, with detailed justification.
- ii. Notification of the actual date and time of the testing shall be submitted to the Illinois EPA at least 5 working days prior to the actual date of the test, so the Illinois EPA can arrange to have an observer present.
 - iii. The results of the test shall be submitted to the Illinois EPA within 90 days after the testing is complete. These results shall be included in a final report, which shall include the following:
 - A. A summary of results.
 - B. A description of the test methods used, including a description of sampling points, sampling train, analysis equipment, and test schedule.
 - C. A detailed description of test conditions, including:
 - 1. Process information including the mode(s) of operation.
 - 2. A discussion of any preparatory actions taken, i.e., inspections, maintenance, and repair.
 - D. Data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration.
 - E. An explanation of any discrepancies among individual tests or anomalous data.

- F. The results of all quality control evaluations, including a copy of all quality control data.

7.7.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to an affected flare without prior notification to the Illinois EPA or revision of this permit. This condition does not affect the Permittee's obligation to properly obtain a construction permit in a timely manner for any activity constituting construction or modification of the source, as defined in 35 IAC 201.102:

None

7.7.12 Compliance Procedures

- a. Compliance with the operating requirements of Condition 7.7.3(d), (e), and (f) is assured through proper operation of each affected flare, i.e., the presence of a flame, as demonstrated by the testing, monitoring, and recordkeeping requirements of Conditions 7.7.7(b), 7.7.8(a), and 7.7.9(a) and (b).
- b. Compliance with the SO₂ requirements of Condition 7.7.3(h) shall be demonstrated by the operating requirements in Condition 7.7.5(b) and the monitoring requirements in Condition 7.7.8(b). SO₂ emissions are calculated using best engineering judgment.
- c. VOM, NO_x and CO emissions shall be calculated using the emission factor in AP-42 Section 13.5.

7.8 Unit: Sulfur Recovery Units (SRU)
Control: Offgas Treatment and Thermal Oxidizers

7.8.1 Description

The purpose of the Sulfur Recovery Units are to remove H₂S from fat amine in the amine regenerators and H₂S and NH₃ from sour water in the sour water stripper. The recovery units convert the H₂S into elemental sulfur using the Claus process and thermally convert the NH₃ into N₂. The SRUs consist of three (3) Claus trains, a sour water stripper, a sour water stripper feed tank, M-65^a, and three amine regenerators.

Gas exiting the SRU is still high in H₂S and SO₂, so it is sent to the Shell Claus Off-Gas Treatment Unit (SCOT). In the SCOT unit, SO₂ is converted into H₂S, the H₂S is concentrated using an absorber, and then sent back to the Sulfur Recovery Units.

The tail gas from the SCOT absorber is incinerated in two thermal oxidizers to convert traces of the remaining H₂S to SO₂.

Emissions result from incinerating SCOT unit tail gases, equipment leaks, waste gas streams, and vapor blowdown.

The amine regenerators are not listed as emissions units because the removing of the H₂S from the amine is a closed-vent process.

^a The applicable requirements for the sour water stripper feed tank, M-65, have been included in Section 7.2.

7.8.2 List of Emission Units and Pollution Control Equipment

| Permittee Emission Unit No. | Unit Number | Description | Emission Control Equipment |
|-----------------------------------|--|--|------------------------------------|
| 100 | Sulfur Recovery Unit No. 1 (SRU-1) | Production of Sulfur from Various Hydrogen Sulfide rich Refinery Streams | SCOT Unit, Thermal Oxidizers |
| 101 | Sulfur Recovery Unit No. 2 (SRU-2) | Production of Sulfur from Various Hydrogen Sulfide rich Refinery Streams | SCOT Unit, Thermal Oxidizers |

7.8.3 Applicability Provisions and Applicable Regulations

a. The "affected sulfur recovery units" for the purpose of these unit-specific conditions, are the sulfur recovery units and associated equipment described in Conditions 7.8.1 and 7.8.2.

- b. The affected sulfur recovery units are subject to the emission limits and requirements identified in Section 5 of this permit.
- c. Components associated with the affected sulfur recovery units are subject to the fugitive emission regulations as addressed by Section 7., which includes inspection, recordkeeping, reporting requirements, and compliance procedures for fugitive emissions.
- d. In accordance with the terms of the 1998 Consent Decree in Civil Action 98-652-GPM, the Permittee shall operate the affected sulfur recovery units as follows:
 - i. The affected sulfur recovery units shall comply with the requirements for Claus sulfur recovery plants in NSPS for Petroleum Refineries, 40 CFR 60 Subparts A and J. These requirements are as follows:
 - A. 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 [40 CFR 60.104(a)(2)(i)].
 - B. For a reduction control system not followed by incineration, 300 ppm by volume of reduced sulfur compounds and 10 ppm by volume of hydrogen sulfide (H₂S), each calculated as ppm SO₂ by volume (dry basis) at zero percent excess air [40 CFR 60.104(a)(2)(ii)].
 - ii. The Permittee shall operate the affected sulfur recovery units and associated air pollution control equipment in a manner consistent with good air pollution control practices for minimizing emissions set forth in 40 CFR 60.11(d).
 - iii. The SCOT Unit will be operated at all times that the affected sulfur recovery unit or any individual Claus trains is operating, except during maintenance turnaround periods of the SCOT Unit.
 - iv. Maintenance turnaround periods of the SCOT Unit will be limited to 21 days in duration, and no more than one maintenance turnaround will occur every three years.

- v. During each maintenance turnaround for the SCOT Unit:
 - A. Emissions from the affected sulfur recovery units are exempt from the limit set forth in Condition 7.8.3(d) (i) (A) (40 CFR 60.104(a) (2) (i)).
 - B. Refinery-wide emissions will be reduced to offset 50% or more of the potential increase in sulfur dioxide emissions from the affected sulfur recovery units during the turnaround period. The offsets will include the following:
 - 1. Eliminate refinery flasher pitch combustion in process heaters and boilers;
 - 2. Limit sulfur production to 330 long tons per day or less at the Claus sulfur recovery plant;
 - 3. Minimize sulfur dioxide emissions produced by flaring consistent with safe practices and procedures; and
 - 4. For turnarounds occurring after 1999, reduce sulfur dioxide emissions from the catalytic cracking units by 50% of the allowable rate pursuant to 35 Ill. Adm. Code 214.382(c) (3) (I).
 - 5. Equivalent offsets may be obtained from alternative sources at the source. USEPA and Illinois EPA must be notified of the source of such alternative offsets no later than 6 months before any maintenance turnaround.
- e. No person shall cause or allow the emission of more than 1,000 ppm of sulfur dioxide into the atmosphere from any affected sulfur recovery unit in the St. Louis (Illinois) major metropolitan area designed to remove sulfur compounds from the flue gases of petroleum and petrochemical processes, except during the SCOT turnaround discussed in Condition 7.8.3(d) (v) [35 IAC 214.382(b)].
- f. i. Each sulfur recovery unit is subject to 40 CFR 63 Subpart UUU, but with a future compliance date of April 11, 2005. The compliance standards are discussed in 40 CFR 63.1567,

which reference HAP emission limits in Table 29 of Subpart UUU and operating limits in Table 30.

ii. Startup, Shutdown and Malfunction (SSM) Plan

The Permittee is required to have a written Startup, Shutdown and Malfunction (SSM) Plan for equipment subject to the Petroleum Refinery rule as described in Condition 7.8.3(f)(i). The SSM plan is not required until the date that compliance is required, April 11, 2005 [40 CFR 63.6(e)(3)].

iii. Operation, Maintenance and Monitoring (OM & M) Plan

The Permittee is required to have a written operation, maintenance and monitoring plan for any control system and any continuous monitoring system employed for achieving and determining compliance with the NESHAP listed above.

This OM & M plan must be submitted to the Illinois EPA with the notification of compliance status for review and approval. The contents of the OM & M plan and dates for submittal are listed in 40 CFR 63.1574(f).

7.8.4 Non-Applicability of Regulations of Concern

- a. 35 IAC 214.301 shall not apply to an affected sulfur recovery unit designed to remove sulfur compounds from the flue gases of petroleum and petrochemical processes [35 IAC 214.382(a)].
- b. The provisions of 35 IAC 219.301 and 302, Use of Organic Material, shall not apply to fuel combustion emission sources [35 IAC 219.303].
- c. This permit is issued based on the affected sulfur recovery units not being subject to 35 IAC 219 Subpart TT, because the affected sulfur recovery units are subject to 35 IAC 219 Subpart R, pursuant to 35 IAC 219.980(a)(1).
- d. The affected sulfur recovery units are not subject to the NESHAP for Petroleum Refineries, 40 CFR 63 Subpart CC because they are not in organic hazardous air pollutant service as defined in Section 63.641 because the liquids or gases processed do not contain at least 5% of the organic HAPs listed in Table of Subpart CC.

- e. Neither of the sulfur recovery units is subject to 35 IAC 216.361 because they are not considered to be petroleum or petrochemical processes.

7.8.5 Operational and Production Limits and Work Practices

Beginning April 11, 2005, the Permittee shall comply with the operating limits in Table 30 of 40 CFR 63 Subpart UUU.

7.8.6 Emission Limitations

There are no specific emission limitations for this unit, however, there are source wide emission limitations in Condition 5.5 that include this unit.

7.8.7 Testing Requirements

- a. Upon request by the Illinois EPA and/or USEPA, pursuant to Section 39.5(7)(b) of the Act and 35 IAC 219.105, the Permittee shall conduct testing of the affected sulfur recovery units for purposes of demonstrating compliance to conditions of this permit according to USEPA approved methods of 40 CFR 60 Appendix A or other appropriate methods approved by the Illinois EPA or USEPA, at such reasonable times as may be specified by the Illinois EPA and/or USEPA. This test shall meet the following requirements:

- i. The test shall be conducted by an approved independent testing service.
- ii. The test shall be conducted during conditions which are representative of maximum emissions.

- b. The Permittee shall comply with the following testing requirements for the affected sulfur recovery units in accordance with 40 CFR 60 Subpart J:

- i. The owner or operator shall determine compliance with the SO₂ and the H₂S and reduced sulfur standards in Condition 7.8.3(d)(i) (40 CFR 60.104(a)(2)) as follows [40 CFR 60.106(f)]:

- A. USEPA Method 6 shall be used to determine the SO₂ concentration. The concentration in mg/dscm obtained by Method 6 or 6C is multiplied by 0.3754 to obtain the concentration in ppm. The sampling point in the duct shall be the centroid of the cross section if the cross-sectional area is less than 5.00 m² (53.8 ft²) or at a point no closer to the walls than 1.00 m

(39.4 in.) if the cross-sectional area is 5.00 m² or more and the centroid is more than 1 m from the wall. The sampling time and sample volume shall be at least 10 minutes and 0.010 dscm (0.35 dscf) for each sample. Eight samples of equal sampling times shall be taken at about 30-minute intervals. The arithmetic average of these eight samples shall constitute a run. For Method 6C, a run shall consist of the arithmetic average of four 1-hour samples. Method 4 shall be used to determine the moisture content of the gases. The sampling point for USEPA Method 4 shall be adjacent to the sampling point for Method 6 or 6C. The sampling time for each sample shall be equal to the time it takes for two Method 6 samples. The moisture content from this sample shall be used to correct the corresponding Method 6 samples for moisture. For documenting the oxidation efficiency of the control device for reduced sulfur compounds, USEPA Method 15 shall be used following the procedures of the paragraph below [40 CFR 60.106(f)(1)].

- B. USEPA Method 15 shall be used to determine the reduced sulfur and H₂S concentrations. Each run shall consist of 16 samples taken over a minimum of 3 hours. The sampling point shall be the same as that described for Method 6 in the paragraph above. To ensure minimum residence time for the sample inside the sample lines, the sampling rate shall be at least 3.0 lpm (0.10 cfm). The SO₂ equivalent for each run shall be calculated after being corrected for moisture and oxygen as the arithmetic average of the SO₂ equivalent for each sample during the run. USEPA Method 4 shall be used to determine the moisture content of the gases as in the paragraph above. The sampling time for each sample shall be equal to the time it takes for four Method 15 samples [40 CFR 60.106(f)(2)].
- C. The oxygen concentration used to correct the emission rate for excess air shall be obtained by the integrated sampling and analysis procedure of USEPA Method 3 or 3A. The samples shall be taken simultaneously with the SO₂, reduced

sulfur and H₂S, or moisture samples. The SO₂, reduced sulfur, and H₂S samples shall be corrected to zero percent excess air using the following equation [40 CFR 60.106(f) (3)]

$$C_{adj} = C_{meas} [20.9_c / (20.9 - \%O_2)]$$

Where:

C_{adj} = pollutant concentration adjusted to zero percent oxygen, ppm or g/dscm.

C_{meas} = pollutant concentration measured on a dry basis, ppm or g/dscm

20.9_c = 20.9 percent oxygen-0.0 percent oxygen (defined oxygen correction basis), percent

20.9 = oxygen concentration in air, percent

%O₂ = oxygen concentration measured on a dry basis, percent

- c. The Permittee shall comply with any performance test requirements of the NESHAP, 40 CFR 63 Subpart UUU, 63.1571. This subpart includes dates by which testing must be completed.

7.8.8 Monitoring Requirements

The Permittee shall install, calibrate, maintain and operate a continuous monitoring system for the affected sulfur recovery units that meets the following requirements in accordance with 40 CFR 60.105(a) (5) though (a) (7):

- a. Pursuant to 40 CFR 60.105(a) (5), for Claus sulfur recovery plants with oxidation control systems or reduction control systems followed by incineration subject to Condition 7.8.3(d) (i) (A) (40 CFR 60.104(a) (2) (i)), an instrument for continuously monitoring and recording the concentration (dry basis, zero percent excess air) of SO₂ emissions into the atmosphere. The monitor shall include an oxygen monitor for correcting the data for excess air.
 - i. The span values for this monitor are 500 ppm SO₂ and 10 percent O₂ [40 CFR 60.105(a) (5) (i)].

- ii. The performance evaluations for this SO₂ monitor under 40 CFR 60.13(c) shall use Performance Specification 2. Methods 6 and 3 shall be used for conducting the relative accuracy evaluations [40 CFR 60.105(a)(5)(ii)].
- b. Pursuant to 40 CFR 60.105(a)(6), for Claus sulfur recovery plants with reduction control systems not followed by incineration subject to Condition 7.8.3(d)(i)(B) (40 CFR 60.104(a)(2)(ii)), an instrument for continuously monitoring and recording the concentration of reduced sulfur and O₂ emissions into the atmosphere. The reduced sulfur emissions shall be calculated as SO₂ (dry basis, zero percent excess air).
 - i. The span values for this monitor are 450 ppm reduced sulfur and 10 percent O₂ [40 CFR 60.105(a)(6)(i)].
 - ii. The performance evaluations for this reduced sulfur (and O₂) monitor under 40 CFR 60.13(c) shall use Performance Specification 5, except the calibration drift specification is 2.5 percent of the span value rather than 5 percent. Methods 15 or 15A and Method 3 shall be used for conducting the relative accuracy evaluations. If Method 3 yields O₂ concentrations below 0.25 percent during the performance specification test, the O₂ concentration may be assumed to be zero and the reduced sulfur CEMS need not include an O₂ monitor [40 CFR 60.105(a)(6)(ii)].
- c. Pursuant to 40 CFR 60.105(a)(7), in place of the reduced sulfur monitor under the paragraph above, an instrument using an air or O₂ dilution and oxidation system to convert the reduced sulfur to SO₂ for continuously monitoring and recording the concentration (dry basis, zero percent excess air) of the resultant SO₂. The monitor shall include an oxygen monitor for correcting the data for excess oxygen.
 - i. The span values for this monitor are 375 ppm SO₂ and 10 percent O₂ [40 CFR 60.105(a)(7)(i)].
 - ii. For reporting purposes, the SO₂ exceedance level for this monitor is 250 ppm (dry basis, zero percent excess air) [40 CFR 60.105(a)(7)(ii)].

- iii. The performance evaluations for this SO₂ (and O₂) monitor under 40 CFR 60.13(c) shall use Performance Specification 5. Methods 15 or 15A and Method 3 shall be used for conducting the relative accuracy evaluations [40 CFR 60.105(a)(7)(iii)].
- d. The Permittee shall comply with the monitoring requirements of the NESHAP, 40 CFR 63 Subpart UUU, 63.1572. These requirements may include dates by which testing must be done as part of a compliance demonstration. The test methods may be the same or similar to the NSPS requirements specified in Condition 7.8.5(a), (b) or (c) above.

7.8.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected sulfur recovery units to demonstrate compliance with Conditions 5.5.1, 7.8.3, and 7.8.5, pursuant to Section 39.5(7)(b) of the Act:

- a. The Permittee shall maintain records of all data generated by the monitoring requirements in Condition 7.8.8 to demonstrate compliance with Conditions 7.8.3(d) and (e).
- b. The Permittee shall maintain the following records to determine emissions of SO₂ from the affected sulfur recovery units:
 - i. SCOT absorber overhead flow (mmscf/hr).
 - ii. Thermal oxidizer air and natural gas flows (mmscf/hr).
 - iii. SO₂ emissions in ppm as determined by the monitoring equipment required by Condition 7.8.8.
 - iv. Emissions of SO₂ (lbs/hr).
- c. The Permittee shall maintain records of the following items for each exceedance of the limits in Conditions 7.8.3, 7.8.5, or 7.8.6, which shall include:
 - i. Identification of the limit that may have been exceeded.
 - ii. Duration of the possible exceedance.
 - iii. An estimate of the amount of emissions in excess of the applicable standard.

- iv. A description of the cause of the possible exceedance.
 - v. When compliance was reestablished.
- d. The Permittee shall maintain records of the most recent tests required in Condition 7.8.7, which include the following pursuant to Section 39.5(7) (e) of the Act:
- i. The date, place and time of sampling or measurements.
 - ii. The date(s) analyses were performed.
 - iii. The company or entity that performed the analyses.
 - iv. The analytical techniques or methods used.
 - v. The results of such analyses.
 - vi. The operating conditions as existing at the time of sampling or measurement.
- e. The Permittee shall comply with the recordkeeping requirements of the NESHAP, 40 CFR 63 Subpart UUU, 63.1576 beginning April 11, 2005 or any records prior to that date as part of performance testing or other aspects of a compliance demonstration.

7.8.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section of deviations of the affected sulfur recovery units with the permit requirements as follows, pursuant to Section 39.5(7) (f) (ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

- a. Pursuant to 40 CFR 60.105(e), for the purpose of reports under 40 CFR 60.7(c), periods of excess emissions from the affected sulfur recovery units that shall be determined and reported are defined as follows:

NOTE: All averages, except for opacity, shall be determined as the arithmetic average of the applicable 1-hour averages, e.g., the rolling 3-hour average shall be determined as the arithmetic average of three contiguous 1-hour averages.

- i. All 12-hour periods during which the average concentration of SO₂ as measured by the SO₂

continuous monitoring system under Condition 7.8.8(a) (40 CFR 60.105(a) (5)) exceeds 250 ppm (dry basis, zero percent excess air) [40 CFR 60.105(e) (4) (i)]; or

- ii. All 12-hour periods during which the average concentration of reduced sulfur (as SO₂) as measured by the reduced sulfur continuous monitoring system under 40 CFR 60.105(a) (6) exceeds 300 ppm [40 CFR 60.105(e) (4) (ii)]; or
 - iii. All 12-hour periods during which the average concentration of SO₂ as measured by the SO₂ continuous monitoring system under 40 CFR 60.105(a) (7) exceeds 250 ppm (dry basis, zero percent excess air) [40 CFR 60.105(e) (4) (iii)].
- b. In accordance with the terms of the 1998 Consent Decree in Civil Action 98-652-GPM, the Permittee shall fulfill the following reporting requirements for affected sulfur recovery units:
- i. At least 30 days prior, the Permittee shall notify the USEPA and the Illinois EPA of the intention to conduct a maintenance turnaround of the affected sulfur recovery unit. This notification shall include the approximate date it will commence and a general explanation of the source of emissions offsets.
 - ii. The Permittee shall submit to the USEPA and Illinois EPA the start and end dates of each maintenance turnaround and the emission reductions (both actual and potential) provided as offsets, within 30 days of the conclusion of each maintenance turnaround.
- c. Within 30 days of exceedance of the limits in Conditions 7.8.3, 7.8.5, or 7.8.6, the notification shall include:
- i. Identification of the limit that may have been exceeded.
 - ii. Duration of the possible exceedance.
 - iii. An estimate of the amount of emissions in excess of the applicable standard.
 - iv. A description of the cause of the possible exceedance.

- v. When compliance was reestablished.
- d. The Permittee shall submit the following information along with its annual emission report:
 - i. A summary of exceedances of the limits in Conditions 7.8.3 or 7.8.5, if any, which required notification to the Compliance Section in accordance with Condition 7.8.10(a).
- e. The Permittee shall fulfill the following reporting requirements for each test performed pursuant to Condition 7.8.7(a):
 - i. At least 30 days prior to the expected 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:
 - A. The expected date and time of the test.
 - B. The person(s) who will be performing the sampling and analysis and their experience with similar tests.
 - C. 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 will be determined.
 - D. The specific determinations of emissions and operation which are intended to be made, including sampling and monitoring locations.
 - E. The specific sampling, analytical, and quality control procedures which will be used, with an identification of the standard methods upon which they are based.
 - F. Any minor changes in standard methodology proposed to accommodate the specific circumstances of testing, with justification.
 - G. Any proposed use of an alternative test method, with detailed justification.
 - ii. Notification of the actual date and time of the testing shall be submitted to the Illinois

EPA at least 5 working days prior to the actual date of the test, so the Illinois EPA can arrange to have an observer present.

- iii. The results of the test shall be submitted to the Illinois EPA within 90 days after the testing is complete. These results shall be included in a final report, which shall include the following:
 - A. A summary of results.
 - B. A description of the test methods used, including a description of sampling points, sampling train, analysis equipment, and test schedule.
 - C. A detailed description of test conditions, including:
 - 1. Process information including the mode(s) of operation.
 - 2. A discussion of any preparatory actions taken, i.e., inspections, maintenance, and repair.
 - D. Data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration.
 - E. An explanation of any discrepancies among individual tests or anomalous data.
 - F. The results of all quality control evaluations, including a copy of all quality control data.
- f. The Permittee shall comply with the notification and reporting requirements of the NESHAP, 40 CFR 63 Subpart UUU, 63.1574 and 63.1575. Some of the notifications may have to be done prior to the actual compliance date for the emission and operating standards, April 11, 2005.

7.8.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to an affected sulfur recovery unit without prior notification to the Illinois EPA or revision of this permit. This condition does not affect the Permittee's obligation to properly obtain a construction permit in a timely manner for any activity

constituting construction or modification of the source, as defined in 35 IAC 201.102:

None

7.8.12 Compliance Procedures

- a. Compliance with the NSPS SO₂ and reduced sulfur requirements in Condition 7.8.3(d) is demonstrated by the testing requirements in Condition 7.8.7(b) and the monitoring requirements in Condition 7.8.8(a).
- b. Compliance with the SO₂ requirement in Condition 7.8.3(e) is assured as long as the affected sulfur recovery units meet NSPS SO₂ requirements in Condition 7.8.3(d).
- c. Emissions shall be determined based on the recordkeeping requirements in Condition 7.8.9 and the emission factors and formulas listed below. Note: Any emission test data from a representative emission source or more recent emission factor may be used:

Emissions of SO₂ from the affected sulfur recovery units shall be determined by the following equation:

$$E_{so_2} = \frac{(F_{scot} + F_{to}) \times C_{so_2} \times 64 \text{ lb SO}_2 / \text{lb mol}}{379 \text{ ft}^3 / \text{lb mol}}$$

Where:

E_{so_2} = Emissions of SO₂ (lbs/hr)

F_{scot} = SCOT absorber overhead flow (mmscf/hr)

F_{to} = Thermal oxidizer air and natural gas flow (mmscf/hr)

C_{so_2} = Emissions of SO₂ in ppm

- d. Compliance with the NESHAP, which becomes effective April 11, 2005 is assured by complying with the NSPS SO₂ requirement above.

7.9 Unit Logistics (Loading and Shipping)
Control: Absorber and Flare

7.9.1 Description

The part of the operation that ships various products is called logistics. This includes truck loading, tank car loading and marine barge loading.

There are a large number of tanks that are part of logistics but storage tanks are covered in Section 7.2 and in list form in Attachment 1.

7.9.2 List of Emission Units and Air Pollution Control Equipment

| Permit Emission Unit Number | Permittee Unit Number | Description and Permittee Equipment Number | Emission Control Equipment |
|-----------------------------|-----------------------|--|----------------------------------|
| 102a | LDG-TT-NEWRACK | Light Oil Truck Rack, Gasoline Mode | Vapor Recovery System (Absorber) |
| 102b | LDG-TT-NEWRACK | Light Oil Truck Rack, Petroleum Products Other Than Gasoline | None |
| 103 | LDG-TC-OLD-RACK | Light Oil Tank Car Rack | None |
| 104a | LDG-TT-ASPHALT | Asphalt Truck Rack | None |
| 104b | LDG-TC-ASPHALT | Asphalt Tank Car Rack | None |
| 105a | LDG-Barge-01 and 02 | Barge Loading, Gasoline Mode | None |
| 105b | LDG-Barge- 01 and 02 | Barge Loading (Non-Gasoline and Non-Benzene) | None |
| 106 | LDG-Barge-03 | Barge Loading (Benzene) | Flare |
| 107 | APU | Asphalt Processing Unit | None |
| 108 | LDG-TC-PROP/BUT | East Tank Car Rack | North Property Ground Flare |
| 109 | LDG-TT-PROP/BUT | East Truck Rack | North Property Ground Flare |

7.9.3 Applicability Provisions and Applicable Regulations

- a. An "affected logistic operation" for the purpose of these unit-specific conditions, is an operation for shipping of product and consisting of a number of individual systems as listed in Condition 7.9.2.
- b. Each affected logistic operation is subject to the emission limits identified in Section 5 and the LDAR requirements in Section 7.10.

- c. The light oil truck rack in gasoline mode is listed as an emission unit but it has not been used to ship gasoline since 1994 and is not equipped to meet the requirements of 40 CFR 63 Subpart CC, which incorporates the standard from 40 CFR 63 Subpart R, specifically Section 63.422(b) [10 mg/l] without a new control device. If the Permittee chooses to install a control device that meets this standard, the various requirements of the rule will be addressed at that time. This MACT limit will also meet the 35 IAC limit in 219.582(a)(1).
- d. The light oil and asphalt tank care loading operation and light oil truck loading operation are subject to 35 IAC 219.122(a) which states that no person shall cause or allow the discharge of more than 8 lb/hr of organic material into the atmosphere during the loading of any organic material from the aggregate loading pipes of any loading area having throughput greater than 40,000 gal/day into any railroad tank car, tank truck or trailer unless such loading area is equipped with submerged loading pipes. Exception: If no odor nuisance exists this limitation shall only apply to the loading of VOL with a vapor pressure of 2.5 psia or greater at 70°F.
- e. Emission Unit 106, the only barge loading spot where benzene may be loaded, is subject to 40 CFR 61 Subpart A and BB (Benzene Transfer Operations). The rule containing the standard (Section 61.302) requires that a vapor collection system collect all benzene vapors through a control device that reduces benzene emissions by 98%. A flare that meets the requirements of 40 CFR 60.18(b) through (f) is acceptable.

7.9.4 Non-Applicability of Regulations of Concern

- a. The gasoline barge terminal is not subject to the MACT standard in the NESHAP for Marine Tank Vessel Loading Operations [40 CFR 63.562(b)] because the substantive parts of the standard do not apply to existing sources with annual HAP emissions of less than 10 tons of an individual HAP and 25 tons of total HAPs, i.e., Group 2 sources. [40 CFR 63.560(a)] The barge terminal is not subject to the RACT standards in Subpart Y [40 CFR 62.562(c) and (d)] because the standard does not apply to sources with an annual throughput of less than 10 million barrels of gasoline and 200 million barrels of crude oil. [40 CFR 63.560(b)(1)] Source is defined as the marine terminal only. The Permittee does have the

option to install control equipment that meets the MACT requirement and delete this throughput limit.

- b. For the marine terminal loading gasoline, the control requirements of 35 IAC 219.762(b) and (c) do not apply from September 16 of one year through April 30 of the following year.
- c. A submerged loading pipe is not required for loading into pressurized vessels, because the units do not vent to the atmosphere except when the piping is disconnected.

7.9.5 Control Requirements, or Operational and Production Limits and Work Practices

- a. The barge loading operation shall be operated to maintain its current status as a Group 2 marine vessel terminal pursuant to the definition in 40 CFR 63.641, that is, maintain HAP emissions from barge loading to less than 10 tons of an individual HAP and 25 tons of combined HAPs per year. The barge loading operation shall also be operated with an annual throughput of less than 10 million barrels of gasoline and 200 million barrels of crude oil.
- b. The loading of gasoline and crude oil into marine vessels during the regulatory control period of May 1 to September 15 of each year shall not exceed 46,900 barrels/day.
- c. The control equipment listed in Condition 7.9.2 shall be operated to meet the required emission reduction requirements specified in Condition 7.9.3(d) and (e).
- d. Operation of the benzene barge loading.
 - i. Each marine vessel shall be loaded with the benzene product tank below atmosphere pressure (i.e., at negative pressure), or
 - ii. The marine vessel shall be vapor tight pursuant to the requirements described in [40 CFR 61.302(e) (1), (2), and (3)].
 - iii. Any other applicable requirements of 40 CFR 61.302(f) through (1).

7.9.6 Emission Limitations

There are no specific emission limitations for this unit, however, there are source wide emission limitations in Condition 5.5 that include this unit.

7.9.7 Testing Requirements

- a. The flare controlling the benzene barge loading operation is subject to the same test requirements as the flares listed in Section 7.7. This flare shall comply with the same testing requirements as in Condition 7.7.7.
- b. All barges that load benzene shall be tested for vapor tightness using EPA Method 21 as described in 40 CFR 60, Appendix A or otherwise comply with the provisions of 40 CFR 61.302(e).

7.9.8 Monitoring Requirements

- a. For the benzene barge loading operation flare, the Permittee shall install, calibrate, maintain, and operate according to manufacturer's specifications a heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light to indicate the presence of a flame during the entire loading cycle. [40 CFR 61.303(b)]
- b. For the benzene barge loading operation, the Permittee shall install, calibrate, maintain, and operate a recording pressure measurement device (magnehelic gauge or equivalent device) and an audible and visible alarm system that is activated when the pressure vacuum specified in Section 61.302(e)(1) [Condition 7.9.5(d)] is not attained. The owner or operator shall place the alarm system so that it can be seen and heard when cargo transfer is controlled and on the open deck. [40 CFR 61.303(f)]
- c. For the benzene barge loading operation, owners or operators using a vent system that contains valves that could divert a vent stream from a control device used to comply with the provisions of this subpart shall do one or a combination of the following:
 - i. Install a flow indicator immediately downstream of each valve that if opened would allow a vent stream to bypass the control device and be emitted, either directly or indirectly, to the atmosphere. The flow indicator shall be capable of recording flow at least once every 15 minutes.
 - ii. Monitor the valves once a month, checking the position of the valves and the condition of the car seal, and identify all times when the car seals have been broken and the valve position has been changed (i.e., from opened to closed for valves in the vent piping to the control device and from closed to open for valves that allow the streams to be vented

directly or indirectly to the atmosphere).
[40 CFR 61.303(g)]

- d. The flare controlling units 108 and 109 is included in Section 7.7 of this permit and thus subject to the monitoring requirements of Condition 7.7.8.

7.9.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for each affected logistic operation to demonstrate compliance with Conditions 5.5.1, 7.9.3, 7.9.5, 7.9.7, and 7.9.8, pursuant to Section 39.5(7)(b) of the Act:

- a. Records required by the NESHAP, 40 CFR 61.304(e) [flare information] and 61.305(g) and (h) [vapor tightness determinations].
- b. Records that verify that the gasoline barge terminal continues to comply from exemption from the MACT standard. [See Condition 7.9.4(a) and 7.9.5(a)]
- c. Amount of gasoline and crude oil loaded into marine vessels during the regulatory control period from May 1 to September 15 of each year in order to verify compliance with Condition 7.9.5(b).
- d. Throughput of each loading operation.
- e. VOM emissions (lb/mo).

7.9.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of an affected logistic operation with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

- a. Quarterly reports required by 40 CFR 61.304(f).
- b. Within 30 days if the gasoline barge terminal becomes a Group 1 marine terminal.

7.9.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.9.12 Compliance Procedures

- a. VOM emissions shall be calculated using AP-42 emission factors for marine loading, truck loading, and railcar loading.
- b. Emissions (lb/mo) = $\frac{\text{Emission Factor (lb/gal)} \times \text{Throughput or Amount Loaded (gal/mo)}}{1}$
- c. For loading operations which have control equipment expressed as a percentage control efficiency, emissions calculations may be adjusted based on the emission test results for VOM reduced by the control device. An efficiency of 98% for the flares may be used.

7.10 Unit: Fugitive Emissions
Control: LDAR Program

7.10.1 Description

The Permittee operates petroleum refining process units that include components that are considered equipment in organic HAP service. LDAR is short for leak detection and repair.

7.10.2 List of Emission Units and Pollution Control Equipment

The Permittee has prepared two tables listing the equipment in organic HAP service by unit and by component type.

These two tables are in Attachment 2. Table 1 is a list of the Permittee's emission unit numbers with columns indicating applicability of the various rules listed in Condition 7.10.3(a) through (c). Table 2 lists the leak standard for various pieces of equipment (pumps, valves, compressors, etc.) and frequency of monitor, with a final column listing the most stringent standard. The most stringent may be a hybrid of two programs, for instance one requiring more frequent monitoring and another having a definition of a leaking component at a lower level. Except as noted in Table 2 of Attachment 2, Permittee shall comply with the most stringent requirements identified for each unit as identified in Attachment 2.

7.10.3 Applicability Provisions and Applicable Regulations

- a. An "affected petroleum refining process unit," for the purposes of these unit specific conditions is a petroleum refining process unit as identified in 40 CFR 63.640(a) located at a source that has the potential to emit 10 tons/year or more of any HAP or 25 tons/year or more of any combination of HAPs. Except as provided in the Refinery NESHAP, each unit in organic HAP service is subject to the equipment leak requirements of 40 CFR 63 Subpart CC. The specific requirement with this subpart (Section 63.648(a)) references the provisions of 40 CFR 60 Subpart VV.)
- b. Each affected petroleum refining process unit is also subject to 35 IAC 219.445-452 (Subpart R), except as noted in Table 1 of Attachment 2.
- c. Table 1 in Attachment 2 identifies equipment that is subject to the equipment leak requirements of the HON rule, 40 CFR 63 Subpart H (Section 63.160-182). These requirements are more stringent than the previously cited 40 CFR 60 Subpart VV and 35 IAC

219.445-452, and therefore compliance with 40 CFR 63 Subpart H shall be deemed compliance with 40 CFR 60 Subpart VV and 35 IAC 219.445-452.

7.10.4 Non-Applicability of Regulations of Concern

Pursuant to 40 CFR 63.640(p), equipment leaks that are also subject to the provisions of 40 CFR Parts 60 and 61 are required only to comply with the provisions of 40 CFR 63 Subpart CC.

7.10.5 Control Requirements

a. Compressors

- i. Each compressor, except compressors meeting the criteria specified in 40 CFR 60.482-3(h) or (i) and except as provided in 40 CFR 60.482-1(c), shall be equipped with a seal system that includes a barrier fluid system and that prevents leakage of VOC to the atmosphere [40 CFR 60.482-3(a)]. This requirement does not apply if the seals are equipped with a closed vent system which vents to a control device that meets the requirements of 40 CFR 60.482-10. [40 CFR 60.482-3(h)] These requirements also do not apply if the compressor is designed to operate with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background and tested annually as provided for in 40 CFR 60.482-3(i).
- ii. The seal system shall be [40 CFR 60.482-3(b)]:
 - A. Operated with barrier fluid at a pressure that is greater than the compressor stuffing box pressure; or
 - B. Equipped with a barrier fluid system that is connected by a closed vent system to a control device that complies with 40 CFR 60.482-10 (Condition 7.10.5(c)); or
 - C. Equipped with a system that purges the barrier fluid into a process stream with zero VOC emissions to the atmosphere.
- iii. The barrier fluid system shall be [40 CFR 60.482-3(c), (d), and (e)]:
 - A. In heavy liquid service or shall not be in VOC service; and

- B. Equipped with a sensor that will detect failure of the seal system, barrier fluid system, or both so as to allow detection of a leak. This sensor shall be checked daily or be equipped with an audible alarm. [40 CFR 60.482-3(g)]
- C. When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after the leak is detected, with the first attempt at repair being made no later than 5 days after detection, except as provided in Condition 7.10.8(f).

b. Sampling Connection Systems

Except for in-situ sampling systems and sampling systems without purges, each sampling connection system in greater than 5% organic HAP service shall be equipped with a closed-purge, closed-loop, or closed-vent system that meets one of the following requirements [40 CFR 60.482-5]:

- i. Returns the purged process fluid directly to the process line;
- ii. Collects and recycles the purged process fluid to the process line; or
- iii. Designed and operated to capture and transport all the purged process fluid to a control device that complies with the requirements of 40 CFR 60.482-10 (Condition 7.10.5(c)).

c. Closed Vent Systems and Control Devices

Pursuant to 40 CFR 60.482-10(d) and (m) flares used to comply with the requirements of 40 CFR 60 Subpart VV shall comply with the requirements of 40 CFR 60.18 and shall be operated at all times when emissions may be vented to it unless there is a recovery device prior to the flare.

- d. The above listed control requirements of Conditions 7.10.5(a) through (c) are for equipment subject to 40 CFR 63 Subpart CC (60 Subpart VV) as identified in Attachment 2. For equipment subject to 40 CFR 63 Subpart H, see that rule. The requirements are similar but may vary.

7.10.6 Emission Limitations

Specific emission limitations that include emissions from fugitive components associated with an emission unit are included in the unit specific sections of the permit.

7.10.7 Operating Requirements

a. Pressure Relief Devices in Gas/Vapor Service

- i. Except during pressure releases, each pressure relief device in gas/vapor service, except for pressure relief devices meeting the criteria specified in 40 CFR 60.482-4(c), shall be operated with no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background. [40 CFR 60.482-4(a)]
- ii. After each pressure release, each pressure relief device subject to (i) shall be returned to a condition of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as soon as practicable, but no later than 5 calendar days after the pressure release, except as allowed by Condition 7.10.8(f). [40 CFR 60.482-4(b)]

b. Open-ended Valves or Lines

- i. Except as provided for in 40 CFR 60.482-1(c), each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve that shall seal the open end at all times except during operations requiring process fluid flow through the open-ended valve or line [40 CFR 60.482-6(a)];
- ii. Each open-ended valve or line equipped with a second valve shall be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed [40 CFR 60.482-6(b)]; and
- iii. When a double block-and-bleed system is being used, the bleed valve or line may remain open during operations that required venting the line between the block valves but shall comply with (i) at all other times [40 CFR 60.482-6(c)].

- c. Operating requirements of Conditions 7.10.7(a) and (b) are for equipment subject to 40 CFR 63 Subpart CC (60 Subpart VV). For equipment subject to 40 CFR 63 Subpart H, see that rule. The requirements are similar but may vary.

7.10.8 Inspection and Monitoring Requirements

a. Pumps in Light Liquid Service

- i. Except pumps meeting the criteria specified in 40 CFR 60.482-2(d), (e), or (f) and as provided for in 40 CFR 64.482-1(c), each pump in light liquid service shall be monitored monthly to detect leaks (an instrument reading of 10,000 ppm or greater) by the methods specified in 40 CFR 60.485(b), Method 21. [40 CFR 60.482-2(a)(1)]
- ii. Each pump in light liquid service shall be visually inspected each calendar week for indication of liquid dripping from the pump seal. [40 CFR 60.482-2(a)(2)]
- iii. When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after the leak is detected, with the first attempt at repair being made no later than 5 days after detection, except as provided in Condition 7.10.8(f). [40 CFR 60.482-2(c)]

b. Pressure Relief Devices in Gas/Vapor Service

Pressure relief devices subject to the requirements of Condition 7.10.7(a) shall be monitored to confirm the conditions of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, by the methods specified in 40 CFR 60.485(c), Method 21, no later than 5 calendar days after a pressure release. [40 CFR 60.482-4(b)(2)]

c. Valves in Gas/Vapor Service and in Light Liquid Service Skip Period Leak Detection and Repair

Based on actual leak rates, the Permittee may select either of the following alternative monitoring frequencies.

- i. Review of prior monitoring data for valves and pumps show the equivalent of five consecutive quarterly leak detection periods with less than 2% of the valves leaking. Therefore, the Illinois EPA has determined that the Permittee qualifies for less frequent monitoring of valves and pumps as allowed by 40 CFR 63.648(b). The Permittee shall monitor for leaks at valves as follows:

Each valve, except valves meeting the criteria specified in 40 CFR 60.482-7(f), (g), or (h) shall be monitored annually (skip three quarterly leak detection periods) to detect leaks (an instrument reading of 10,000 ppm or greater) by the methods specified in 40 CFR 60.485(b) (Method 21).

- ii. In the event that the percent valves leaking during any annual leak monitoring period is greater than 2.0%, the Permittee shall fulfill the following leak monitoring and repair requirements in lieu of Condition 7.10.8(c) (i) [40 CFR 60.483-2(a) (4)]:
 - A. Each valve, except valves meeting the criteria specified in 40 CFR 60.482-7(f), (g), or (h) shall be monitored monthly to detect leaks (an instrument reading of 10,000 ppm or greater) by the methods specified in 40 CFR 60.485(b) (Method 21) [40 CFR 60.482-7(a)];
 - B. Monitoring for any valve for which a leak is not detected for 2 successive months may be reduced to monitoring in only the first month of every quarter, beginning with the next quarter. If a leak in that valve is subsequently detected, the valve shall be monitored monthly until a leak is not detected for two consecutive months [40 CFR 60.482-7(c)];
 - C. After two consecutive quarterly leak detection periods with the percent of valves leaking equal to or less than 2.0, the Permittee may begin to skip one of the quarterly leak detection periods for valves in gas/vapor and light liquid service [40 CFR 60.483-2(a) (2)];
 - D. After five consecutive quarterly leak detection periods with the percent valves leaking equal to or less than 2.0%, the Permittee may begin to skip 3 of the quarterly leak detection periods for the valves in gas/vapor and light liquid service (Condition 7.10.8(c) (i)) [40 CFR 60.483-2(a) (3)];
 - E. When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after the leak is detected, with the first attempt at repair being made no later than 5 days

after detection, except as provided in Condition 7.10.8(f).

- d. Pumps and Valves in Heavy Liquid Service, Pressure Relief Devices in Light Liquid Service or Heavy Liquid Service, and Flanges and Other Connectors
 - i. Pumps and valves in heavy liquid service, pressure relief devices in light liquid service, and flanges and other connectors shall be monitored within five days by the methods specified in 40 CFR 60.485(b) (Method 21) if evidence of a potential leak (an instrument reading of 10,000 ppm or greater) is found by visual, audible, olfactory, or any other detection method [40 CFR 60.482-8(a)]; and
 - ii. When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after the leak is detected, with the first attempt at repair being made no later than 5 days after detection, except as provided in Condition 7.10.8(f).
- e. Closed Vent Systems and Control Devices
 - i. The Permittee shall monitor the flare(s) used to comply with 40 CFR 60 Subpart VV to ensure that they are operated and maintained in conformance with their designs [40 CFR 60.482-10(e)];
 - ii. Each closed vent system, except closed vent systems meeting the criteria specified in 40 CFR 60.482-10(i), (j), or (k), that is constructed of hard-piping shall be visually inspected annually for visible, audible, or olfactory indications of leaks [40 CFR 60.482-10(f)];
 - iii. When a leak (an instrument reading greater than 500 ppm by volume above background or by visual inspection) is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after the leak is detected, with the first attempt at repair being made no later than 5 days after detection, except as provided in Condition 7.10.8(f).

f. Delay of Repairs

- i. Delay of repair of equipment for which leaks have been detected will be allowed for the following [40 CFR 60.482-9(a) and (b)]:
 - A. If the repair is technically infeasible without a process unit shutdown. Repair of this equipment shall occur before the end of the next process unit shutdown; or
 - B. For equipment which is isolated from the process and which does not remain in VOC service.
- ii. Delay of repair for valves will be allowed if [40 CFR 60.482-9(c) and (e)]:
 - A. The Permittee demonstrates that emissions of purged material resulting from immediate repair are greater than the fugitive emissions likely to result from delay of repair;
 - B. When repair procedures are effected, the purged material is collected and destroyed or recovered in a control device complying with 40 CFR 60.482-10 (Condition 7.10.5(c));
 - C. Delay of a repair beyond a unit shutdown will be allowed for a valve, if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the next process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than 6 months after the first process unit shutdown. [40 CFR 60.482-9(e)]
- iii. Delay of repair for pumps will be allowed if [40 CFR 60.482-9(d)]:
 - A. Repair requires the use of a dual mechanical seal system that includes a barrier fluid; and
 - B. Repair is completed as soon as practicable, but not later than 6 months after the leak is detected.

- g. The inspection and monitoring requirements of Conditions 7.7.8(a) through (f) are for equipment subject to 40 CFR 63 Subpart CC (60 Subpart VV). For equipment subject to 40 CFR 63 Subpart H, see that rule. The requirements are similar but may vary.

7.10.9 Recordkeeping Requirements

- a. For each leak detected from pumps, compressors, or valves, the Permittee shall [40 CFR 60.486(b)]:
 - i. Attach a weatherproof and readily visible identification to the leaking equipment, marked with an equipment identification number;
 - ii. The identification on a valve may be removed after the valve has been monitored for two successive months as specified in Condition 7.10.8(c) (ii) (B) and no leak has been detected during those two months;
 - iii. The identification on equipment other than a valve, may be removed after the leak has been repaired.
- b. For each leak detected from pumps, compressors, or valves, the Permittee shall record the following information in a log that is kept in a readily accessible location [40 CFR 60.486(c)]:
 - i. The instrument and operator identification numbers and the equipment identification numbers;
 - ii. The date the leak was detected and the dates of each attempt to repair the leak;
 - iii. Repair methods applied in each attempt to repair the leak;
 - iv. "Above 10,000" if the maximum instrument reading measured by the methods specified in 40 CFR 60.485(a) (Method 21) after each repair attempt is equal to or greater than 10,000 ppm;
 - v. "Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak;
 - vi. The signature of the owner or operator (or designate) whose decision it was that repair

- could not be affected without a process shutdown;
- vii. The expected date of successful repair of the leak if a leak is not repaired within 15 days;
 - viii. Dates of process unit shutdown that occur while the equipment is unrepaired; and
 - ix. The date of successful repair of the leak.
- c. For each closed vent system and control device used to comply with the requirements of 40 CFR 60 Subpart VV, the Permittee shall maintain the following information in a readily accessible location [40 CFR 60.486(d)]:
- i. Detailed schematics, design specifications, and piping and instrumentation diagrams;
 - ii. The dates and descriptions of any changes in the design specifications;
 - iii. A description of the parameter or parameters monitored, as required by Condition 7.10.8(e)(i), to ensure that control devices are operated and maintained in conformance with their design and an explanation of why that parameter (or parameters) was selected for monitoring;
 - iv. Periods when the closed vent system and control device required to comply with 40 CFR 60 Subpart VV are not operated as designed, including periods when a flare pilot light does not have a flame; and
 - v. Dates of startups and shutdowns of closed vent systems and control devices used to comply with the requirements of 40 CFR 60 Subpart VV.
- d. The Permittee shall maintain the following information regarding all equipment subject to the requirements of 40 CFR 60 Subpart VV. This information shall be recorded in a log and kept in a readily accessible location [40 CFR 60.486(e)]:
- i. A list of identification numbers for equipment subject 40 CFR 60 Subpart VV;
 - ii. A list of identification numbers for equipment that are designated for no detectable emissions under the provisions of 40 CFR

- 60.482-2(e), 482-3(i), and 482-7(f), signed by the owner or operator;
- iii. A list of equipment identification numbers for pressure relief devices required to comply with 40 CFR 60.482-4 (Condition 7.10.7(a));
 - iv. The dates of each compliance test as required by 40 CFR 60.482-2(e), 482-3(i), 482-4, and 482-7(f), including the background level measured during each compliance test, and the maximum instrument reading measured during each compliance test; and
 - v. A list of identification numbers for equipment in vacuum service.
- e. The Permittee shall maintain a log at a readily accessible location that includes the following information pertaining to all valves subject to the requirements of 40 CFR 60.482-7(g) and (h) [40 CFR 60.486(f)]:
- i. A list of identification numbers for valves that are designated as unsafe-to-monitor, an explanation for each valve stating why the valve is unsafe-to-monitor, and the plan for monitoring each valve; and
 - ii. A list of identification numbers for valves that are designated as difficult-to-monitor, an explanation for each valve stating why the valve is difficult-to-monitor, and the plan for monitoring each valve.
- f. The Permittee shall maintain the following records if choosing to use the skip period leak detection and repair method of monitoring [40 CFR 60.486(g)]:
- i. A schedule of monitoring; and
 - ii. The percent of valves found leaking each monitoring period.
- g. The Permittee shall maintain a log at a readily accessible location that includes the following information [40 CFR 60.486(h)]:

Design criterion for pumps and compressors that indicates failure of the seal, barrier fluid system, or both, as required pursuant to 40 CFR 60.482-2(d) (5) and 60.482-3(e) (2) and explanation of the design criterion and any

changes to this criterion and the reason for the change.

- h. The Permittee shall maintain information and data used to demonstrate that a piece of equipment is not in VOC service [40 CFR 60.486(j)].
- i. The recordkeeping requirements of Conditions 7.10.9(a) through (h) are for equipment subject to 40 CFR 63 Subpart CC (60 Subpart VV). For equipment is subject to 40 CFR 63 Subpart H, see that rule. The requirements are similar but may vary.
- j. i. The Permittee shall maintain the following records pursuant to 35 IAC 219 Subpart Q. If identical information is contained in any of the records required by 40 CFR programs, a separate records is not required.
 - A. A monitoring program including identification of all components, a format for the monitoring log, a description of the monitoring equipment and a method to identify all leaking components. [35 IAC 219.446]
 - B. A leaking components monitoring log that contains, as a minimum, the following information:
 - 1. The name of the process unit where the component is located;
 - 2. The type of component (e.g., valve, seal);
 - 3. The identification number of the component;
 - 4. The date on which a leaking component is discovered;
 - 5. The date on which a leaking component is repaired;
 - 6. The date and instrument reading of the recheck procedure after a leaking component is repaired;
 - 7. A record of the calibration of the monitoring instrument;

8. The identification number of leaking components which cannot be repaired until turnaround; and
9. The total number of components inspected and the total number of components found leaking during that monitoring period. [35 IAC 219.448]

k. VOM Emissions (tons/yr).

7.10.10 Reporting Requirements

The Permittee shall submit semiannual reports to the Illinois EPA Compliance Section. This report shall include the following information [40 CFR 60.487]:

- a. Process unit identification.
- b. Number of valves subject to the requirements of 40 CFR 60.482-7, excluding those valves designated for no detectable emissions under the provisions of 40 CFR 60.482-7(f).
- c. Number of pumps subject to the requirements of 40 CFR 60.482-2, excluding those pumps designated for no detectable emissions under the provisions of 40 CFR 60.482-2(e) and those pumps complying with 40 CFR 60.482-2(f).
- d. Number of compressors subject to the requirements of 40 CFR 60.482-3, excluding those compressors designated for no detectable emissions under the provisions of 40 CFR 60.482-3(i) and those compressors complying with 40 CFR 60.482-3(h).
- e. For each month during the semi-annual reporting period:
 - i. Number of valves for which leaks were detected as described in 40 CFR 60.482(7)(b) or 60.483-2;
 - ii. Number of valves for which leaks were not repaired as required in 40 CFR 60.482-7(d)(1);
 - iii. Number of pumps for which leaks were detected as described in 40 CFR 60.482-2(b) and (d)(6)(i);
 - iv. Number of pumps for which leaks were not repaired as described in 40 CFR 60.482-2(c) and (d)(6)(ii);

- v. Number of compressors for which leaks were detected as described in 40 CFR 60.482-3(f);
 - vi. Number of compressors for which leaks were not repaired as required in 40 CFR 60.482-3(g) (1); and
 - vii. The facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible.
- f. Dates of process unit shutdowns which occurred within the semi-annual reporting period.
 - g. The reporting requirements of Condition 7.10.10(a) through (f) are for equipment subject to 40 CFR 63 Subpart CC (60 Subpart VV). For the equipment subject to 40 CFR 63 Subpart H, see that rule. The requirements are similar but may vary.
 - h. Any reports required by 35 IAC 219.449.

7.10.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.10.12 Compliance Procedures

Compliance with the control, operating, and inspection and monitoring requirements of Condition 7.10.5, 7.10.7, and 7.10.8 shall be demonstrated by the recordkeeping and reporting requirements of Condition 7.10.9 and 7.10.10.

7.11 Unit: Cooling Water Towers (CWT)
Control: None

7.11.1 Description

The cooling towers are an integral part of the cooling water system that circulates water to the refinery process units to remove heat from process streams via heat exchangers. The cooling towers "cool" the process water by means of evaporation before the water is returned to the process units. The total design circulation rate for the cooling water system is 300,000 gpm.

Chrome compounds are not used in any of the cooling towers.

7.11.2 List of Emission Units and Pollution Control Equipment

| Permit Emission Unit Number | Permittee Unit Number | Description | Emission Control Equipment |
|-----------------------------|-----------------------|---|----------------------------|
| 110 | CWT-11A | Non-Contact Process Water Cooling Tower | None |
| 111 | CWT-12B | Non-Contact Process Water Cooling Tower | None |
| 112 | CWT-13 | Non-Contact Process Water Cooling Tower | None |
| 113 | CWT-14 | Non-Contact Process Water Cooling Tower | None |
| 114 | CWT-15 | Non-Contact Process Water Cooling Tower | None |
| 115 | CWT-16 | Non-Contact Process Water Cooling Tower | None |
| 116 | CWT-17 | Non-Contact Process Water Cooling Tower | None |
| 117 | CWT-19 | Non-Contact Process Water Cooling Tower | None |
| 118 | CWT-2 | Non-Contact Process Water Cooling Tower | None |
| 119 | CWT-20 | Non-Contact Process Water Cooling Tower | None |
| 120 | CWT-2A | Non-Contact Process Water Cooling Tower | None |
| 121 | CWT-7 | Non-Contact Process Water Cooling Tower | None |
| 122 | CWT-9C | Non-Contact Process Water Cooling Tower | None |

7.11.3 Applicability Provisions and Applicable Regulations

- a. The "affected cooling towers" for the purpose of these unit-specific conditions, are the cooling towers described in Conditions 7.11.1 and 7.11.2.

- b. The affected cooling towers are subject to the emission limits and requirements identified in Section 5 of this permit.
- c. Pursuant to 40 CFR 63.402, the Permittee shall not use chromium-based water treatment chemicals in any affected cooling tower.
- d. Each affected cooling tower shall comply with the monitoring, recordkeeping, and reporting requirements of 35 IAC 219.986(d) as included in Conditions 7.11.8, 7.11.9, and 7.11.10.
- e. Any cooling tower that supplies cooling water to a process subject to the Hazardous Organic NESHP, 40 CFR 63 Subpart F (e.g., BEU) must comply with the heat exchanger system requirements of 40 CFR 63.104.

7.11.4 Non-Applicability of Regulations of Concern

The fugitive emissions monitoring program (LDAR) of Section 7.10 does not apply to these cooling towers as the towers and piping contain mostly water. Another type of monitoring is discussed in Condition 7.11.8.

7.11.5 Operational and Production Limits and Work Practices

Chromium compounds shall not be used in any of the cooling water towers.

7.11.6 Emission Limitations

There are no specific emission limitations for this unit, however, there are source wide emission limitations in Condition 5.5 that include this unit.

7.11.7 Testing Requirements

- a. Upon request by the Illinois EPA and/or USEPA, pursuant to Section 39.5(7)(b) of the Act and 35 IAC 219.105, the Permittee shall conduct testing of the affected cooling towers for purposes of demonstrating compliance to conditions of this permit according to USEPA approved methods of 40 CFR 60 Appendix A or other appropriate methods approved by the Illinois EPA or USEPA, at such reasonable times as may be specified by the Illinois EPA and/or USEPA. This test shall meet the following requirements:

- i. The test shall be conducted by an approved independent testing service.

- ii. The test shall be conducted during conditions which are representative of maximum emissions.

7.11.8 Monitoring Requirements

In accordance with the procedures identified in the cooling tower inspection and monitoring program submitted to the Illinois EPA in Federally Enforceable State Operating Permit 72110631 pursuant to 35 IAC 219.986(d)(3)(C), the affected cooling towers are subject to the following:

a. Sample Locations

- i. Samples shall be taken of the cooling water supply and return flows for the affected cooling towers as follows:

Cooling Water Sample Locations

| <u>Cooling Towers</u> | <u>Department</u> | <u>Sample Points</u> |
|-----------------------|-------------------|---------------------------------------|
| CWT-2 and CWT-2A | Distilling | CWT-2/2A Common Supply and Return |
| CWT-14 and CWT-17 | Distilling | CWT-14/17 Common Supply and Return |
| CWT-19 | Distilling | CWT-19 Supply and Return |
| CWT-7 | Aromatics | CWT-7 Supply and Return |
| CWT-15 | Aromatics | CWT-15 Supply and Return |
| CWT-9C | CCU/Alky | CWT-9C Supply and Return |
| CWT-11A | CCU/Alky | CWT-11A Supply and Return |
| CWT-20 | CCU/Alky | CWT-20 Supply and Return |
| CWT-12B | Aromatics | CWT-12B Supply and Return |
| CWT-13 and CWT-16 | Aromatics | CWT-13/16 Common Supply and Return |

b. Sample Handling

- i. Samples shall be taken in Volatile Organic Analysis (VOA) vials. The vials are to be liquid full and capped such that the sample contains no air space. This method of sampling will minimize any loses of VOM to the atmosphere.

- ii. The supply and return samples shall be taken at approximately the same time for each affected cooling tower. The samples shall be analyzed on the same day as they are sampled.

c. Parameters Measured

- i. Total Carbon (TC) analysis shall be used as the primary leak detection measurement. The TC of the return flow shall be compared against that of the supply to look for any increases.
- ii. The test shall be ran on a TOC analyzer in the TC mode. In this mode, a microportion of the water sample shall be injected into a heated reaction chamber where it is vaporized and all the carbon is oxidized to CO₂. The CO₂ shall be measured by means of an infrared analyzer
- iii. For this method the samples are not filtered, acidified, or sparged prior to the analysis. This minimizes the loss of any light hydrocarbons which may be present.
- iv. This analytical method will pick up inorganic carbon as well as organic carbon. However, the concentration of the inorganic carbon will be the same in both the supply and return flows, so any increases in the TC reading shall be attributed to organic carbon.
- v. The residual chlorine level in the towers shall be used as a secondary measure of a hydrocarbon leak in a tower, since most hydrocarbon leaks will lead to a chlorine depletion. This test shall be part of the weekly inspection program performed on all towers. The method of the residual chlorine analysis shall be the Sodium Phosphate Dibasic color wheel/photometric test.

d. Monitoring and Inspection

- i. CWT-20 shall be subject to weekly monitoring for an increase in TC in the return line since it has a circulation rate in excess of 25,000 gallons per minute. The other affected cooling towers shall be monitored on a monthly basis for an increase in TC in the return line since their circulation rates are less than 25,000 gallons per minute. Additional testing shall be performed in the event a leak is suspected.

- ii. In addition, all affected cooling towers shall be subject to a weekly inspection program. The program shall consist of the following elements:
 - A. Chlorine residual test.
 - B. Observed high chlorine or chlorine precursor demand.
 - C. Evidence of foaming.
 - D. Discolored water.
 - E. Hydrocarbon odor.
 - F. Visible floating hydrocarbon.
 - G. Biological growth on the tower wood or screens.
 - iii. An inspection checklist containing these elements shall be completed weekly for each affected cooling tower system. The checklist shall include steps to take if the inspection parameters indicate the presence of a leak.
- e. Leak Criteria
- i. A leak shall be detected if a statistically significant increase of 1 ppm in TC concentration at the 95 percent confidence level is observed (as determined using the Monitoring Cooling Water Towers for Leaks Recommended Statistical Analysis submitted to the Agency dated December 22, 1994). This leak criteria shall be consistent with the cooling water tower leak criteria described in the Hazardous Organic National Emission Standard for Hazardous Air Pollutants (NESHAP) for Synthetic Organic Chemical Manufacturing Industry (SOCMI) chemical manufacturing processes at 40 CFR 63.104(b)(v).
 - ii. If the sampling indicates the presence of a leak, a second set of supply and return line samples shall be analyzed to confirm the presence of the leak as soon as possible. If the presence of a leak is confirmed, efforts to identify and locate the leaking components shall begin.
- f. Pursuant to 35 IAC 219.986(d)(1)(B) and 219.986(d)(4), when a leak is identified, initiate

and carry out steps to identify the specific leaking component or components as soon as practicable, but in no event later than three days after detection of the leak in an affected cooling water tower.

- g. Pursuant to 35 IAC 219.986(d) (1) (C) and 219.986(d) (4), when a leaking component is identified, it shall be repaired or removed from service as soon as possible, but no later than 30 days after the leak in the cooling water tower is detected, unless the leaking component cannot be repaired until the next scheduled shutdown for maintenance.
- h. Upon completion of any repair or removal of a leaking component, the supply and return water samples shall be retested for TC to confirm that the leak has been repaired or eliminated.

7.11.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected cooling towers to demonstrate compliance with Conditions 5.5.1, 7.11.3, 7.11.5, and 7.11.6, pursuant to Section 39.5(7) (b) of the Act:

- a. In accordance with 35 IAC 219.986(d) (5), the Permittee shall maintain records of the following items, and such other EPA items as may be appropriate to allow the Illinois EPA to review compliance with the limits in this Section.
 - i. Records of inspection and monitoring activity, including date, time, and identification of the tower that was sampled.
 - ii. Records of each leak identified in each affected cooling tower, with date, time and nature of observation or measured level of parameter.
 - iii. Records of activity to identify leaking components, with date initiated, summary of components inspected with dates, and method of inspection and observations.
 - iv. Records of activity to remove a leaking component from service or repair a leaking component, with date initiated and completed, description of actions taken and the basis for determining the leak in such tower has been eliminated. If the leaking component is not identified, repaired or eliminated within 30

days of initial identification of a leak in such tower, this report shall include specific reasons why the leak could not be eliminated sooner including all other intervening periods when the process unit was out of service, actions taken to minimize VOM losses prior to elimination of the leak and any actions taken to prevent the recurrence of a leak of this type.

- v. Records of all non-contact process water cooling towers that are exempt from the requirements of 35 IAC 219.986(d) (3) (B) and (d) (3) (C).
- b. The Permittee shall maintain records of the following items for each exceedance of the limits in Conditions 7.11.3, 7.11.5, or 7.11.6, which shall include:
- i. Identification of the limit that may have been exceeded.
 - ii. Duration of the possible exceedance.
 - iii. An estimate of the amount of emissions in excess of the applicable standard.
 - iv. A description of the cause of the possible exceedance.
 - v. When compliance was reestablished.
- c. The Permittee shall maintain records of the most recent tests required in Condition 7.11.7(a), which include the following pursuant to Section 39.5(7) (e) of the Act:
- i. The date, place and time of sampling or measurements.
 - ii. The date(s) analyses were performed.
 - iii. The company or entity that performed the analyses.
 - iv. The analytical techniques or methods used.
 - v. The results of such analyses.
 - vi. The operating conditions as existing at the time of sampling or measurement.
- d. VOM and PM Emissions (ton/yr).

7.11.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section of deviations of the affected cooling towers with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

- a. In accordance 35 IAC 219.986(d)(6), the owner or operator of a non-contact process water cooling tower shall submit an annual report to the Illinois EPA which provides:
 - i. The number of leaks identified in each cooling tower.
 - ii. A general description of activity to repair or eliminate leaks which were identified.
 - iii. Identification of each leak which was not repaired in 30 days from the date of identification of a leak in such a tower, with description of the leaks, explanation why the leak was not repaired in 30 days.
 - iv. Identification of any periods when required inspection and monitoring activities were not carried out.
- b. Within 30 days of exceedance of the limits in Conditions 7.11.3, 7.11.5, or 7.11.6, the notification shall include:
 - i. Identification of the limit that may have been exceeded.
 - ii. Duration of the possible exceedance.
 - iii. An estimate of the amount of emissions in excess of the applicable standard.
 - iv. A description of the cause of the possible exceedance.
 - v. When compliance was reestablished.
- c. The Permittee shall submit the following information along with its annual emission report:
 - i. A summary of exceedances of the limits in Conditions 7.11.3, 7.11.5, or 7.11.6, if any, which required notification to the Compliance

Section in accordance with Condition
7.11.10(a).

- d. The Permittee shall fulfill the following reporting requirements for each test performed pursuant to Condition 7.11.7(a):
 - i. At least 30 days prior to the expected 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:
 - A. The expected date and time of the test.
 - B. The person(s) who will be performing the sampling and analysis and their experience with similar tests.
 - C. 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 will be determined.
 - D. The specific determinations of emissions and operation which are intended to be made, including sampling and monitoring locations.
 - E. The specific sampling, analytical, and quality control procedures which will be used, with an identification of the standard methods upon which they are based.
 - F. Any minor changes in standard methodology proposed to accommodate the specific circumstances of testing, with justification.
 - G. Any proposed use of an alternative test method, with detailed justification.
 - ii. Notification of the actual date and time of the testing shall be submitted to the Illinois EPA at least 5 working days prior to the actual date of the test, so the Illinois EPA can arrange to have an observer present.
 - iii. The results of the test shall be submitted to the Illinois EPA within 90 days after the

testing is complete. These results shall be included in a final report, which shall include the following:

- A. A summary of results.
- B. A description of the test methods used, including a description of sampling points, sampling train, analysis equipment, and test schedule.
- C. A detailed description of test conditions, including:
 - 1. Process information including the mode(s) of operation.
 - 2. A discussion of any preparatory actions taken, i.e., inspections, maintenance, and repair.
- D. Data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration.
- E. An explanation of any discrepancies among individual tests or anomalous data.
- F. The results of all quality control evaluations, including a copy of all quality control data.

7.11.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to an affected cooling tower without prior notification to the Illinois EPA or revision of this permit. This condition does not affect the Permittee's obligation to properly obtain a construction permit in a timely manner for any activity constituting construction or modification of the source, as defined in 35 IAC 201.102:

None

7.11.12 Compliance Procedures

- a. Compliance with the monitoring requirements of Condition 7.11.8 is assured by the recordkeeping and reporting requirements of 7.11.9(a) and 7.11.10(a).
- b. i. VOM emissions may be calculated using the emission factor in AP-42, Table 5.1-2 (January

1995). The controlled emission factor of 0.7 lb/10⁶ gallons of cooling water due to the testing program required by 35 IAC 219.986(d). [See Condition 7.11.8]

- ii. PM-10 emissions may be calculated using the emission factor in AP-42, Table 13.4-1 (January 1995). The emission factor is 0.019 lb/10³ gallons of cooling water.
- iii. In lieu of the above, the Permittee may use site specific calculations of VOM and PM emissions. These site specific calculations shall be based on the dissolved solids and VOM content of the blowdown water from the cooling towers.

7.12 Unit: Wastewater Treatment System (WWTS)
 Control: Flare with Installed Spare

7.12.1 Description

Much wastewater is generated in a refinery and this water is treated before discharge into the river. There are both process wastewater and stormwater streams that feed into the system.

7.12.2 List of Emission Units and Air Pollution Control Equipment

| Permit Emission Unit Number | Permittee Unit Number | Description | Emission Control Equipment |
|-----------------------------|-----------------------|---|-----------------------------------|
| 123 | WWTS | Units to Flare ^a : Primary Treatment/Lift Station/Collection/Bar Screen/Neutralization/CPI Oil Separators/Air Disengageent/DNF-1 and 3/DNF Sump/Two Centrifuge Holding Tanks (C-63 and C-64) and Ancillary Equipment as Part of Solids Dewatering/Centrifuges (SP-11320 and SP-11321) and Centrate Vessel (V-5300)/Tanks B-121, CH-278, C-46 and 47, D-52 thru 54 | Primary Flare and Installed Spare |
| 124 | WWTS | Biotreaters/Clarifiers/Ponds and Lagoons | None |

^a Many units vent to the flare through a header.

7.12.3 Applicability Provisions and Applicable Regulations

- a. The "affected wastewater treatment system" for the purpose of these unit-specific conditions, is a system for treating water prior to discharge to the river. The units in the system are listed in Condition 7.12.2.
- b. The affected WWTS is subject to the emission limits identified in Condition 5.2.2.
- c. Equipment in the wastewater treatment system, including the primary oil-water separation equipment, the benzene waste header, the oily wastewater sewer drains, and slop oil storage tanks, D-52, D-53, D-54 and B-121 are subject to NSPS, 40 CFR 60 Subparts A and QQQ for petroleum refineries wastewater systems.

- d. Equipment controlled by the vent control system and flare, the benzene waste header and the sample recycle vessel are subject to a NESHAP, 40 CFR 61 Subpart A and FF for benzene waste operations.
- e. The storage tanks must comply with the requirements of 40 CFR 60 Subpart Kb. This is due to the capacity and construction date of the tank, or a result of the tank having to comply with 40 CFR 60 Subpart QQQ or 40 CFR 61 Subpart FF which reference Subpart Kb as a compliance method.
- f. Any Group 1 wastewater stream pursuant to the definition in 40 CFR 63.641 (Subpart CC Petroleum Refineries) shall comply with 40 CFR 61 Subpart FF which has already been cited in Condition 7.12.3(d) above.
- g. The WWTS is subject to 35 IAC 219 Subpart TT because these units are not subject to 35 IA 219 Subpart R. Compliance with the control requirements of the above-referenced NESHAP requirements assures compliance with the Subpart TT requirements for the controlled units as Subpart TT requires 81% control and the NESHAP requires 98% control.
- h. Units subject to 40 CFR 60, 61 and/or 63 may use the provision of the Consolidated Air Rule (40 CFR 65) to comply.
- i. The leak monitoring requirements of the WWTS pursuant to 40 CFR 60 and 61 and 35 IAC Subpart R are described in Section 7.10 of this permit.

7.12.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on the affected WWTS not being subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources, because the affected WWTS is subject to a NSPS proposed after November 15, 1990, pursuant to 40 CFR 64.2(b)(1)(i) or does not use an add-on control device to achieve compliance with an emission limitation or standard (e.g., clarifiers and lagoons).
- b. The biosolids holding tank (C-65), biosolids press draining tank (B-143), and biosolids filtrate surge tank (B-144) are used to process solids and are therefore not subject to 40 CFR 61.

7.12.5 Control or Operational Requirements

- a. To comply with the NSPS, 40 CFR 60 Subpart Kb, Tank A-149 must meet the requirements for an external floating roof tank with double seals described in Section 60.112b(a)(2). The other tanks that vent to a header and flare must meet the requirements described in Section 60.112b(a)(3).
- b. The benzene waste header shall be operated in accordance with the individual drain system requirements of the NSPS, 40 CFR 60.692-2(c).
- c. The benzene waste heater shall be operated in accordance with the Individual Drain System requirements of the NESHAP, 40 CFR 61.346(b)(3), including:
 - i. The unburied portion of each sewer line shall be visually inspected initially and thereafter quarterly for indication of cracks, gaps, or other problems that could result in benzene emissions pursuant to 40 CFR 61.346(b)(4)(iv).
 - ii. Except as provided in 40 CFR 61.350, when a broken seal, gap, crack, or other problem is identified, first effort at repair shall be made as soon as practicable, but not later than 15 calendar days after identification pursuant to 40 CFR 61.346(b)(5).
- d. The sample recycle vessel (V-1637) shall be operated in accordance with the tank requirements of the NESHAP, 40 CFR 61.343(b).
- e. The vent control system shall meet the closed-vent systems requirements of the NSPS, 40 CFR 60.692-5(e) and NESHAP, 40 CFR 61.349(a)(1) including:
 - i. Semi-annual inspection for no detectable emissions, pursuant to 40 CFR 60.692-5(e)(1).
 - ii. Purging the closed-vent system to direct vapor to the control device, pursuant to 40 CFR 60.692-5(e)(2).
 - iii. Installation of a flow indicator to ensure that vapors are being routed to the flare pursuant to 40 CFR 60.692-5(e)(3) and installation of a flow indicator at the entrance to any bypass lines that could divert the stream away from the flare, pursuant to 40 CFR 61.349(a)(ii).

- iv. All gauging and sampling devices shall be gas-tight except when gauging or sampling, pursuant to 40 CFR 60.692-5(e) (4) and 40 CFR 61.349(a) (1) (iii).
- v. When emissions are detected, first efforts to eliminate the emissions shall be made as soon as practicable but not later than 30 calendar days, pursuant to 40 CFR 60.692-5(e) (5).
- f. Operation of the flare:
 - i. The flare shall be installed and operated to receive vapor from the following equipment with a total loading not to exceed 25.0 mmBtu/hour, average: the air disengagement system, DAF-1, DAF-3, the DAF effluent sump, the spent caustic tank (CH-278), the TOC waste tanks (C-46/47), slop oil tanks (D-52/53/54), the main lift station, bar screens, neutralizers, CPI separators, and CPI oil tank (B-121).
 - ii. The flare shall be operated to reduce VOM emissions by 98% by meeting the requirements of 40 CFR 60.18. These requirements are listed in Condition 7.7.3(d), (e), and (f) and 7.7.5(b) and (c).
- g. Process wastewater from Junction Box #6 shall not be discharged to the open stormwater channel.
- h. Covers on junction boxes or the former oil/water separators shall be sealed and kept in place at all times during operation except for inspection and maintenance.

7.12.6 Emission Limitations

In addition to Condition 5.2.2, unit is subject to the following:

Emissions from the affected vent control system and flare shall not exceed the following limits:

| <u>Pollutant</u> | <u>Emissions</u> | |
|------------------|---------------------|--------------------|
| | <u>(Tons/Month)</u> | <u>(Tons/Year)</u> |
| NO _x | 0.7 | 7.0 |
| CO | 2.0 | 19.7 |

These limits are based on the maximum rate.

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) [T1].

The above limitations contain revisions to previously issued Permit 89020016. The source has requested that the Illinois EPA establish conditions in this permit that allow various refinements from the conditions of this aforementioned permit, consistent with the information provided in the CAAPP application. The source has requested these revisions and has addressed the applicability and compliance of Title I of the CAA, specifically 35 IAC Part 203, Major Stationary Sources Construction and Modification and/or 40 CFR 52.21, Prevention of Significant Deterioration (PSD). These limits continue to ensure that the construction and/or modification addressed in this permit does not constitute a new major source or major modification pursuant to these rules. These limits are the primary enforcement mechanism for the equipment and activities permitted in this permit and the information in the CAAPP application contains the most current and accurate information for the source. Specifically, the hourly rate in the construction permit was replaced with a monthly rate for ease of recordkeeping [T1R].

7.12.7 Testing Requirements

Upon request by the Illinois EPA and pursuant to Section 39.5(7)(b) of the Act and 35 IAC 219.105, the Permittee shall conduct testing of the affected flare. Details of testing requirements are the same as in Condition 7.7.7 of this permit.

7.12.8 Inspection and Monitoring Requirements

- a. The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame [40 CFR 60.18(f)(2)].
- b.
 - i. Each closed-vent system and control device shall be visually inspected initially and quarterly thereafter. The visual inspection shall include inspection of ductwork and piping and connections to covers and control devices for evidence of visible defects such as holes in ductwork or piping and loose connections. [40 CFR 61.349(f)]
 - ii. Except as provided in 40 CFR 61.350 (Condition 7.12.8(b)(iii)), if visible defects are observed during an inspection, or if other problems are identified, or if detectable emissions are measured, a first effort to

repair the closed-vent system and control device shall be made as soon as practicable but no later than 5 calendar days after detection. Repair shall be completed no later than 15 calendar days after the emissions are detected or the visible defect is observed. [40 CFR 61.349(g)]

- iii. A. Delay of repair of facilities or units that are subject to the provisions of 40 CFR 61 Subpart FF will be allowed if the repair is technically impossible without a complete or partial facility or unit shutdown. [40 CFR 61.350(a)]
 - B. Repair of such equipment shall occur before the end of the next facility or unit shutdown. [40 CFR 61.350(b)]
- c. Owners or operators using a closed-vent system that contains any bypass line that could divert a vent stream from a control device used to comply with 40 CFR 61 Subpart FF shall:
 - i. Visually inspect the bypass line valve at least once every month, checking the position of the valve and the condition of the car-seal or closure mechanism required under 40 CFR 61.349(a)(1)(ii) (Condition 7.12.5(e)(iii)). [40 CFR 61.354(f)(1)]
 - ii. Visually inspect the reading from each flow monitoring device required by 40 CFR 61.349(a)(1)(ii) (Condition 7.12.5(e)(iii)) at least once each operating date to check that vapors are being routed to the control device as required. [40 CFR 61.354(f)(2)]
- d. Pursuant to 40 CFR 60.355(h) the owner or operator shall test equipment for compliance with no detectable emissions as required by Condition 7.12.5(e)(iii) in accordance with the following requirements:
 - i. Monitoring shall comply with Method 21 from Appendix A of 40 CFR Part 60. [40 CFR 61.355(h)(1)]
 - ii. The detection instrument shall meet the performance criteria of Method 21. [40 CFR 61.355(h)(2)]

- iii. The instruments shall be calibrated before use on each day of its use by the procedures specified in Method 21. [40 CFR 61.334(h)(3)]
- iv. Calibration gases shall be:
 - A. Zero air (less than 10 ppm of hydrocarbon in air). [40 CFR 61.355(h)(4)(i)]
 - B. A mixture of methane or n-hexane and air at a concentration of approximately, but less than, 10,000 ppm methane or n-hexane. [40 CFR 61.355(h)(4)(ii)]
- v. The background level shall be determined as set forth in Method 21. [40 CFR 61.355(h)(5)]
- vi. The instrument probe shall be traversed around all potential leak interfaces as close as possible to the interface as described in Method 21. [40 CFR 61.355(h)(6)]
- vii. The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared to 500 ppm for determining compliance. [40 CFR 61.355(h)(7)]

7.12.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected WWTS to demonstrate compliance with Conditions 5.5.1, 7.12.3, 7.12.5, and 7.12.6, pursuant to Section 39.5(7)(b) of the Act:

- a. Date and duration of any time when the pilot flame monitoring equipment of the affected flare was not in operation, with explanation.
- b. Date and duration of any time when there was no pilot flame present at the affected flare, with explanation or records showing that the installed spare flare was operating.
- c. Any records required by a NSPS or NESHAP rule, as follows:
 - i. 40 CFR 60.115b for NSPS Subpart Kb.
 - ii. 40 CFR 60.697 for NSPS, Subpart QQQ.
 - ii. 40 CFR 61.356 for NESHAP, Subpart FF.

- d. The Permittee shall maintain records of the most recent tests required in Condition 7.12.7, which include the following pursuant to Section 39.5(7) (e) of the Act:
 - i. The date, place and time of sampling or measurements.
 - ii. The date(s) analyses were performed.
 - iii. The company or entity that performed the analyses.
 - iv. The analytical techniques or methods used.
 - v. The results of such analyses.
 - vi. The operating conditions as existing at the time of sampling or measurement.
- e. VOM, NO_x and CO emissions (ton/year).

7.12.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of an affected WWTS with the permit requirements as follows, pursuant to Section 39.5(7) (f) (ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

- a. Any time the primary flare failed to operate and the installed spare flare was not activated.
- b. Any notification or reports required by a NSPS or NESHAP, as follows:
 - i. 40 CFR 60.115b for NSPS, Subpart Kb.
 - ii. 40 CFR 61.397 for NESHAP, Subpart FF.
 - iii. 40 CFR 60.698 for NSPS, Subpart QQQ.
- c. Any exceedance of the limits in Condition 7.12.6.

7.12.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to an affected WWTS without prior notification to the Illinois EPA or revision of this permit. This condition does not affect the Permittee's obligation to properly obtain a construction permit in a timely manner for any activity constituting

construction or modification of the source, as defined in 35 IAC 201.102:

None

7.12.12 Compliance Procedures

- a. VOM, NO_x and CO emissions shall be calculated using the emission factors in AP-42, Section 13.5, as follows:

| <u>Pollutant</u> | <u>Emission Factor (Lb/mmBtu)</u> |
|------------------|---------------------------------------|
| VOM | 0.06 ^a |
| NO _x | 0.068 |
| CO | 0.37 |

^a The factor specified in the Table is 0.14 but that is total hydrocarbons. The above value adjusts for the non VOMs within the total hydrocarbons.

- b. Emissions from the uncontrolled units (clarifiers, lagoons, etc.) shall be calculated using WATER9 or equivalent.

7.13 Unit: Gasoline Dispensing Tanks
 Controls: Submerged Loading Pipe and Vapor Balance System

7.13.1 Description

The Permittee operates two tanks for dispersing of gasoline into vehicles used at the refinery. These tanks are subject to the same standards as a gasoline tank that serves the general public, e.g. at a convenience store.

7.13.2 List of Emission Units and Pollution Control Equipment

| Permit Emission Unit Number | Permittee Unit Number | Description and Permittee Equipment Number | Emission Control Equipment |
|-----------------------------|-----------------------|---|--|
| 125 | Point 0096 | Two Fixed Roof Tank TK-H032, and TK-H033, 5700 gallons each | Submerged Loading Pipe and Vapor Balance |

7.13.3 Applicability Provisions and Applicable Regulations

- a. The "affected gasoline dispensing tanks" for the purpose of these unit-specific conditions, are gasoline tanks used to fill vehicles used in Wood River Refinery and described in Condition 7.13.2.
- b. Each affected gasoline dispensing tank is subject to the emission limits identified in Condition 5.2.2.
- c. No person shall cause or allow the loading of any organic material into any stationary tank having a storage capacity of greater than 946 l (250 gal), unless such tank is equipped with a permanent submerged loading pipe or an equivalent device approved by the Illinois EPA according to the provisions of 35 IAC 201, and further processed consistent with 35 IAC 219.108 [35 IAC 219.122(b)].
- d. The affected tank is subject to 35 IAC 219.583(c), which provides no person shall cause or allow the transfer of gasoline from any delivery vessel into any stationary storage tank at a gasoline dispensing operation unless:
 - i. The tank is equipped with a submerged loading pipe [35 IAC 219.583(a)(1)]; and
 - ii. The vapors displaced from the storage tank during filling are processed by a vapor control system that includes one or more of the following:

- A. A vapor collection system that meets the requirements of Condition 7.13.5(c) (see also 35 IAC 219.583(d)(4)) [35 IAC 219.583(a)(2)(A)]; or
 - B. A refrigeration-condensation system or any other system approved by the Illinois EPA and approved by the USEPA as a SIP revision, that recovers at least 90 percent by weight of all vaporized organic material from the equipment being controlled [35 IAC 219.583(a)(2)(B)]; and
 - C. The delivery vessel displays the appropriate sticker pursuant to the requirements of 35 IAC 219.584(b) or (d) [35 IAC 219.583(a)(2)(C)]; and
- iii. All tank vent pipes are equipped with pressure/vacuum relief valves with the pressure/vacuum relief valve shall be set to resist a pressure of at least 3.5 inches water column and to resist a vacuum of no less than 6.0 inches water column [35 IAC 219.583(a)(3)].
- e. The affected tank is subject to 35 IAC 219.585, which provides that:
- i. No person shall sell, offer for sale, dispense, supply, offer for supply, or transport for use in Illinois gasoline whose Reid vapor pressure exceeds the applicable limitations set forth in Conditions 7.13.3(e)(ii) and (e)(iii) (see also 35 IAC 219.585(b) and (c)) during the regulatory control periods, which shall be May 1 to September 15 for retail outlets, wholesale purchaser-consumer, operations, and all other operations [35 IAC 219.585(a)].
 - ii. The Reid vapor pressure of gasoline, a measure of its volatility, shall not exceed 7.2 psi (49.68 kPa) during the regulatory control period in 1995 and each year thereafter [35 IAC 219.585(b)].
 - iii. The Reid vapor pressure of ethanol blend gasolines having at least nine percent (%) but not more than percent (%) ethyl alcohol by volume of the blended mixture, shall not exceed the limitations for gasoline set forth

in Condition 7.13.3(e) (ii) (see also 35 IAC 219.585(b)) by more than 1.0 psi (6.9 kPa). Notwithstanding this limitation, blenders of ethanol blend gasolines whose Reid vapor pressure is less than 1.0 psi above the base stock gasoline immediately after blending with ethanol are prohibited from adding butane or any product that will increase the Reid vapor pressure of the blended gasoline [35 IAC 219.585(c)].

7.13.4 Non-Applicability of Regulations of Concern

- a. The affected tank is not subject to the NSPS for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984, 40 CFR 60 Subpart Kb, because the affected tank has a capacity less than 40 m³.
- b. The affected tank is not subject to the limitations of 35 IAC 219.120, Control Requirements for Storage Containers of VOL, pursuant to 35 IAC 219.119, because the affected tank is used to store a petroleum liquid and the capacity is less than 151 m³ (40,000 gal).
- c. The affected tank is not subject to the requirements of 35 IAC 219.121, Storage Containers of VPL, pursuant to 35 IAC 219.123(a)(2), which exempts storage tanks with a capacity less than 151.42 m³ (40,000 gal).
- d. The affected gasoline dispensing tanks are not subject to 40 CFR 63 Subpart CC (Petroleum Refinery MACT) because they are not storage vessels associated with a petroleum refining process unit or a gasoline loading rack. For the same reason they are not subject to 35 IAC 219 Subpart R.
- e. This permit is issued based on the affected gasoline dispensing tanks not being subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources, because the affected gasoline dispensing tanks do not have potential pre-control device emissions of the applicable regulated air pollutant that equals or exceeds major source threshold levels.

7.13.5 Operational and Production Limits and Work Practices

- a. The affected tank shall only be used for the storage of gasoline.

- b. Pursuant to 35 IAC 219.583(c), each owner of a gasoline dispensing operation shall:
 - i. Install all control systems and make all process modifications required by Condition 7.13.3(c) (see also 35 IAC 219.583(a)) [35 IAC 219.583(c) (1)];
 - ii. Provide instructions to the operator of the gasoline dispensing operation describing necessary maintenance operations and procedures for prompt notification of the owner in case of any malfunction of a vapor control system [35 IAC 219.583(c) (2)]; and
 - iii. Repair, replace or modify any worn out or malfunctioning component or element of design [35 IAC 219.583(c) (3)].
- c. Pursuant to 35 IAC 219.583(d), each operator of a gasoline dispensing operation shall:
 - i. Maintain and operate each vapor control system in accordance with the owner's instructions [35 IAC 219.583(d) (1)];
 - ii. Promptly notify the owner of any scheduled maintenance or malfunction requiring replacement or repair of a major component of a vapor control system [35 IAC 219.583(d) (2)];
 - iii. Maintain gauges, meters or other specified testing devices in proper working order [35 IAC 219.583(d) (3)]; and
 - iv. Operate the vapor collection system and delivery vessel unloading points in a manner that prevents:
 - A. A reading equal to or greater than 100 percent of the LEL (measured as propane) when tested in accordance with the procedure described in EPA 450/2-78-051 Appendix B [35 IAC 219.583(d) (4) (A)]; and
 - B. Avoidable leaks of liquid during the filling of storage tanks [35 IAC 219.583(d) (4) (B)].

7.13.6 Emission Limitations

There are no specific emission limitations for these units.

7.13.7 Testing Requirements

- a. Pursuant to 35 IAC 219.583(a) (4), no person shall cause or allow the transfer of gasoline from any delivery vessel into any stationary storage tank at a gasoline dispensing operation unless the owner or operator of a gasoline dispensing operation demonstrates compliance with Condition 7.13.3(d) (iii) (see also 35 IAC 219.583(a) (3)), by March 15, 1995 or 30 days after installation of each pressure/vacuum relief valve, whichever is later, and at least annually thereafter, by measuring and recording the pressure indicated by a pressure/vacuum gauge at each tank vent pipe. The test shall be performed on each tank vent pipe within two hours after product delivery into the respective storage tank. For manifold tank vent systems, observations at any point within the system shall be adequate. The owner or operator shall maintain any records required by this Condition for a period of three years.
- b. Within 15 business days after discovery of the leak by the owner, operator, or the Illinois EPA, repair and retest a vapor collection system which exceeds the limits of Condition 7.13.5(c) (4) (A) (see also 35 IAC 219.583(d) (4) (A)) [35 IAC 219.583(d) (5)].
- c. Upon reasonable request by the Illinois EPA, pursuant to Section 39.5(7) (b) of the Act, the Reid vapor pressure of gasoline and the ethanol content of ethanol blend gasolines shall be determined according to the methods specified below:
 - i Pursuant to 35 IAC 219.585(d), all sampling of gasoline required pursuant to the provisions of Conditions 7.13.7(c) (ii) and (c) (iii) (see also 35 IAC 219.585(e) and (f)) shall be conducted by one or more of the following approved methods or procedures:
 - A. For manual sampling, ASTM D4057 [35 IAC 219.585(d) (1)];
 - B. For automatic sampling, ASTM D4177 [35 IAC 219.585(d) (2)]; or
 - C. Sampling procedures for Fuel Volatility, 40 CFR 80 Appendix D [35 IAC 219.585(d) (3)].

- ii. The Reid vapor pressure of gasoline shall be measured in accordance with either test method ASTM D323 or a modification of ASTM D323 known as the "dry method" as set forth in 40 CFR 80, Appendix E. For gasoline - oxygenate blends which contain water-extractable oxygenates, the Reid vapor pressure shall be measured using the dry method test [35 IAC 219.585(e)].
- iii. The ethanol content of ethanol blend gasolines shall be determined by use of one of the approved testing methodologies specified in 40 CFR 80, Appendix F [35 IAC 219.585(f)].

7.13.8 Monitoring Requirements

None

7.13.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected gasoline dispensing tanks to demonstrate compliance with Condition 7.13.3, pursuant to Section 39.5(7) (b) of the Act:

- a. Records of the testing of the affected tank pursuant to Condition 7.13.7, which include the following [Section 39.5(7) (e) of the Act]:
 - i. The date, place and time of sampling or measurements;
 - ii. The date(s) analyses were performed;
 - iii. The company or entity that performed the analyses;
 - iv. The analytical techniques or methods used;
 - v. The results of such analyses; and
 - vi. The operating conditions as existing at the time of sampling or measurement.
- b. Each storage vessel with a design capacity less than 40,000 gallons is subject to no provisions of 35 IAC Part 219 other than those required by maintaining readily accessible records of the dimensions of the storage vessel and analysis of the capacity of the storage vessel [35 IAC 219.129(f)].

- c. Design information for the tank showing the presence of a permanent submerged loading pipe;
- d. Maintenance and repair records for the tank, as related to the repair or replacement of the loading pipe;
- e. The throughput of the affected tank, gal/mo and gal/yr; and
- f. The annual VOM emissions from the affected tank based on the material stored, the tank throughput, and the applicable emission factors and formulas with supporting calculations.

7.13.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of an affected gasoline dispensing tanks with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

- a. Any storage of VOL in an affected tank that is not in compliance with the requirements of Conditions 7.13.3(c) and (d)(i) (see also 35 IAC 219.122(b) and 219.583(a)(1)), e.g., no "permanent submerged loading pipe," within five days of becoming aware of the non-compliance status. This notification shall include a description of the event, the cause for the non-compliance, actions taken to correct the non-compliance, and the steps taken to avoid future non-compliance;
- b. Any storage of VOL in an affected tank that is out of compliance with the requirements of Conditions 7.13.3(c) and (d)(i) (see also 35 IAC 219.122(b) and 219.583(a)(1)) due to damage, deterioration, or other condition of the loading pipe, within 30 days of becoming aware of the non-compliance status. This notification shall include a description of the event, the cause for the non-compliance, actions taken to correct the non-compliance, and the steps to be taken to avoid future non-compliance;
- c. Upon request by the Illinois EPA, the owner or operator of a gasoline dispensing operation which claims to be exempt from the requirements of 35 IAC 219.586 shall submit records to the Illinois EPA within 30 calendar days from the date of the request which demonstrate that the gasoline dispensing operation is in fact exempt; and

- d. The storage of any VOL or VPL other than the material specified in Condition 7.13.5(a) within 30 days of becoming aware of the non-compliance status. This notification shall include a description of the event, the cause for the non-compliance, actions taken to correct the non-compliance, and the steps to be taken to avoid future non-compliance.

7.13.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.13.12 Compliance Procedures

Compliance with the emission limits shall be based on the recordkeeping requirements in Condition 7.13.9 and the emission factors and formulas listed below:

For the purpose of estimating VOM emissions from each affected tank, the versions 4.0 of the TANKS program are acceptable.

8.0 GENERAL PERMIT CONDITIONS

8.1 Permit Shield

Pursuant to Section 39.5(7)(j) of the Act, the Permittee has requested and has been granted a permit shield. This permit shield provides that compliance with the conditions of this permit shall be deemed compliance with applicable requirements which were applicable as of the date the proposed permit for this source was issued, provided that either the applicable requirements are specifically identified within this permit, or the Illinois EPA, in acting on this permit application, has determined that other requirements specifically identified are not applicable to this source and this determination (or a concise summary thereof) is included in this permit.

This permit shield does not extend to applicable requirements which are promulgated after August 6, 2003 (the date of issuance of the draft permit) unless this permit has been modified to reflect such new requirements.

8.2 Applicability of Title IV Requirements (Acid Deposition Control)

This source is not an affected source under Title IV of the CAA and is not subject to requirements pursuant to Title IV of the CAA.

8.3 Emissions Trading Programs

No permit revision shall be required for increases in emissions allowed under any USEPA approved economic incentives, marketable permits, emissions trading, and other similar programs or processes for changes that are provided for elsewhere in this permit and that are authorized by the applicable requirement [Section 39.5(7)(o)(vii) of the Act].

8.4 Operational Flexibility/Anticipated Operating Scenarios

8.4.1 Changes Specifically Addressed by Permit

Physical or operational changes specifically addressed by the Conditions of this permit that have been identified as not requiring Illinois EPA notification may be implemented without prior notice to the Illinois EPA.

8.4.2 Changes Requiring Prior Notification

The Permittee is authorized to make physical or operational changes that contravene express permit terms without applying for or obtaining an amendment to this permit, provided that [Section 39.5(12)(a)(i) of the Act]:

- a. The changes do not violate applicable requirements;

- b. The changes do not contravene federally enforceable permit terms or conditions that are monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements;
- c. The changes do not constitute a modification under Title I of the CAA;
- d. Emissions will not exceed the emissions allowed under this permit following implementation of the physical or operational change; and
- e. The Permittee provides written notice to the Illinois EPA, Division of Air Pollution Control, Permit Section, at least 7 days before commencement of the change. This notice shall:
 - i. Describe the physical or operational change;
 - ii. Identify the schedule for implementing the physical or operational change;
 - iii. Provide a statement of whether or not any New Source Performance Standard (NSPS) is applicable to the physical or operational change and the reason why the NSPS does or does not apply;
 - iv. Provide emission calculations which demonstrate that the physical or operational change will not result in a modification; and
 - v. Provide a certification that the physical or operational change will not result in emissions greater than authorized under the Conditions of this permit.

8.5 Testing Procedures

Tests conducted to measure composition of materials, efficiency of pollution control devices, emissions from process or control equipment, or other parameters shall be conducted using standard test methods. Documentation of the test date, conditions, methodologies, calculations, and test results shall be retained pursuant to the recordkeeping procedures of this permit. Reports of any tests conducted as required by this permit or as the result of a request by the Illinois EPA shall be submitted as specified in Condition 8.6.

8.6 Reporting Requirements

8.6.1 Monitoring Reports

If monitoring is required by any applicable requirements or conditions of this permit, a report summarizing the required monitoring results, as specified in the conditions of this permit, shall be submitted to the Air Compliance Section of the Illinois EPA every six months as follows [Section 39.5(7)(f) of the Act]:

| <u>Monitoring Period</u> | <u>Report Due Date</u> |
|--------------------------|------------------------|
| January - June | September 1 |
| July - December | March 1 |

All instances of deviations from permit requirements must be clearly identified in such reports. All such reports shall be certified in accordance with Condition 9.9.

8.6.2 Test Notifications

Unless otherwise specified elsewhere in this permit, a written test plan for any test required by this permit shall be submitted to the Illinois EPA for review at least 60 days prior to the testing pursuant to Section 39.5(7)(a) of the Act. The notification shall include at a minimum:

- a. The name and identification of the affected unit(s);
- b. The person(s) who will be performing sampling and analysis and their experience with similar tests;
- c. 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 source and any control equipment will be determined;
- d. The specific determination of emissions and operation which are intended to be made, including sampling and monitoring locations;
- e. The test method(s) which will be used, with the specific analysis method, if the method can be used with different analysis methods;
- f. Any minor changes in standard methodology proposed to accommodate the specific circumstances of testing, with justification; and

- g. Any proposed use of an alternative test method, with detailed justification.

8.6.3 Test Reports

Unless otherwise specified elsewhere in this permit, the results of any test required by this permit shall be submitted to the Illinois EPA within 60 days of completion of the testing. The test report shall include at a minimum [Section 39.5(7)(e)(i) of the Act]:

- a. The name and identification of the affected unit(s);
- b. The date and time of the sampling or measurements;
- c. The date any analyses were performed;
- d. The name of the company that performed the tests and/or analyses;
- e. The test and analytical methodologies used;
- f. The results of the tests including raw data, and/or analyses including sample calculations;
- g. The operating conditions at the time of the sampling or measurements; and
- h. The name of any relevant observers present including the testing company's representatives, any Illinois EPA or USEPA representatives, and the representatives of the source.

8.6.4 Reporting Addresses

- a. The following addresses should be utilized for the submittal of reports, notifications, and renewals:
 - i. Illinois EPA - Air Compliance Section
Illinois Environmental Protection Agency
Bureau of Air
Compliance Section (MC 40)
P.O. Box 19276
Springfield, Illinois 62794-9276
 - ii. Illinois EPA - Air Regional Field Office
Illinois Environmental Protection Agency
Division of Air Pollution Control
2009 Mall Street
Collinsville, Illinois 62234

iii. Illinois EPA - Air Permit Section

Illinois Environmental Protection Agency
Division of Air Pollution Control
Permit Section (MC 11)
P.O. Box 19506
Springfield, Illinois 62794-9506

iv. USEPA Region 5 - Air Branch

USEPA (AE - 17J)
Air & Radiation Division
77 West Jackson Boulevard
Chicago, Illinois 60604

- b. Unless otherwise specified in the particular provision of this permit, reports shall be sent to the Illinois EPA - Air Compliance Section with a copy sent to the Illinois EPA - Air Regional Field Office.

8.7 Obligation to Comply with Title I Requirements

Any term, condition, or requirement identified in this permit by T1, T1R, or T1N is established or revised pursuant to 35 IAC Part 203 or 40 CFR 52.21 ("Title I provisions") and incorporated into this permit pursuant to both Section 39.5 and Title I provisions. Notwithstanding the expiration date on the first page of this permit, the Title I conditions remain in effect pursuant to Title I provisions until the Illinois EPA deletes or revises them in accordance with Title I procedures.

9.0 STANDARD PERMIT CONDITIONS

9.1 Effect of Permit

9.1.1 The issuance of this permit does not release the Permittee from compliance with State and Federal regulations which are part of the Illinois State Implementation Plan, as well as with other applicable statutes and regulations of the United States or the State of Illinois or applicable ordinances, except as specifically stated in this permit and as allowed by law and rule [Section 39.5(7)(j)(iv) of the Act].

9.1.2 In particular, this permit does not alter or affect the following:

- a. The provisions of Section 303 (emergency powers) of the CAA, including USEPA's authority under that Section;
- b. The liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance;
- c. The applicable requirements of the acid rain program consistent with Section 408(a) of the CAA; and
- d. The ability of USEPA to obtain information from a source pursuant to Section 114 (inspections, monitoring, and entry) of the CAA.

9.1.3 Notwithstanding the conditions of this permit specifying compliance practices for applicable requirements, any person (including the Permittee) may also use other credible evidence to establish compliance or noncompliance with applicable requirements.

9.2 General Obligations of Permittee

9.2.1 Duty to Comply

The Permittee must comply with all terms and conditions of this permit. Any permit noncompliance constitutes a violation of the CAA and the Act, and is grounds for any or all of the following: enforcement action, permit termination, revocation and reissuance, modification, or denial of a permit renewal application [Section 39.5(7)(o)(i) of the Act].

The Permittee shall meet applicable requirements that become effective during the permit term in a timely manner unless an alternate schedule for compliance with the applicable requirement is established.

9.2.2 Duty to Maintain Equipment

The Permittee shall maintain all equipment covered under this permit in such a manner that the performance or operation of such equipment shall not cause a violation of applicable requirements.

9.2.3 Duty to Cease Operation

No person shall cause, threaten or allow the continued operation of any emission unit during malfunction or breakdown of the emission unit or related air pollution control equipment if such operation would cause a violation of an applicable emission standard, regulatory requirement, ambient air quality standard or permit limitation unless such malfunction or breakdown is allowed by a permit condition [Section 39.5(6)(c) of the Act].

9.2.4 Disposal Operations

The source shall be operated in such a manner that the disposal of air contaminants collected by the equipment operations, or activities shall not cause a violation of the Act or regulations promulgated thereunder.

9.2.5 Duty to Pay Fees

The Permittee must pay fees to the Illinois EPA consistent with the fee schedule approved pursuant to Section 39.5(18) of the Act, and submit any information relevant thereto [Section 39.5(7)(o)(vi) of the Act]. The check should be payable to "Treasurer, State of Illinois" and sent to: Fiscal Services Section, Illinois Environmental Protection Agency, P.O. Box 19276, Springfield, Illinois 62794-9276.

9.3 Obligation to Allow Illinois EPA Surveillance

Upon presentation of proper credentials and other documents, the Permittee shall allow the Illinois EPA, or an authorized representative to perform the following [Section 39.5(7)(a) and (p)(ii) of the Act and 415 ILCS 5/4]:

- a. Enter upon the Permittee's premises where an actual or potential emission unit is located; where any regulated equipment, operation, or activity is located or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect during hours of operation any sources, equipment (including monitoring and air pollution control

equipment), practices, or operations regulated or required under this permit;

- d. Sample or monitor any substances or parameters at any location:
 - i. At reasonable times, for the purposes of assuring permit compliance; or
 - ii. As otherwise authorized by the CAA, or the Act.
- e. Obtain and remove samples of any discharge or emission of pollutants authorized by this permit; and
- f. Enter and utilize any photographic, recording, testing, monitoring, or other equipment for the purposes of preserving, testing, monitoring, or recording any activity, discharge or emission at the source authorized by this permit.

9.4 Obligation to Comply with Other Requirements

The issuance of this permit does not release the Permittee from applicable State and Federal laws and regulations, and applicable local ordinances addressing subjects other than air pollution control.

9.5 Liability

9.5.1 Title

This permit shall not be considered as in any manner affecting the title of the premises upon which the permitted source is located.

9.5.2 Liability of Permittee

This permit does not release the Permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the sources.

9.5.3 Structural Stability

This permit does not take into consideration or attest to the structural stability of any unit or part of the source.

9.5.4 Illinois EPA Liability

This permit in no manner implies or suggests that the Illinois EPA (or its officers, agents or employees) assumes any liability, directly or indirectly, for any

loss due to damage, installation, maintenance, or operation of the source.

9.5.5 Property Rights

This permit does not convey any property rights of any sort, or any exclusive privilege [Section 39.5(7) (o) (iv) of the Act].

9.6 Recordkeeping

9.6.1 Control Equipment Maintenance Records

A maintenance record shall be kept on the premises for each item of air pollution control equipment. As a minimum, this record shall show the dates of performance and nature of preventative maintenance activities.

9.6.2 Records of Changes in Operation

A record shall be kept describing changes made at the source that result in emissions of a regulated air pollutant subject to an applicable requirement, but not otherwise regulated under this permit, and the emissions resulting from those changes [Section 39.5(12) (b) (iv) of the Act].

9.6.3 Retention of Records

- a. Records of all monitoring data and support information shall be retained for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records, original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit [Section 39.5(7) (e) (ii) of the Act].
- b. Other records required by this permit shall be retained for a period of at least 5 years from the date of entry unless a longer period is specified by a particular permit provision.

9.7 Annual Emissions Report

The Permittee shall submit an annual emissions report to the Illinois EPA, Compliance Section no later than May 1 of the following year, as required by 35 IAC Part 254.

9.8 Requirements for Compliance Certification

Pursuant to Section 39.5(7) (p) (v) of the Act, the Permittee shall submit annual compliance certifications. The compliance

certifications shall be submitted no later than May 1 or more frequently as specified in the applicable requirements or by permit condition. The compliance certifications shall be submitted to the Air Compliance Section, Air Regional Field Office, and USEPA Region 5 - Air Branch. The addresses for the submittal of the compliance certifications are provided in Condition 8.6.4 of this permit.

- a. The certification shall include the identification of each term or condition of this permit that is the basis of the certification; the compliance status; whether compliance was continuous or intermittent; the method(s) used for determining the compliance status of the source, both currently and over the reporting period consistent with the conditions of this permit.
- b. All compliance certifications shall be submitted to USEPA Region 5 in Chicago as well as to the Illinois EPA.
- c. All compliance reports required to be submitted shall include a certification in accordance with Condition 9.9.

9.9 Certification

Any document (including reports) required to be submitted by this permit shall contain a certification by a responsible official of the Permittee that meets the requirements of Section 39.5(5) of the Act [Section 39.5(7)(p)(i) of the Act]. An example Certification by a Responsible Official is included as an attachment to this permit.

9.10 Defense to Enforcement Actions

9.10.1 Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit [Section 39.5(7)(o)(ii) of the Act].

9.10.2 Emergency Provision

- a. An emergency shall be an affirmative defense to an action brought for noncompliance with the technology-based emission limitations under this permit if the following conditions are met through properly signed, contemporaneous operating logs, or other relevant evidence:
 - i. An emergency occurred as provided in Section 39.5(7)(k) of the Act and the Permittee can identify the cause(s) of the emergency.

Normally, an act of God such as lightning or flood is considered an emergency;

- ii. The permitted source was at the time being properly operated;
 - iii. The Permittee submitted notice of the emergency to the Illinois EPA within two working days of the time when emission limitations were exceeded due to the emergency. This notice must contain a detailed description of the emergency, any steps taken to mitigate emissions, and corrective actions taken; and
 - iv. During the period of the emergency the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission limitations, standards, or regulations in this permit.
- b. This provision is in addition to any emergency or upset provision contained in any applicable requirement. This provision does not relieve a Permittee of any reporting obligations under existing federal or state laws or regulations.

9.11 Permanent Shutdown

This permit only covers emission units and control equipment while physically present at the indicated source location(s). Unless this permit specifically provides for equipment relocation, this permit is void for the operation or activity of any item of equipment on the date it is removed from the permitted location(s) or permanently shut down. This permit expires if all equipment is removed from the permitted location(s), notwithstanding the expiration date specified on this permit.

9.12 Reopening and Reissuing Permit for Cause

9.12.1 Permit Actions

This permit may be modified, reopened, and reissued, for cause pursuant to Section 39.5(15) of the Act. The filing of a request by the Permittee for a permit modification, revocation, and reissuance, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition [Section 39.5(7) (o) (iii) of the Act].

9.12.2 Reopening and Revision

This permit must be reopened and revised if any of the following occur [Section 39.5(15) (a) of the Act]:

- a. Additional requirements become applicable to the equipment covered by this permit and three or more years remain before expiration of this permit;
- b. Additional requirements become applicable to an affected source for acid deposition under the acid rain program;
- c. The Illinois EPA or USEPA determines that this permit contains a material mistake or inaccurate statement when establishing the emission standards or limitations, or other terms or conditions of this permit; and
- d. The Illinois EPA or USEPA determines that this permit must be revised to ensure compliance with the applicable requirements of the Act.

9.12.3 Inaccurate Application

The Illinois EPA has issued this permit based upon the information submitted by the Permittee in the permit application. Any misinformation, false statement or misrepresentation in the application shall be grounds for revocation under Section 39.5(15) (b) of the Act.

9.12.4 Duty to Provide Information

The Permittee shall furnish to the Illinois EPA, within a reasonable time specified by the Illinois EPA any information that the Illinois EPA may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. Upon request, the Permittee shall also furnish to the Illinois EPA copies of records required to be kept by this permit, or for information claimed to be confidential, the Permittee may furnish such records directly to USEPA along with a claim of confidentiality [Section 39.5(7) (o) (v) of the Act].

9.13 Severability Clause

The provisions of this permit are severable, and should any one or more be determined to be illegal or unenforceable, the validity of the other provisions shall not be affected. The rights and obligations of the Permittee shall be construed and enforced as if this permit did not contain the particular provisions held to be invalid and the applicable requirements underlying these provisions shall remain in force [Section 39.5(7) (i) of the Act].

9.14 Permit Expiration and Renewal

The right to operate terminates on the expiration date unless the Permittee has submitted a timely and complete renewal

application. For a renewal to be timely it must be submitted no later than 9 and no sooner than 12 months prior to expiration. The equipment may continue to operate during the renewal period until final action is taken by the Illinois EPA, in accordance with the original permit conditions [Section 39.5(5)(1), (n), and (o) of the Act].

10.0 ATTACHMENTS

10.1 Attachment 1 - List and Details of Storage Tanks

This attachment consists of four tables of significant emission unit tanks by various types and/or location with the source, as follows:

Table 1 External Floating Roof Tanks Located in Logistics Department

Table 2 Other External Floating Roof Tanks

Table 3 Internal Floating Roof Tanks

Table 4 Fixed Roof Tanks

Note that there are many tanks that are considered insignificant emission unit in Section 3 of this permit.

These tables do not include two gasoline dispensing tanks, which are in Section 7.13, or tanks associated with the wastewater treatment system, which are in Section 7.12.

Table 1 - External Floating Roof Tanks Located in the Logistics Department^a

| Tank No. | Capacity | Year Constructed |
|----------|------------|------------------|
| TK-A 016 | 3,381,000 | Pre-1972 |
| TK-A 024 | 3,410,000 | Pre-1972 |
| TK-A 025 | 3,364,000 | Pre-1972 |
| TK-A 027 | 3,364,000 | Pre-1972 |
| TK-A 028 | 3,410,000 | Pre-1972 |
| TK-A 031 | 5,527,000 | Pre-1972 |
| TK-A 032 | 3,411,000 | Pre-1972 |
| TK-A 033 | 3,973,000 | Pre-1972 |
| TK-A 034 | 5,527,000 | Pre-1972 |
| TK-A 035 | 3,376,000 | Pre-1972 |
| TK-A 037 | 4,061,000 | Pre-1972 |
| TK-A 040 | 5,628,000 | Pre-1972 |
| TK-A 041 | 5,628,000 | Pre-1972 |
| TK-A 052 | 3,360,000 | Pre-1972 |
| TK-A 057 | 2,285,000 | Pre-1972 |
| TK-A 058 | 2,285,000 | Pre-1972 |
| TK-A 059 | 3,385,000 | Pre-1972 |
| TK-A 060 | 3,385,000 | Pre-1972 |
| TK-A 061 | 3,360,000 | Pre-1972 |
| TK-A 065 | 3,410,000 | Pre-1972 |
| TK-A 066 | 3,410,000 | Pre-1972 |
| TK-A 067 | 3,410,000 | Pre-1972 |
| TK-A 068 | 3,410,000 | Pre-1972 |
| TK-A 069 | 3,410,000 | Pre-1972 |
| TK-A 070 | 3,410,000 | Pre-1972 |
| TK-A 071 | 3,410,000 | Pre-1972 |
| TK-A 072 | 3,410,000 | Pre-1972 |
| TK-A 073 | 5,527,000 | Pre-1972 |
| TK-A 074 | 5,527,000 | Pre-1972 |
| TK-A 075 | 5,527,000 | Pre-1972 |
| TK-A 076 | 5,527,000 | Pre-1972 |
| TK-A 077 | 5,527,000 | Pre-1972 |
| TK-A 078 | 5,527,000 | Pre-1972 |
| TK-A 079 | 5,527,000 | Pre-1972 |
| TK-A 080 | 5,527,000 | Pre-1972 |
| TK-A 081 | 5,527,000 | Pre-1972 |
| TK-A 082 | 5,527,000 | Pre-1972 |
| TK-A 083 | 5,527,000 | Pre-1972 |
| TK-A 084 | 5,527,000 | Pre-1972 |
| TK-A 088 | 5,527,000 | Pre-1972 |
| TK-A 089 | 5,527,000 | Pre-1972 |
| TK-A 090 | 5,527,000 | Pre-1972 |
| TK-A 094 | 5,527,000 | Pre-1972 |
| TK-A 095 | 5,527,000 | Pre-1972 |
| TK-A 096 | 5,527,000 | Pre-1972 |
| TK-A 097 | 12,227,000 | 1976 |
| TK-A 106 | 4,061,000 | Pre-1972 |

| Tank No. | Capacity | Year Constructed |
|----------|-----------|------------------|
| TK-A 107 | 4,061,000 | Pre-1972 |
| TK-A 108 | 4,061,000 | Pre-1972 |
| TK-A 109 | 4,061,000 | Pre-1972 |
| TK-A 110 | 4,746,000 | Pre-1972 |
| TK-A 111 | 4,746,000 | Pre-1972 |
| TK-A 112 | 2,285,000 | Pre-1972 |
| TK-A 113 | 4,011,000 | Pre-1972 |
| TK-A 115 | 4,061,000 | Pre-1972 |
| TK-A 119 | 3,410,000 | Pre-1972 |
| TK-A 120 | 3,410,000 | Pre-1972 |
| TK-A 121 | 4,061,000 | Pre-1972 |
| TK-A 123 | 3,410,000 | Pre-1972 |
| TK-A 124 | 6,346,000 | Pre-1972 |
| TK-A 125 | 6,346,000 | Pre-1972 |
| TK-A 127 | 3,410,000 | Pre-1972 |
| TK-A 128 | 4,061,000 | Pre-1972 |
| TK-A 129 | 6,346,000 | Pre-1972 |
| TK-A 130 | 6,346,000 | Pre-1972 |
| TK-A 134 | 6,346,000 | Pre-1972 |
| TK-A 135 | 6,346,000 | Pre-1972 |
| TK-A 136 | 7,220,000 | Pre-1972 |
| TK-A 137 | 7,220,000 | Pre-1972 |
| TK-A 138 | 7,220,000 | Pre-1972 |
| TK-A 139 | 7,220,000 | Pre-1972 |
| TK-A 140 | 6,346,000 | Pre-1972 |
| TK-F 061 | 1,266,000 | Pre-1972 |
| TK-F 081 | 1,382,000 | Pre-1972 |
| TK-F 082 | 1,382,000 | Pre-1972 |
| TK-G 006 | 3,801,000 | Pre-1972 |
| TK-G 007 | 2,705,000 | Pre-1972 |

^a All tanks may store volatile petroleum liquids with a maximum vapor pressure of 12.5 psia. The tanks are classified as Group 1 tanks pursuant to the NESHAP and equipped with vapor-mounted resilient filled primary seal and a rim-mounted secondary seal. All floating roof tanks have no vapor space and meet the requirement for submerged loading.

Any tank constructed after June 11, 1973 is subject to 40 CFR 60 (NSPS) but meeting the requirements of a NESHAP Group 1 tank meets the NSPS requirements.

Table 2 - Other External Floating Roof Tanks^a

| Tank No. | Capacity (Gallons) | Location | Maximum Vapor Pressure, psia | Seal Type | Year Built |
|------------|-----------------------|-----------------|---------------------------------|---|------------|
| TK-CH 290 | 105,000 | Alky/Cracking | 11.1 | Dual Mechanical Seal | 1992 |
| TK-F 063 | 430,000 | Alky/Cracking | 1.5 | Mechanical Seal Primary/No Secondary | Pre-1972 |
| TK-C 029 | 114,000 | Distilling/Gas | 12.5 | Mechanical Shoe Primary/Rim-Mounted Secondary | Pre-1972 |
| TK-A 019 | 3,360,000 | Hydroprocessing | 1.5 | Mechanical Shoe Primary/No Secondary | Pre-1972 |
| TK-A 019-1 | 3,373,000 | Aromatics | 11.1 | Mechanical Shoe Primary/Rim-Mounted Secondary | 2004 |

^a The tanks with secondary seals may store a volatile petroleum liquid with a vapor pressure up to 12.5 psia or Group 1 material pursuant to a NESHAP. Tanks without secondary seals may not store materials with a vapor pressure exceeding 1.5 psia. All floating roof tanks have no vapor space and meet the requirement for submerged loading.

Any tank constructed after June 11, 1973 is subject to 40 CFR 60 (NSPS) but meeting the requirements of a NESHAP Group 1 tank meets the NSPS requirements.

^b These are limits that comply with applicable rules. There may be lower limits in order to comply with annual emission limits in construction permits.

Table 3 - Internal Floating Roof Tanks^a

| Tank No. | Capacity (Gallons) | Location | Maximum Vapor Pressure, psia | Seal Type | Year Built |
|----------|-----------------------|----------------|---------------------------------|--|---------------|
| TK-A 045 | 5,225,000 | Logistics | 12.5 | Vapor-Mounted Resilient Filled | Pre-1972 |
| TK-A 053 | 5,288,000 | Logistics | 12.5 | Vapor-Mounted Resilient Filled | Pre-1972 |
| TK-A 054 | 4,406,000 | Logistics | 12.5 | Vapor-Mounted Resilient Filled | Pre-1972 |
| TK-A 062 | 2,285,000 | Logistics | 11.1 | Liquid-Mounted Resilient Filled | Pre-1972 |
| TK-A 063 | 2,285,000 | Logistics | 11.1 | Liquid-Mounted Resilient Filled | Pre-1972 |
| TK-A 064 | 2,285,000 | Logistics | 11.1 | Vapor-Mounted Resilient Filled | Pre-1972 |
| TK-A 116 | 3,385,000 | Logistics | 12.5 | Vapor-Mounted Resilient Filled | Pre-1972 |
| TK-A 122 | 5,527,000 | Logistics | 7.5 | Vapor-Mounted Resilient Filled | Pre-1972 |
| TK-A 150 | 7,350,000 | Logistics | 7.5 ^b | Vapor-Mounted Resilient Filled | 1991 |
| TK-A 151 | 7,678,000 | Logistics | 11.1 ^b | Vapor-Mounted Resilient Filled | 1991 |
| TK-F 002 | 620,000 | Logistics | 12.5 | Vapor-Mounted Resilient Filled | Pre-1972 |
| TK-F 004 | 907,000 | Logistics | 12.5 | Vapor-Mounted Resilient Filled | Pre-1972 |
| TK-F 011 | 623,000 | Logistics | 12.5 | Vapor-Mounted Resilient Filled | Pre-1972 |
| TK-F 021 | 705,600 | Logistics | 12.5 | Vapor-Mounted Resilient Filled | Pre-1972 |
| TK-F 033 | 1,050,000 | Logistics | 12.5 | Vapor-Mounted Resilient Filled | Pre-1972 |
| TK-F 057 | 1,285,000 | Logistics | 5.0 ^b | Vapor-Mounted Resilient Filled | Pre-1972 |
| TK-F 059 | 1,070,000 | Logistics | 5.0 ^b | Vapor-Mounted Resilient Filled | Pre-1972 |
| TK-F 068 | 606,000 | Logistics | 11.1 | Vapor-Mounted Resilient Primary/Rim-Mounted Secondary | Pre-1972 |
| TK-F 072 | 708,000 | Logistics | 11.1 | Vapor-Mounted Resilient Primary/Rim-Mounted Secondary | Pre-1972 |
| TK-F 010 | 720,000 | Distilling/Gas | 11.1 | Vapor-Mounted Resilient Primary/Rim-Mounted Secondary | Pre-1972 |
| TK-F 051 | 846,000 | Alkyl Cracking | 12.5 | Vapor-Mounted Resilient Primary/Rim-Mounted Secondary | Pre-1972 |
| TK-F 067 | 630,000 | Utilities | 12.5 | Vapor-Mounted Resilient Filled | Pre-1972 |

^a Tanks with a listed maximum vapor pressure of 12.5 may only store a volatile petroleum liquid. Tanks with a listed maximum vapor pressure of 11.1 may store a volatile organic liquid in addition to a volatile petroleum liquid. These tanks are also Group 1 tanks with respect to NESHP, Subpart CC. All floating roof tanks have no vapor space and meet the requirement for submerged loading.

Any tank constructed after June 11, 1973 is subject to 40 CFR 60 (NSPS) but meeting the requirements of a NESHAP, Subpart CC Group 1 tank also meet the NSPS requirements.

Tanks TK-A 062, 063 and 064 are subject to 40 CFR 61 Subpart Y (Benzene Storage Vessels). Compliance with the requirements of a NESHAP, Subpart CC Group 1 tank also meet the Subpart Y requirements.

^b These are limits from state permits that assure that the VOM emission limits in Condition 7.2.6 are met.

Table 4 - Fixed Roof Tanks^a

| Tank No. | Capacity | Location | Year Built |
|--|-----------|--------------------------|------------|
| Tanks with vapor pressure up to 1.5 psia | | | |
| TK-B 102 | 18,000 | Alky/Cracking | Pre-1972 |
| TK-CH 168 | 9,400 | Alky/Cracking | Pre-1972 |
| TK-CH 223 | 14,000 | Alky/Cracking | Pre-1972 |
| TK-D 050 | 110,000 | Alky/Cracking | Pre-1972 |
| TK-FW 003 | 2,000 | Alky/Cracking | Pre-1972 |
| TK-L 117 | 18,000 | Alky/Cracking | Pre-1972 |
| TK-L 168 | 28,000 | Alky/Cracking | Pre-1972 |
| TK-CH 150 | 28,000 | Distilling/Gas | Pre-1972 |
| TK-CH 253 | 7,500 | Distilling/Gas | 1980 |
| TK-CH 275 | 400 | Distilling/Gas | 1988 |
| TK-D 009 | 222,000 | Distilling/Gas | |
| TK-D 010 | 222,000 | Distilling/Gas | |
| TK-D 043 | 223,000 | Distilling/Gas | |
| TK-E 020 | 67,000 | Distilling/Gas | |
| TK-SUMP-C3 #1 | 900 | Distilling/Gas | Pre-1972 |
| TK-SUMP-C3 #2 | 500 | Distilling/Gas | Pre-1972 |
| TK-SUMP-DU2 | 700 | Distilling/Gas | Pre-1972 |
| TK-SUMP-LOT | 1,400 | Distilling/Gas | Pre-1972 |
| TK-V 2690 | 37,000 | Distilling/Gas | Pre-1972 |
| TK-C 034 | 42,000 | Hydroprocessing | Pre-1972 |
| TK-CH 112 | 635,000 | Hydroprocessing | Pre-1972 |
| TK-CH 246 | 21,000 | Hydroprocessing | Pre-1972 |
| TK-CH 264 | 21,000 | Hydroprocessing | 1982 |
| TK-H 030 | 18,000 | Hydroprocessing | Pre-1972 |
| TK-H 031 | 18,000 | Hydroprocessing | Pre-1972 |
| TK-A 004 | 1,501,000 | Lubes | Pre-1972 |
| TK-A 133 | 3,483,000 | Lubes | Pre-1972 |
| TK-D 037 | 224,000 | Lubes | Pre-1972 |
| TK-D 046 | 222,000 | Lubes | Pre-1972 |
| TK-F 024 | 643,000 | Lubes | Pre-1972 |
| TK-F 025 | 636,000 | Lubes | Pre-1972 |
| TK-F 034 | 617,000 | Lubes | Pre-1972 |
| TK-L 102 | 114,000 | Lubes | Pre-1972 |
| TK-L 178 | 1,009,000 | Lubes | Pre-1972 |
| TK-L 180 | 1,010,000 | Lubes | Pre-1972 |
| TK-L 181 | 1,009,000 | Lubes | Pre-1972 |
| TK-L 182 | 1,009,000 | Lubes | Pre-1972 |
| TK-L 190 | 1,379,000 | Lubes | Pre-1972 |
| TK-L 192 | 1,379,000 | Lubes | Pre-1972 |
| TK-C 047 | 47,000 | Environmental Operations | 1989 |
| TK-CH 235 | 66,000 | Environmental Operations | Pre-1972 |
| TK-CH 245 | 46,000 | Environmental Operations | 1979 |
| TK-CH 278 | 110,000 | Environmental Operations | 1988 |
| TK-E 034 | 113,000 | Environmental Operations | 1989 |
| TK-M 053 | 132,000 | Environmental Operations | Pre-1972 |
| TK-T 005 | 6,000 | Environmental Operations | 1989 |

| Tank No. | Capacity | Location | Year Built |
|-----------|------------|--------------------------|------------|
| TK-V 4550 | 14,000 | Environmental Operations | 1995 |
| TK-A 010 | 3,729,000 | Logistics | Pre-1972 |
| TK-A 022 | 3,378,000 | Logistics | Pre-1972 |
| TK-A 029 | 3,378,000 | Logistics | Pre-1972 |
| TK-A 039 | 5,725,000 | Logistics | Pre-1972 |
| TK-A 042 | 5,725,000 | Logistics | Pre-1972 |
| TK-A 046 | 5,725,000 | Logistics | Pre-1972 |
| TK-A 047 | 5,725,000 | Logistics | Pre-1972 |
| TK-A 048 | 5,725,000 | Logistics | Pre-1972 |
| TK-A 049 | 5,725,000 | Logistics | Pre-1972 |
| TK-A 050 | 2,200,000 | Logistics | Pre-1972 |
| TK-A 100 | 5,527,000 | Logistics | Pre-1972 |
| TK-A 101 | 5,527,000 | Logistics | Pre-1972 |
| TK-A 102 | 3,384,000 | Logistics | Pre-1972 |
| TK-A 103 | 3,384,000 | Logistics | Pre-1972 |
| TK-A 104 | 3,384,000 | Logistics | Pre-1972 |
| TK-A 105 | 5,527,000 | Logistics | Pre-1972 |
| TK-A 114 | 3,468,000 | Logistics | Pre-1972 |
| TK-A 117 | 6,477,000 | Logistics | Pre-1972 |
| TK-A 118 | 6,477,000 | Logistics | Pre-1972 |
| TK-A 131 | 2,284,000 | Logistics | Pre-1972 |
| TK-A 141 | 4,145,000 | Logistics | Pre-1972 |
| TK-A 142 | 4,145,000 | Logistics | Pre-1972 |
| TK-A 143 | 6,345,000 | Logistics | Pre-1972 |
| TK-A 144 | 11,280,000 | Logistics | 1974 |
| TK-A 146 | 11,280,000 | Logistics | 1974 |
| TK-A 147 | 11,280,000 | Logistics | 1974 |
| TK-A 148 | 11,280,000 | Logistics | 1980 |
| TK-A 157 | 3,217,000 | Logistics | 2002 |
| TK-C 028 | 223,000 | Logistics | Pre-1972 |
| TK-C 032 | 305,000 | Logistics | Pre-1972 |
| TK-C 045 | 40,000 | Logistics | Pre-1972 |
| TK-CH 210 | 24,000 | Logistics | Pre-1972 |
| TK-F 012 | 709,000 | Logistics | Pre-1972 |
| TK-F 035 | 607,000 | Logistics | Pre-1972 |
| TK-F 050 | 1,284,000 | Logistics | Pre-1972 |
| TK-F 056 | 1,322,000 | Logistics | Pre-1972 |
| TK-F 065 | 1,0169,000 | Logistics | Pre-1972 |
| TK-F 066 | 720,000 | Logistics | Pre-1972 |
| TK-F 069 | 663,000 | Logistics | Pre-1972 |
| TK-F 070 | 708,000 | Logistics | Pre-1972 |
| TK-F 073 | 706,000 | Logistics | Pre-1972 |
| TK-F 074 | 706,000 | Logistics | Pre-1972 |
| TK-OF 075 | 706,000 | Logistics | Pre-1972 |
| TK-F 076 | 1,802,000 | Logistics | Pre-1972 |
| TK-F 077 | 1,802,000 | Logistics | Pre-1972 |
| TK-F 078 | 1,803,000 | Logistics | Pre-1972 |
| TK-F 080 | 1,389,000 | Logistics | Pre-1972 |
| TK-L 028 | 110,000 | Logistics | Pre-1972 |
| TK-L 029 | 110,000 | Logistics | Pre-1972 |

| Tank No. | Capacity | Location | Year Built |
|-----------|-----------|-----------|------------|
| TK-L 030 | 114,000 | Logistics | Pre-1972 |
| TK-L 031 | 114,000 | Logistics | Pre-1972 |
| TK-L 032 | 118,000 | Logistics | Pre-1972 |
| TK-L 033 | 118,000 | Logistics | Pre-1972 |
| TK-L 034 | 114,000 | Logistics | Pre-1972 |
| TK-L 035 | 49,000 | Logistics | Pre-1972 |
| TK-L 036 | 49,000 | Logistics | Pre-1972 |
| TK-L 046 | 109,000 | Logistics | Pre-1972 |
| TK-L 064 | 421,000 | Logistics | Pre-1972 |
| TK-L 119 | 223,000 | Logistics | Pre-1972 |
| TK-L 120 | 223,000 | Logistics | Pre-1972 |
| TK-L 122 | 132,000 | Logistics | Pre-1972 |
| TK-L 123 | 141,000 | Logistics | Pre-1972 |
| TK-L 124 | 80,000 | Logistics | Pre-1972 |
| TK-L 125 | 643,000 | Logistics | Pre-1972 |
| TK-L 126 | 643,000 | Logistics | Pre-1972 |
| TK-L 127 | 228,000 | Logistics | Pre-1972 |
| TK-L 139 | 124,000 | Logistics | Pre-1972 |
| TK-L 140 | 228,000 | Logistics | Pre-1972 |
| TK-L 141 | 228,000 | Logistics | Pre-1972 |
| TK-L 147 | 123,000 | Logistics | Pre-1972 |
| TK-L 156 | 215,000 | Logistics | Pre-1972 |
| TK-L 158 | 716,000 | Logistics | Pre-1972 |
| TK-L 159 | 216,000 | Logistics | Pre-1972 |
| TK-L 160 | 424,000 | Logistics | Pre-1972 |
| TK-L 161 | 126,000 | Logistics | Pre-1972 |
| TK-L 162 | 1,036,000 | Logistics | Pre-1972 |
| TK-L 163 | 1,020,000 | Logistics | Pre-1972 |
| TK-L 164 | 707,000 | Logistics | Pre-1972 |
| TK-L 165 | 707,000 | Logistics | Pre-1972 |
| TK-L 166 | 707,000 | Logistics | Pre-1972 |
| TK-L 167 | 227,000 | Logistics | Pre-1972 |
| TK-L 169 | 223,000 | Logistics | Pre-1972 |
| TK-L 170 | 227,000 | Logistics | Pre-1972 |
| TK-L 171 | 217,000 | Logistics | Pre-1972 |
| TK-L 172 | 223,000 | Logistics | Pre-1972 |
| TK-L 173 | 1,036,000 | Logistics | Pre-1972 |
| TK-L 184 | 220,000 | Logistics | Pre-1972 |
| TK-L 185 | 220,000 | Logistics | Pre-1972 |
| TK-L 187 | 220,000 | Logistics | Pre-1972 |
| TK-L 188 | 701,000 | Logistics | Pre-1972 |
| TK-L 189 | 1,378,000 | Logistics | Pre-1972 |
| TK-L 191 | 1,379,000 | Logistics | Pre-1972 |
| TK-L 193 | 450,000 | Logistics | Pre-1972 |
| TK-N 067 | 414,000 | Logistics | Pre-1972 |
| TK-N 069 | 420,000 | Logistics | Pre-1972 |
| TK-N 070 | 420,000 | Logistics | Pre-1972 |
| TK-N 071 | 420,000 | Logistics | Pre-1972 |
| TK-N 072 | 420,000 | Logistics | Pre-1972 |
| TK-V 1622 | 20,000 | Logistics | 1994 |

| Tank No. | Capacity | Location | Year Built |
|---|-----------|----------------|------------|
| TK-CH 117 | 10,000 | Utilities | Pre-1972 |
| Tanks with vapor pressure up to 0.75 psia | | | |
| TK-CH 213 | 56,000 | Alky/Cracking | 1977 |
| TK-CH 214 | 56,000 | Alky/Cracking | 1977 |
| TK-CH 215 | 190,000 | Alky/Cracking | 1977 |
| TK-CH 218 | 365,000 | Alky/Cracking | 1977 |
| TK-CH 222 | 190,000 | Alky/Cracking | 1977 |
| TK-CH 263 | 244,000 | Alky/Cracking | 1983 |
| TK-V 1931 | 1,100 | Alky/Cracking | Pre-1972 |
| TK-CH 267 | 169,000 | Distilling/Gas | 1983 |
| TK-A 154 | 2,520,000 | Logistics | 1994 |
| TK-A 155 | 2,520,000 | Logistics | 1994 |
| TK-A 156 | 5,508,000 | Logistics | 1997 |

^a All of these fixed roof tanks are equipped with submerged loading pipes.

Any tank constructed after June 11, 1973 is subject to NSPS 40 CFR 60 Subparts K, Ka or Kb. These fixed roof tanks do not meet the requirement for storing a high vapor pressure material. Records must be kept of the vapor pressure of the material stored or the capacity of the tank.

10.2 Attachment 2 - LDAR Program

| Table 1 LDAR Regulatory Applicability By Unit | | | | |
|--|--------------------------|----------------|-----------------------------------|------------------|
| Permit Emission Unit Number | Permittee Unit Number | 35 IAC 219.447 | Refinery MACT (Via 40 CFR 60, VV) | Other LDAR Rules |
| 67 | ALKY (WRR-16) | Applicable | Not Applicable | None |
| 58 | CCU-1 (WRR-7) | Applicable | Applicable | None |
| 61 | CCU-2 (WRR-8) | Applicable | Applicable | None |
| 65 | CR #2 (WRR-26) | Applicable | Applicable | None |
| 68 | CFH (WRR-8) | Applicable | Not Applicable | None |
| 69 | BT | Applicable | Not Applicable | None |
| 70 | CAU (WRR-5) | Applicable | Applicable | None |
| 71 | DIH No. 2 | Applicable | Applicable | None |
| 72 | DU-1 (WRR-1) | Applicable | Applicable | None |
| 73 | DU-2 (WRR-2) | Applicable | Applicable | None |
| 74 | LOT (WRR-5) | Applicable | Applicable | None |
| 75 | C3 Treaters | Applicable | Not Applicable | None |
| 76 | RAU (WRR-4) | Applicable | Applicable | None |
| 77 | SWS | Applicable | Applicable | None |
| 78 | VF-1, VF-2, VF-3 (WRR-6) | Applicable | Not Applicable | None |
| 79 | VBU (WRR-6) | Applicable | Applicable | None |
| 80 | DHT (WRR-23) | Applicable | Applicable | None |
| 81 | HCU (WRR-20) | Applicable | Applicable | None |
| 82 | HDU 1 and 2 (WRR-25) | Applicable | Applicable | None |
| 83 | KHT (WRR-24) | Applicable | Not Applicable | None |
| 84 | SGP (WRR-22) | Applicable | Applicable | None |
| 85 | SMR (WRR-20) | Applicable | Not Applicable | None |
| 86 | LEU (WRR-11) | Applicable | Applicable | None |
| 87 | LHT (WRR-12) | Applicable | Applicable | None |

| Table 1 LDAR Regulatory Applicability By Unit | | | | |
|--|-----------------------|----------------|-----------------------------------|----------------------|
| Permit Emission Unit Number | Permittee Unit Number | 35 IAC 219.447 | Refinery MACT (Via 40 CFR 60, VV) | Other LDAR Rules |
| 88 | VFC (WRR-6) | Applicable | Not Applicable | None |
| 64 | CR #1 (WRR-21) | Applicable | Applicable | None |
| 66 | CR #3 (WRR-25) | Applicable | Applicable | None |
| | Logistics (Interunit) | Applicable | Applicable | None |
| | RFG System to Boilers | Applicable | Applicable | None |
| 92 | BEU (WRR-19) | Applicable | Not Applicable | 40 CFR 63 Subpart H |
| | Docks | Applicable | Applicable | 40 CFR 63 Subpart H |
| | OMC Motor Lab | Not Applicable | Applicable | 40 CFR 63 Subpart H |
| | Quality Assurance | Not Applicable | Applicable | 40 CFR 61 Subpart FF |
| 89 | CNS (WRR-69) | Applicable | Applicable | None |
| 90 | HCNHT (WRR-69) | Applicable | Applicable | |
| 91 | CHT (WRR-60) | Applicable | Applicable | |

Table 2
Summary of Applicable Standards

| Component | Rule | | | "Most Stringent" |
|-----------|--|--|--|--|
| | 35 IAC 219.445 | 40 CFR 63 H (subsumes 40 CFR 61 J, V) | 40 CFR 63 CC | |
| Pump (LL) | Annual (between March 1 and June 1) 10,000 ppmv. Weekly AVO | Monthly 1000 (HON only) (Quality Improvement Program required if 6-month rolling average > 10%) Weekly AVO. | If > 5% HAP, Monthly 10,000 ppmv, Weekly AVO | Monthly 10,000 ppmv Weekly AVO. (Except at HON, which retains 1000 ppmv threshold and QIP trigger) |
| Pump (HL) | Annual (between March 1 and June 1) 10,000 ppmv. Weekly AVO | Unscheduled AVO. If evidence of leak, assume leak and repair, or monitor Win 5 days and repair at 2000 ppmv (HON only). | If > 5% HAP, Unscheduled AVO. If evidence of leak monitor w/in 5 days. Repair at 10,000 ppmv | As needed if leaking. 10,000 ppmv (except at HON, which retains 2000 ppmv threshold) |
| Valve(LL) | Annual (between March 1 and June 1) 10,000 ppmv | Monitor monthly if $\geq 2\%$ leak rate. Monitor quarterly if $< 2\%$ leak rate. Monitor semi-annual if $< 1\%$ leak rate. Monitor annually if $< 0.5\%$ leak rate. 500 ppmv *Permittee to chose implemented frequency based on historical leak rates | Monitor monthly. Monitor quarterly if no leaks for 2 months. Monitor annually if $< 2\%$ leak rate for 5 quarters. 10,000 ppmv *Permittee to chose implemented frequency based on historical leak rates | Monitor monthly. Monitor quarterly if no leaks for 2 months. Monitor annually if $< 2\%$ leak rate for 5 quarters. 10,000 ppmv (except at HON, which retains 500 ppmv threshold) |
| Valve(HL) | Annual (between March 1 and June 1) 10,000 ppm | As needed if leaking. 500 ppmv (HON only) | If > 5% HAP, As needed if leaking. 10,000 ppmv | As needed if leaking. 10,000 ppmv (except at HON, which retains 500 ppmv threshold) |

Table 2
Summary of Applicable Standards

| Component | Rule | | | "Most Stringent" |
|-------------------------|-----------------------|--|---|--|
| | 35 IAC 219.445 | 40 CFR 63 H (subsumes 40 CFR 61 J, V) | 40 CFR 63 CC | |
| Valve (G) | Quarterly 10,000 ppmv | Monitor monthly if $\geq 2\%$ leak rate. Monitor quarterly if $< 2\%$ leak rate. Monitor semi-annual if $< 1\%$ leak rate. Monitor annually if $< 0.5\%$ leak rate. 500 ppmv (HON only) *Permittee to chose implemented frequency based on historical leak rates. | Monitor monthly. Monitor quarterly if no leaks for 2 months. Monitor annually if $< 2\%$ leak rate for 5 quarters. 10,000 ppmv *Permittee to chose implemented frequency based on historical leak rates. | Monitor monthly. Monitor quarterly if no leaks for 2 months. Monitor annually if $< 2\%$ leak rate for 5 quarters 10,000 ppmv (except HON, which retains 500 ppmv threshold) |
| Compressor | Quarterly 10,000 ppmv | Inspect daily unless equipped with seal sensor alarm. | Inspect daily unless equipped with seal sensor alarm. | Quarterly 500 ppmv |
| Agitator (LL) | Not regulated | Monthly, 1000 ppmv, weekly AVO. (HON only) | Not regulated | Monthly, 500 ppmv (HON only or if $> 5\%$ HAP) |
| Agitator (HL) | Not regulated | Unscheduled AVO. If evidence of leak, assume leak and repair, or monitor Win 5 days and repair at 10000 ppmv (HON only). | Not regulated | At HON only. Unscheduled AVO. If evidence of leak, assume leak and repair, or monitor Win 5 days and repair at 10000 ppmv (HON only). |
| Fitting/Connector (LUG) | Not regulated | Annual. 500 ppmv. | Monitor within 5 days if indicators suggest a leak. 10,000 ppmv | Monitor within 5 days if indicators suggest a leak. 10,000 ppmv |
| Fitting/Connector (HL) | Not regulated | Unscheduled AVO. If evidence of leak, assume leak and repair, or monitor Win 5 days and repair at 500 ppmv (HON only). | Unscheduled AVO. If above 10,000 ppmv, repair | Unscheduled AVO. If evidence of leak, assume leak and repair, or monitor Win 5 days and repair at 500 ppmv. |

| Table 2 Summary of Applicable Standards | | | | |
|--|--|---|---|--|
| Component | Rule | | | "Most Stringent" |
| | 35 IAC 219.445 | 40 CFR 63 H (subsumes 40 CFR 61 J, V) | 40 CFR 63 CC | |
| Drains | Monitor annually between March 1 and June 1. 10,000 ppmv | Not regulated | Monitor annually between March 1 and June 1. 10,000 ppmv | Monitor annually between March 1 and June 1. 10,000 ppmv |
| Pressure Relief Valves (G) | Quarterly 10,000 ppmv. Also w/in 24 hrs of any vent to atmosphere. | Quarterly 500 ppmv. Also monitor w/in 5 days after release to atmosphere. | Quarterly 500 ppmv. Also monitor within 5 days after release to atmosphere. | Quarterly, 500 ppmv. Also monitor within 24 hours after release to atmosphere. |
| Pressure Relief Valves (L) | Monitor annually between March 1 and June 1. 10,000 ppmv | Unscheduled AVO. If evidence of leak, assume leak and repair, or monitor w/in 5 days and repair at 500 ppmv (HON only). | If >5% HAP, Unscheduled AVO. Monitor w/in 5 days. Repair at 10000 ppmv. | Unscheduled AVO. Repair at 500 ppmv. |
| Difficult to Monitor valves (LUG) | Monitor inaccessible valves annually | 500 ppmv. Difficult: annually | 10,000 ppmv. Difficult: annually NDE: annual at 500 ppmv | 10,000 ppmv. Difficult: annually NDE: annual at 500 ppmv |
| Closed Vent Systems | Not regulated | Visual annually | Monitor initially. Visual annually. 500 ppmv | Monitor initially. Visual annually. 500 ppmv |

For light liquid valves not regulated by the HON, repairs are required at 10,000 ppmv. For these valves, any repairs initiated at lower levels are voluntary.

Except for HON and certain gaseous components, only components leaking above 10,000 ppmv will be reported.

10.3 Attachment 3 - Example Certification by a Responsible Official

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____

Name: _____

Official Title: _____

Telephone No.: _____

Date Signed: _____

10.4 Attachment 4 - Guidance on Revising This Permit

The Permittee must submit an application to the Illinois EPA using the appropriate revision classification in accordance with Sections 39.5(13) and (14) of the Act and 35 IAC 270.302. Specifically, there are currently three classifications for revisions to a CAAPP permit. These are:

1. Administrative Permit Amendment;
2. Minor Permit Modification; and
3. Significant Permit Modification.

The Permittee must determine, request, and submit the necessary information to allow the Illinois EPA to use the appropriate procedure to revise the CAAPP permit. A brief explanation of each of these classifications follows.

1. Administrative Permit Amendment
 - Corrects typographical errors;
 - Identifies a change in the name, address, or phone number of any person identified in the permit, or provides a similar minor administrative change at the source;
 - Requires more frequent monitoring or reporting by the Permittee;
 - Allows for a change in ownership or operational control of the source where no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new Permittees has been submitted to the Illinois EPA. This shall be handled by completing form 272-CAAPP, REQUEST FOR OWNERSHIP CHANGE FOR CAAPP PERMIT; or
 - Incorporates into the CAAPP permit a construction permit, provided the conditions of the construction permit meet the requirements for the issuance of CAAPP permits.
2. Minor Permit Modification
 - Do not violate any applicable requirement;
 - Do not involve significant changes to existing monitoring, reporting, or recordkeeping requirements in the permit;

- Do not require a case-by-case determination of an emission limitation or other standard, or a source-specific determination of ambient impacts, or a visibility or increment analysis;
- Do not seek to establish or change a permit term or condition for which there is no corresponding underlying requirement and which avoids an applicable requirement to which the source would otherwise be subject. Such terms and conditions include:
 - A federally enforceable emissions cap assumed to avoid classification as a modification under any provision of Title I of the CAA; and
 - An alternative emissions limit approved pursuant to regulations promulgated under Section 112(i)(5) of the CAA.
- Are not modifications under any provision of Title I of the CAA;
- Are not required to be processed as a significant permit modification; and
- Modifications involving the use of economic incentives, marketable permits, emissions trading, and other similar approaches.

An application for a minor permit modification shall include the following:

- A description of the change, the emissions resulting from the change, and any new applicable requirements that will apply if the change occurs;
- The source's suggested draft permit/conditions;
- Certification by a responsible official that the proposed modification meets the criteria for use of minor permit modification procedures and a request that such procedures be used; and
- Information as contained on form 271-CAAPP, MINOR PERMIT MODIFICATION FOR CAAPP PERMIT for the Illinois EPA to use to notify USEPA and affected States.

3. Significant Permit Modification

- Applications that do not qualify as either minor permit modifications or as administrative permit amendments;

- Applications requesting a significant change in existing monitoring permit terms or conditions;
- Applications requesting a relaxation of reporting or recordkeeping requirements; and
- Cases in which, in the judgment of the Illinois EPA, action on an application for modification would require decisions to be made on technically complex issues.

An application for a significant permit modification shall include the following:

- A detailed description of the proposed change(s), including all physical changes to equipment, changes in the method of operation, changes in emissions of each pollutant, and any new applicable requirements which will apply as a result of the proposed change. Note that the Permittee need only submit revised forms for equipment and operations that will be modified.

The Illinois EPA requires the information on the following appropriate forms to be submitted in accordance with the proper classification:

- Form 273-CAAPP, REQUEST FOR ADMINISTRATIVE PERMIT AMENDMENT FOR CAAPP PERMIT; or
- Form 271-CAAPP, MINOR PERMIT MODIFICATION FOR CAAPP PERMIT; or
- Form 200-CAAPP, APPLICATION FOR CAAPP PERMIT (for significant modification).

Application forms can be obtained from the Illinois EPA website at <http://www.epa.state.il.us/air/forms>.

Note that the request to revise the permit must be certified for truth, accuracy, and completeness by a responsible official.

Note that failure to submit the required information may require the Illinois EPA to deny the application. The Illinois EPA reserves the right to require that additional information be submitted as needed to evaluate or take final action on applications pursuant to Section 39.5(5)(g) of the Act and 35 IAC 270.305.



Illinois Environmental Protection Agency
Division Of Air Pollution Control -- Permit Section
P.O. Box 19506
Springfield, Illinois 62794-9506

| | |
|---|----------------------------------|
| Application For Construction Permit (For CAAPP Sources Only) | For Illinois EPA use only |
| | I.D. number: |
| | Permit number: |
| | Date received: |

This form is to be used by CAAPP sources to supply information necessary to obtain a construction permit. Please attach other necessary information and completed CAAPP forms regarding this construction/modification project.

| Source Information | | |
|---|--------------|-----------------|
| 1. Source name: | | |
| 2. Source street address: | | |
| 3. City: | 4. Zip code: | |
| 5. Is the source located within city limits? <input type="checkbox"/> Yes <input type="checkbox"/> No | | |
| 6. Township name: | 7. County: | 8. I.D. number: |

| Owner Information | | |
|-------------------|------------|---------------|
| 9. Name: | | |
| 10. Address: | | |
| 11. City: | 12. State: | 13. Zip code: |

| Operator Information (if different from owner) | | |
|--|------------|---------------|
| 14. Name | | |
| 15. Address: | | |
| 16. City: | 17. State: | 18. Zip code: |

| Applicant Information | |
|---|--|
| 19. Who is the applicant? <input type="checkbox"/> Owner <input type="checkbox"/> Operator | 20. All correspondence to: (check one) <input type="checkbox"/> Owner <input type="checkbox"/> Operator <input type="checkbox"/> Source |
| 21. Attention name and/or title for written correspondence: | |
| 22. Technical contact person for application: | 23. Contact person's telephone number: |

This Agency is authorized to require and you must disclose this information under 415 ILCS 5/39. Failure to do so could result in the application being denied and penalties under 415 ILCS 5 et seq. It is not necessary to use this form in providing this information. This form has been approved by the forms management center.

| Summary Of Application Contents | |
|---|--|
| 24. Does the application address whether the proposed project would constitute a new major source or major modification under each of the following programs: a) Non-attainment New Source Review – 35 IAC Part 203; b) Prevention of Significant Deterioration (PSD) – 40 CFR 52.21; c) Hazardous Air Pollutants: Regulations Governing Constructed or Reconstructed Major Sources – 40 CFR Part 63? | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 25. Does the application identify and address all applicable emissions standards, including those found in the following: a) Board Emission Standards – 35 IAC Chapter I, Subtitle B; b) Federal New Source Performance Standards – 40 CFR Part 60; c) Federal Standards for Hazardous Air Pollutants – 40 CFR Parts 61 and 63? | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 26. Does the application include a process flow diagram(s) showing all emission units and control equipment, and their relationship, for which a permit is being sought? | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 27. Does the application include a complete process description for the emission units and control equipment for which a permit is being sought? | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 28. Does the application include the information as contained in completed CAAPP forms for all appropriate emission units and air pollution control equipment, listing all applicable requirements and proposed exemptions from otherwise applicable requirements, and identifying and describing any outstanding legal actions by either the USEPA or the Illinois EPA? Note: The use of "APC" application forms is not appropriate for applications for CAAPP sources. CAAPP forms should be used to supply information. | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 29. If the application contains TRADE SECRET information, has such information been properly marked and claimed, and have two separate copies of the application suitable for public inspection and notice been submitted, in accordance with applicable rules and regulations? | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable, No TRADE SECRET information in this application |

Note 1: Answering "No" to any of the above may result in the application being deemed incomplete.

| Signature Block | |
|--|-----------------------|
| This certification must be signed by a responsible official. Applications without a signed certification will be returned as incomplete. | |
| 30. I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the statements and information contained in this application are true, accurate and complete. Authorized Signature: | |
| BY: | _____ |
| _____ | _____ |
| AUTHORIZED SIGNATURE | TITLE OF SIGNATORY |
| _____ | _____ / _____ / _____ |
| TYPED OR PRINTED NAME OF SIGNATORY | DATE |

Note 2: An operating permit for the construction/modification permitted in a construction permit must be obtained by applying for the appropriate revision to the source's CAAPP permit, if necessary.

10.6 Attachment 6 - Guidance on Renewing This Permit

Timeliness - Pursuant to Section 39.5(5)(n) of the Act and 35 IAC 270.301(d), a source must submit to the Illinois EPA a complete CAAPP application for the renewal of a CAAPP permit not later than 9 months before the date of permit expiration of the existing CAAPP permit in order for the submittal to be deemed timely. Note that the Illinois EPA typically sends out renewal notices approximately 18 months prior to the expiration of the CAAPP permit.

The CAAPP application must provide all of the following information in order for the renewal CAAPP application to be deemed complete by the Illinois EPA:

1. A completed renewal application form 200-CAAPP, APPLICATION FOR CAAPP PERMIT.
2. A completed compliance plan form 293-CAAPP, COMPLIANCE PLAN/SCHEDULE OF COMPLIANCE FOR CAAPP PERMIT.
3. A completed compliance certification form 296-CAAPP, COMPLIANCE CERTIFICATION, signed by the responsible official.
4. Any applicable requirements that became effective during the term of the permit and that were not included in the permit as a reopening or permit revision.
5. If this is the first time this permit is being renewed and this source has not yet addressed CAM, the application should contain the information on form 464-CAAPP, COMPLIANCE ASSURANCE MONITORING (CAM) PLAN.
6. Information addressing any outstanding transfer agreement pursuant to the ERMS.
7. a. If operations of an emission unit or group of emission units remain unchanged and are accurately depicted in previous submittals, the application may contain a letter signed by a responsible official that requests incorporation by reference of existing information previously submitted and on file with the Illinois EPA. This letter must also include a statement that information incorporated by reference is also being certified for truth and accuracy by the responsible official's signing of the form 200-CAAPP, APPLICATION FOR CAAPP PERMIT and the form 296-CAAPP, COMPLIANCE CERTIFICATION. The boxes should be marked yes on form 200-CAAPP, APPLICATION FOR CAAPP PERMIT,

as existing information is being incorporated by reference.

- b. If portions of current operations are not as described in previous submittals, then in addition to the information above for operations that remain unchanged, the application must contain the necessary information on all changes, e.g., discussion of changes, new or revised CAAPP forms, and a revised fee form 292-CAAPP, FEE DETERMINATION FOR CAAPP PERMIT, if necessary.
8. Information about all off-permit changes that were not prohibited or addressed by the permit to occur without a permit revision and the information must be sufficient to identify all applicable requirements, including monitoring, recordkeeping, and reporting requirements, for such changes.
9. Information about all changes made under 40 CFR 70.4(b)(12)(i) and (ii) that require a 7-day notification prior to the change without requiring a permit revision.

The Illinois EPA will review all applications for completeness and timeliness. If the renewal application is deemed both timely and complete, the source shall continue to operate in accordance with the terms and conditions of its CAAPP permit until final action is taken on the renewal application.

Notwithstanding the completeness determination, the Illinois EPA may request additional information necessary to evaluate or take final action on the CAAPP renewal application. If such additional information affects your allowable emission limits, a revised form 292-CAAPP, FEE DETERMINATION FOR CAAPP PERMIT must be submitted with the requested information. The failure to submit to the Illinois EPA the requested information within the time frame specified by the Illinois EPA, may force the Illinois EPA to deny your CAAPP renewal application pursuant to Section 39.5 of the Act.

Application forms may be obtained from the Illinois EPA website at <http://www.epa.state.il.us/air/forms.html>.

If you have any questions regarding this matter, please contact a permit analyst at 217/782-2113.

Mail renewal applications to:

Illinois Environmental Protection Agency
Division of Air Pollution Control

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Permit Section (MC 11)
P.O. Box 19506
Springfield, Illinois 62794-9506

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