

FINAL DRAFT/PROPOSED CAAPP PERMIT
Mobil Oil Corporation - Joliet Refinery
I.D. No.: 197800AAA
Application No.: 95120304
April 10, 2000

217/782-2113

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

PERMITTEE

Mobil Oil Corporation - Joliet Refinery
Attn: L. Gachich
I-55 & Arsenal Road
Joliet, Illinois 60434

<u>Application No.:</u> 95120304	<u>I.D. No.:</u> 197800AAA
<u>Applicant's Designation:</u>	<u>Date Received:</u> December 27, 1995
<u>Operation of:</u> Petroleum Refinery	
<u>Date Issued:</u> TO BE DETERMINED	<u>Expiration Date</u> ² : DATE
<u>Source Location:</u> I-55 & Arsenal Road, Joliet, Will County, IL 60434	
<u>Responsible Official:</u> 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 John Cashman at 217/782-2113.

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

DES:JRC:psj

cc: Illinois EPA, FOS, Region 1
USEPA

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

Mobil Oil Corporation - Joliet Refinery
I-55 & Arsenal Road
Channahon, Illinois 60410
815/423-7308

I.D. No.: 197800AAA
Standard Industrial Classification: 2911, Petroleum Refining &
Related Industries

1.2 Owner/Parent Company

Mobil Oil Corporation
3225 Gallows Road
Fairfax, Virginia 22037

1.3 Operator

Mobil Oil Corporation - Joliet Refinery
P.O. Box 874
Joliet, Illinois 60434

L. Gachich, Environmental Group Leader
815/423-7755

1.4 General Source Description

Mobil Oil Corporation - Joliet Refinery is a fully integrated petroleum refinery which was built to provide high quality gasoline, diesel fuels, and other petroleum products to the marketplace. The refinery basically performs four common refining functions throughout its processing of crude oil: Separation, Conversion, Purification, and Blending.

2.0 LIST OF ABBREVIATIONS/ACRONYMS USED IN THIS PERMIT

Act	Illinois 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
Btu	British thermal unit
CAA	Clean Air Act [42 U.S.C. Section 7401 et seq.]
CAAPP	Clean Air Act Permit Program
CFR	Code of Federal Regulations
HAP	Hazardous Air Pollutant
hr	hour
IAC	Illinois Administrative Code
I.D. No.	Identification Number of Source, assigned by Illinois EPA
Illinois EPA	Illinois Environmental Protection Agency
kW	kilowatts
lb	pound
mmBtu	Million British thermal units
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO _x	Nitrogen Oxides
NSPS	New Source Performance Standards
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
RMP	Risk Management Plan
SO ₂	Sulfur Dioxide
T1	Title I - identifies Title I conditions that have been carried over from an existing permit
T1N	Title I New - identifies Title I conditions that are being established in this permit
T1R	Title I Revised - identifies Title I conditions that have been carried over from an existing permit and subsequently revised in this permit
USEPA	United States Environmental Protection Agency
VOM	Volatile Organic Material

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:

Storage and Surge Tanks and Drums (1-F-1, 1-F-2A, 1-F-2B, 1-F-6, 16-F-4, 16-F-2A, 16-F-2B, 16-D-31, 2-D-93, 3-F-5, 10-F-1, 10-F-2, 10-F-3, 10-F-22, 10-F-20, 10-F-21)
264 Gallon Methanol Storage Tank
500 Gallon Prototype Fuel Tanks
6,000 Gallon H₂S Scavenger Storage Tank
Sodium Hypochlorite Storage Tanks
Fuel Dispensing Facility
Heat Exchanger Bundle Cleaning Pads
Waste Accumulation Area

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:

Storage Tanks (510A, 510B, 538, 11-F-33, 11-F-34, 11-F-35, 580, 585, 586, 513, 513B)
Coke Pit
Dewatering Labyrinth
Sulfur Pits (11-M-1, 11-M-21, 11-F-30)
LPG Loading Rack
Railcar Loading Rack
MOSC Mixing Tanks
Lime Bin (57-D-202)
Portable Boiler
Cooling Tower Treatment Chemical Tanks

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

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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)].

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)].

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.

3.3 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

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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).

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4.0 SIGNIFICANT EMISSION UNITS AT THIS SOURCE

Emission Unit	Description	Date Constructed	Emission Control Equipment
Crude Atmospheric Heater (1-B-1A)	389 mmBtu/hr process heater capable of firing fuel gas, oil, or a combination of fuels	1-71	Decoking Pot (1-D-18A)
Crude Atmospheric Heater (1-B-1B)	389 mmBtu/hr process heater capable of firing fuel gas, oil, or a combination of fuels	1-71	Decoking Pot (1-D-18B)
Crude Vacuum Heater (13-B-2)	277 mmBtu/hr process heater capable of firing fuel gas, oil, or a combination of fuels	1-71	Decoking Pot (1-D-18C)
Crude Unit Feed Preheater (1-B-3/13-B-4)	240 mmBtu/hr process heater capable of firing fuel gas, or a combination of fuels	1-71	Decoking Pot (1-D-18D)
Coker East Charge Heater (16-B-1A)	183 mmBtu/hr process heater capable of firing fuel gas	1-71	Low-NO _x burners and Decoking Pot (16-M-50A)
Coker East Charge Heater (16-B-1B)	183 mmBtu/hr process heater capable of firing fuel gas	1-71	Low-NO _x burners and Decoking Pot (16-M-50B)
Coker Blowdown System including three settled oil tanks (16-F-2A, 2B, and 2F)	Blowdown of hydrocarbon vapors from coke drum and liquid recovery	1-71	Flare System for the vapor blowdown
Coke Cutting Operation including Coke Drums (16-D-5A, 5B, 5C, and 5D) and hydraulic water jet	Coke cutting and handling operation where petroleum coke is cut with water from coke drums and transferred to storage piles	1-71	-
FCC Unit	Fluid Catalytic Cracking Unit	1-71	FCC Regenerator Cyclones, Third Stage Separator Cyclones, and East & West CO Boilers
Air Preheater (4-B-1)	196 mmBtu/hr air preheater capable of firing fuel gas	1-71	None

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Emission Unit	Description	Date Constructed	Emission Control Equipment
FCC Catalyst Hoppers, Additive Bins, and Fines Bin (4-D-1, 4-D-2, 4-D-46, 4-D-48, 14-D-25)	Catalyst Handling equipment	1-71	FCC Catalyst Bin Wet Gas Scrubber (4-M-14) and Baghouses (4-D-47 and 4-D-49)
East & West CO Boilers (14-B-3 & 14-B-4) when operating independent of the FCC Unit	530 mmBtu/hr each combustion units capable of combusting CO waste gas from the FCC with refinery fuel gas, CO waste gas from the FCC with refinery fuel gas and blended fuel oil, or fuel gas only	1-71	None
Unsaturation Gas Plant (Unit 05)	Closed-vent system with pumps and compressors used for separation	1-71	None
LPG Treater (Unit 15)	Closed-vent system with pumps used to treat LPG streams	1-71	None
Gasoline Treater (Unit 09)	Closed-vent system with pumps used to treat gasoline streams	1-71	None
Fuel Gas Sales (Unit 19)	Closed-vent system used to compress and treat fuel gas	1-71	None
Alky Iso-Stripper Reboiler (7-B-1)	138 mmBtu/hr process heater capable of firing fuel gas or a combination of fuels	11-70	None
PreTreater Reactor Vent	Reactor vessel vent that is open only during catalyst regeneration phase of unit startup	1-71	None
PreTreater Charge Heater (17-B-1)	140 mmBtu/hr fuel gas fired process heater	1-71	None
PreTreater Debutanizer Reboiler (17-B-2)	180 mmBtu/hr fuel gas fired process heater	1-71	None
CCR Regenerator Vent (2-D-89)	CCR flue gas vent	1-71	Vent gas wash tower (2-D-90)

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Emission Unit	Description	Date Constructed	Emission Control Equipment
CCR Charge Heaters (2-B-3, 4, 5, & 6)	Four process heaters with common breaching (combined duty - 620 mmBtu/hr) capable of firing fuel gas	1-71	Low-NO _x burners
CCR Reformate Debutanizer Reboiler (2-B-7)	91 mmBtu/hr process heater capable of firing fuel gas	1-71	None
HDF Reactor Vent Stack (12-D-2)	Reactor vessel vent that is open only during catalyst regeneration phase of unit startup	3-80	None
HDF Unit Charge Heater (12-B-1)	13 mmBtu/hr process heater capable of firing gaseous fuels	4-80	None
2 CHD Reactor Vents	One reactor vessel vent per reactor that is open only during catalyst regeneration phase of startup	3-80	None
CHD Charge Heater (3-B-1)	158 mmBtu/hr process heater capable of firing gaseous fuels, oil, or a combination of fuels	1-71	Decoking Pot
CHD Stripper Reboiler Heater (3-B-2)	129 mmBtu/hr process heater capable of firing gaseous fuels	1-71	None
Saturate Gas Plant Reboiler (8-B-1)	74 mmBtu/hr process heater capable of firing gaseous fuels	1-71	None
Sour Water Stripper	Stripping & purification unit for removal of hydrogen and ammonia from sour water	1-71	-
East Amine Train	Acid gas removal system	1-71	-
West Amine Train	Acid gas removal system	1-71	-
North Amine Train	Acid gas removal system including amine sump & lean amine tank	3-91	Carbon canister adsorbers for sump and tank
South Sulfur Recovery Unit	Claus sulfur recovery process	11-70	Afterburner (11-B-3 & 11-B-23)

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Emission Unit	Description	Date Constructed	Emission Control Equipment
North Sulfur Recovery Unit	Claus sulfur recovery process/tail gas recovery including amine tank	3-91	Thermal oxidizer (11-B-32) and carbon canister for tank
Auxiliary Boiler (55-B-100)	600 mmBtu/hr boiler capable of firing fuel gas, oil, or a combination of fuels	1-71	Low-NO _x burners
Gas Turbine Generator (20-N-1)	24 KW turbine capable of firing gaseous fuels	4-86	CO Catalytic Converter and Steam Injection
Waste Heat Steam Generator (20-B-1)	143 mmBtu/hr waste heat steam generator capable of firing gaseous fuels	4-86	CO Catalytic Converter
Benzene Removal Unit (BRU)	Packed column air stripper used to remove benzene	6-90	Thermal Vapor Incinerator (38-B-1)
Lift Station #2 including associated tank water draws	Sump and covered drains	2-71	Carbon Canister
Lift Station #9	Sump	2-93	Carbon Canister
Surge Tank 103	External floating roof storage tank	2-71	Primary & Secondary Seals
Slop oil/water tank 523	External floating roof storage tank	2-71	Primary & Secondary Seals
Slop oil/water tank 524	External floating roof storage tank	2-71	Primary & Secondary Seals
Tank 101 (backup tank)	External floating roof storage tank	2-71	Primary & Secondary Seals
Tank 204 (backup tank)	External floating roof storage tank	2-71	Primary & Secondary Seals
Tank 205 (backup tank)	External floating roof storage tank	3-80	Primary & Secondary Seals
Diversion Basin	Surge Flow Containment	1-71	N/A
API Separators & Pre-Flumes	Floating Oil and Solids Gravity Separation Process	1-71	N/A
Dissolved Air Flotation Units	Oil/Solids Separation by way of Chemical Coagulation and Air Flotation	1-71	N/A
Upper & Lower Neutralization Tanks	Fluoride Removal Process	1-71	N/A

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Emission Unit	Description	Date Constructed	Emission Control Equipment
Flare system piping, knock-out drums and seal drums	Gas collection system with high and low pressure header	11-70	East and West Flares
East Flare (49-B-305A)	Steam assisted smokeless flare	11-70	N/A
South Flare (49-B-305B)	Steam assisted smokeless flare	11-70	N/A
Wharf Loading Facility	Five arm wharf loading operation used to transfer various petroleum products and associated products to and from marine vessels	1-71	None
Tank 101	External floating roof storage tank	2-71	Floating roof, shoe-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe
Tank 102	External floating roof storage tank	2-71	Floating roof, shoe-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe
Tank 201	External floating roof storage tank	2-71	Floating roof, shoe-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe

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Emission Unit	Description	Date Constructed	Emission Control Equipment
Tank 202	External floating roof storage tank	2-71	Floating roof, shoe-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe
Tank 203	External floating roof storage tank	2-71	Floating roof, shoe-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe
Tank 204	External floating roof storage tank	2-71	Floating roof, shoe-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe
Tank 205	External floating roof storage tank	3-80	Floating roof, shoe-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe
Tank 310	External floating roof storage tank	3-74	Floating roof, shoe-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe

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Emission Unit	Description	Date Constructed	Emission Control Equipment
Tank 313	External floating roof storage tank	2-71	Floating roof, shoe-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe
Tank 314	External floating roof storage tank	2-71	Floating roof, shoe-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe
Tank 315	External floating roof storage tank	2-71	Floating roof, liquid-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe
Tank 316	External floating roof storage tank	2-71	Floating roof, shoe-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe
Tank 317	External floating roof storage tank	2-71	Floating roof, shoe-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe

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Emission Unit	Description	Date Constructed	Emission Control Equipment
Tank 318	External floating roof storage tank	2-78	Floating roof, shoe-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe
Tank 312	External floating roof tank	2-71	Floating roof, vapor-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe
Tank 405	External floating roof tank	2-71	Floating roof, vapor-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe
Tank 309	External floating roof storage tank converted to internal floating roof storage tank by addition of dome	1-94	Floating roof, shoe-mounted primary seal, and a permanent submerged loading pipe
Tank 311	External floating roof storage tank converted to internal floating roof storage tank by addition of dome	2-71	Floating roof, vapor-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe

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Emission Unit	Description	Date Constructed	Emission Control Equipment
Tank 421	Internal floating roof storage tank	2-71	Floating roof, liquid-mounted primary seal, and a permanent submerged loading pipe
Tank 422	Internal floating roof storage tank	2-71	Floating roof, liquid-mounted primary seal, and a permanent submerged loading pipe
Tank 211	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 212	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 213	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 214	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 215	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 216	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 221	Fixed roof storage tank	2-71	Permanent submerged loading
TANK 222	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 223	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 224	Fixed roof storage tank	2-71	Permanent submerged loading

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Emission Unit	Description	Date Constructed	Emission Control Equipment
Tank 225	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 231	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 232	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 233	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 234	Fixed roof storage tank	6-97	Permanent submerged loading
Tank 235	Fixed roof storage tank	6-97	Permanent submerged loading
Tank 236	Fixed roof storage tank	6-97	Permanent submerged loading
Tank 540	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 541	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 542	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 543	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 544	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 545	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 546	Fixed roof storage tank	2-71	Permanent submerged loading

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Emission Unit	Description	Date Constructed	Emission Control Equipment
TANK 547	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 548	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 553	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 554	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 556	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 557	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 559	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 601	Pressurized storage tank	2-71	Pressure vessel
Tank 602	Pressurized storage tank	2-71	Pressure vessel
Tank 603	Pressurized storage tank	2-71	Pressure vessel
Tank 610	Pressurized storage tank	2-71	Pressure vessel
Tank 621	Pressurized storage tank	2-71	Pressure vessel
Tank 622	Pressurized storage tank	2-71	Pressure vessel
Tank 623	Pressurized storage tank	2-71	Pressure vessel
Tank 624	Pressurized storage tank	8-95	Pressure vessel
Truck Loading Rack	Two-bay asphalt truck loading rack	6-97	None
Asphalt Additive Station	Chemical/Additive loading station	6-97	None
P/P Sales Unit	Closed-vent system with pumps and compressors used for separation	9-95	None
Coke Processing and Handling Operations	System handles coke that has been produced in the Coker Unit.	2-71	-

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Emission Unit	Description	Date Constructed	Emission Control Equipment
General Cooling Towers	60,301 gpm Non-contact process water cooling tower	1-71	None
Alky Cooling Towers	32,771 gpm Non-contact process water cooling tower	1-71	None
Hamon Cooling Towers	11,488 gpm Non-contact process water cooling tower	8-91	None
Rental Boiler 1	98.8 mmBtu/hr (or less) rental boiler	1-98	None
Rental Boiler 2	98.8 mmBtu/hr (or less) rental boiler	1-98	None
Fugitive Emissions/ Equipment Leaks	Fugitive organic HAP service including various pumps, compressors, relief valves, sampling connections, valves, and connectors.	---	-

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 of NO_x, SO₂, CO, PM and VOM emissions.

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.

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

- b.
 - i. This source 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].

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- 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.

- d. 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].

- e. Pursuant to 35 IAC 218.443, the owner or operator of a petroleum refinery shall not process organic material with a vapor pressure of 10.34 kPa (1.5 psia) 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 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.

- f. Pursuant to 35 IAC 218.444, the Permittee shall not cause or allow a refinery process unit turnaround except in compliance with an operating procedure approved by the IEPA. Except for procedures that were on file with the IEPA 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 294.3°K (70°F) and shall at a minimum include depressurization of the refinery process unit or

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vessel to a flare, refinery fuel gas system, or other equipment or system of equal emission control, as approved by the IEPA, 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.

- g. i. Pursuant to 35 IAC 218.143, 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:
 - A. To 10 ppm equivalent methane (molecular weight 16.0) or less; or
 - B. By combustion in a smokeless flare; or,
 - C. By other air pollution control equipment approved by the IEPA according to the provisions of 35 IAC 201, and further processed consistent with 35 IAC 218.108.

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

- ii. Pursuant to 35 IAC 218.144, Condition 5.2.4(g)(i) 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 IEPA with the following:
 - A. 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:

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- I. Dates on which excessive releases occurred from each such set;
 - II. Duration in minutes of each such excessive release; and
 - III. Quantities (in pounds) of mercaptans and/or hydrogen sulfide emitted into the atmosphere during each such excessive release.
- B. 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
- C. Accurate maintenance records for such safety relief valves.

* Since three year historical operating information was not yet available for the equipment on October 1, 1972, an agreement was reached between the IEPA and Mobil Oil Corporation that allowed Mobil Oil Corporation to provide three years of data when it became available. Reports were submitted to the IEPA in January of 1974, 1975, and 1976 that included the required information for each of the preceding calendar years to identify the unregulated safety relief valves capable of causing excessive releases for which an excessive release was unlikely to occur.

- 5.2.3 The Permittee shall comply with the standards for recycling and emissions reduction of ozone depleting substances pursuant to 40 CFR Part 82, Subpart F, except as provided for motor vehicle air conditioners in Subpart B of 40 CFR Part 82:

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- a. Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to 40 CFR 82.156.
 - b. Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to 40 CFR 82.158.
 - c. Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to 40 CFR 82.161.
- 5.2.4
- 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.
- 5.2.5
- a. Should this stationary source become subject to a regulation under 40 CFR Parts 60, 61, or 63, or 35 IAC after the date issued of this permit, 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.
 - b. 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 issued of this permit.

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 emissions 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 should an air pollution alert or emergency be declared.
- c. If a change occurs at the source which requires a revision of the plan (e.g., operational change, change in the source contact person), 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.
- 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; or
 - iii. For sources located within the city of Chicago: Chicago Department of Environmental Control.

5.3 Non-Applicability of Regulations of Concern

This permit is issued based on the safety relief valves at the refinery not being subject to 35 IAC 218.301 because they are covered by more specific regulations, 35 IAC 218.143 and 144.

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:

The firing rates listed for the various process heaters and boilers throughout this permit are for descriptive purposes and are not permit limits unless stated as such in Section 7.

5.5 Source-Wide Emission Limitations

5.5.1 Permitted Emissions for Fees

Emission limitations are not set for this source for the purpose of permit fees. The Permittee shall be required to pay the maximum fee of \$100,000.00 per year, pursuant to 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

Other 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 Emission Records

The Permittee shall maintain records of the following items for the source to demonstrate compliance with Condition 5.5.1, pursuant to Section 39.5(7)(b) of the Act:

None

5.6.2 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:

- a. Each date that a refinery unit or vessel is shut down;
- b. The total estimated quantity of VOM emitted to the atmosphere and the duration of the emissions in hours, with supporting information; (It should be noted that 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.

5.6.3 Records for Safety Relief Valves

The Permittee shall maintain records of all safety relief valves which are excluded from the control requirements of Condition 5.2.4(a) pursuant to Condition 5.2.4(b) because they are capable of causing excessive releases, but no excessive release is likely to occur based on historical information as previously submitted to the IEPA. These records shall include, as a minimum, the following:

- a. Identification of such safety relief valves or sets of safety relief valves;
- 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 owner 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.

5.6.4 Records for Operating Scenarios

N/A

5.6.5 Retention and Availability of Records

- a. All records and logs required by this permit shall be retained for at least five years from the date of entry (unless a longer retention period is specified by the particular recordkeeping provision herein), shall be kept at a location at the source that is readily accessible to the Illinois EPA or USEPA, and shall be made available for inspection and copying by the Illinois EPA or USEPA upon request.
- b. The Permittee shall retrieve and print, on paper during normal source office hours, any records retained in an electronic format (e.g., computer) in response to an Illinois EPA or USEPA request for records during the course of a source inspection.

5.7 General Reporting Requirements

5.7.1 General Source-Wide Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section of noncompliance 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.

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

N/A

5.9 General Compliance Procedures

5.9.1 General Procedures for Calculating Emissions

- a. Compliance with the source-wide emission limits specified in Condition 5.2.2(f) shall be based on the recordkeeping requirements of Conditions 5.6.2.
- b. Compliance with the source-wide emission limits specified in Condition 5.2.2(g) shall be based on the recordkeeping requirements of Conditions 5.6.3.

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 218.142 as Condition 7.28 establishes appropriate compliance procedures for this rule that do not rely on such measurements.

6.0 EMISSIONS REDUCTION MARKET SYSTEM (ERMS)

6.1 Description of ERMS

The ERMS is a "cap and trade" market system for major stationary sources located in the Chicago ozone nonattainment area. It is designed to reduce VOM emissions from stationary sources to contribute to reasonable further progress toward attainment, as required by Section 182(c) of the CAA.

The ERMS addresses VOM emissions during a seasonal allotment period from May 1 through September 30. Once the ERMS begins, participating sources must hold "allotment trading units" (ATUs) for their actual seasonal VOM emissions. Each year participating sources are issued ATUs based on allotments set during initial issuance of the sources' CAAPP permits. These allotments are established from historical VOM emissions or "baseline emissions" lowered to provide the emissions reductions from stationary sources required for reasonable further progress.

By December 31 of each year, the end of the reconciliation period following the seasonal allotment period, each source shall have sufficient ATUs in its transaction account to cover its actual VOM emissions during the preceding season. A transaction account's balance as of December 31 will include any valid ATU transfer agreements entered into as of December 31 of the given year, provided such agreements are promptly submitted to the Illinois EPA for entry into the transaction account database. The Illinois EPA will then retire ATUs in sources' transaction accounts in amounts equivalent to their seasonal emissions. When a source does not appear to have sufficient ATUs in its transaction account, the Illinois EPA will issue a notice to the source to begin the process for Emissions Excursion Compensation.

In addition to receiving ATUs pursuant to their allotments, participating sources may also obtain ATUs from the market, including ATUs bought from other participating sources and general participants in the ERMS that hold ATUs (35 IAC 205.630) and ATUs issued by the Illinois EPA as a consequence of VOM emissions reductions from an Emissions Reduction Generator or an Intersector Transaction (35 IAC 205.500 and 35 IAC 205.510). During the reconciliation period, sources may also buy ATUs from a secondary reserve of ATUs managed by the Illinois EPA, the "Alternative Compliance Market Account" (ACMA) (35 IAC 205.710). Sources may also transfer or sell the ATUs that they hold to other sources or participants (35 IAC 205.630).

6.2 Applicability

This source is considered a "participating source" for purposes of the ERMS, 35 IAC Part 205.

6.3 Obligation to Hold Allotment Trading Units (ATUs)

- a. Pursuant to 35 IAC 205.150(c)(1) and 35 IAC 205.720, and as further addressed by Condition 6.8, as of December 31 of each year, this source shall hold ATUs in its account in an amount not less than the ATU equivalent of its VOM emissions during the preceding seasonal allotment period (May 1 - September 30), not including VOM emissions from the following, or the source shall be subject to "emissions excursion compensation," as described in Condition 6.5.
 - i. VOM emissions from insignificant emission units and activities as identified in Section 3 of this permit, in accordance with 35 IAC 205.220;
 - ii. Excess VOM emissions associated with startup, malfunction, or breakdown of an emission unit as authorized in Section 7.0 of this permit, in accordance with 35 IAC 205.225;
 - iii. Excess VOM emissions to the extent allowed by a Variance, Consent Order, or Compliance Schedule, in accordance with 35 IAC 205.320(e)(3);
 - iv. Excess VOM emissions that are a consequence of an emergency as approved by the Illinois EPA, pursuant to 35 IAC 205.750; and
 - v. VOM emissions from certain new and modified emission units as addressed by Condition 6.8(b), if applicable, in accordance with 35 IAC 205.320(f).
- b. Notwithstanding the above condition, in accordance with 35 IAC 205.150(c)(2), if a source commences operation of a major modification, pursuant to 35 IAC Part 203, the source shall hold ATUs in an amount not less than 1.3 times its seasonal VOM emissions attributable to such major modification during the seasonal allotment period, determined in accordance with the construction permit for

such major modification or applicable provisions in Section 7.0 of this permit.

6.4 Market Transactions

- a. The source shall apply to the Illinois EPA for and obtain authorization for a Transaction Account prior to conducting any market transactions, as specified at 35 IAC 205.610(a).
- b. The Permittee shall promptly submit to the Illinois EPA any revisions to the information submitted for its Transaction Account, pursuant to 35 IAC 205.610(b).
- c. The source shall have at least one account officer designated for its Transaction Account, pursuant to 35 IAC 205.620(a).
- d. Any transfer of ATUs to or from the source from another source or general participant must be authorized by a qualified Account Officer designated by the source and approved by the Illinois EPA, in accordance with 35 IAC 205.620, and the transfer must be submitted to the Illinois EPA for entry into the Transaction Account database.

6.5 Emissions Excursion Compensation

Pursuant to 35 IAC 205.720, if the source fails to hold ATUs in accordance with Condition 6.3, it shall provide emissions excursion compensation in accordance with the following:

- a. Upon receipt of an Excursion Compensation Notice issued by the Illinois EPA, the source shall purchase ATUs from the ACMA in the amount specified by the notice, as follows:
 - i. The purchase of ATUs shall be in an amount equivalent to 1.2 times the emissions excursion; or
 - ii. If the source had an emissions excursion for the seasonal allotment period immediately before the period for the present emissions excursion, the source shall purchase ATUs in an amount equivalent to 1.5 times the emissions excursion.

- b. If requested in accordance with paragraph (c) below or in the event that the ACMA balance is not adequate to cover the total emissions excursion amount, the Illinois EPA will deduct ATUs equivalent to the specified amount or any remaining portion thereof from the ATUs to be issued to the source for the next seasonal allotment period.
- c. Pursuant to 35 IAC 205.720(c), within 15 days after receipt of an Excursion Compensation Notice, the owner or operator may request that ATUs equivalent to the amount specified be deducted from the source's next seasonal allotment by the Illinois EPA, rather than purchased from the ACMA.

6.6 Quantification of Seasonal VOM Emissions

- a. The methods and procedures specified in Sections 5 and 7 of this permit for determining VOM emissions and compliance with VOM emission limitations shall be used for determining seasonal VOM emissions for purposes of the ERMS, with the following exceptions [35 IAC 205.315(b)]:

No exceptions

- b. The Permittee shall report emergency conditions at the source to the Illinois EPA, in accordance with 35 IAC 205.750, if the Permittee intends to deduct VOM emissions in excess of the technology-based emission rates normally achieved that are attributable to the emergency from the source's seasonal VOM emissions for purposes of the ERMS. These reports shall include the information specified by 35 IAC 205.750(a), and shall be submitted in accordance with the following:
 - i. An initial emergency conditions report within two days after the time when such excess emissions occurred due to the emergency; and
 - ii. A final emergency conditions report, if needed to supplement the initial report, within 10 days after the conclusion of the emergency.

6.7 Annual Account Reporting

- a. For each year in which the source is operational, the Permittee shall submit, as a component of its Annual

Emissions Report, seasonal VOM emissions information to the Illinois EPA for the seasonal allotment period. This report shall include the following information [35 IAC 205.300]:

- i. Actual seasonal emissions of VOM from the source;
 - ii. A description of the methods and practices used to determine VOM emissions, as required by this permit, including any supporting documentation and calculations;
 - iii. A detailed description of any monitoring methods that differ from the methods specified in this permit, as provided in 35 IAC 205.337;
 - iv. If a source has experienced an emergency, as provided in 35 IAC 205.750, the report shall reference the associated emergency conditions report that has been approved by the Illinois EPA;
 - v. If a source's baseline emissions have been adjusted due to a Variance, Consent Order, or CAAPP permit Compliance Schedule, as provided for in 35 IAC 205.320(e)(3), the report shall provide documentation quantifying the excess VOM emissions during the season that were allowed by the Variance, Consent Order, or Compliance Schedule, in accordance with 35 IAC 205.320(e)(3); and
 - vi. If a source is operating a new or modified emission unit for which three years of operational data is not yet available, as specified in 35 IAC 205.320(f), the report shall specify seasonal VOM emissions attributable to the new emission unit or the modification of the emission unit.
- b. This report shall be submitted by November 30 of each year, for the preceding seasonal allotment period.

6.8 Allotment of ATUs to the Source

- a. i. The allotment of ATUs to this source is 1,793 ATUs per seasonal allotment period.

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- ii. This allotment of ATUs reflects the Illinois EPA's determination that the source's baseline emissions were 189.73 tons.
 - iii. The source's allotment reflects 88% of the baseline emissions (12% reduction), except for the VOM emissions from specific emission units excluded from such reduction, pursuant to 35 IAC 205.405, including units complying with MACT or using BAT, as identified in Condition 6.11 of this permit.
 - iv. ATUs will be issued to the source's Transaction Account by the Illinois EPA annually. These ATUs will be valid for the seasonal allotment period following issuance and, if not retired in this season, the next seasonal allotment period.
 - v. Condition 6.3(a) becomes effective beginning in the seasonal allotment period following the initial issuance of ATUs by the Illinois EPA into the Transaction Account for the source.
- b. Contingent Allotments for New or Modified Emission Units

The source was issued a construction permit prior to January 1, 1998 for the following new or modified emission units for which three years of operational data is not yet available:

Construction Permit 97030078:

Coker East and West Charge Heater (16-B-1A & B)
FCC Unit, East and West CO Boilers (14-B-3 & 4)
FCC Unit, Air Line Preheater (4-B-1)
Crude Unit Feed Preheater (1-B-3, 13-B-4)
Pretreater Reactor Charge Heater (17-B-1)
Reformer Charge Heaters (2-B-3, 4, 5, 6)
South Sulfur Recovery Unit Incinerators (SSRU,
11-B-3, 11-B-23)
North Sulfur Recovery Unit/Tail Gas Unit (NSRU,
11-B-32)
Storage Tanks (402, 309, 319)
Storage Tank Working Losses (421, 422, 233, 431, 432,
441, 442, 443, 444, 403, 404, 405)
P/P Sales Unit (P/P Sales)
Truck Loading Facility including Storage Tanks (234,
235, 236) and Chem Add Station

Warf Loading Facility

In accordance with 35 IAC 205.310(h) and 35 IAC 205.320(f), the source shall submit a written request for, or an application for, a revised emissions baseline and allotment which address these emission units by December 1 of the year of the third complete seasonal allotment period in which each such newly constructed or modified emission unit is operational. Such submittal shall include information from the affected emission units on the seasonal emissions for these first three seasonal allotment periods.

- c. Notwithstanding the above, part or all of the above ATUs will not be issued to the source in circumstances as set forth in 35 IAC Part 205, including:
 - i. Transfer of ATUs by the source to another participant or the ACMA, in accordance with 35 IAC 205.630;
 - ii. Deduction of ATUs as a consequence of emissions excursion compensation, in accordance with 35 IAC 205.720; and
 - iii. Transfer of ATUs to the ACMA, as a consequence of shutdown of the source, in accordance with 35 IAC 205.410.

6.9 Recordkeeping for ERMS

The Permittee shall maintain copies of the following documents as its Compliance Master File for purposes of the ERMS [35 IAC 205.700(a)]:

- a. Seasonal component of the Annual Emissions Report;
- b. Information on actual VOM emissions, as specified in detail in Sections 5 and 7 of this permit and Condition 6.6(a); and
- c. Any transfer agreements for the purchase or sale of ATUs and other documentation associated with the transfer of ATUs.

6.10 Federal Enforceability

Section 6 becomes federally enforceable upon approval of the ERMS by USEPA as part of Illinois' State Implementation Plan.

6.11 Exclusions from Further Reductions

- a. VOM emissions from the following emission units shall be excluded from the VOM emissions reductions requirements specified in 35 IAC 205.400(c) and (e) as long as such emission units continue to satisfy the following [35 IAC 205.405(a)]:
 - i. Emission units that comply with any NESHAP or MACT standard promulgated pursuant to the CAA;
 - ii. Direct combustion emission units designed and used for comfort heating purposes, fuel combustion emission units, and internal combustion engines; and
 - iii. An emission unit for which a LAER demonstration has been approved by the Illinois EPA on or after November 15, 1990.

The source has demonstrated in its ERMS application and the Illinois EPA has determined that the following emission units qualify for exclusion from further reductions because they meet the criteria as indicated above [35 IAC 205.405(a) and (c)]:

- Crude Atmospheric Heaters (1-B-1A & 1B)
- Crude Vacuum Heater (13-B-2)
- Alky Iso-Stripper Reboiler (7-B-1)
- Pretreater Debutanizer Reboiler (17-B-2)
- Reformer (2-B-7)
- HDF Charge Heater (12-B-1)
- CHD Stripper Reboiler Heater (3-B-2)
- Saturate Gas Plant Reboiler (8-B-1)
- Auxiliary Boiler (55-B-100)
- Gas Turbine Generator GTG & WHSG (20-N-1, 20-B-1)
- Benzene Waste Operations/Benzene Reduction Unit
- Flare System (49-B-305-A & B)
- Refinery Fugitive Emissions
- Wastewater Treatment Plant
- Storage Tanks (101, 103, 201, 203, 205, 211, 213-216, 221, 223-225, 231, 232, 310, 311, 315, 318,

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505, 515, 522, 523, 524, 540-544, 546-548,
554, 556)
Storage Tanks Breathing Losses (233, 421, 422, 431,
432, 441, 442, 443, 444)

- b. VOM emissions from emission units using BAT for controlling VOM emissions shall not be subject to the VOM emissions reductions requirement specified in 35 IAC 205.400(c) or (e) as long as such emission unit continues to use such BAT [35 IAC 205.405(b)].

The source has demonstrated in its ERMS application and the Illinois EPA has determined that the following emission units qualify for exclusion from further reductions because these emission units use BAT for controlling VOM emissions as indicated above [35 IAC 205.405(b) and (c)]:

Flare System, E & S Flares

7.0 UNIT SPECIFIC CONDITIONS

7.1 Crude Unit (Units 01 and 13)

7.1.1 Description

The Crude Unit is a continuous mode operation that separates crude oil into various petroleum fractions based upon their boiling ranges by means of distillation and steam stripping.

7.1.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Crude Atmospheric Heater (1-B-1A)	389 mmBtu/hr process heater capable of firing fuel gas, oil, or a combination of fuels	Decoking Pot (1-D-18A)
Crude Atmospheric Heater (1-B-1B)	389 mmBtu/hr process heater capable of firing fuel gas, oil, or a combination of fuels	Decoking Pot (1-D-18B)
Crude Vacuum Heater (13-B-2)	277 mmBtu/hr process heater capable of firing fuel gas, oil, or a combination of fuels	Decoking Pot (1-D-18C)
Crude Unit Feed Preheater (1-B-3/13-B-4)	240 mmBtu/hr process heater capable of firing fuel gas, or a combination of fuels	Decoking Pot (1-D-18D)

7.1.3 Applicability Provisions and Applicable Regulations

- a. An "affected process heater" for the purpose of these unit-specific conditions, is a process heater that is located in the Chicago major metropolitan area, has the ability to burn gas, liquid, or a combination of fuels, and was constructed prior to April 14, 1972 or has a capacity of less than or equal to 250 mmBtu/hr and was constructed on or after April 14, 1972.
- b. i. Pursuant to 35 IAC 212.123 the emissions of smoke or other particulate matter into the atmosphere from an affected process heater

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shall not be greater than 30 percent except as provided below;

- ii. The smoke or other particulate matter emissions from an affected process heater may have an opacity greater than 30 percent but not greater than 60 percent ("more opaque emissions") for a period or periods aggregating 8 minutes in any 60 minute period, provided that such periods of more opaque emissions are limited to three (3) times in any 24-hour period, and such periods of more opaque emissions may not simultaneously occur at other such emission units located within a 305 m (1,000 ft) radius of an affected process heater when the affected process heater is experiencing periods of more opaque emissions.
- c. Pursuant to 35 IAC 216.121, no person shall cause or allow the emissions of CO from an affected process heater to exceed 200 ppm, corrected to 50% excess air;
- d. Pursuant to 35 IAC 217.141, no person shall cause or allow the emissions of NO_x into the atmosphere in any one hour period from any affected process heater with an actual heat input greater than 73.2 MW (250 mmBtu/hr) to exceed the following limitations:
 - i. For gaseous and/or liquid fossil fuel firing, 0.46 kg/MW-hr (0.3 lbs/mmBtu) of actual heat input;
 - ii. For solid fossil fuel firing, 1.39 kg/MW-hr (0.9 lbs/mmBtu) of actual heat input;
 - iii. For simultaneous burning of any combination of solid, liquid and gaseous fuel, the allowable emission rate shall be determined by the following equation:

$$E = (AG + BL + CS)Q$$

Where:

E = allowable NO_x emissions (kg/hr or lbs/hr);

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Q = actual heat input(MW or mmBtu/hr);

G = percent of actual heat input derived from
gaseous fossil fuel;

L = percent of actual heat input derived from
liquid fossil fuel;

S = percent of actual heat input derived from
solid fossil fuel;

G + L + S = 100.0;

A = 0.023(metric) or 0.003(English);

B = 0.023(metric) or 0.003(English);

C = 0.068(metric) or 0.009(English)

- e. Pursuant to 35 IAC 212.206 no person shall cause or allow the emissions of PM into the atmosphere in any one hour period to exceed 0.15 kg of PM per MW-hr (0.10 lbs/mmBtu) of actual heat input from any affected process heater using liquid fuel exclusively;
- f. Pursuant to 35 IAC 214.161 no person shall cause or allow the emissions of SO₂ into the atmosphere in any one hour period from an affected process heater, burning liquid fuel exclusively;
 - i. To exceed 1.55 kg of SO₂ per MW-hr (1.0 lbs/mmBtu) of actual heat input when residual fuel oil is burned; or
 - ii. To exceed 0.46 kg of SO₂ per MW-hr (0.3 lbs/mmBtu) of actual heat input when distillate fuel oil is burned.
- g. Pursuant to 35 IAC 212.207 no person, while simultaneously burning more than one type of fuel in an affected process heater, shall cause or allow the emissions of PM into the atmosphere in any one hour period in excess of the following equation:

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$$E = AS + BL$$

Where:

E = Allowable emission rate (kg/hr or lbs/hr);

A = Solid fuel particulate emission standard which is applicable (kg/MW-hr or lbs/mmBtu);

B = Constant (0.155(metric) or 0.10(English));

S = Actual heat input from solid fuel (MW or mmBtu/hr); and

L = Actual heat input from liquid fuel (MW or mmBtu/hr).

- h. Pursuant to 35 IAC 214.162 no person, while simultaneously burning more than one type of fuel in an affected process heater, shall cause or allow the emissions of SO₂ into the atmosphere in any one hour period in excess of the following equation:

$$E = AX + BY + CZ$$

Where:

E = Allowable SO₂ emission rate (kg/hr or lbs/hr);

A = Solid fuel SO₂ emission standard which is applicable (kg/MW-hr or lbs/mmBtu);

B = Distillate oil SO₂ emission standard (0.46 kg/MW-hr or 0.3 lbs/mmBtu);

C = Residual fuel oil SO₂ emission standard which is applicable (1.55 kg/MW-hr or 1.0 lbs/mmBtu);

X = Actual heat input from solid fuel (MW or mmBtu/hr);

Y = Actual heat input from distillate fuel oil (MW or mmBtu/hr);

Z = Actual heat input from residual fuel oil (MW or mmBtu)

That portion of actual heat input that is derived:

- i. From the burning of gaseous fuels produced by the gasification of solid fuels shall be included in X;
 - ii. From the burning of gaseous fuels produced by the gasification of distillate fuel oil shall be included in Y;
 - iii. From the burning of gaseous fuels produced by the gasification of residual fuel oil shall be included in Z;
 - iv. From the burning of gaseous fuels produced by the gasification of any other liquid fuels shall be included in Z; and
 - v. From the burning of by-product gases such as those produced from a blast furnace or a catalyst regeneration unit in a petroleum refinery shall be included in Z.
- i. Startup Provisions

Pursuant to 35 IAC 201.149, the Permittee is authorized to operate an affected process heater in excess of applicable Board emission limits during startup once a year per affected heater when the heater is decoked. Heater decoking is a 12 to 48 hour process, when steam is turned into the heater tubes to remove coke deposits by spalling the material from the tubes, followed by introduction of air and steam to complete removal of deposit, with the effluent resulting from decoking vented to the atmosphere through a water-filled "decoking drum." This authorization is subject to the following:

- i. This authorization only extends for a period of up to 48-hours following initial firing of fuel during each startup event.

- ii. The Permittee shall take the following measures to minimize startup emissions, the duration of startups, and minimize the frequency of startups:
 - A. Implementation of established startup procedures, including using a header to directly connect the outlet process tubes of an affected process heater to the inlet of the associated decoking pot; and
 - B. Operating the affected process heater while utilizing the associated decoking pot during the entire startup procedure.
- iii. The Permittee shall fulfill the applicable recordkeeping requirements of Condition 7.1.9(a).

7.1.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on the affected process heaters not being subject to 40 CFR 60 Subpart Db, NSPS for Industrial-Commercial-Institutional Steam Generating Units because the process heaters do not meet the definition of a steam generating unit pursuant to 40 CFR 60.41b.
- b. This permit is issued based on the affected process heaters not being subject to the New Source Performance Standards (NSPS) for Petroleum Refineries, 40 CFR 60, Subpart J, because the affected process heaters were constructed or last modified on or before June 11, 1973.
- c. This permit is issued based on the affected process heaters not being subject to 35 IAC 214.301 because the process heaters are not process emission sources, but rather fuel combustion emission sources.
- d. This permit is issued based on the Crude Unit Feed Preheater (1-B-3/13-B-4) not being subject to 35 IAC 217.141 because the actual heat input is less than 250 mmBtu/hr.

7.1.5 Operational and Production Limits and Work Practices

- a. The use of fuel oil in the Crude Unit Feed Preheater (1-B-3/13-B-4) shall be minimized to the extent that it is used only:
 - i. As needed for routine maintenance, to prevent clogging of burners;
 - ii. For purposes of emission testing; and/or
 - iii. When sufficient refinery fuel gas or natural gas is unavailable to the refinery, such as when the FCC Unit and/or Coker Unit are shutdown, malfunctioning, or operated at a substantially reduced level, or sufficient natural gas is unavailable due to interruption or reduction in the normal supply, or when there are emergency situations at the Propane Vaporizer, or the Ptr Complex that substantially reduce the availability of refinery fuel gas.
- b.
 - i. The capacity factor for fuel oil input to the Crude Unit Feed Preheater (1-B-3/13-B-4) shall not exceed 4 percent, per year.
 - ii. The Crude Unit Feed Preheater (1-B-3/13-B-4) shall fire fuel oil, as addressed by Condition 7.1.5(a)(iii) for no more than 500 hours per year or 10 percent of the total operating hours per year, whichever is greater.
- c.
 - i. The refinery fuel gas fired in the Crude Unit Feed Preheater (1-B-3/13-B-4) shall be supplied from the central Refinery Fuel Gas System(s);
 - ii. The fuel oil fired in the Crude Unit Feed Preheater shall be low sulfur fuel oil, containing less than 1% sulfur on a monthly average.

Conditions 7.1.5(a), (b), and (c) and Condition 7.1.6(a) represent the application of Best Available Control Technology to the Crude Unit Feed Preheater (1-B-3/13-B-4)

as required by Section 165 of the Clean Air Act. These limitations were established in Permit 97030078 pursuant to the federal Prevention of Significant Deterioration of Air Quality Regulations (PSD), 40 CFR 52.21. Emission limits are to be met on an hourly basis, as demonstrated by the emission tests performed in accordance with Permit 97030078 and recordkeeping and reporting in accordance with Conditions 7.1.9(c) and 7.1.10(a). [T1]

7.1.6 Emission Limitations

- a. The nitrogen oxides (NO_x) emissions from the Crude Unit Feed Preheater (1-B-3/13-B-4) shall not exceed 0.033 lb/mmBtu, except during time periods when the Preheater fires a combination of gaseous fuel and liquid fuel as addressed by Condition 7.1.5(a)(ii) and (iii), when the NO_x emissions shall not exceed 0.103 lb/mmBtu.
- b. Annual emissions of the Crude Unit Feed Preheater (1-B-3/13-B-4) shall not exceed the following limits. Compliance with these limits shall be determined from a running total of 12 months of data. [T1]

Annual Emission Limits (tons/year)					
<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>VOM</u>	<u>PM</u>	<u>PM₁₀</u>
42.0	50.4	19.1	2.9	4.5	3.9

The above limitations were established in Permit 97030078 pursuant to 35 IAC Part 203 and 40 CFR 52.21, Prevention of Significant Deterioration. These limits ensure that the construction/modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to 35 IAC Part 203 or pursuant to the federal rules for PSD, 40 CFR 52.21 with the exception of the NO_x limitations which were established in conjunction with the limitations included in Conditions 7.1.5(a), (b), (c) and 7.1.6(a) to ensure that BACT is being implemented. [T1]

- c. Combined annual emissions from the Crude Unit Feed Preheater (1-B-3/13-B-4), PreTreater Unit Charge Heater (17-B-1), Reformer Unit Charge Heaters (2-B-

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3,4,5,6), CHD Unit Charge Heater (3-B-1), and Coker Unit Heaters (16-B-1A & 1B) shall not exceed the following limits. Compliance with these limits shall be determined from a running total of 12 months of data. [T1]

Annual Emission Limits (tons/year)					
<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>VOM</u>	<u>PM</u>	<u>PM₁₀</u>
454.5	155.8	108.2	14.1	16.6	16.0

The above limitations were established in Permit 97030078 pursuant to 35 IAC Part 203 and 40 CFR 52.21, Prevention of Significant Deterioration. These limits ensure that the construction/modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to 35 IAC Part 203 or pursuant to the federal rules for PSD, 40 CFR 52.21 with the exception of the NO_x limitations which were established in conjunction with the limitations included in Conditions 7.1.5(a), (b), (c) and 7.1.6(a) to ensure that BACT is being implemented. These limits do not address "fugitive" losses from leaking components, which are not affected by the Crude Upgrade Project and which are controlled by various leak detection and repair programs as further address in Section 7.28. [T1]

7.1.7 Operating Requirements

None

7.1.8 Monitoring Requirements

None

7.1.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items pursuant to Section 39.5(7)(b) of the Act:

a. Records for Startup

The Permittee shall maintain the following records, pursuant to Section 39.5(7)(b) of the Act, for each

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affected Process heater operating in accordance with the provisions of Condition 7.1.3(i), which at a minimum shall include:

- i. The following information for each startup of an affected process heater:
 - A. Date and duration of the startup, i.e., start time and time normal operation achieved, i.e., the decoking procedure was completed;
 - B. If normal operation was not achieved within 48 hours, an explanation why startup could not be achieved in normal time frame;
 - C. A detailed description of the startup, including reason for operation and whether the utilization of the associated decoking pot was performed;
 - D. An explanation why the use of the associated decoking pot and other established startup procedures could not be performed, if not performed;
 - E. The nature of opacity, i.e., severity and duration, during the startup and the nature of opacity at the conclusion of startup, if above normal; and
 - F. Whether exceedance of Condition 7.1.3(b) may have occurred during startup, with explanation and estimated duration (minutes).
- b. The Permittee shall maintain appropriate records for each affected process heater so as to allow the Illinois EPA to verify compliance with 35 IAC 212.123 (Condition 7.1.3(b)).
- c. The Permittee shall maintain records of the following items to demonstrate compliance with Conditions 7.1.5 and 7.1.6:

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- i. A. Heat and sulfur content of refinery fuel gas burned in the Crude Unit Feed Preheater (1-B-3/13-B-4) shall be determined, with supporting documentation, on a representative frequency, i.e., sulfur content shall be determined in accordance with the NSPS 40 CFR 60.105, as the NSPS is applicable to certain heaters at the refinery, and heat content shall be determined at least weekly;
- B. Heat and sulfur content of fuel oil burned in the Crude Unit Feed Preheater (1-B-3/13-B-4) shall be determined, with supporting documentation, on a representative frequency, i.e., sulfur and heat content shall be determined for each batch or lot of oil added to the storage tank serving the Crude Unit Feed Preheater (1-B-3/13-B-4);
- ii. A. Quantity of each fuel, i.e., refinery fuel gas, natural gas and fuel oil burned in the Crude Unit Feed Preheater (1-B-3/13-B-4), daily;
- B. If fuel oil was burned in the Crude Unit Feed Preheater (1-B-3/13-B-4), the reason for its use if burned for purposes other than routine maintenance and supporting information to show that the refinery's supply of gaseous fuel was inadequate or that emission testing was being performed;
- iii. Individual and combined fired fuel duty (gross) from the Crude Unit Feed Preheater (1-B-3/13-B-4), daily;
- iv. Emissions of VOM, CO, SO₂, NO_x, PM, and PM₁₀, for the Crude Unit Feed Preheater (1-B-3/13-B-4) in tons/month, with supporting calculations;
- v. Annual capacity factor for firing fuel oil in the Crude Unit Feed Preheater (1-B-3/13-B-4), with supporting calculations;

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- vi. Annual operating hours for firing fuel oil in the Crude Unit Feed Preheater (1-B-3/13-B-4), as addressed by Conditions 7.1.5(a)(iii) and (b)(ii);
 - vii. Annual emissions of VOM, CO, SO₂, NO_x, PM, and PM₁₀ from the Crude Unit Feed Preheater(1-B-3/13-B-4) for the current month and the previous 11 months, tons/year; and.
- d. The Permittee shall maintain records of the following items to demonstrate compliance with the limits of Condition 7.1.6(c):
- i. Operating condition of the desulfurization system, once per shift;
 - ii. Quantity of each fuel burned in the Process Heaters (1-B-3/13-B-4; 17-B-1; 2-B-3,4,5,6; 3-B-1; 16-B-1A & 16-B-1B), daily, with supporting documentation;
 - iii. The sulfur content of each fuel burned in the Process Heaters (1-B-3/13-B-4; 17-B-1; (1-B-3/13-B-4; 17-B-1; 2-B-3,4,5,6; 3-B-1; 16-B-1A & 16-B-1B), with supporting documentation;
 - iv. Actual emissions of SO₂, NO_x, CO, VOM, PM, and PM₁₀ in tons/month with supporting documentation for Process Heaters (1-B-3/13-B-4; 17-B-1; 2-B-3,4,5,6; 3-B-1; 16-B-1A & 16-B-1B); and
 - v. Annual emissions of SO₂, NO_x, CO, VOM, PM, and PM₁₀ from Process Heaters (1-B-3/13-B-4; 17-B-1; 2-B-3,4,5,6; 3-B-1; 16-B-1A & 16-B-1B) for the current month and the previous 11 months, tons/year.
- e. The Permittee shall maintain records of the following items for each affected process heater except the Crude Unit Feed Preheater (1-B-3/13-B-4) to demonstrate compliance with the limits of Condition 7.1.3(d), (e), (f), (g) and (h):

- i. The sulfur content of each fuel burned in each affected process heater, with supporting documentation;
- ii. Quantity of each fuel, i.e., refinery fuel gas, natural gas, and fuel oil burned in each affected process heater, daily;
- iii. Daily heat input from each fuel burned in each affected process heater, mmBtu;
- iv. Average daily NO_x emissions, with supporting calculations, lb/mmBtu;
- v. Average daily PM emissions, with supporting calculations, lb/mmBtu; and
- vi. Average daily SO₂ emissions, with supporting calculations, lb/mmBtu.

7.1.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section of noncompliance of an 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. Within 30 days of exceedance of the limits in Conditions 7.1.3, 7.1.5, or 7.1.6, 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; and
 - v. When compliance was reestablished.

- b. The Permittee shall submit the following information along with its annual emission report;
- i. The annual emissions of NO_x, CO, PM, PM₁₀, VOM, and SO₂ from the Crude Unit Feed Preheater (1-B-3/13-B-4) for each month of the previous calendar year, to demonstrate compliance with Condition 7.1.6(b), tons/year (e.g., for the month of January, the emissions from February, of the preceding calendar year through January, for the month of February, the emissions from March of the preceding calendar year through February, 12 months in all);
 - ii. The annual emissions of NO_x, CO, PM, PM₁₀, VOM, and SO₂ from the Process Heaters (1-B-3/13-B-4; 17-B-1; 2-B-3,4,5,6; 3-B-1; 16-B-1A & 16-B-1B) for each month of the previous calendar year, to demonstrate compliance with Condition 7.1.6(b), tons/year (e.g., for the month of January, the emissions from February, of the preceding calendar year through January, for the month of February, the emissions from March of the preceding calendar year through February, 12 months in all);
 - iii. A summary of exceedances of the limits in Conditions 7.1.3, 7.1.5, or 7.1.6, if any, which required notification to the Compliance Section in accordance with Condition 7.1.10(a).

7.1.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to an affected process heater 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:

- a. Utilize gaseous or liquid fuels or any combination thereof in any of the affected process heaters as allowed by the conditions of this permit.

7.1.12 Compliance Procedures

- a. Compliance with the requirements of 35 IAC 212.123 (Condition 7.1.3(b)) shall be demonstrated by the records required in Condition 7.1.9(b).
- b. Compliance with 35 IAC 216.121 (Condition 7.1.3(c)) is considered to be assured by the inherent nature of the operations at this source, as demonstrated by historical operation.
- c. Compliance with 35 IAC 217.141 (Condition 7.1.3(d)) shall be demonstrated by the records required in Condition 7.1.9(e). NO_x emissions for each affected process heater except the Crude Unit Feed Preheater (1-B-3/13-B-4) and the Crude Vacuum Heater (13-B-2) shall be calculated using AIRS emission factors as follows:

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i. Process Gas/Natural Gas 140 lb/MM cubic feet burned
(30600106/30600105)

ii. Oil (30600103) 55 lb/1,000 gal burned

NO_x emissions for the Crude Unit Feed Preheater (1-B-3/13-B-4) shall be calculated using unit specific NO_x emission factors as derived from the stack testing done in accordance with the requirements of Construction Permit 97030078.

NO_x emissions for the Crude Vacuum Heater (13-B-2) shall be calculated using unit specific NO_x emission factors of 0.1753 lb/mmBtu based on previous testing of the unit.

d. Compliance with 35 IAC 212.206 and 212.207 (Conditions 7.1.3(e) and (g)) shall be demonstrated by the records required in Condition 7.1.9(e). PM emissions for each affected process heater shall be calculated using AIRS emission factors as follows:

i. Process Gas/Natural Gas 3.0 lb/MM cubic feet burned
(30600106/30600105)

ii. Oil (30600103) 12 lb/1,000 gal burned

e. Compliance with 35 IAC 214.161 and 214.162 (Conditions 7.1.3(f) and (h)) shall be demonstrated by the records required in Condition 7.1.9(e). SO₂ emissions for each affected process heater shall be calculated based on the sulfur or H₂S content of the fuel.

f. Compliance with Conditions 7.1.5 and 7.1.6 shall be demonstrated by the records required by Condition 7.1.9(c) and (d) and performance testing completed in accordance with the testing requirements of Construction Permit 97030078. Emissions of VOM, CO, and PM₁₀ for affected process heaters shall be calculated using AIRS emission factors as follows:

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- i. Process Gas/Natural Gas (30600106/30600105)
 - VOM 2.8 lb/MM cubic feet burned
 - CO* 35 lb/MM cubic feet burned
 - PM₁₀ 3.0 lb/MM cubic feet burned

- ii. Oil (30600103)
 - VOM 0.3 lb/1,000 gal burned
 - CO 5.0 lb/1,000 gal burned
 - PM₁₀ 7.4 lb/1,000 gal burned

* CO emissions for the Crude Unit Feed Preheater from the firing of process gas or natural gas shall be calculated using a unit specific emission factor of 0.014 lb/mmBtu based on testing of a similar unit.

7.2 Coker Unit (Unit 16)

7.2.1 Description

The Coker Unit is a combination continuous and batch operation that uses thermal cracking and coking to separate resid and other heavy oils into various lighter petroleum fractions and petroleum coke.

7.2.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Coker East Charge Heater (16-B-1A)	183 mmBtu/hr process heater capable of firing fuel gas	Low-NO _x burners and Decoking Pot (16-M-50A)
Coker East Charge Heater (16-B-1B)	183 mmBtu/hr process heater capable of firing fuel gas	Low-NO _x burners and Decoking Pot (16-M-50B)
Coker Blowdown System including three settled oil tanks (16-F-2A, 2B, and 2F)	Blowdown of hydrocarbon vapors from coke drum and liquid recovery	Flare System for the vapor blowdown
Coke Cutting Operation including Coke Drums (16-D-5A, 5B, 5C, and 5D) and hydraulic water jet	Coke cutting and handling operation where petroleum coke is cut with water from coke drums and transferred to storage piles	-

7.2.3 Applicability Provisions and Applicable Regulations

- a. An "affected process heater" for the purpose of these unit-specific conditions, is a process heater that has a capacity of less than or equal to 250 mmBtu/hr, fires only gaseous fuels, and was constructed or modified after June 11, 1973.
- b. An "affected vapor blowdown system" for the purposes of these unit-specific conditions, is a vapor blowdown system that is subject to 35 IAC 218.143.
- c. Pursuant to 40 CFR 60.104(a)(1), no owner or operator shall burn in any affected process heater any fuel

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gas which contains hydrogen sulfide in excess of 230 mg/dscm (0.10 gr/dscf).

- d.
 - i. Pursuant to 35 IAC 212.123 the emissions of smoke or other particulate matter into the atmosphere from an affected process heater shall not be greater than 30 percent except as provided below;
 - ii. The smoke or other particulate matter emissions from an affected process heater may have an opacity greater than 30 percent but not greater than 60 percent ("more opaque emissions") for a period or periods aggregating 8 minutes in any 60 minute period, provided that such periods of more opaque emissions are limited to three (3) times in any 24-hour period, and such periods of more opaque emissions may not simultaneously occur at other such emission units located within a 305 m (1,000 ft) radius of an affected process heater when the affected process heater is experiencing periods of more opaque emissions.
- e. Pursuant to 35 IAC 216.121, no person shall cause or allow the emissions of CO from an affected process heater to exceed 200 ppm, corrected to 50% excess air;
- f. Pursuant to 35 IAC 218.143, no person shall cause or allow the emissions of organic material into the atmosphere from any affected vapor blowdown system, unless such emissions are 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 218.108.

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

g. Startup Provisions

Pursuant to 35 IAC 201.149, the Permittee is authorized to operate an affected process heater in excess of applicable Board emission limits during startup of each affected heater when the heater is decoked. Heater decoking is a 12 to 48 hour process, when steam is turned into the heater tubes to remove coke deposits by spalling the material from the tubes, followed by introduction of air and steam to complete removal of deposit, with the effluent resulting from decoking vented to the atmosphere through a water-filled "decoking drum." This authorization is subject to the following:

- i. This authorization only extends for a period of up to 48-hours following initial firing of fuel during each startup event.
- ii. The Permittee shall take the following measures to minimize startup emissions, the duration of startups, and minimize the frequency of startups:
 - A. Implementation of established startup procedures, including using a header to directly connect the outlet process tubes of an affected process heater to the inlet of the associated decoking pot; and
 - B. Operating the affected process heater while utilizing the associated decoking pot during the entire startup procedure.
- iii. The Permittee shall fulfill the applicable recordkeeping requirements of Condition 7.2.9(a).

7.2.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on the affected process heaters not being subject to 40 CFR 60 Subpart Db,

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NSPS for Industrial-Commercial-Institutional Steam Generating Units because the process heaters do not meet the definition of a steam generating unit pursuant to 40 CFR 60.41b.

- b. This permit is issued based on the affected process heaters not being subject to 35 IAC 212.206, 212.207, or 214.162 because the affected process heaters do not burn liquid fuel or a combination of fuels.
- c. This permit is issued based on the affected process heaters not being subject to 35 IAC 214.301 because the process heaters are not process emission sources, but rather fuel combustion emission sources.
- d. This permit is issued based on the affected process heaters not being subject to 35 IAC 217.121 because the actual heat input of each heater is less than 250 mmBtu/hr.
- e. Coke cutting operations are not subject to the requirements of 35 IAC 212.321 or 212.322 because of the disperse nature of coke cutting operations, as addressed by 35 IAC 212.323.

7.2.5 Operational and Production Limits and Work Practices

- a. The combined firing duty from the Coker East Charge Heater (16-B-1A) and the Coker West Charge Heater (16-B-1B) shall not exceed 366 mmBtu/hr. [T1]

The above limitation was established in Permit 92090035 pursuant to 40 CFR 52.21, Prevention of Significant Deterioration. This limitation in combination with Condition 7.2.6(a) ensures that the construction/modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to the federal rules for PSD, 40 CFR 52.21.

- b. The Permittee shall not utilize solid or liquid fuels in any affected process heater.

7.2.6 Emission Limitations

- a. The sulfur dioxide (SO₂) emissions from the combination of both the Coker East Charge Heater (16-B-1B) and the Coker West Charge Heater (16-B-1B) shall not exceed 0.0285 lb/mmBtu and 46 tons/year. [T1]

The above limitations were established in Permit 92090035 pursuant to 40 CFR 52.21, Prevention of Significant Deterioration. These limits in combination with Condition 7.2.6(a) ensure that the construction/modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to the federal rules for PSD, 40 CFR 52.21. [T1]

- b. Combined annual emissions from the Coker Unit Heaters (16-B-1A & 1B), PreTreater Unit Charge Heater (17-B-1), Reformer Unit Charge Heaters (2-B-3,4,5,6), CHD Unit Charge Heater (3-B-1), and Crude Unit Feed Preheater (1-B-3/13-B-4) shall not exceed the following limits. Compliance with these limits shall be determined from a running total of 12 months of data. [T1]

Annual Emission Limits (tons/year)					
<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>VOM</u>	<u>PM</u>	<u>PM₁₀</u>
454.5	155.8	108.2	14.1	16.6	16.0

The above limitations were established in Construction Permit 97030078 pursuant to 35 IAC Part 203 and 40 CFR 52.21, Prevention of Significant Deterioration. These limits ensure that the construction/modification addressed in the aforementioned Construction permit does not constitute a new major source or major modification pursuant to 35 IAC Part 203 or pursuant to the federal rules for PSD, 40 CFR 52.21 with the exception of the NO_x limitations which were established in conjunction with the limitations included in Conditions 7.1.5(a), (b), (c) and 7.1.6(a) to ensure that BACT is being implemented. These limits do not address "fugitive" losses from leaking components, which are not affected by the

Crude Upgrade Project and which are controlled by various leak detection and repair programs as further address in Section 7.28. [T1]

7.2.7 Operating Requirements

None

7.2.8 Monitoring Requirements

- a. Pursuant to 40 CFR 60.105(a)(4), the owner or operator shall install, calibrate, maintain, and operate a continuous monitoring system that continuously monitors and records concentrations of hydrogen sulfide in fuel gases burned in any affected process heater. Fuel gas combustion devices, including any affected process heaters, having a common source of fuel gas may be monitored at one location, if monitoring at this location accurately represents the concentration of H₂S in the fuel burned. The span of this continuous monitoring system shall be 300 ppm.

These monitoring system(s) shall be the basis for quarterly reporting of exceedances of the NSPS 40 CFR 60.104(a)(1) (Condition 7.2.3(c)) in accordance with 40 CFR 60.7(c) and 60.105(e). [See also Condition 7.2.10(a)]

7.2.9 Recordkeeping Requirements

- a. Records for Continuous H₂S Monitoring Systems

Pursuant to Section 39.5(7)(b) of the Act, the Permittee shall maintain records for the H₂S monitoring system on each affected process heater required by Condition 7.2.8 that as a minimum shall include:

- i. Operating records for each H₂S monitoring system, including:
- A. H₂S measurements;
 - B. Continuous monitoring system performance testing measurements;

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- C. Performance evaluations;
 - D. Calibration checks;
 - E. Maintenance and adjustment performed;
 - F. Quarterly reports submitted in accordance with 40 CFR 60.7(c) (Condition 7.2.10(a)); and
 - G. Data reduction information used pursuant to Condition 7.2.12(c).
- ii. Records to verify compliance with the limitations of Condition 7.2.3(c), including;
- A. Hourly H₂S content from each affected process heater as derived from the data obtained by the H₂S monitor, gr/dscf;
 - B. Any three-hour block averaging period when the total H₂S concentration exceeded 230 mg/dscm (0.10 gr/dscf)
- b. Records for Startup

The Permittee shall maintain the following records, pursuant to Section 39.5(7)(b) of the Act, for each affected process heater operating in accordance with the provisions of Condition 7.2.3(i), which at a minimum shall include:

- i. The following information for each startup of an affected process heater:
 - A. Date and duration of the startup, i.e., start time and time normal operation achieved, i.e., the decoking procedure was completed;
 - B. If normal operation was not achieved within 48 hours, an explanation why startup could not be achieved in normal time frame;

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- C. A detailed description of the startup, including reason for operation and whether the utilization of the associated decoking pot was performed;
 - D. An explanation why the use of the associated decoking pot and other established startup procedures could not be performed, if not performed;
 - E. The nature of opacity, i.e., severity and duration, during the startup and the nature of opacity at the conclusion of startup, if above normal; and
 - F. Whether exceedance of Condition 7.2.3(b) may have occurred during startup, with explanation and estimated duration (minutes).
- c. The Permittee shall maintain appropriate records for each affected process heater so as to allow the Illinois EPA to verify compliance with 35 IAC 212.123 (Condition 7.2.3(b)).
 - d. The Permittee shall maintain records of the following items to demonstrate compliance with Conditions 7.2.5 and 7.2.6:
 - i. Heat and sulfur content of refinery fuel gas burned in the Coker East & West Charge Heaters (16-B-1A and 16-B-1B) shall be determined, with supporting documentation, on a representative frequency, i.e., sulfur content shall be determined in accordance with the NSPS 40 CFR 60.105, and heat content shall be determined at least weekly;
 - ii. Combined fired fuel duty (gross) from the Coker East & West Charge Heaters (16-B-1A and 16-B-1B), daily;
 - iii. Emissions of SO₂, from the Coker East & West Charge Heaters (16-B-1A and 16-B-1B) in tons/month, with supporting calculations; and

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- iv. Annual emissions of SO₂ from the Coker East & West Charge Heaters (16-B-1A and 16-B-1B) for the current month and the previous 11 months, tons/year;
- e. The Permittee shall maintain records of the following items to demonstrate compliance with the limits of Condition 7.2.6(b):
 - i. Operating condition of the desulfurization system, once per shift;
 - ii. Quantity of each fuel burned in the Process Heaters (16-B-1A & 16-B-1B; 1-B-3/13-B-4; 17-B-1; 2-B-3,4,5,6; 3-B-1), daily, with supporting documentation;
 - iii. The sulfur content of each fuel burned in the Process Heaters (1-B-3/13-B-4; 17-B-1; 2-B-3,4,5,6; 3-B-1; 16-B-1A & 16-B-1B), with supporting documentation;
 - iv. Actual emissions of SO₂, NO_x, CO, VOM, PM, and PM₁₀ in tons/month with supporting documentation for Process Heaters (1-B-3/13-B-4; 17-B-1; 2-B-3,4,5,6; 3-B-1; 16-B-1A & 16-B-1B); and
 - v. Annual emissions of SO₂, NO_x, CO, VOM, PM, and PM₁₀ from Process Heaters (1-B-3/13-B-4; 17-B-1; 2-B-3,4,5,6; 3-B-1; 16-B-1A & 16-B-1B) for the current month and the previous 11 months, tons/year.

Note: Condition 7.2.9(e) requires the same records required by Condition 7.1.9(d). Only one set of records is required for the facility. Identification of these records has been provided here for clarity.

- f. The Permittee shall maintain records of the following items to demonstrate compliance with the limits of Condition 7.2.3(f):
 - i. Any releases from the vapor blowdown system that are not routed to the flare system;

- ii. Reason why the release was not routed to the flare system; and
- iii. An estimate of the organic material emissions from releases not routed to the flare system.

7.2.10 Reporting Requirements

a. Quarterly Report

Pursuant to 40 CFR 60.7(c), the owner or operator required to install a continuous monitoring system pursuant to 40 CFR 60 Subpart J (Condition 7.2.8) shall submit a written report of excess emissions (as defined by 40 CFR Subpart J) to the Illinois EPA, Compliance Section for each calendar quarter. This report shall be postmarked by the 30th day following the end of each calendar quarter and shall include the following information:

- i. The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions;
- ii. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of an affected process heater. The nature and cause of any malfunction (if known), the corrective actions taken or preventative measures adopted;
- iii. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments; and
- iv. When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

For the purposes of this report, the NSPS 40 CFR 60.105(e)(3) defines an exceedance of sulfur dioxide

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as "Any three-hour period during which the average concentration of H₂S in any fuel gas combusted in any fuel gas combustion device subject to 40 CFR 60.104(a)(1) exceeds 230 mg/dscm (0.10 gr/dscf), if compliance is achieved by removing H₂S from the fuel gas before it is burned."

b. Reporting of Non-Compliance

The Permittee shall promptly notify the Illinois EPA, Compliance Section of noncompliance of an 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:

Within 30 days of exceedance of the limits in Conditions 7.2.3(d), 7.2.5, or 7.2.6, 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; and
- v. When compliance was reestablished.

c. Annual Emission Report

The Permittee shall submit the following information along with its annual emission report;

- i. The annual emissions of NO_x, CO, PM, PM₁₀, VOM, and SO₂ from the Process Heaters (1-B-3/13-B-4; 17-B-1; 2-B-3,4,5,6; 3-B-1; 16-B-1A & 16-B-1B) for each month of the previous calendar year, to demonstrate compliance with Condition 7.2.6(b), tons/year (e.g., for the month of January, the emissions from February, of the

preceding calendar year through January, for the month of February, the emissions from March of the preceding calendar year through February, 12 months in all);

- ii. A summary of exceedances of the limits in Conditions 7.2.3, 7.2.5, or 7.2.6, if any, which required notification to the Compliance Section in accordance with Condition 7.2.10(a).

7.2.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to an affected process heater 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

7.2.12 Compliance Procedures

- a. Compliance with the requirements of 35 IAC 212.123 (Condition 7.2.3(b)) shall be demonstrated by the records required in Condition 7.2.9(b).
- b. Compliance with 35 IAC 216.121 (Condition 7.2.3(c)) is considered to be assured by the inherent nature of the operations at this source, as demonstrated by historical operation.
- c. Pursuant to 40 CFR 60.106(c) for the purposes of determining compliance with 40 CFR 60.104(a)(1) Method 11 shall be used to determine the H₂S concentration. Ongoing compliance is assured by the reporting requirements of Condition 7.2.10(a). Pursuant to 40 CFR 60.8(c) emissions in excess of the level of the applicable emission limit during periods of startup, shutdown, and malfunction shall not be considered a violation of the applicable emission limit.

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- d. Compliance with 35 IAC 218.143 (Condition 7.2.3(f)) shall be demonstrated by the records required by Condition 7.2.9(f).
- e. Compliance with Conditions 7.2.5 and 7.2.6 shall be demonstrated by the records required by Condition 7.2.9(c) and (d) and performance testing completed in accordance with the testing requirements of Construction Permit 97030078. Emissions of VOM, PM and PM₁₀ for affected process heaters shall be calculated using AIRS emission factors as follows:

- i. Process Gas/Natural Gas (30600106/30600105)

VOM	2.8 lb/MM cubic feet burned
PM	3.0 lb/MM cubic feet burned
PM ₁₀	3.0 lb/MM cubic feet burned

CO emissions for affected process heaters shall be calculated using unit specific emission factor of 0.018 lb/mmBtu based on the manufacturer's guarantee.

NO_x emissions for affected process heaters shall be calculated using unit specific emission factor of 0.11 lb/mmBtu based on manufacturer's guarantee.

SO₂ emissions for affected process heaters shall be calculated based on the H₂S content of the fuel gas or natural gas.

7.3 Fluid Catalytic Cracking Unit (Units 04 and 14)
 Control FCC Regenerator Cyclones, Third Stage Separator Cyclones,
 East & West CO Boilers

7.3.1 Description

The Fluid Catalytic Cracking (FCC) Unit is a continuous operation that uses a fluidized catalyst to crack gas oils and resids into lower molecular weight products, most notably FCC gasoline. There are two main sections in the unit; the catalyst section which includes the riser/reactor and the catalyst regenerator, and the fractionation section which separates the product stream into various components. Emissions from the FCC Unit are vented to the CO boilers where they are combusted along with supplemental fuel in the CO boilers before they are vented to the atmosphere. 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. The majority of PM emissions from the FCC Unit are generated during catalyst regeneration. Catalyst is regenerated by burning the coke off the "spent" catalyst.

7.3.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
FCC Unit	Fluid Catalytic Cracking Unit	FCC Regenerator Cyclones, Third Stage Separator Cyclones, and East & West CO Boilers
Air Preheater (4-B-1)	196 mmBtu/hr air preheater capable of firing fuel gas	None
FCC Catalyst Hoppers, Additive Bins, and Fines Bin (4-D-1, 4-D-2, 4-D-46, 4-D-48, 14-D-25)	Catalyst Handling equipment	FCC Catalyst Bin Wet Gas Scrubber (4-M-14) and Baghouses (4-D-47 and 4-D-49)

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Emission Unit	Description	Emission Control Equipment
East & West CO Boilers (14-B-3 & 14-B-4) when operating independent of the FCC Unit	Each combustion unit has a total burner fuel capacity (i.e., from fuel gas and/or fuel oil) of 530 mmBtu/hr capable of combusting CO waste gas from the FCC with refinery fuel gas, CO waste gas from the FCC with refinery fuel gas and blended fuel oil, or fuel gas only	None

7.3.3 Applicability Provisions and Applicable Regulations

- a. i. An "affected FCC Unit" for the purpose of these unit-specific conditions, is a fluid catalytic cracking unit that has a capacity greater than 20,000 barrels per day fresh feed, was constructed prior to April 14, 1972, and utilizes a CO Boiler to combust the CO waste gas stream.
- ii. An "affected heater" for the purpose of these unit-specific conditions, is a fuel combustion emission unit with a capacity of less than 250 mmBtu/hr that was constructed prior to April 14, 1972.
- iii. An "affected CO boiler" for the purpose of these unit specific conditions, is a fuel combustion emission unit with a capacity in excess of 250 mmBtu/hr that was constructed prior to August 17, 1971 that has the capability to fire CO waste gas, refinery fuel gas, as well as blended fuel oil in combination with CO waste gas and/or refinery fuel gas.

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- iv. "Affected catalyst handling equipment," for the purpose of these unit-specific conditions, is an emission unit that is used solely for the purpose of transferring catalyst from one location to another or for storage of catalyst and catalyst additives, without changing the size of the catalyst, e.g., by crushing or screening.

- b.
 - i. Pursuant to 35 IAC 212.123 the emissions of smoke or other particulate matter into the atmosphere from an affected FCC Unit, an affected heater, or an affected CO boiler shall not be greater than 30 percent except as provided below;

 - ii. The smoke or other particulate matter emissions from an affected FCC Unit, an affected heater, or an affected CO boiler may have an opacity greater than 30 percent but not greater than 60 percent ("more opaque emissions") for a period or periods aggregating 8 minutes in any 60 minute period, provided that such periods of more opaque emissions are limited to three (3) times in any 24-hour period, and such periods of more opaque emissions may not simultaneously occur at other such emission units located within a 305 m (1,000 ft) radius of the affected FCC Unit, affected heater, or affected CO boiler when the affected FCC Unit, affected heater, or affected CO boiler is experiencing periods of more opaque emissions.

- c. Pursuant to 35 IAC 212.207 no person, while simultaneously burning more than one type of fuel in an affected CO boiler, shall cause or allow the emissions of PM into the atmosphere in any one hour period in excess of the following equation:

$$E = AS + BL$$

Where:

E = Allowable emission rate (kg/hr or lbs/hr);

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- A = Solid fuel particulate emission standard which is applicable (kg/MW-hr or lbs/mmBtu);
- B = Constant (0.155(metric) or 0.10(English));
- S = Actual heat input from solid fuel (MW or mmBtu/hr); and
- L = Actual heat input from liquid fuel (MW or mmBtu/hr).

d. Pursuant to 35 IAC 212.381 no person shall cause or allow the particulate matter emission rate from an affected FCC Unit 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. Pursuant to 35 IAC 214.162 no person, while simultaneously burning more than one type of fuel in an affected CO boiler, shall cause or allow the emissions of SO₂ into the atmosphere in any one hour period in excess of the following equation:

$$E = AX + BY + CZ$$

Where:

- E = Allowable SO₂ emission rate (kg/hr or lbs/hr);
- A = Solid fuel SO₂ emission standard which is applicable (kg/MW-hr or lbs/mmBtu);
- B = Distillate oil SO₂ emission standard (0.46 kg/MW-hr or 0.3 lbs/mmBtu);

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- C = Residual fuel oil SO₂ emission standard which is applicable (1.55 kg/MW-hr or 1.0 lbs/mmBtu);
- X = Actual heat input from solid fuel (MW or mmBtu/hr);
- Y = Actual heat input from distillate fuel oil (MW or mmBtu/hr);
- Z = Actual heat input from residual fuel oil (MW or mmBtu)

That portion of actual heat input that is derived:

- i. From the burning of gaseous fuels produced by the gasification of solid fuels shall be included in X;
 - ii. From the burning of gaseous fuels produced by the gasification of distillate fuel oil shall be included in Y;
 - iii. From the burning of gaseous fuels produced by the gasification of residual fuel oil shall be included in Z;
 - iv. From the burning of gaseous fuels produced by the gasification of any other liquid fuels shall be included in Z; and
 - v. From the burning of by-product gases such as those produced from a blast furnace or a catalyst regeneration unit in a petroleum refinery shall be included in Z.
- f. Pursuant to 35 IAC 214.301 no person shall cause or allow the emissions of sulfur dioxide into the atmosphere from any affected FCC Unit to exceed 2000 ppm, except as allowed by 7.3.3(j).
- g. Pursuant to 35 IAC 216.121, no person shall cause or allow the emissions of CO from an affected heater or affected CO boiler (firing independent of the FCC Unit) to exceed 200 ppm, corrected to 50% excess air.

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- h. Pursuant to 35 IAC 216.361(a) no person shall cause or allow the emission of a carbon monoxide waste gas stream into the atmosphere from an affected FCC Unit unless such waste gas stream is burned in a direct fired 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. As of the date of issuance of this permit, the Illinois EPA has not approved the use of alternative air pollution control equipment.
- i. Pursuant to 35 IAC 217.141, no person shall cause or allow the emissions of NO_x into the atmosphere in any one hour period from any affected CO boiler with an actual heat input greater than 73.2 MW (250 mmBtu/hr) to exceed the following limitations:
- i. For gaseous and/or liquid fossil fuel firing, 0.46 kg/MW-hr (0.3 lbs/mmBtu) of actual heat input;
 - ii. For solid fossil fuel firing, 1.39 kg/MW-hr (0.9 lbs/mmBtu) of actual heat input;
 - iii. For simultaneous burning of any combination of solid, liquid and gaseous fuel, the allowable emission rate shall be determined by the following equation:

$$E = (AG + BL + CS)Q$$

Where:

E = allowable NO_x emissions (kg/hr or lbs/hr);

Q = actual heat input(MW or mmBtu/hr);

G = percent of actual heat input derived from gaseous fossil fuel;

L = percent of actual heat input derived from liquid fossil fuel;

S = percent of actual heat input derived from
solid fossil fuel;

G + L + S = 100.0;

A = 0.023(metric) or 0.003(English);

B = 0.023(metric) or 0.003(English);

C = 0.068(metric) or 0.009(English)

j. Startup Provisions

The Permittee is authorized to operate an affected FCC Unit in violation of the applicable limit of 35 IAC 212.123, 212.381, 214.301, 216.361(a), and 218.301 during startup pursuant to 35 IAC 201.262, as 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. This authorization only extends for a period of up to 78-hours following initial start-up of the main air blower during each startup event.

ii. The Permittee shall take the following measures to minimize startup emissions, the duration of startups, and minimize the frequency of startups:

Implementation of established startup procedures so as to minimize the startup time and emissions.

iii. The Permittee shall fulfill the applicable recordkeeping requirements of Condition 7.3.9(a).

k. Malfunction and Breakdown Provisions

In the event of a malfunction or breakdown of a FCC Unit Regenerator, Regenerator cyclones, Third Stage Separator cyclones, or the East or West CO Boiler, the Permittee is authorized to continue operation of the associated affected FCC Unit in violation of the applicable requirement of 35 IAC 212.123, 212.381, 214.301, 216.361(a), or 218.301, as necessary to prevent risk of injury to personnel or severe damage to equipment. This authorization is subject to the following requirements:

- i. This authorization is for a maximum of 72 hours, unless the Permittee obtains an extension from the Illinois EPA. The request for such an extension must document that the reason that an extension is necessary and specify a schedule of actions the Permittee will take that will assure all measures are taken to minimize the quantity of emissions and the length of the malfunction or breakdown.
- ii. The Permittee shall fulfill the applicable recordkeeping and reporting requirements of Conditions 7.3.9(b) and 7.3.10(a).

7.3.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on the affected FCC Unit not being subject to the New Source Performance Standards (NSPS) for Petroleum Refineries, 40 CFR 60, Subpart J, because the affected FCC Unit was constructed prior to June 11, 1973 and has not been modified, based on the NSPS definition, thereafter.
- b. This permit is issued based on the affected CO boilers not being subject to the New Source Performance Standards (NSPS) for Fossil-Fuel Fired Steam Generators for Which Construction is Commenced After August 17, 1971, 40 CFR 60 Subpart D, because each affected CO boiler was constructed prior to August 17, 1971 and has not been modified, based on the NSPS definition, thereafter.

- c. This permit is issued based on the affected catalyst handling equipment not being subject to the requirements of 212.321 or 212.322 because of the disperse nature of catalyst handling equipment, as addressed by 35 IAC 212.323.
- d. This permit is issued based on the affected heater not being subject to 35 IAC 217.141 because the actual heat input is less than 250 mmBtu/hr.

7.3.5 Operational and Production Limits and Work Practices

- a. The Permittee shall not utilize liquid fuel exclusively in any affected CO boiler.

7.3.6 Emission Limitations

- a. Combined annual emissions from the FCC Unit and North and South Sulfur Plants shall not exceed the following limits. Compliance with these limits shall be determined from a running total of 12 months of data. [T1]

Annual Emission Limits (tons/year)					
<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>VOM</u>	<u>PM</u>	<u>PM₁₀</u>
1,375.7	26,184	2,861	3.4	469.1	469.1

The above limitations were established in Permit 97030078 pursuant to 35 IAC Part 203 and 40 CFR 52.21, Prevention of Significant Deterioration. These limits ensure that the construction/modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to 35 IAC Part 203 or pursuant to the federal rules for PSD, 40 CFR 52.21 with the exception of the NO_x limitations which were established in conjunction with the limitations included in Conditions 7.1.5(a), (b), (c) and 7.1.6(a) to ensure that BACT is being implemented. These limits do not address "fugitive" losses from leaking components, which are not affected by the Crude Upgrade Project and which are controlled by various leak detection and repair programs as further address in Section 7.28. [T1]

7.3.7 Testing Requirements

- a. Pursuant to Section 39.5(7)(d)(ii) of the Act, prior to renewal of this permit but not more than five years from the previous test, and upon reasonable request by the Illinois EPA, the PM emissions of each affected FCC Unit shall be measured during conditions which are representative of maximum emissions. These tests shall be performed in conjunction with the procedures outlined in Conditions 7.3.7(c), (d), (e), and (f).
- b. The following methods and procedures shall be used for testing of emissions: Refer to 40 CFR 60, Appendix A for USEPA test methods.

Location of Sample Points	USEPA Method 1
Gas Flow and Velocity	USEPA Method 2
Flue Gas Weight	USEPA Method 3
Moisture	USEPA Method 4
Particulate Matter	USEPA Method 5
Other test methods may be used as approved by the Illinois EPA	

Submittal of Information Associated with Performance Testing

- c. The Illinois EPA shall be notified prior to conducting the testing performed in accordance with the requirements of Condition 7.3.7(a) to enable the Illinois EPA to observe these tests. Notification for the expected date of testing shall be submitted a minimum of thirty (30) days prior to the expected date. Notification of the actual date and expected time of testing shall be submitted a minimum of five (5) working days prior to the actual date of the test. The Illinois EPA may at its discretion accept notifications with shorter advance notice provided that the Illinois EPA will not accept such notifications if it interferes with the Illinois EPA's ability to observe testing.
- d. At least 60 days prior to the actual date of testing in accordance with the requirements of Condition 7.3.7(a), a written test plan shall be submitted to

the Illinois EPA for review. This plan shall include as a minimum:

- i. The person(s) who will be performing sampling and analysis and their experience with similar tests; and
 - ii. The specific conditions under which testing will be performed, including a discussion of why these conditions will be representative of maximum emissions and the means by which the operating parameters for the boiler and associated control equipment will be determined.
- e. Copies of the Final Report(s) for any tests conducted in accordance with the requirements of Condition 7.3.7(a) shall be submitted to the Illinois EPA within 14 days after the tests results are compiled and finalized. The Final Report shall include as a minimum:
- i. A summary of results;
 - ii. General information;
 - iii. Description of test method(s), including description of sampling points, sampling train, analysis equipment, and test schedule;
 - iv. Detailed description of test conditions, including:
 - A. Process information, i.e., mode(s) of operation, process rate, e.g. fuel or raw material consumption; and
 - B. Control equipment information, i.e., equipment condition and operating parameters during testing; and
 - v. Data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration.

- f. The opacity readings during any particulate matter stack tests performed in accordance with the requirements of 7.3.7(a) shall be submitted to the Illinois EPA with the Final Results.

7.3.8 Monitoring Requirements

- a. Pursuant to 35 IAC 201.401(a)(1)(A) the Permittee shall install, operate, calibrate and maintain continuous monitoring equipment for the measurement of opacity from an affected FCC Unit.
 - 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 Conditions 7.3.3(b), 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.

7.3.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items pursuant to 39.5(7)(b) of the Act:

- a. Records for Startup

The Permittee shall maintain the following records, pursuant to Section 39.5(7)(b) of the Act, for each affected FCC Unit subject to Condition 7.3.3(1), which at a minimum shall include:

- i. Records of the source's established startup procedures for each affected FCC Unit (as summarized in the CAAPP application); and

- ii. Records for each startup of an affected FCC Unit that may result in excess emissions, including:
 - A. Date and duration of the startup, i.e., start time and time normal operation achieved, i.e., stable operation with exhaust gas routed to CO boilers;
 - B. If normal operation was not achieved within 72 hours, an explanation why startup could not be achieved in 72 hours;
 - C. A detailed description of the startup, including reason for operation and documentation that the established startup procedures developed for such operation were followed;
 - D. An explanation why established startup procedures were not performed, if not performed;
 - E. Estimates of the total amount of PM, CO, NO_x, SO₂, and VOM emitted and the amount of each pollutant emitted in excess of the applicable standard during startup, with supporting calculations.

- b. Records for Continued Operation During Malfunctions and Breakdowns

The Permittee shall maintain records, pursuant to 35 IAC 201.263, related to malfunction and breakdown for an affected FCC Unit that as a minimum, shall include:

- i. A maintenance and repair log for each affected FCC Unit and associated equipment, listing each activity performed with date; and
- ii. Records for each incident when operation of an affected FCC Unit continued during malfunction or breakdown with excess emissions, as provided by Condition 7.3.3(m), including the following information:

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- A. Date and duration of malfunction or breakdown;
 - B. A detailed explanation of the malfunction or breakdown;
 - C. An explanation why continued operation of the affected FCC Unit was necessary;
 - D. The measures used to reduce the quantity of emissions and the duration of the event;
 - E. The steps taken to prevent similar malfunctions or breakdowns or reduce their frequency and severity; and
 - F. An estimate of the amount of excess emissions released during malfunction/breakdown.
- c. 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 each 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(b).

- ii. Records to verify compliance with Conditions 7.3.3(b) and 7.3.3(e), 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 boiler was above the normal range, as specified in Condition 7.3.3(b)(i), 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(e) may have been exceeded, with explanation.
- d. The Permittee shall maintain appropriate records for each affected heater and affected CO boiler (when operating independent of the associated FCC Unit) so as to allow the Illinois EPA to verify compliance with 35 IAC 212.123 (Condition 7.3.3(b)).
- e. The Permittee shall maintain records of the following items to demonstrate compliance with the limits of Condition 7.3.6(a);
 - i. Actual emissions of SO₂, NO_x, CO, VOM, PM, and PM₁₀ in tons/month from the FCC Unit with supporting documentation;
 - ii. Actual emissions of SO₂, NO_x, CO, VOM, PM, and PM₁₀ in tons/month from the FCC Unit and both sulfur units combined, with supporting documentation;
 - iii. Annual emissions of SO₂, NO_x, CO, VOM, PM, and PM₁₀ from the FCC Unit for the current month and the previous 11 months; and

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- iv. Annual emissions of SO₂, NO_x, CO, VOM, PM, and PM₁₀ from the FCC Unit and both sulfur units combined for the current month and the previous 11 months.

- f. The Permittee shall maintain records of the following items for each affected CO boiler to demonstrate compliance with the limits of Condition 7.3.3(c), (d), (f), (g), and (k):
 - i. Times when an affected CO boiler is operated and the FCC Unit is not in operation;
 - ii. Times when an affected CO boiler is operated using liquid fuel only;
 - iii. Times when an affected CO boiler is operated using a combination of fuels;
 - iv. For times when an affected CO boiler is operated with a combination of fuels, the Permittee shall maintain the following records:
 - A. The sulfur content of each fuel burned in each affected CO boiler, with supporting documentation;
 - B. Quantity of each fuel, i.e., refinery fuel gas, natural gas, and fuel oil burned in each affected CO boiler, daily;
 - C. Daily heat input from each fuel burned in each affected CO boiler; mmBtu;
 - D. Average daily NO_x emissions, with supporting calculations, lb/mmBtu;
 - E. Average daily PM emissions with supporting calculations, lb/mmBtu; and
 - F. Average daily SO₂ emissions with supporting calculations, lb/mmBtu.

- g. The Permittee shall maintain records of the following items for each affected FCC Unit to demonstrate compliance with the limits of Condition 7.3.3(j):
 - i. A record of the maximum temperature at the CO Boiler bypass valve that assures compliance with the CO emission standard of Condition 7.3.3(j), with supporting documentation;
 - ii. CO Boiler bypass valve temperature, daily;

7.3.10 Reporting Requirements

- a. Reporting of Continued Operation During Malfunctions and Breakdowns for an affected FCC Unit

The Permittee shall provide the following notifications and reports to the Illinois EPA, Compliance Section and Regional Field Office, pursuant to 35 IAC 201.263, concerning each incident when operation of an affected FCC Unit continued during malfunction or breakdown with excess emissions as allowed by Condition 7.3.3(k).

- 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 days, for each incident.
- ii. Upon completion of the incident, the Permittee shall give a written follow-up notice to the Illinois EPA, Compliance Section and Regional Field Office, within 15 days providing a detailed explanation of the event, an explanation why continued operation of the affected boiler 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 affected FCC Unit attained compliance with the applicable requirement(s) that were being exceeded, or when the affected FCC Unit was taken out of service.

b. Reporting of Excess Opacity and Particulate Matter Emissions

Pursuant to 35 IAC 201.403(a) the Permittee shall provide, within 30 days of the end of every calendar quarter, a report to USEPA, Chief, Air Compliance Branch, 230 South Dearborn St. (5AC-26), Chicago, Illinois 60604 and the Illinois EPA with the following information for an affected FCC Unit:

- i. For periods of emissions in excess of the opacity limitations in Condition 7.3.3(b) a summary report in accordance with the requirements of 40 CFR 60.7(d) that includes the following:
 - A. Duration of excess emissions due to the following:
 - I. Startup/Shutdown;
 - II. Control/equipment problems;
 - III. Process problems;
 - IV. Other known causes;
 - V. Unknown causes;
 - B. Total duration of excess emissions;
 - C. Percent duration of excess emissions as function of source operating time;
 - D. Continuous Monitoring System (CMS) downtime in reporting period due to the following:
 - I. Monitor equipment malfunctions;
 - II. Non-monitor equipment malfunctions;
 - III. Quality assurance calibration;
 - IV. Other known causes;

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- V. Unknown causes;
- VI. Total CMS downtime;
- E. The Permittee shall also submit the following information in accordance with 40 CFR 60.7(c) when the total duration of excess emissions for the reporting period is 1 percent or greater and CMS downtime is 5 percent of the total operating time or greater:
 - I. The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h);
 - II. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the affected FCC Unit, including the nature and cause of any malfunction (if known), the corrective action taken or preventive measures adopted;
 - III. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.
- ii. If there was no excess opacity during the reporting period, the quarterly report shall so state and include the information about the operating status of the monitoring equipment during the period.
- iii. For periods when the particulate matter emission limitation in Condition 7.3.3(e) may have been exceeded, as identified by the records required by Condition 7.3.9(c) or by other means:
 - A. The starting date and time of possible excess emissions;

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- B. The duration of possible excess emissions;
- C. The magnitude of possible excess emissions;
- D. The means by which possible excess emissions were identified, i.e., from opacity measurements, or by other means;
- E. Whether such period occurred during startup, malfunction/breakdown, or shutdown of an affected FCC Unit;
- F. The cause of the possible excess emissions, if known; and
- G. Corrective actions and actions taken to lessen the emissions.

c. Notification of Non-Compliance

The Permittee shall promptly notify the Illinois EPA, Compliance Section of noncompliance of an affected FCC Unit, affected heater, or affected CO boiler 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:

- i. Within 30 days of exceedance of the limits in Conditions 7.3.3, 7.3.5, or 7.3.6, the notification shall include:
 - A. Identification of the limit that may have been exceeded;
 - B. Duration of the possible exceedance;
 - C. An estimate of the amount of emissions in excess of the applicable standard;
 - D. A description of the cause of the possible exceedance; and
 - E. When compliance was reestablished.

- d. The Permittee shall submit the following information along with its annual emission report:
 - i. The annual emissions of SO₂, NO_x, CO, VOM, PM, and PM₁₀ from the FCC Unit, for each month of the previous calendar year, to demonstrate compliance with Condition 7.3.6(a), tons/year (e.g., for the month of January, the emissions from February of the preceding year through January, for the month of February, the emissions from March of the preceding calendar year through February, 12 months in all);
 - ii. 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(c).

7.3.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to each affected CO boiler 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:

Combust CO waste gas streams, gaseous, or liquid fuels in combination with CO waste gas streams and/or gaseous fuels, or any combination thereof in any of the affected CO boilers as allowed by the conditions of this permit.

7.3.12 Compliance Procedures

- a. i. With respect to an affected FCC Unit/affected CO boiler(s), compliance with the opacity limitations of Condition 7.3.3(b) is demonstrated by the continuous monitoring system operated in accordance with the requirements of Condition 7.3.8(a) and the recordkeeping requirements of Condition 7.3.9(c).

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- ii. With respect to an affected FCC Unit/CO boiler(s), compliance with the limitation of Condition 7.3.3(b) (30 percent opacity) shall be determined by utilizing the average opacity calculated from 6-minute periods of opacity measurements as required by Conditions 7.3.8(a) and 7.3.9(c).
- iii. Notwithstanding the above, should the Permittee choose to rely on 35 IAC 212.123(b) to allow opacity greater than 30 percent from an affected FCC Unit/affected CO boiler(s), the Permittee shall do the following:
 - A. Maintain relevant records of instantaneous opacity data (i.e., values at least every 10 seconds) from each affected FCC Unit/CO boiler(s);
 - B. Have the capability to review such instantaneous opacity data to identify:
 - I. For each affected FCC Unit, any hour in which an instantaneous measurements exceeded 30 percent, the number of such measurements in such hour, whether any instantaneous measurement exceeded 60 percent, and whether the duration of measurements in excess of 30 percent was more than 8 minutes in aggregate;
 - II. For each affected FCC Unit/affected CO boiler(s), whether instantaneous opacity in excess of 30 percent occurred in more than three hours in a 24 hour period; and
 - III. For affected FCC Unit/affected CO boiler(s), whether instantaneous opacity exceeded 30 percent from more than one such unit in an hour.
 - C. In the reports required by Condition 7.3.10(b) include summary of the relevant

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instantaneous opacity data, reviewed as above, to show that the terms of 35 IAC 212.123(a) where satisfied, when 35 IAC 212.123(b) is relied upon as the basis to claim that an affected FCC Unit did not violate Condition 7.3.3(b) even though average opacity data exceeded 30 percent.

- b. With respect to affected heaters, compliance with the requirements of 35 IAC 212.123 (Condition 7.3.3(b)) shall be demonstrated by the records required in Condition 7.3.9(d).
- c. With respect to affected heaters and affected CO boiler(s) that are operating when the associated FCC Unit is not in operation, compliance with 35 IAC 216.121 (Condition 7.3.3(i)) is considered to be assured by the inherent nature of the operations at this source, as demonstrated by historical operation.
- d. Compliance with 35 IAC 216.361(a) (Condition 7.3.3(j)) shall be demonstrated by the records required by Condition 7.3.10(g).
- e. With respect to affected CO boiler(s) operating when the associated FCC Unit is not in operation, compliance with 35 IAC 212.207 (Conditions 7.3.3(c)) shall be demonstrated by the records required by Condition 7.3.9(f). For the purpose of this specific compliance procedure, the combustion of CO waste gas with refinery fuel gas and/or natural gas is not considered to be a combination of fuels. Compliance with 35 IAC 212.207 is considered to be assured during normal operation of affected CO boiler(s) operating in conjunction with the associated FCC Unit, by the inherent nature of the operation at this source, as demonstrated by historical operation. Operation outside of normal parameters is addressed by Conditions 7.3.3(j) and (k) and the recordkeeping and reporting requirements of Conditions 7.3.9(a), (b) and 7.3.10(a).
- f. Compliance with PM limitations of Condition 7.3.3(d) is demonstrated by continuous opacity monitoring, PM testing in accordance with Condition 7.3.7 and the

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recordkeeping and reporting required by Conditions 7.3.9(c) and 7.3.10(b).

- g. With respect to affected CO boiler(s) operating when the associated FCC Unit is not in operation, compliance with 35 IAC 214.162 (Conditions 7.3.3(e)) shall be demonstrated by the records required by Condition 7.3.9(f). For the purpose of this specific compliance procedure, the combustion of CO waste gas with refinery fuel gas and/or natural gas is not considered to be a combination of fuels. Compliance with 35 IAC 214.162 is considered to be assured during normal operation of affected CO boiler(s) operating in conjunction with the associated FCC Unit, by the inherent nature of the operation at this source, as demonstrated by historical operation. Operation outside of normal parameters is addressed by Conditions 7.3.3(j) and (k) and the recordkeeping and reporting requirements of Conditions 7.3.9(a), (b) and 7.3.10(a).
- h. Compliance with 35 IAC 214.301 (Condition 7.3.3(f)) is considered to be assured by the inherent nature of the operations at this source, as demonstrated by historical operation.
- i. With respect to affected CO boiler(s) operating when the associated FCC Unit is not in operation, compliance with 35 IAC 217.141 (Conditions 7.3.3(i)) shall be demonstrated by the records required by Condition 7.3.9(f). For the purpose of this specific compliance procedure, the combustion of CO waste gas with refinery fuel gas and/or natural gas is not considered to be a combination of fuels. Compliance with 35 IAC 217.141 is considered to be assured during normal operation of affected CO boiler(s) operating in conjunction with the associated FCC Unit, by the inherent nature of the operation at this source, as demonstrated by historical operation. Operation outside of normal parameters is addressed by Conditions 7.3.3(j) and (k) and the recordkeeping and reporting requirements of Conditions 7.3.9(a), (b) and 7.3.10(a).
- j. Compliance with Condition 7.3.6 shall be demonstrated by the records required by Condition 7.3.9(e) and

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performance testing completed in accordance with the testing requirements of Condition 7.3.7.

- k. Emissions for the affected FCC Unit/CO boiler(s) shall be calculated using the following:

<u>Pollutant</u>	<u>Basis</u>	<u>Factor</u>
CO	Unit specific factor derived from previous performance testing	136.4 lb/hr
NO _x	AIRS Factor (30600201)	71 lb/1,000 bbl fresh feed
SO ₂	SO ₂ Analyzer	Measured emissions
PM	Unit specific factor based on most recent performance test, to be revised upon completion of testing completed in accordance with Condition 7.3.7 or as otherwise performed and accepted by the Illinois EPA	Initially 84.8 lb/hour
PM ₁₀	Unit specific factor based on most recent performance test, to be revised upon completion of testing completed in accordance with Condition 7.3.7 or as otherwise performed and accepted by the Illinois EPA. May assume 100% of PM emissions unless pollutant specific testing completed	Initially 84.8 lb/hour
VOM	Uncontrolled AIRS factor (30600201)(140.8 lb/1,000 bbl fresh feed) and 99.9% destruction efficiency of CO boilers	0.1408 lb/1,000 bbl fresh feed

These emission factors include emissions from the affected FCC Unit, associated affected CO boiler(s), and associated affected catalyst handling equipment.

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1. Emissions of NO_x, VOM, CO, PM and PM₁₀ for an affected heater shall be calculated using AIRS emission factors as follows:

<u>Process Gas/Natural Gas (30600106/30600105)</u>	
NO _x	140 lb/ MM cubic feet burned
VOM	2.8 lb/MM cubic feet burned
CO	35 lb/MM cubic feet burned
PM	3.0 lb/MM cubic feet burned
PM ₁₀	3.0 lb/MM cubic feet burned

SO₂ emissions for each affected heater shall be calculated based on the H₂S content of the fuel gas burned.

- m. Emissions of NO_x, VOM, CO, PM, and PM₁₀, for an affected CO boiler that is operating when the associated FCC Unit is not in operation shall be calculated using AIRS emission factors as follows:

<u>Process Gas (10200701)</u>	
NO _x	140 lb/MM cubic feet burned
VOM	2.8 lb/MM cubic feet burned
CO	35 lb/MM cubic feet burned
PM	3.0 lb/MM cubic feet burned
PM ₁₀	3.0 lb/MM cubic feet burned

<u>Oil (10200504)</u>	
NO _x	20.0 lb/1,000 gal burned
VOM	0.2 lb/1,000 gal burned
CO	5.0 lb/1,000 gal burned
PM	7.0 lb/1,000 gal burned
PM ₁₀	6.3 lb/1,000 gal burned

SO₂ emissions for each affected CO boiler shall be calculated based on the H₂S or sulfur content of the fuel.

These factors shall only be used when an affected CO boiler is fired independent of the FCC Unit. Otherwise, emissions from the affected CO boilers are included in the emissions calculated for the FCC Unit.

- 7.4 Unsaturate Gas Plant (Unit 05)
 LPG & Gasoline Treater (Units 15 and 09)
 Fuel Gas Sales (Unit 19)

7.4.1 Description

The Unsaturate Gas Plant, LPG Treater, Gasoline Treater, and Fuel Gas Sales are closed-vent systems (except for safety relief valves that are vented to the flare system) that are used to separate and treat gas and liquid streams by means of absorption and stripping.

7.4.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Unsaturate Gas Plant (Unit 05)	Closed-vent system with pumps and compressors used for separation	None
LPG Treater (Unit 15)	Closed-vent system with pumps used to treat LPG streams	None
Gasoline Treater (Unit 09)	Closed-vent system with pumps used to treat gasoline streams	None
Fuel Gas Sales (Unit 19)	Closed-vent system used to compress and treat fuel gas	None

7.4.3 Applicability Provisions and Applicable Regulations

- a. Components associated with this unit are subject to the fugitive emission regulations as addressed by Section 7.28, including the inspection, recordkeeping, reporting requirements and compliance procedures.

7.4.4 Non-Applicability of Regulations of Concern

N/A

7.4.5 Control Requirements

None

7.4.6 Emission Limitations

There are no specific emission limitations for this unit.

7.4.7 Operating Requirements

None

7.4.8 Inspection Requirements

N/A

7.4.9 Recordkeeping Requirements

N/A

7.4.10 Reporting Requirements

N/A

7.4.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.4.12 Compliance Procedures

N/A

7.5 HF Alkylation Unit (Unit 07)

7.5.1 Description

The HF Alkylation Unit is a continuous mode operation that converts low molecular weight feed streams into high quality products. The operation is a closed-vent which utilizes a process heater.

7.5.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Alky Iso-Stripper Reboiler (7-B-1)	138 mmBtu/hr process heater capable of firing fuel gas or a combination of fuels	None

7.5.3 Applicability Provisions and Applicable Regulations

- a. An "affected process heater" for the purpose of these unit-specific conditions, is a process heater that has a capacity of less than 250 mmBtu/hr, the ability to burn gas or a combination of fuels, and was constructed prior to April 14, 1972.
- b.
 - i. Pursuant to 35 IAC 212.123 the emissions of smoke or other particulate matter into the atmosphere from an affected process heater shall not be greater than 30 percent except as provided below;
 - ii. The smoke or other particulate matter emissions from an affected process heater may have an opacity greater than 30 percent but not greater than 60 percent ("more opaque emissions") for a period or periods aggregating 8 minutes in any 60 minute period, provided that such periods of more opaque emissions are limited to three (3) times in any 24-hour period, and such periods of more opaque emissions may not simultaneously occur at other such emission units located within a 305 m (1,000 ft) radius of an affected process heater when the affected process heater is experiencing periods of more opaque emissions.

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- c. Pursuant to 35 IAC 212.207 no person, while simultaneously burning more than one type of fuel in an affected process heater, shall cause or allow the emissions of PM into the atmosphere in any one hour period in excess of the following equation:

$$E = AS + BL$$

Where:

E = Allowable emission rate (kg/hr or lbs/hr);

A = Solid fuel particulate emission standard which is applicable (kg/MW-hr or lbs/mmBtu);

B = Constant (0.155(metric) or 0.10(English));

S = Actual heat input from solid fuel (MW or mmBtu/hr); and

L = Actual heat input from liquid fuel (MW or mmBtu/hr).

- d. Pursuant to 35 IAC 214.162 no person, while simultaneously burning more than one type of fuel in an affected process heater, shall cause or allow the emissions of SO₂ into the atmosphere in any one hour period in excess of the following equation:

$$E = AX + BY + CZ$$

Where:

E = Allowable SO₂ emission rate (kg/hr or lbs/hr);

A = Solid fuel SO₂ emission standard which is applicable (kg/MW-hr or lbs/mmBtu);

B = Distillate oil SO₂ emission standard (0.46 kg/MW-hr or 0.3 lbs/mmBtu);

C = Residual fuel oil SO₂ emission standard which is applicable (1.55 kg/MW-hr or 1.0 lbs/mmBtu);

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- X = Actual heat input from solid fuel (MW or mmBtu/hr);
- Y = Actual heat input from distillate fuel oil (MW or mmBtu/hr);
- Z = Actual heat input from residual fuel oil (MW or mmBtu)

That portion of actual heat input that is derived:

- i. From the burning of gaseous fuels produced by the gasification of solid fuels shall be included in X;
 - ii. From the burning of gaseous fuels produced by the gasification of distillate fuel oil shall be included in Y;
 - iii. From the burning of gaseous fuels produced by the gasification of residual fuel oil shall be included in Z;
 - iv. From the burning of gaseous fuels produced by the gasification of any other liquid fuels shall be included in Z; and
 - v. From the burning of by-product gases such as those produced from a blast furnace or a catalyst regeneration unit in a petroleum refinery shall be included in Z.
- e. Pursuant to 35 IAC 216.121, no person shall cause or allow the emissions of CO from an affected process heater to exceed 200 ppm, corrected to 50% excess air;

7.5.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on the affected process heaters not being subject to the New Source Performance Standards (NSPS) for Petroleum Refineries, 40 CFR 60, Subpart J, because the affected process heaters were constructed or last modified on or before June 11, 1973.

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- b. This permit is issued based on the affected process heaters not being subject to 35 IAC 214.301 because the process heaters are not process emission sources, but rather fuel combustion emission sources.
- c. This permit is issued based on the affected process heaters not being subject to 35 IAC 217.141 because the actual heat input is less than 250 mmBtu/hr.

7.5.5 Operational and Production Limits and Work Practices

None

7.5.6 Emission Limitations

There are no specific emission limitations for this unit.

7.5.7 Operating Requirements

None

7.5.8 Monitoring Requirements

None

7.5.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items pursuant to Section 39.5(7)(b) of the Act for the affected process heaters:

- a. The Permittee shall maintain appropriate records for each affected process heater so as to allow the Illinois EPA to verify compliance with 35 IAC 212.123 (Condition 7.5.3(b)).
- b. The Permittee shall maintain records of the following items for each affected process heater when firing a combination of fuels, to demonstrate compliance with the limits of Conditions 7.5.3(c) and (d):
 - i. The sulfur content of each fuel burned in each affected process heater, at least once per month, with supporting documentation;

- ii. Quantity of each fuel, i.e., refinery fuel gas, natural gas, and oil burned in each affected process heater, daily;
- iii. Daily heat input from each fuel burned in each affected process heater, mmBtu;
- iv. Average daily PM emissions, with supporting calculations, lb/mmBtu; and
- v. Average daily SO₂ emissions, with supporting calculations, lb/mmBtu.

7.5.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section of noncompliance of an 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. Within 30 days of exceedance of the limits in Condition 7.5.3, 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; and
 - v. When compliance was reestablished.

7.5.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to an affected process heater 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:

- a. Utilize gaseous fuels or any combination of gaseous fuel and acid soluble oil in any of the affected process heaters as allowed by the conditions of this permit.

7.5.12 Compliance Procedures

- a. Compliance with the requirements of 35 IAC 212.123 (Condition 7.5.3(b)) shall be demonstrated by the records required in Condition 7.5.9(a).
- b. Compliance with 35 IAC 216.121 (Condition 7.5.3(e)) is considered to be assured by the inherent nature of the operations at this source, as demonstrated by historical operation.
- c. Compliance with 35 IAC 212.207 (Condition 7.5.3(c)) shall be demonstrated by the records required in Condition 7.5.9(a). PM emissions for each affected process heater shall be calculated using AIRS emission factors as follows:
 - i. Process Gas/Natural Gas 3.0 lb/MM cubic feet burned (30600106/30600105)
 - ii. Oil (30600103) 12 lb/1,000 gal burned
- d. Compliance with 35 IAC 214.162 (Conditions 7.5.3(d)) shall be demonstrated by the records required in Condition 7.5.9(a). SO₂ emissions for each affected process heater shall be calculated based on the sulfur or H₂S content of the fuel.

7.6 PreTreater Unit (Unit 17)

7.6.1 Description

The PreTreater Unit is a continuous mode operation that removes impurities such as sulfur and nitrogen compounds from feed streams so that they can more readily be processed further. Under normal circumstances, the operation is a closed-vent system that utilizes process heaters. However, during startup of the unit, emissions will be vented to the atmosphere during the catalyst regeneration step of the startup.

7.6.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
PreTreater Reactor Vent	Reactor vessel vent that is open only during catalyst regeneration phase of unit startup	None
PreTreater Charge Heater (17-B-1)	140 mmBtu/hr fuel gas fired process heater	None
PreTreater Debutanizer Reboiler (17-B-2)	180 mmBtu/hr fuel gas fired process heater	None

7.6.3 Applicability Provisions and Applicable Regulations

- a. An "affected process heater" for the purpose of these unit-specific conditions, is a fuel gas fired process heater that has a capacity of less than 250 mmBtu/hr that was constructed prior to April 14, 1972.
- b.
 - i. Pursuant to 35 IAC 212.123 the emissions of smoke or other particulate matter into the atmosphere from an affected process heater shall not be greater than 30 percent except as provided below;
 - ii. The smoke or other particulate matter emissions from an affected process heater may have an opacity greater than 30 percent but not greater than 60 percent ("more opaque emissions") for a period or periods aggregating 8 minutes in any 60 minute period,

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provided that such periods of more opaque emissions are limited to three (3) times in any 24-hour period, and such periods of more opaque emissions may not simultaneously occur at other such emission units located within a 305 m (1,000 ft) radius of an affected process heater when the affected process heater is experiencing periods of more opaque emissions.

- c. Pursuant to 35 IAC 216.121, no person shall cause or allow the emissions of CO from an affected process heater to exceed 200 ppm, corrected to 50% excess air;
- d. Startup Provisions for the PreTreater Reactor

Pursuant to 35 IAC 201.149, the Permittee is authorized to operate the PreTreater Unit in excess of applicable Board emission limits during startup of the PreTreater reactor vessel when the reactor catalyst is regenerated. Reactor catalyst regeneration is a 24 to 48 hour process, when steam is turned into the reactor vessel to raise the temperature of the catalyst, followed by introduction of air to promote burning of coke deposits off the catalyst, with the effluent resulting from catalyst regeneration vented to the atmosphere through the normally closed reactor vessel vent stack. This authorization is subject to the following:

- i. This authorization only extends for a period of up to 48-hours following initial introduction of steam into the reactor vessel during each startup event.
- ii. The Permittee shall take the following measures to minimize startup emissions, the duration of startups, and minimize the frequency of startups:
 - A. Implementation of established startup procedures, including monitoring the reactor bed temperature during the startup and making adjustments to the regeneration rate accordingly.

- iii. The Permittee shall fulfill the applicable recordkeeping requirements of Condition 7.6.9(a).

7.6.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on the affected process heaters not being subject to the New Source Performance Standards (NSPS) for Petroleum Refineries, 40 CFR 60, Subpart J, because the affected process heaters were constructed or last modified on or before June 11, 1973.
- b. This permit is issued based on the affected process heaters not being subject to 35 IAC 214.301 because the process heaters are not process emission sources, but rather fuel combustion emission sources.
- c. This permit is issued based on the affected process heaters not being subject to 35 IAC 217.141 because the actual heat input is less than 250 mmBtu/hr.

7.6.5 Operational and Production Limits and Work Practices

None

7.6.6 Emission Limitations

- a. Combined annual emissions from the PreTreater Unit Charge Heater (17-B-1), Crude Unit Feed Preheater (1-B-3/13-B-4), Reformer Unit Charge Heaters (2-B-3,4,5,6), CHD Unit Charge Heater (3-B-1), and Coker Unit Heaters (16-B-1A & 1B) shall not exceed the following limits. Compliance with these limits shall be determined from a running total of 12 months of data. [T1]

Annual Emission Limits (tons/year)					
<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>VOM</u>	<u>PM</u>	<u>PM₁₀</u>
454.5	155.8	108.1	14.1	16.6	16.0

The above limitations were established in Permit 97030078 pursuant to 35 IAC Part 203 and 40 CFR 52.21, Prevention of Significant Deterioration. These limits ensure that the

construction/modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to 35 IAC Part 203 or pursuant to the federal rules for PSD, 40 CFR 52.21 with the exception of the NO_x limitations which were established in conjunction with the limitations included in Conditions 7.1.5(a), (b), (c) and 7.1.6(a) to ensure that BACT is being implemented. These limits do not address "fugitive" losses from leaking components, which are not affected by the Crude Upgrade Project and which are controlled by various leak detection and repair programs as further address in Section 7.28. [T1]

7.6.7 Operating Requirements

None

7.6.8 Monitoring Requirements

None

7.6.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items pursuant to Section 39.5(7)(b) of the Act for the affected PreTreater Reactor:

a. Records for Startup of the PreTreater Reactor

The Permittee shall maintain the following records, pursuant to Section 39.5(7)(b) of the Act, for each affected PreTreater reactor vessel operating in accordance with the provisions of Condition 7.6.3(d), which at a minimum shall include:

- i. The following information for each startup of an affected PreTreater reactor vessel:
 - A. Date and duration of the startup, i.e., start time and time normal operation achieved, i.e., the catalyst regeneration procedure was completed;
 - B. If normal operation was not achieved within 48 hours, an explanation why

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startup could not be achieved in normal time frame;

- C. A detailed description of the startup, including reason for operation and whether the monitoring of the reactor bed temperature and appropriate adjustments to the regeneration rate were performed;
 - D. An explanation why monitoring of the reactor bed temperature, appropriate adjustments to the regeneration rate, and other established startup procedures could not be performed, if not performed;
 - E. The nature of opacity and SO₂ emissions, i.e., severity and duration, during the startup and the nature of opacity and SO₂ emissions at the conclusion of startup, if above normal; and
 - F. Whether exceedance of Condition 7.6.3(b) may have occurred during startup, with explanation and estimated duration (minutes).
- ii. A maintenance and repair log for the PreTreater Reactor vessel, listing each activity performed with date.
- b. The Permittee shall maintain appropriate records for each affected process heater so as to allow the Illinois EPA to verify compliance with 35 IAC 212.123 (Condition 7.6.3(b)).
 - c. The Permittee shall maintain records of the following items to demonstrate compliance with the limits of Condition 7.6.6:
 - i. Quantity of each fuel burned in the Process Heaters (1-B-3/13-B-4; 17-B-1; 2-B-3,4,5,6; 3-B-1; 16-B-1A & 16-B-1B), daily, with supporting documentation;
 - ii. The sulfur content of each fuel burned in the Process Heaters (1-B-3/13-B-4; 17-B-1; (1-B-

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3/13-B-4; 17-B-1; 2-B-3,4,5,6; 3-B-1; 16-B-1A
& 16-B-1B), with supporting documentation;

- iii. Actual emissions of SO₂, NO_x, CO, VOM, PM, and PM₁₀ in tons/month with supporting documentation for Process Heaters (1-B-3/13-B-4; 17-B-1; 2-B-3,4,5,6; 3-B-1; 16-B-1A & 16-B-1B); and
- iv. Annual emissions of SO₂, NO_x, CO, VOM, PM, and PM₁₀ from Process Heaters (1-B-3/13-B-4; 17-B-1; 2-B-3,4,5,6; 3-B-1; 16-B-1A & 16-B-1B) for the current month and the previous 11 months, tons/year.

Note: Condition 7.6.9(c) requires the same records required by Condition 7.1.9(c). Only one set of records is required for the facility. Identification of these records has been provided here for clarity.

7.6.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section of noncompliance of an 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. Within 30 days of exceedance of the limits in Condition 7.6.3, 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; and
 - v. When compliance was reestablished.

7.6.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to an affected process heater 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

7.6.12 Compliance Procedures

- a. Compliance with the requirements of 35 IAC 212.123 (Condition 7.6.3(b)) shall be demonstrated by the records required in Condition 7.6.9(a).
- b. Compliance with 35 IAC 216.121 (Condition 7.6.3(c)) is considered to be assured by the inherent nature of the operations at this source, as demonstrated by historical operation.
- c. Compliance with Condition 7.6.6 shall be demonstrated by the records required by Condition 7.6.9(c). Emissions of SO₂ for each affected process heater shall be calculated based on the H₂S content of the fuel gas or natural gas. Emissions of NO_x, VOM, CO, PM, and PM₁₀ shall be calculated using AIRS emission factors as follows:

Process Gas/Natural Gas (30600106/30600105)	
NO _x	140 lb/MM cubic feet burned
VOM	2.8 lb/MM cubic feet burned
CO	35 lb/MM cubic feet burned
PM	3.0 lb/MM cubic feet burned
PM ₁₀	3.0 lb/MM cubic feet burned

- d. During normal operation, the PreTreater reactor operates as a closed-vent process. As such compliance with 35 IAC 214.301 is assured by the inherent nature of the operations at this source, as demonstrated by historical operation. However, during startup, the reactor does not operate as a closed-vent system, as such, compliance with 35 IAC

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214.301 is addressed by the startup provisions of
Condition 7.6.3(e) and the recordkeeping requirements
of Condition 7.6.9(b).

7.7 Continuous Catalytic Reformer (CCR) (Unit 2)

7.7.1 Description

The CCR Unit is a continuous operation. The CCR converts low octane naphtha into high octane reformate, LPG, and hydrogen in the presence of a catalyst. Catalyst is regenerated on a continuous basis so as to maintain a steady level of production and yield.

7.7.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
CCR Regenerator Vent (2-D-89)	CCR flue gas vent	Vent gas wash tower (2-D-90)
CCR Charge Heaters (2-B-3, 4, 5, & 6)	Four process heaters with common breaching (combined duty - 620 mmBtu/hr) capable of firing fuel gas	Low-NO _x burners
CCR Reformate Debutanizer Reboiler (2-B-7)	91 mmBtu/hr process heater capable of firing fuel gas	None

7.7.3 Applicability Provisions and Applicable Regulations

- a. An "affected process charge heater" for the purpose of these unit-specific conditions, is a process heater that has a capacity of less than or equal to 250 mmBtu/hr, fires only gaseous fuels, and was constructed or modified after June 11, 1973. As of the date of issuance of this permit, as shown on page 1, this includes the Reformer Charge Heaters (2-B-3, 4, 5, & 6).
- b. An "affected process reboiler heater" for the purposes of these unit-specific conditions, is a process heater that has a capacity of less than or equal to 250 mmBtu/hr, fires only gaseous fuels, and was constructed or modified prior to April 14, 1972. As of the date of issuance of this permit, as shown on page 1, this includes the Reformer Reformate Debutanizer Reboiler (2-B-7).

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- c. Pursuant to 40 CFR 60.104(a)(1), no owner or operator shall burn in any affected process charge heater any fuel gas which contains hydrogen sulfide in excess of 230 mg/dscm (0.10 gr/dscf).
- d.
 - i. Pursuant to 35 IAC 212.123 the emissions of smoke or other particulate matter into the atmosphere from an affected process charge or reboiler heater or the CCR vent gas wash tower shall not be greater than 30 percent except as provided below;
 - ii. The smoke or other particulate matter emissions from an affected process charge or reboiler heater or the CCR vent gas wash tower may have an opacity greater than 30 percent but not greater than 60 percent ("more opaque emissions") for a period or periods aggregating 8 minutes in any 60 minute period, provided that such periods of more opaque emissions are limited to three (3) times in any 24-hour period, and such periods of more opaque emissions may not simultaneously occur at other such emission units located within a 305 m (1,000 ft) radius of an affected process charge or reboiler heater or the CCR vent gas wash tower when the affected process charge or reboiler heater or the CCR vent gas wash tower is experiencing periods of more opaque emissions.
- e. Pursuant to 35 IAC 216.121, no person shall cause or allow the emissions of CO from an affected process charge or reboiler heater to exceed 200 ppm, corrected to 50% excess air;
- f. Pursuant to 35 IAC 218.441(c)(1), no person shall cause or allow the discharge of organic materials in excess of 8 lb/hr into the atmosphere from the Regenerator Vent/CCR Vent Gas Wash Tower.
- g.
 - i. The Regenerator Vent/CCR Vent Gas Wash Tower shall comply with 35 IAC 212.321, which provides that:

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No person shall cause or allow the emissions of particulate matter into the atmosphere in any one hour period from any new process emission unit, which either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in Condition 7.7.3(g)(ii).

- ii. For this purpose, the emissions of particulate matter into the atmosphere in any one hour period from the Regenerator Vent/CCR Vent Gas Wash Tower shall not exceed the allowable emission rates specified by the following equation from 35 IAC 212.321(b):

$$E = A(P)^B$$

Where:

P = Process weight rate; and
 E = Allowable emission rate; and

- A. For process weight rates up to 408 Mg/hr (450 T/hr):

	<u>Metric</u>	<u>English</u>
P	Mg/hr	T/hr
E	kg/hr	lbs/hr
A	1.214	2.54
B	0.534	0.534

- B. For process weight rates in excess of 408 Mg/hr (450 T/hr):

	<u>Metric</u>	<u>English</u>
P	Mg/hr	T/hr
E	kg/hr	lbs/hr
A	11.42	24.8
B	0.16	0.16

- h. Pursuant to 35 IAC 214.301, no person shall cause or allow the emission of sulfur dioxide into the

atmosphere from any process emission source (Regenerator Vent/CCR Vent Gas Wash Tower) to excess 200 ppm.

- i. Pursuant to 35 IAC 216.361, no person shall cause or allow the emissions of a carbon monoxide waste gas stream into the atmosphere from a petroleum or petrochemical process (Regenerator Vent) 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% 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. The Illinois EPA has previously approved the use of the CCR Vent Gas Wash Tower (caustic scrubber) to control the emissions of CO from this waste gas stream.
- j. Malfunction and Breakdown Provisions

In the event of a malfunction or breakdown of a CCR Vent Gas Wash Tower, the Permittee is authorized to continue operation of the associated CCR Regenerator Vent in violation of the applicable requirement of Condition 7.7.6(c), as necessary to prevent risk of injury to personnel or severe damage to equipment and to provide an essential service to the public. This authorization is subject to the following requirements:

- i. The Permittee shall repair the damaged feature(s) of the CCR Vent Gas Wash Tower as soon as practicable. This shall be accomplished within 3 days unless the Permittee obtains an extension from the Illinois EPA. The request for such an extension must document that the feature(s) cannot be repaired within 3 days, the CCR cannot be removed from service within 3 days, and specify a schedule of actions the Permittee will take that will assure the feature(s) will be repaired or the CCR will be removed from service as soon as possible.

- ii. The Permittee shall fulfill the applicable recordkeeping and reporting requirements of Conditions 7.7.9(b) and 7.7.10(b).

7.7.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on the affected process charge and reboiler heaters not being subject to 40 CFR 60 Subpart Db, NSPS for Industrial-Commercial-Institutional Steam Generating Units because the process heaters do not meet the definition of a steam generating unit pursuant to 40 CFR 60.41b.
- b. This permit is issued based on the affected process charge and reboiler heaters not being subject to 35 IAC 212.206, 212.207, or 214.162 because the affected process heaters do not burn liquid fuel or a combination of fuels.
- c. This permit is issued based on the affected process charge and reboiler heaters not being subject to 35 IAC 214.301 because the process heaters are not process emission sources, but rather fuel combustion emission sources.
- d. This permit is issued based on the affected process charge and reboiler heaters not being subject to 35 IAC 217.121 because the actual heat input of each heater is less than 250 mmBtu/hr.

7.7.5 Operational and Production Limits and Work Practices

- a. The combined firing duty from the Reformer Charge Heaters (2-B-3, 4, 5, & 6) shall not exceed 620 mmBtu/hr. [T1]

The above limitation was established in Permit 91100021 pursuant to 40 CFR 52.21, Prevention of Significant Deterioration. This limitation in combination with Condition 7.7.6(a) and (b) ensures that the construction/modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to the federal rules for PSD, 40 CFR 52.21. [T1]

- b. The Permittee shall not utilize solid or liquid fuels in any affected process charge or reboiler heater.

7.7.6 Emission Limitations

- a. Emissions of nitrogen oxides (NO_x) from the four Reformer Charge Heaters (2-B-3, 4, 5, & 6) shall not exceed an average of 0.08 lb/mmBtu. [T1]
- b. Emissions from the four Reformer Charge Heaters combined shall not exceed the following:

<u>Pollutant</u>	<u>Emissions</u>	
	<u>(lb/hr)</u>	<u>(ton/yr)</u>
NO _x	49.6	217.3
SO ₂	17.67	77.4
CO	8.83	38.7
PM	3.1	13.6
VOM	1.74	7.6

The above limitations contain revisions to previously issued Permits 91100021 and 97030078. 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 emissions have changed only for VOM. The VOM emissions were established in Permit 91100021 and were revised in Permit 97030078. [T1R]

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- c. Emissions from the Regenerator Vent/CCR Vent Gas Wash Tower shall not exceed the following:

<u>Pollutant</u>	<u>Emissions</u>	
	<u>(lb/hr)</u>	<u>(ton/yr)</u>
NO _x	2.0	8.8
SO ₂	1.2	5.3
CO	0.5	2.2
PM	0.1	0.5
Hydrogen chloride/chlorine	1.1	4.8

The above limitations were established in Permit 91100021 and 72110577 pursuant to 40 CFR 52.21, Prevention of Significant Deterioration. These limits in combination with Condition 7.7.5(a) ensure that the construction/modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to the federal rules for PSD, 40 CFR 52.21. [T1]

- d. Combined annual emissions from the Reformer Unit Charge Heaters (2-B-3,4,5,6), Coker Unit Heaters (16-B-1A & 1B), PreTreater Unit Charge Heater (17-B-1), CHD Unit Charge Heater (3-B-1), and Crude Unit Feed Preheater (1-B-3/13-B-4) shall not exceed the following limits. Compliance with these limits shall be determined from a running total of 12 months of data. [T1]

<u>Annual Emission Limits (tons/year)</u>					
<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>VOM</u>	<u>PM</u>	<u>PM₁₀</u>
454.5	155.8	108.2	14.1	16.6	16.0

The above limitations were established in Permit 97030078 pursuant to 35 IAC Part 203 and 40 CFR 52.21, Prevention of Significant Deterioration. These limits ensure that the construction/modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to 35 IAC Part 203 or pursuant to the federal rules for PSD, 40 CFR 52.21 with the exception of the NO_x limitations which were established in conjunction with the limitations included in Conditions 7.1.5(a), (b), (c) and

7.1.6(a) to ensure that BACT is being implemented. These limits do not address "fugitive" losses from leaking components, which are not affected by the Crude Upgrade Project and which are controlled by various leak detection and repair programs as further address in Section 7.28. [T1]

7.7.7 Operating Requirements

None

7.7.8 Monitoring Requirements

- a. Pursuant to 40 CFR 60.105(a)(4), the owner or operator shall install, calibrate, maintain, and operate a continuous monitoring system that continuously monitors and records concentrations of hydrogen sulfide in fuel gases burned in any affected process charge heater. Fuel gas combustion devices, including any affected process charge heaters, having a common source of fuel gas may be monitored at one location, if monitoring at this location accurately represents the concentration of H₂S in the fuel burned. The span of this continuous monitoring system shall be 300 ppm.

These monitoring system(s) shall be the basis for quarterly reporting of exceedances of the NSPS 40 CFR 60.104(a)(1) (Condition 7.7.3(c)) in accordance with 40 CFR 60.6(c) and 60.105(e). [See also Condition 7.7.10(a)]

7.7.9 Recordkeeping Requirements

- a. Records for Continuous H₂S Monitoring Systems

Pursuant to Section 39.5(7)(b) of the Act, the Permittee shall maintain records for the H₂S monitoring system on each affected process charge heater required by Condition 7.7.8 that as a minimum shall include:

- i. Operating records for each H₂S monitoring system, including:
- A. H₂S measurements;

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- B. Continuous monitoring system performance testing measurements;
 - C. Performance evaluations;
 - D. Calibration checks;
 - E. Maintenance and adjustment performed;
 - F. Quarterly reports submitted in accordance with 40 CFR 60.7(c) (Condition 7.7.10(a)); and
 - G. Data reduction information used pursuant to Condition 7.7.12(c).
- ii. Records to verify compliance with the limitations of Condition 7.7.3(c), including:
 - A. Hourly H₂S content from each affected process charge heater as derived from the data obtained by the H₂S monitor, gr/dscf;
 - B. Any three-hour block averaging period when the total H₂S concentration exceeded 230 mg/dscm (0.10 gr/dscf)
- b. Records for Continued Operation During Malfunctions and Breakdowns

The Permittee shall maintain records, pursuant to 35 IAC 201.263, related to malfunction and breakdown of the CCR Vent Gas Wash Tower that as a minimum, shall include:

- i. A maintenance and repair log for the CCR Vent Gas Wash Tower and associated equipment, listing each activity performed with date; and
- ii. Records for each incident when operation of the CCR continued during malfunction or breakdown of the Regenerator Vent/CCR Vent Gas Wash Tower with excess emissions, as provided by Condition 7.7.3(j), including the following information:

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- A. Date and duration of malfunction or breakdown;
 - B. A detailed explanation of the malfunction or breakdown;
 - C. An explanation why continued operation of the CCR was necessary;
 - D. The measures used to reduce the quantity of emissions and the duration of the event;
 - E. The steps taken to prevent similar malfunctions or breakdowns or reduce their frequency and severity; and
 - F. An estimate of the amount of excess emissions released during malfunction/breakdown.
- c. The Permittee shall maintain appropriate records for each affected process charge and reboiler heater so as to allow the Illinois EPA to verify compliance with 35 IAC 212.123 (Condition 7.7.3(d)).
- d. The Permittee shall maintain records of the following items to demonstrate compliance with Conditions 7.7.5 and 7.7.6:
- i. Heat and sulfur content of refinery fuel gas burned in the Reformer Charge Heaters (2-B-3, 4, 5, & 6) shall be determined, with supporting documentation, on a representative frequency, i.e., sulfur content shall be determined in accordance with the NSPS 40 CFR 60.105, and heat content shall be determined at least weekly;
 - ii. Combined fired fuel duty (gross) from the Reformer Charge Heaters (2-B-3, 4, 5, & 6), daily;

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- iii. Emissions of SO₂, NO_x, CO, VOM, and PM from the Reformer Charge Heaters (2-B-3, 4, 5, & 6) in tons/month, with supporting calculations; and
 - iv. Annual emissions of SO₂, NO_x, CO, VOM, and PM from the Reformer Charge Heaters (2-B-3, 4, 5, & 6) for the current month and the previous 11 months, tons/year;
- e. The Permittee shall maintain records of the following items to demonstrate compliance with Conditions 7.7.3(f), (g), (h), and 7.7.6(c):
- i. Emissions of SO₂, NO_x, CO, VOM, and PM from the Regenerator Vent/CCR Vent Gas Wash Tower in tons/month, with supporting calculations; and
 - ii. Annual emissions of SO₂, NO_x, CO, VOM, and PM from the Regenerator Vent/CCR Vent Gas Wash Tower for the current month and the previous 11 months, tons/year;
- f. The Permittee shall maintain records of the following items to demonstrate compliance with the limits of Condition 7.7.6(d):
- i. Operating condition of the desulfurization system, once per shift;
 - ii. Quantity of each fuel burned in the Process Heaters (16-B-1A & 16-B-1B; 1-B-3/13-B-4; 17-B-1; 2-B-3,4,5,6; 3-B-1), daily, with supporting documentation;
 - iii. The sulfur content of each fuel burned in the Process Heaters (1-B-3/13-B-4; 17-B-1; 2-B-3,4,5,6; 3-B-1; 16-B-1A & 16-B-1B), with supporting documentation;
 - iv. Actual emissions of SO₂, NO_x, CO, VOM, PM, and PM₁₀ in tons/month with supporting documentation for Process Heaters (1-B-3/13-B-4; 17-B-1; 2-B-3,4,5,6; 3-B-1; 16-B-1A & 16-B-1B); and

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- v. Annual emissions of SO₂, NO_x, CO, VOM, PM, and PM₁₀ from Process Heaters (1-B-3/13-B-4; 17-B-1; 2-B-3,4,5,6; 3-B-1; 16-B-1A & 16-B-1B) for the current month and the previous 11 months, tons/year.

Note: Condition 7.7.9(f) requires the same records required by Condition 7.1.9(d). Only one set of records is required for the facility. Identification of these records has been provided here for clarity.

7.7.10 Reporting Requirements

a. Quarterly Report

Pursuant to 40 CFR 60.7(c), the owner or operator required to install a continuous monitoring system pursuant to 40 CFR 60 Subpart J (Condition 7.7.8) shall submit a written report of excess emissions (as defined by 40 CFR Subpart J) to the Illinois EPA, Compliance Section for each calendar quarter. This report shall be postmarked by the 30th day following the end of each calendar quarter and shall include the following information:

- i. The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions;
- ii. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of an affected process heater. The nature and cause of any malfunction (if known), the corrective actions taken or preventative measures adopted;
- iii. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments; and
- iv. When no excess emissions have occurred or the continuous monitoring system(s) have not been

inoperative, repaired, or adjusted, such information shall be stated in the report.

For the purposes of this report, the NSPS 40 CFR 60.105(e)(3) defines and exceedance of sulfur dioxide as "Any three-hour period during which the average concentration of H₂S in any fuel gas combusted in any fuel gas combustion device subject to 40 CFR 60.104(a)(1) exceeds 230 mg/dscm (0.10 gr/dscf), if compliance is achieved by removing H₂S from the fuel gas before it is burned."

b. Reporting of Continued Operation During Malfunctions and Breakdowns for the CCR

The Permittee shall provide the following notifications and reports to the Illinois EPA, Compliance Section and Regional Field Office, pursuant to 35 IAC 201.263, concerning each incident when operation of the CCR continued during malfunction or breakdown of the CCR vent gas wash tower with excess emissions as allowed by Condition 7.7.3(j).

- 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 days, for each incident.
- ii. Upon completion of the incident, the Permittee shall give a written follow-up notice to the Illinois EPA, Compliance Section and Regional Field Office, within 15 days providing a detailed explanation of the event, an explanation why continued operation of the CCR 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 CCR was taken out of service.

c. Reporting of Non-Compliance

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

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process charge or reboiler heater or the Regenerator Vent/CCR Vent Gas Wash Tower 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:

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; and
 - v. When compliance was reestablished.
- d. Annual Emission Report

The Permittee shall submit the following information along with its annual emission report;

- i. The annual emissions of NO_x, CO, PM, PM₁₀, VOM, and SO₂ from the Reformer Charge Heaters (2-B-3, 4, 5, & 6), for each month of the previous calendar year, to demonstrate compliance with Condition 7.7.6(b), tons/year (e.g., for the month of January, the emissions from February, of the preceding calendar year through January, for the month of February, the emissions from March of the preceding calendar year through February, 12 months in all);
- ii. The annual emissions of NO_x, CO, PM, PM₁₀, VOM, and SO₂ from the Regenerator Vent/CCR Vent Gas Wash Tower, for each month of the previous calendar year, to demonstrate compliance with Condition 7.7.6(c), tons/year (e.g., for the month of January, the emissions from February,

of the preceding calendar year through January, for the month of February, the emissions from March of the preceding calendar year through February, 12 months in all);

- iii. The annual emissions of NO_x, CO, PM, PM₁₀, VOM, and SO₂ from the Process Heaters (1-B-3/13-B-4; 17-B-1; 2-B-3,4,5,6; 3-B-1; 16-B-1A & 16-B-1B) for each month of the previous calendar year, to demonstrate compliance with Condition 7.7.6(d), tons/year (e.g., for the month of January, the emissions from February, of the preceding calendar year through January, for the month of February, the emissions from March of the preceding calendar year through February, 12 months in all);
- iv. 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(c).

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 process charge or reboiler heater 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 requirements of 35 IAC 212.123 (Condition 7.7.3(d)) shall be demonstrated by the records required in Condition 7.7.9(c).
- b. Compliance with 35 IAC 216.121 (Condition 7.7.3(e)) is considered to be assured by the inherent nature of the operations at this source, as demonstrated by historical operation.

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- c. Pursuant to 40 CFR 60.106(c) for the purposes of determining compliance with 40 CFR 60.104(a)(1) (Condition 7.7.3(c)) Method 11 shall be used to determine the H₂S concentration. Ongoing compliance is assured by the reporting requirements of Condition 7.7.10(a). Pursuant to 40 CFR 60.8(c) emissions in excess of the level of the applicable emission limit during periods of startup, shutdown, and malfunction shall not be considered a violation of the applicable emission limit.
- d. Compliance with Conditions 7.7.3(f), (g), (h), and 7.7.6(c) shall be demonstrated by the records required by Condition 7.7.9(e).
- e. Compliance with Conditions 7.7.5 and 7.7.6 shall be demonstrated by the records required by Condition 7.7.9(d) and (e).

Emissions of VOM, PM and PM₁₀ for affected process charge heaters shall be calculated using AIRS emission factors as follows:

Process Gas/Natural Gas (30600106/30600105)	
VOM	2.8 lb/MM cubic feet burned
PM	3.0 lb/MM cubic feet burned
PM ₁₀	3.0 lb/MM cubic feet burned

CO emissions for affected process charge heaters shall be calculated using unit specific emission factor of 0.014 lb/mmBtu based on manufacturer's guarantee.

NO_x emissions for affected process charge heaters shall be calculated using unit specific emission factor of 0.08 lb/mmBtu based on manufacturer's guarantee.

SO₂ emissions for affected process charge heaters shall be calculated based on the H₂S content of the fuel gas or natural gas.

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Emissions of NO_x, CO, VOM, PM, and PM₁₀ for affected process reboiler heaters shall be calculated using AIRS emission factors as follows:

Process Gas/Natural Gas (30600106/30600105)	
NO _x	140 lb/MM cubic feet burned
CO	35 lb/MM cubic feet burned
VOM	2.8 lb/MM cubic feet burned
PM	3.0 lb/MM cubic feet burned
PM ₁₀	3.0 lb/MM cubic feet burned

SO₂ emissions for affected process reboiler heaters shall be calculated based on the H₂S content of the fuel gas or natural gas.

7.8 Hydrofinisher (HDF) Unit (Unit 12)

7.8.1 Description

The HDF Unit is a continuous operation that uses hydrogen rich gas and catalyst to remove sulfur compounds from high sulfur feed streams to produce low sulfur blend stocks, process feed stocks, and products.

7.8.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
HDF Reactor Vent Stack (12-D-2)	Reactor vessel vent that is open only during catalyst regeneration phase of unit startup	None
HDF Unit Charge Heater (12-B-1)	13 mmBtu/hr process heater capable of firing gaseous fuels	None

7.8.3 Applicability Provisions and Applicable Regulations

- a. An "affected process heater" for the purpose of these unit-specific conditions, is a process heater that has a capacity of less than or equal to 250 mmBtu/hr, fires only gaseous fuels, and was constructed or modified after June 11, 1973.
- b. Pursuant to 40 CFR 60.104(a)(1), no owner or operator shall burn in any affected process heater any fuel gas which contains hydrogen sulfide in excess of 230 mg/dscm (0.10 gr/dscf).
- c.
 - i. Pursuant to 35 IAC 212.123 the emissions of smoke or other particulate matter into the atmosphere from an affected process heater shall not be greater than 30 percent except as provided below;
 - ii. The smoke or other particulate matter emissions from an affected process heater may have an opacity greater than 30 percent but not greater than 60 percent ("more opaque emissions") for a period or periods

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aggregating 8 minutes in any 60 minute period, provided that such periods of more opaque emissions are limited to three (3) times in any 24-hour period, and such periods of more opaque emissions may not simultaneously occur at other such emission units located within a 305 m (1,000 ft) radius of an affected process heater when the affected process heater is experiencing periods of more opaque emissions.

- d. Pursuant to 35 IAC 216.121, no person shall cause or allow the emissions of CO from an affected process heater to exceed 200 ppm, corrected to 50% excess air;
- e. Startup Provisions for the HDF Reactor

Pursuant to 35 IAC 201.149, the Permittee is authorized to operate the HDF Unit in excess of applicable Board emission limits during startup of the HDF reactor vessel when the reactor catalyst is regenerated. Reactor catalyst regeneration is a 24 to 48 hour process, when steam is turned into the reactor vessel to raise the temperature of the catalyst, followed by introduction of air to promote burning of coke deposits off the catalyst, with the effluent resulting from catalyst regeneration vented to the atmosphere through the normally closed reactor vessel vent stack (12-D-2). This authorization is subject to the following:

- i. This authorization only extends for a period of up to 48-hours following initial introduction of steam into the reactor vessel during each startup event.
- ii. The Permittee shall take the following measures to minimize startup emissions, the duration of startups, and minimize the frequency of startups:
 - A. Implementation of established startup procedures, including monitoring the reactor bed temperature during the startup and making adjustments to the regeneration rate accordingly.

- iii. The Permittee shall fulfill the applicable recordkeeping requirements of Condition 7.8.9(c).

7.8.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on the affected process heaters not being subject to 40 CFR 60 Subpart Db, NSPS for Industrial-Commercial-Institutional Steam Generating Units because the process heaters do not meet the definition of a steam generating unit pursuant to 40 CFR 60.41b.
- b. This permit is issued based on the affected process heaters not being subject to 35 IAC 212.206, 212.207, or 214.162 because the affected process heaters do not burn liquid fuel or a combination of fuels.
- c. This permit is issued based on the affected process heaters not being subject to 35 IAC 214.301 because the process heaters are not process emission sources, but rather fuel combustion emission sources.
- d. This permit is issued based on the affected process heaters not being subject to 35 IAC 217.121 because the actual heat input of each heater is less than 250 mmBtu/hr.

7.8.5 Operational and Production Limits and Work Practices

None

7.8.6 Emission Limitations

There are no specific emission limitations for this unit.

7.8.7 Operating Requirements

- a. The Permittee shall not utilize solid or liquid fuels in any affected process heater.

7.8.8 Monitoring Requirements

Pursuant to 40 CFR 60.105(a)(4), the owner or operator shall install, calibrate, maintain, and operate a

continuous monitoring system that continuously monitors and records concentrations of hydrogen sulfide in fuel gases burned in any affected process heater. Fuel gas combustion devices, including any affected process heaters, having a common source of fuel gas may be monitored at one location, if monitoring at this location accurately represents the concentration of H₂S in the fuel burned. The span of this continuous monitoring system shall be 300 ppm.

These monitoring system(s) shall be the basis for quarterly reporting of exceedances of the NSPS 40 CFR 60.104(a)(1) (Condition 7.8.3(b)) in accordance with 40 CFR 60.6(c) and 60.105(e). [See also Condition 7.8.10(a)]

The above monitoring requirement is not applicable when the affected process heater is burning natural gas, which is the typical fuel utilized in the affected process heater.

7.8.9 Recordkeeping Requirements

This unit is subject to the following provisions and regulations.

a. Records for Continuous H₂S Monitoring Systems

Pursuant to Section 39.5(7)(b) of the Act, the Permittee shall maintain records for the H₂S monitoring system on each affected process heater required by Condition 7.8.8 that as a minimum shall include:

- i. Date and time when fuel gas is used in an affected process heater, either alone or in combination with natural gas;
- ii. For time periods when refinery fuel gas is used in an affected process heater, operating records for each H₂S monitoring system, including:
 - A. H₂S measurements;
 - B. Continuous monitoring system performance testing measurements;

- C. Performance evaluations;
 - D. Calibration checks;
 - E. Maintenance and adjustment performed;
 - F. Quarterly reports submitted in accordance with 40 CFR 60.7(c) (Condition 7.8.10(a)); and
 - G. Data reduction information used pursuant to Condition 7.8.12(c).
- ii. For time periods when refinery fuel gas is used in an affected process heater, records to verify compliance with the limitations of Condition 7.8.3(b), including:
 - A. Hourly H₂S content from each affected process heater as derived from the data obtained by the H₂S monitor, gr/dscf;
 - B. Any three-hour block averaging period when the total H₂S concentration exceeded 230 mg/dscm (0.10 gr/dscf)
- b. Records for Startup of the HDF Reactor

The Permittee shall maintain the following records, pursuant to Section 39.5(7)(b) of the Act, for the HDF reactor vessel operating in accordance with the provisions of Condition 7.8.3(e), which at a minimum shall include:

- i. The following information for each startup of the HDF reactor vessel:
 - A. Date and duration of the startup, i.e., start time and time normal operation achieved, i.e., the catalyst regeneration procedure was completed;
 - B. If normal operation was not achieved within 48 hours, an explanation why

startup could not be achieved in normal time frame;

- C. A detailed description of the startup, including reason for operation and whether the monitoring of the reactor bed temperature and appropriate adjustments to the regeneration rate were performed;
 - D. An explanation why monitoring of the reactor bed temperature, appropriate adjustments to the regeneration rate, and other established startup procedures could not be performed, if not performed;
 - E. The nature of opacity and SO₂ emissions, i.e., severity and duration, during the startup and the nature of opacity and SO₂ emissions at the conclusion of startup, if above normal; and
 - F. Whether exceedance of Condition 7.8.3(c) may have occurred during startup, with explanation and estimated duration (minutes).
- c. The Permittee shall maintain appropriate records for each affected process heater so as to allow the Illinois EPA to verify compliance with 35 IAC 212.123 (Condition 7.8.3(c)).

7.8.10 Reporting Requirements

a. Quarterly Report

Pursuant to 40 CFR 60.7(c), the owner or operator required to install a continuous monitoring system pursuant to 40 CFR 60 Subpart J (Condition 7.8.8) shall submit a written report of excess emissions (as defined by 40 CFR Subpart J) to the Illinois EPA, Compliance Section for each calendar quarter. This report shall be postmarked by the 30th day following the end of each calendar quarter and shall include the following information:

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- i. The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions;
- ii. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of an affected process heater. The nature and cause of any malfunction (if known), the corrective actions taken or preventative measures adopted;
- iii. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments; and
- iv. When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

For the purposes of this report, the NSPS 40 CFR 60.105(e)(3) defines and exceedance of sulfur dioxide as "Any three-hour period during which the average concentration of H₂S in any fuel gas combusted in any fuel gas combustion device subject to 40 CFR 60.104(a)(1) exceeds 230 mg/dscm (0.10 gr/dscf), if compliance is achieved by removing H₂S from the fuel gas before it is burned."

b. Reporting of Non-Compliance

The Permittee shall promptly notify the Illinois EPA, Compliance Section of noncompliance of an 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:

Within 30 days of exceedance of the limits in Conditions 7.8.3 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; and
- v. When compliance was reestablished.

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 process heater 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:

- a. Utilize refinery fuel gas and Ni-Gas interchangeably as a fuel for the HDF Charge Heater (12-B-1).

7.8.12 Compliance Procedures

- a. Compliance with the requirements of 35 IAC 212.123 (Condition 7.8.3(c)) shall be demonstrated by the records required in Condition 7.8.9(d).
- b. Compliance with 35 IAC 216.121 (Condition 7.8.3(d)) is considered to be assured by the inherent nature of the operations at this source, as demonstrated by historical operation.
- c. Pursuant to 40 CFR 60.106(c) for the purposes of determining compliance with 40 CFR 60.104(a)(1) (Condition 7.8.3(b)) Method 11 shall be used to determine the H₂S concentration of the fuel gas (when utilized). Ongoing compliance is assured by the reporting requirements of Condition 7.8.10(a). Pursuant to 40 CFR 60.8(c) emissions in excess of the level of the applicable emission limit during periods

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of startup, shutdown, and malfunction shall not be considered a violation of the applicable emission limit.

- d. For purposes of reporting emissions including for the Annual Emission Report, emissions of NO_x, VOM, CO, PM, and PM₁₀ for affected process heaters shall be calculated using AIRS emission factors as follows:

- i. Process Gas or Natural Gas (30600106 or 30600105)

NO _x	140 lb/MM cubic feet burned
VOM	2.8 lb/MM cubic feet burned
CO	35 lb/MM cubic feet burned
PM	3.0 lb/MM cubic feet burned
PM ₁₀	3.0 lb/MM cubic feet burned

SO₂ emissions for affected process heaters shall be calculated based on the H₂S content of the fuel gas or standard AIRS emission factor of 0.6 lb/MM cubic feet burned of natural gas.

- e. During normal operation, the HDF reactor operates as a closed-vent process. As such compliance with 35 IAC 214.301 is assured by the inherent nature of the operations at this source, as demonstrated by historical operation. However, during startup, the reactor does not operate as a closed-vent system, as such, compliance with 35 IAC 214.301 is addressed by the startup provisions of Condition 7.8.3(f) and the recordkeeping requirements of Condition 7.8.9(c).

7.9 Catalytic Hydrodesulfurization (CHD) Unit (Unit 03)

7.9.1 Description

The CHD Unit is a continuous operation that improves the quality of "sour" or high sulfur feedstocks by removing sulfur, nitrogen, and metal compounds. To accomplish this the feedstream is mixed with a hydrogen rich stream in the presence of a catalyst. The impurities are then condensed out of a resulting stream so that the products are of high quality and low sulfur.

7.9.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
2 CHD Reactor Vents	One reactor vessel vent per reactor that is open only during catalyst regeneration phase of startup	None
CHD Charge Heater (3-B-1)	158 mmBtu/hr process heater capable of firing gaseous fuels, oil, or a combination of fuels	Decoking Pot
CHD Stripper Reboiler Heater (3-B-2)	129 mmBtu/hr process heater capable of firing gaseous fuels	None

7.9.3 Applicability Provisions and Applicable Regulations

- a. An "affected process charge heater" for the purpose of these unit-specific conditions, is a process heater with a capacity of less than 250 mmBtu/hr that has the ability to burn gas, liquid, or a combination of fuels, and was constructed prior to April 14, 1972.
- b. An "affected process reboiler heater" for the purpose of these unit-specific conditions, is a process heater with a capacity of less than 250 mmBtu/hr that has the ability to burn gaseous fuels only and was constructed prior to April 14, 1972.

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- c. i. Pursuant to 35 IAC 212.123 the emissions of smoke or other particulate matter into the atmosphere from an affected process charge or reboiler heater shall not be greater than 30 percent except as provided below;
- ii. The smoke or other particulate matter emissions from an affected process charge or reboiler heater may have an opacity greater than 30 percent but not greater than 60 percent ("more opaque emissions") for a period or periods aggregating 8 minutes in any 60 minute period, provided that such periods of more opaque emissions are limited to three (3) times in any 24-hour period, and such periods of more opaque emissions may not simultaneously occur at other such emission units located within a 305 m (1,000 ft) radius of an affected process charge or reboiler heater when the affected process charge or reboiler heater is experiencing periods of more opaque emissions.
- d. Pursuant to 35 IAC 216.121, no person shall cause or allow the emissions of CO from an affected process charge or reboiler heater to exceed 200 ppm, corrected to 50% excess air;
- e. Pursuant to 35 IAC 212.206 no person shall cause or allow the emissions of PM into the atmosphere in any one hour period to exceed 0.15 kg of PM per MW-hr (0.10 lbs/mmBtu) of actual heat input from any affected process charge heater using liquid fuel exclusively;
- f. Pursuant to 35 IAC 214.161 no person shall cause or allow the emissions of SO₂ into the atmosphere in any one hour period from an affected process charge heater, burning liquid fuel exclusively;
 - i. To exceed 1.55 kg of SO₂ per MW-hr (1.0 lbs/mmBtu) of actual heat input when residual fuel oil is burned; or

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- ii. To exceed 0.46 kg of SO₂ per MW-hr (0.3 lbs/mmBtu) of actual heat input when distillate fuel oil is burned.
- g. Pursuant to 35 IAC 212.207 no person, while simultaneously burning more than one type of fuel in an affected process charge heater, shall cause or allow the emissions of PM into the atmosphere in any one hour period in excess of the following equation:

$$E = AS + BL$$

Where:

E = Allowable emission rate (kg/hr or lbs/hr);

A = Solid fuel particulate emission standard which is applicable (kg/MW-hr or lbs/mmBtu);

B = Constant (0.155(metric) or 0.10(English));

S = Actual heat input from solid fuel (MW or mmBtu/hr); and

L = Actual heat input from liquid fuel (MW or mmBtu/hr).

- h. Pursuant to 35 IAC 214.162 no person, while simultaneously burning more than one type of fuel in an affected process charge heater, shall cause or allow the emissions of SO₂ into the atmosphere in any one hour period in excess of the following equation:

$$E = AX + BY + CZ$$

Where:

E = Allowable SO₂ emission rate (kg/hr or lbs/hr);

A = Solid fuel SO₂ emission standard which is applicable (kg/MW-hr or lbs/mmBtu);

B = Distillate oil SO₂ emission standard (0.46 kg/MW-hr or 0.3 lbs/mmBtu);

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- C = Residual fuel oil SO₂ emission standard which is applicable (1.55 kg/MW-hr or 1.0 lbs/mmBtu);
- X = Actual heat input from solid fuel (MW or mmBtu/hr);
- Y = Actual heat input from distillate fuel oil (MW or mmBtu/hr);
- Z = Actual heat input from residual fuel oil (MW or mmBtu)

That portion of actual heat input that is derived:

- i. From the burning of gaseous fuels produced by the gasification of solid fuels shall be included in X;
 - ii. From the burning of gaseous fuels produced by the gasification of distillate fuel oil shall be included in Y;
 - iii. From the burning of gaseous fuels produced by the gasification of residual fuel oil shall be included in Z;
 - iv. From the burning of gaseous fuels produced by the gasification of any other liquid fuels shall be included in Z; and
 - v. From the burning of by-product gases such as those produced from a blast furnace or a catalyst regeneration unit in a petroleum refinery shall be included in Z.
- i. Startup Provisions for Affected Process Charge Heaters

Pursuant to 35 IAC 201.149, the Permittee is authorized to operate an affected process charge heater in excess of applicable Board emission limits during startup once a year per affected heater when the heater is decoked. Heater decoking is a 12 to 48 hour process, when steam is turned into the heater tubes to remove coke deposits by spalling the

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material from the tubes, followed by introduction of air and steam to complete removal of deposit, with the effluent resulting from decoking vented to the atmosphere through a water-filled "decoking drum." This authorization is subject to the following:

- i. This authorization only extends for a period of up to 48-hours following initial firing of fuel during each startup event.
- ii. The Permittee shall take the following measures to minimize startup emissions, the duration of startups, and minimize the frequency of startups:
 - A. Implementation of established startup procedures, including directly connecting the outlet process tubes of an affected process charge heater to the inlet of the associated decoking pot; and
 - B. Operating the affected process charge heater while utilizing the associated decoking pot during the entire startup procedure.
- iii. The Permittee shall fulfill the applicable recordkeeping requirements of Condition 7.9.9(a).
- j. Startup Provisions for the CHD Reactor

Pursuant to 35 IAC 201.149, the Permittee is authorized to operate the CHD Unit in excess of applicable Board emission limits during startup of the CHD reactor vessel when the reactor catalyst is regenerated. Reactor catalyst regeneration is a 48 to 72 hour process, when steam is turned into the reactor vessel to raise the temperature of the catalyst, followed by introduction of air to promote burning of coke deposits off the catalyst, with the effluent resulting from catalyst regeneration vented to the atmosphere through the normally closed reactor vessel vent stack (3-M-1). This authorization is subject to the following:

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- i. This authorization only extends for a period of up to 72-hours following initial introduction of steam into the reactor vessel during each startup event.
- ii. The Permittee shall take the following measures to minimize startup emissions, the duration of startups, and minimize the frequency of startups:
 - A. Implementation of established startup procedures, including monitoring the reactor bed temperature during the startup and making adjustments to the regeneration rate accordingly.
- iii. The Permittee shall fulfill the applicable recordkeeping requirements of Condition 7.9.9(b).

7.9.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on the affected process charge and reboiler heaters not being subject to the New Source Performance Standards (NSPS) for Petroleum Refineries, 40 CFR 60, Subpart J, because the affected process heaters were constructed or last modified on or before June 11, 1973.
- b. This permit is issued based on the affected process charge and reboiler heaters not being subject to 35 IAC 214.301 because the process heaters are not process emission sources, but rather fuel combustion emission sources.
- c. This permit is issued based on the affected process charge and reboiler heaters not being subject to 35 IAC 217.141 because the actual heat input is less than 250 mmBtu/hr.

7.9.5 Operational and Production Limits and Work Practices

None

7.9.6 Emission Limitations

- a. Combined annual emissions from the CHD Unit Charge Heater (3-B-1), Crude Unit Feed Preheater (1-B-3/13-B-4), PreTreater Unit Charge Heater (17-B-1), Reformer Unit Charge Heaters (2-B-3,4,5,6), and Coker Unit Heaters (16-B-1A & 1B) shall not exceed the following limits. Compliance with these limits shall be determined from a running total of 12 months of data. [T1]

Annual Emission Limits (tons/year)					
<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>VOM</u>	<u>PM</u>	<u>PM₁₀</u>
454.5	155.8	108.2	14.1	16.6	16.0

The above limitations were established in Construction Permit 97030078 pursuant to 35 IAC Part 203 and 40 CFR 52.21, Prevention of Significant Deterioration. These limits ensure that the construction/modification addressed in the aforementioned Construction permit does not constitute a new major source or major modification pursuant to 35 IAC Part 203 or pursuant to the federal rules for PSD, 40 CFR 52.21 with the exception of the NO_x limitations which were established in conjunction with the limitations included in Conditions 7.1.5(a), (b), (c) and 7.1.6(a) to ensure that BACT is being implemented. These limits do not address "fugitive" losses from leaking components, which are not affected by the Crude Upgrade Project and which are controlled by various leak detection and repair programs as further address in Section 7.28. [T1]

7.9.7 Operating Requirements

- a. The Permittee shall not utilize solid or liquid fuels in any affected process reboiler heater.

7.9.8 Monitoring Requirements

None

7.9.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items pursuant to Section 39.5(7)(b) of the Act:

a. Records for Startup of an Affected Process Charge Heater

The Permittee shall maintain the following records, pursuant to Section 39.5(7)(b) of the Act, for each affected process charge heater operating in accordance with the provisions of Condition 7.9.3(i), which at a minimum shall include:

- i. The following information for each startup of an affected process charge heater:
 - A. Date and duration of the startup, i.e., start time and time normal operation achieved, i.e., the decoking procedure was completed;
 - B. If normal operation was not achieved within 48 hours, an explanation why startup could not be achieved in normal time frame;
 - C. A detailed description of the startup, including reason for operation and whether the utilization of the associated decoking pot was performed;
 - D. An explanation why the use of the associated decoking pot and other established startup procedures could not be performed, if not performed;
 - E. The nature of opacity, i.e., severity and duration, during the startup and the nature of opacity at the conclusion of startup, if above normal; and
 - F. Whether exceedance of Condition 7.9.3(c) may have occurred during startup, with explanation and estimated duration (minutes).

b. Records for Startup of the CHD Reactor

The Permittee shall maintain the following records, pursuant to Section 39.5(7)(b) of the Act, for each affected CHD reactor vessel operating in accordance with the provisions of Condition 7.9.3(j), which at a minimum shall include:

- i. The following information for each startup of an affected CHD reactor vessel:
 - A. Date and duration of the startup, i.e., start time and time normal operation achieved, i.e., the catalyst regeneration procedure was completed;
 - B. If normal operation was not achieved within 72 hours, an explanation why startup could not be achieved in normal time frame;
 - C. A detailed description of the startup, including reason for operation and whether the monitoring of the reactor bed temperature and appropriate adjustments to the regeneration rate were performed;
 - D. An explanation why monitoring of the reactor bed temperature, appropriate adjustments to the regeneration rate, and other established startup procedures could not be performed, if not performed;
 - E. The nature of opacity and SO₂ emissions, i.e., severity and duration, during the startup and the nature of opacity and SO₂ emissions at the conclusion of startup, if above normal; and
 - F. Whether exceedance of Condition 7.9.3(c) may have occurred during startup, with explanation and estimated duration (minutes).

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- c. The Permittee shall maintain appropriate records for each affected process charge and reboiler heater so as to allow the Illinois EPA to verify compliance with 35 IAC 212.123 (Condition 7.9.3(c)).
- d. The Permittee shall maintain records of the following items to demonstrate compliance with the limits of Condition 7.9.6(a):
 - i. Operating condition of the desulfurization system, once per shift;
 - ii. Quantity of each fuel burned in the Process Heaters (1-B-3/13-B-4; 17-B-1; 2-B-3,4,5,6; 3-B-1; 16-B-1A & 16-B-1B), daily, with supporting documentation;
 - iii. The sulfur content of each fuel burned in the Process Heaters (1-B-3/13-B-4; 17-B-1; (1-B-3/13-B-4; 17-B-1; 2-B-3,4,5,6; 3-B-1; 16-B-1A & 16-B-1B), with supporting documentation;
 - iv. Actual emissions of SO₂, NO_x, CO, VOM, PM, and PM₁₀ in tons/month with supporting documentation for Process Heaters (1-B-3/13-B-4; 17-B-1; 2-B-3,4,5,6; 3-B-1; 16-B-1A & 16-B-1B); and
 - v. Annual emissions of SO₂, NO_x, CO, VOM, PM, and PM₁₀ from Process Heaters (1-B-3/13-B-4; 17-B-1; 2-B-3,4,5,6; 3-B-1; 16-B-1A & 16-B-1B) for the current month and the previous 11 months, tons/year.

Note: Condition 7.9.9(d) requires the same records required by Condition 7.1.9(d). Only one set of records is required for the facility. Identification of these records has been provided here for clarity.

- e. The Permittee shall maintain records of the following items for each affected process charge heater to demonstrate compliance with the limits of Condition 7.9.3(e), (f), (g) and (h):

- i. Quantity of each fuel, i.e., refinery fuel gas, natural gas, and fuel oil burned in each affected process charge heater, daily;

The following items need only be kept for periods when fuel other than natural gas or refinery fuel gas is used in the affected process charge heater.

- ii. The sulfur content of each fuel burned in each affected process charge heater, with supporting documentation;
- iii. Daily heat input from each fuel burned in each affected process charge heater, mmBtu;
- iv. Average daily PM emissions, with supporting calculations, lb/mmBtu; and
- v. Average daily SO₂ emissions, with supporting calculations, lb/mmBtu.

7.9.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section of noncompliance of an 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. Within 30 days of exceedance of the limits in Conditions 7.9.3 or 7.9.6, 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; and
 - v. When compliance was reestablished.

- b. The Permittee shall submit the following information along with its annual emission report;
 - i. The annual emissions of NO_x, CO, PM, PM₁₀, VOM, and SO₂ from the Process Heaters (1-B-3/13-B-4; 17-B-1; 2-B-3,4,5,6; 3-B-1; 16-B-1A & 16-B-1B) for each month of the previous calendar year, to demonstrate compliance with Condition 7.9.6(a), tons/year (e.g., for the month of January, the emissions from February, of the preceding calendar year through January, for the month of February, the emissions from March of the preceding calendar year through February, 12 months in all);
 - ii. A summary of exceedances of the limits in Conditions 7.9.3 or 7.9.6, if any, which required notification to the Compliance Section in accordance with Condition 7.9.10(a).

7.9.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to an affected process heater 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:

- a. Utilize gaseous or liquid fuels or any combination thereof in any of the affected process charge heaters as allowed by the conditions of this permit.

7.9.12 Compliance Procedures

- a. Compliance with the requirements of 35 IAC 212.123 (Condition 7.9.3(c)) shall be demonstrated by the records required in Condition 7.9.9(c).
- b. Compliance with 35 IAC 216.121 (Condition 7.9.3(d)) is considered to be assured by the inherent nature of

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the operations at this source, as demonstrated by historical operation.

- c. Compliance with 35 IAC 212.206 and 212.207 (Conditions 7.9.3(e) and (g)) shall be demonstrated by the records required in Condition 7.9.9(e). PM emissions for each affected process charge heater shall be calculated using AIRS emission factors as follows:
 - i. Process Gas/Natural Gas 3.0 lb/MM cubic feet burned (30600106/30600105)
 - ii. Oil (30600103) 12 lb/1,000 gal burned

- d. Compliance with 35 IAC 214.161 and 214.162 (Conditions 7.9.3(f) and (h)) shall be demonstrated by the records required in Condition 7.9.9(e). SO₂ emissions for each affected process charge heater shall be calculated based on the sulfur or H₂S content of the fuel.

- e. Compliance with Condition 7.9.6 shall be demonstrated by the records required by Condition 7.9.9(d). Emissions of VOM, CO, and PM₁₀ for affected process charge heaters shall be calculated using AIRS emission factors as follows:
 - i. Process Gas/Natural Gas (30600106/30600105)

NO _x	140 lb/MM cubic feet burned
VOM	2.8 lb/MM cubic feet burned
CO	35 lb/MM cubic feet burned
PM ₁₀	3.0 lb/MM cubic feet burned

 - ii. Oil (30600103 & 10200505)

NO _x	20 lb/1,000 gal burned
VOM	0.3 lb/1,000 gal burned
CO	5.0 lb/1,000 gal burned
PM ₁₀	7.4 lb/1,000 gal burned

- f. For purposes of reporting emissions including for the Annual Emission Report, emissions of NO_x, VOM, CO, PM, and PM₁₀ for affected process reboiler heaters shall be calculated using AIRS emission factors as follows:

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Process Gas/Natural Gas (30600106/30600105)	
NO _x	140 lb/MM cubic feet burned
VOM	2.8 lb/MM cubic feet burned
CO	35 lb/MM cubic feet burned
PM	3.0 lb/MM cubic feet burned
PM ₁₀	3.0 lb/MM cubic feet burned

SO₂ emissions for affected process heaters shall be calculated based on the H₂S content of the fuel gas or standard AIRS emission factor of 0.6 lb/MM cubic feet burned of natural gas.

- g. During normal operation, the CHD reactor operates as a closed-vent process. As such compliance with 35 IAC 214.301 is assured by the inherent nature of the operations at this source, as demonstrated by historical operation. However, during startup, the reactor does not operate as a closed-vent system, as such, compliance with 35 IAC 214.301 is addressed by the startup provisions of Condition 7.9.3(j) and the recordkeeping requirements of Condition 7.9.9(b).

7.10 Saturate Gas Plant (Unit 08)

7.10.1 Description

The Saturate Gas Plant is a continuous process that separates saturated light hydrocarbon liquid and vapor streams into various petroleum fractions by means of fractionation/distillation. The operation consists of closed-vent processing equipment which utilizes a process heater.

7.10.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Saturate Gas Plant Reboiler (8-B-1)	74 mmBtu/hr process heater capable of firing gaseous fuels	None

7.10.3 Applicability Provisions and Applicable Regulations

- a. An "affected process heater" for the purpose of these unit-specific conditions, is a process heater that has a capacity of less than 250 mmBtu/hr, the ability to burn gaseous fuels, and was constructed on or before April 14, 1972.
- b.
 - i. Pursuant to 35 IAC 212.123 the emissions of smoke or other particulate matter into the atmosphere from an affected process heater shall not be greater than 30 percent except as provided below;
 - ii. The smoke or other particulate matter emissions from an affected process heater may have an opacity greater than 30 percent but not greater than 60 percent ("more opaque emissions") for a period or periods aggregating 8 minutes in any 60 minute period, provided that such periods of more opaque emissions are limited to three (3) times in any 24-hour period, and such periods of more opaque emissions may not simultaneously occur at other such emission units located within a 305 m (1,000 ft) radius of an affected process

heater when the affected process heater is experiencing periods of more opaque emissions.

- c. Pursuant to 35 IAC 216.121, no person shall cause or allow the emissions of CO from an affected process heater to exceed 200 ppm, corrected to 50% excess air.

7.10.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on the affected process heaters not being subject to the New Source Performance Standards (NSPS) for Petroleum Refineries, 40 CFR 60, Subpart J, because the affected process heaters were constructed or last modified on or before June 11, 1973.
- b. This permit is issued based on the affected process heaters not being subject to 35 IAC 214.301 because the process heaters are not process emission sources, but rather fuel combustion emission sources.
- c. This permit is issued based on the affected process heaters not being subject to 35 IAC 217.141 because the actual heat input is less than 250 mmBtu/hr.

7.10.5 Operational and Production Limits and Work Practices

None

7.10.6 Emission Limitations

There are no specific emission limitations for this unit.

7.10.7 Operating Requirements

- a. The Permittee shall not utilize solid or liquid fuels in any affected process heater.

7.10.8 Monitoring Requirements

None

7.10.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items pursuant to Section 39.5(7)(b) of the Act:

- a. The Permittee shall maintain appropriate records for each affected process heater so as to allow the Illinois EPA to verify compliance with 35 IAC 212.123 (Condition 7.10.3(b)).

7.10.10 Reporting Requirements

The Permittee shall maintain records of the following items pursuant to Section 39.5(7)(b) of the Act:

The Permittee shall promptly notify the Illinois EPA, Compliance Section of noncompliance of an 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. Within 30 days of exceedance of the limits in Condition 7.10.3, 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; and
 - v. When compliance was reestablished.

7.10.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to an affected process heater 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:

- a. Utilize refinery fuel gas and natural gas interchangeably as a fuel for each affected process heater.

7.10.12 Compliance Procedures

- a. Compliance with the requirements of 35 IAC 212.123 (Condition 7.10.3(b)) shall be demonstrated by the records required in Condition 7.10.9(a).
- b. Compliance with 35 IAC 216.121 (Condition 7.10.3(c)) is considered to be assured by the inherent nature of the operations at this source, as demonstrated by historical operation.
- c. For purposes of reporting emissions including for the Annual Emission Report, emissions of NO_x, VOM, CO, PM and PM₁₀ for affected process heaters shall be calculated using AIRS emission factors as follows:

- i. Process Gas or Natural Gas (30600106 or 30600105)

NO _x	140 lb/MM cubic feet burned
VOM	2.8 lb/MM cubic feet burned
CO	35 lb/MM cubic feet burned
PM	3.0 lb/MM cubic feet burned
PM ₁₀	3.0 lb/MM cubic feet burned

SO₂ emissions for affected process heaters shall be calculated based on the H₂S content of the fuel gas or standard AIRS emission factor of 0.6 lb/MM cubic feet burned of natural gas.

7.11 Sour Water/Gas Treatment (Amine Trains)/Sulfur Recovery Units
(Units 10, 11, & 18)

7.11.1 Description

The sour water/gas treatment/sulfur recovery units are continuous operations that work together to remove H₂S from various streams in the refinery and then convert the H₂S to elemental sulfur and water, in the form of steam.

The sour water stripper uses steam to remove vapors (sour gas) from sour water. The stripped sour water is further processed in the Benzene Waste Operation. The sour gas that was removed is sent to one of the sulfur recovery units.

The amine trains include contactors which contact chemical solvents (amines), with various refinery streams to remove H₂S. This contact creates a "rich" amine stream that is routed to one of the amine trains. The amine trains regenerate the "rich" amine into a "lean" amine by removing the H₂S prior to its reuse in the contactors. From this point, the acid gas, containing the recovered H₂S, coming from the amine trains is sent to one of the sulfur recovery units.

The sulfur recovery units convert the sulfur compounds in the feed gas (acid gas from amine trains and sour gas from sour water stripper) into elemental sulfur and water. The conversion actually happens over a few steps; first the feed gases enter a reaction furnace where a large percentage of the H₂S is converted to sulfur and removed, the remaining gases continue to the catalytic converter section where additional conversion takes place. The resulting sulfur vapors are then routed to a condenser to recover the sulfur. The remaining feed gas stream then passes through a second series, and in the North Sulfur Recovery Unit a third series, a heat source, converter, and condenser to assure thorough conversion.

In the North Sulfur Recovery Unit, any remaining non-condensed sulfur compounds, uncondensed sulfur vapors, and other by products go through a tail gas recovery unit. The tail gas recovery unit first reduces the sulfur compounds to H₂S in the presence of hydrogen and a

catalyst. The gas is then routed to an amine section to remove the H₂S.

Once complete, the remaining waste gas or treated tail gas and vapors coming from the sulfur pit are combusted in the afterburners (South Sulfur Recovery Unit) or thermal oxidizer (North Sulfur Recovery Unit) to destroy any unconverted sulfur compounds.

7.11.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Sour Water Stripper	Stripping & purification unit for removal of hydrogen and ammonia from sour water	-
East Amine Train	Acid gas removal system	-
West Amine Train	Acid gas removal system	-
North Amine Train	Acid gas removal system including amine sump & lean amine tank	Carbon canister adsorbers for sump and tank
South Sulfur Recovery Unit	Claus sulfur recovery process	Afterburner (11-B-3 & 11-B-23)
North Sulfur Recovery Unit	Claus sulfur recovery process/tail gas recovery including amine tank	Thermal oxidizer (11-B-32) and carbon canister for tank

7.11.3 Applicability Provisions and Applicable Regulations

- a. Pursuant to 40 CFR 60.104(a)(2), no owner or operator shall discharge or cause the discharge of any gases into the atmosphere from the North Sulfur Recovery Unit containing in excess of 0.025 percent by volume of sulfur dioxide at zero percent oxygen on a dry basis if emissions are controlled by an oxidation control system, or a reduction control system followed by incineration.
- b. i. Pursuant to 35 IAC 212.123 the emissions of smoke or other particulate matter into the atmosphere from the South Sulfur Recovery Unit/Afterburners (11-B-3 & 11-B-23) or the North Sulfur Recovery Unit/Tail Gas Recovery Unit/Thermal Oxidizer (11-B-32) shall not be

greater than 30 percent except as provided below;

- ii. The smoke or other particulate matter emissions from the South Sulfur Recovery Unit/Afterburners (11-B-3 & 11-B-23) or the North Sulfur Recovery Unit/Tail Gas Recovery Unit/Thermal Oxidizer (11-B-32) may have an opacity greater than 30 percent but not greater than 60 percent ("more opaque emissions") for a period or periods aggregating 8 minutes in any 60 minute period, provided that such periods of more opaque emissions are limited to three (3) times in any 24-hour period, and such periods of more opaque emissions may not simultaneously occur at other such emission units located within a 305 m (1,000 ft) radius of the South Sulfur Recovery Unit/Afterburners (11-B-3 & 11-B-23) or the North Sulfur Recovery Unit/Tail Gas Recovery Unit/Thermal Oxidizer (11-B-32) when the South Sulfur Recovery Unit/Afterburners (11-B-3 & 11-B-23) or the North Sulfur Recovery Unit/Tail Gas Recovery Unit/Thermal Oxidizer (11-B-32) is experiencing periods of more opaque emissions.

c. Startup Provisions

Pursuant to 35 IAC 201.149, the Permittee is authorized to operate the North Sulfur Recovery Unit/Tail Gas Recovery Unit/Thermal Oxidizer (11-B-32) in excess of the SO₂ emission limitations in Condition 7.11.6(b) and the hourly limits of 7.11.6(c) during startup and once per year during regeneration startups. Catalyst regeneration is a 48-72 hour process, when air and steam are turned into the converter beds to remove sulfur deposits by converting them to a liquid form, with the resulting liquid sulfur exiting the converter beds by way of the rundown legs.

- i. This authorization only extends for a period of up to 7.5 days for a full startup and up to 72 hours for a startup associated with

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catalyst regeneration following initial firing of fuel during each startup event.

- ii. The Permittee shall take the following measures to minimize startup emissions, the duration of startups, and minimize the frequency of startups:
 - A. Implementation of established startup procedures, including bringing the North Sulfur Recovery Unit into service in a controlled manner so as to allow shifting of process gas from the less efficient South Sulfur Recovery Unit as soon as possible once stable operation is achieved; and
- iii. The Permittee shall fulfill the applicable recordkeeping requirements of Condition 7.11.9(b).

d. Operation During Malfunction/Breakdown

In the event of a malfunction or breakdown of the of the North Sulfur Recovery Unit/Tail Gas Recovery Unit/Thermal Oxidizer (11-B-32), the Permittee is authorized to continue operation of the North Sulfur Recovery Unit in violation of the emission limitations of Condition 7.11.6(b) and the hourly emission limitation of Condition 7.11.6(c), as necessary to prevent risk of injury to personnel or severe damage to equipment. This authorization is subject to the following requirements:

- i. The Permittee shall repair the damaged feature(s) of the North Sulfur Recovery Unit/Tail Gas Recovery Unit/Thermal Oxidizer (11-B-32) or take steps to reduce the amount of acid gas feed to both sulfur recovery units so as to comply with the combined hourly limitation of Condition 7.11.6(c) including reducing the rates of other units at the refinery, as soon as practicable. This shall be accomplished within 3 days unless the feature(s) can not be repaired within 3 days, or the amount of acid gas feed to both units

can not be reduced so as to comply with the combined hourly limitation of Condition 7.11.6(c) within 3 days, and the Permittee obtains an extension from the Illinois EPA. The request for such an extension must document that the feature(s) can not be repaired within 3 days, the acid gas feed to both units can not be reduced so as to attain compliance with the hourly limitation of Condition 7.11.6(c), and specify a schedule of actions the Permittee will take that will assure the feature(s) will be repaired or the acid gas feed to both units will be reduced to a level so as to attain compliance with the hourly limit of Condition 7.11.6(c) as soon as possible.

- ii. The Permittee shall fulfill the applicable recordkeeping and reporting requirements of Conditions 7.11.9(c) and 7.11.10(b).

7.11.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on the North Sulfur Recovery Unit/Tail Gas Recovery Unit/Thermal Oxidizer (11-B-32) not being subject to the New Source Performance Standards (NSPS) for VOC Emissions from Petroleum Refinery Wastewater Systems because the process does not generate oily wastewater.
- b. This permit is issued based on the South Sulfur Recovery Unit/Afterburners (11-B-3 & 11-B-23) not being subject to the New Source Performance Standards (NSPS) for Petroleum Refineries, 40 CFR 60, Subpart J, because it was constructed on or before October 4, 1976.
- c. This permit is issued based on the South Sulfur Recovery Unit/Afterburners (11-B-3 & 11-B-23) and the North Sulfur Recovery Unit/Tail Gas Recovery Unit/Thermal Oxidizer (11-B-32) not being subject to 35 IAC 214.301 pursuant to 35 IAC 214.382(a).
- d. This permit is issued based on the South Sulfur Recovery Unit/Afterburners (11-B-3 & 11-B-23) and the North Sulfur Recovery Unit/Tail Gas Recovery

Unit/Thermal Oxidizer (11-B-32) not being subject to 35 IAC 216.361 because the South Sulfur Recovery Unit/Afterburners (11-B-3 & 11-B-23) and the North Sulfur Recovery Unit/Tail Gas Recovery Unit/Thermal Oxidizer (11-B-32) are not considered to be petroleum or petrochemical process units because they are not "a set of equipment which are a part of a basic process operation such as distillation, hydrotreating, cracking, or reforming of hydrocarbons."

7.11.5 Operational and Production Limits and Work Practices

None

7.11.6 Emission Limitations

- a. Combined annual emissions from the FCC Unit and North & South Sulfur Plants shall not exceed the following limits. Compliance with these limits shall be determined from a running total of 12 months of data. [T1]

Annual Emission Limits (tons/year)					
<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>VOM</u>	<u>PM</u>	<u>PM₁₀</u>
1,375.7	26,184	2,861	3.4	469.1	469.1

The above limitations were established in Permit 97030078 pursuant to 35 IAC Part 203 and 40 CFR 52.21, Prevention of Significant Deterioration. These limits ensure that the construction/modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to 35 IAC Part 203 or pursuant to the federal rules for PSD, 40 CFR 52.21 with the exception of the NO_x limitations which were established in conjunction with the limitations included in Conditions 7.1.5(a), (b), (c) and 7.1.6(a) to ensure that BACT is being implemented. These limits do not address "fugitive" losses from leaking components, which are not affected by the Crude Upgrade Project and which are controlled by various leak detection and repair programs as further address in Section 7.28. [T1]

- b. Emissions of sulfur dioxide (SO₂), particulate matter₁₀ (PM₁₀), nitrogen oxides (NO_x), hydrogen sulfide (H₂S), and carbon monoxide (CO) from the North Sulfur Recovery Unit's thermal oxidizer shall not exceed the following: [T1]

<u>Contaminant</u>	<u>Emissions</u>	
	<u>(lb/hr)</u>	<u>(ton/yr)</u>
SO ₂	63.9	280
PM ₁₀	0.2	0.9
NO _x	9.0	39.4
H ₂ S	1.4	6.1
CO	10.1	44.2

- c. Combined emissions of sulfur dioxide from both sulfur recovery units (Application Nos. 72110570 and 91030116) shall not exceed 3,092.9 lb/hr and 13,547 ton/yr. The original existing sulfur recovery plant (i.e. South Plants) shall not exceed 4,218 lb/hr of sulfur dioxide emissions when the North SRU/TGRU is out of service. [T1]

The above limitations (Conditions 7.11.6(b) and (c)) were established in Permit 91030116 and Permit 97030078 pursuant to 35 IAC Part 203 and 40 CFR 52.21, Prevention of Significant Deterioration. These limits ensure that the construction/modification addressed in the aforementioned permits do not constitute a new major source or major modification pursuant to 35 IAC Part 203 or pursuant to the federal rules for PSD. [T1]

7.11.7 Operating Requirements

- a. This permit is issued based on all H₂S gas streams produced by treatment of refinery fuel gas being processed by one of the sulfur recovery units except in the event of malfunction/breakdown or startup/shutdown of the units, and then appropriate steps shall be taken to minimize emissions. Any such bypass emissions shall be accounted for and be considered emissions associated with the South Sulfur Recovery Unit. There shall be no emissions attributable to bypassing except during a malfunction/breakdown or startup/shutdown as addressed above. This provision is established for

the purposes of addressing any potential bypassing of these units.

7.11.8 Inspection and Monitoring Requirements

- a. Pursuant to 40 CFR 60.105(a)(5), the owner or operator shall install, calibrate, maintain, and operate a continuous monitoring system that continuously monitors and records concentrations of sulfur dioxide in the gases discharged into the atmosphere from the North Sulfur Recovery Unit/Tail Gas Recovery Unit/Thermal Oxidizer (11-B-32). The span of this continuous monitoring system shall be 500 ppm.

These monitoring system(s) shall be the basis for quarterly reporting of exceedances of the NSPS 40 CFR 60.104(a)(2)(i) (Condition 7.11.3(a)) in accordance with 40 CFR 60.7(c) and 60.105(e). [See also Condition 7.11.10(a)]

7.11.9 Recordkeeping Requirements

- a. Records for Continuous SO₂ Monitoring Systems

Pursuant to Section 39.5(7)(b) of the Act, the Permittee shall maintain records for the SO₂ monitoring system on the North Sulfur Recovery Unit/Tail Gas Recovery Unit/Thermal Oxidizer (11-B-32) required by Condition 7.11.8(a) that as a minimum shall include:

- i. Operating records for each SO₂ monitoring system, including:
 - A. SO₂ measurements;
 - B. Continuous monitoring system performance testing measurements;
 - C. Performance evaluations;
 - D. Calibration checks;
 - E. Maintenance and adjustment performed;

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- F. Quarterly reports submitted in accordance with 40 CFR 60.7(c) (Condition 7.11.10(a)); and
 - G. Data reduction information used pursuant to Condition 7.11.12(c).
- ii. Records to verify compliance with the limitations of Condition 7.11.3(a), including;
- A. Hourly SO₂ content from the North Sulfur Recovery Unit/Tail Gas Recovery Unit/Thermal Oxidizer (11-B-32) as derived from the data obtained by the SO₂ monitor, ppm;
 - B. Any twelve-hour period when the average SO₂ concentration exceeded 250 ppm at zero percent oxygen on a dry basis.
- b. Records for Startup

The Permittee shall maintain the following records, pursuant to Section 39.5(7)(b) of the Act, for the North Sulfur Recovery Unit/Tail Gas Recovery Unit/Thermal Oxidizer (11-B-32) operating in accordance with the provisions of Condition 7.11.3(c), which at a minimum shall include:

- i. The following information for each startup of the North Sulfur Recover Unit/Tail Gas Recovery Unit/Thermal Oxidizer (11-B-32).:
 - A. Date and duration of the startup, i.e., start time and time normal operation achieved;
 - B. Whether the startup was a full startup, or a startup associated with catalyst regeneration;
 - C. If normal operation was not achieved within 4 days for a full startup and 48 hours for a startup associated with catalyst regeneration, an explanation why

startup could not be achieved in normal time frame;

- D. A detailed description of the startup;
- E. An explanation why established startup procedures could not be performed, if not performed;
- F. The nature of opacity, i.e., severity and duration, during the startup and the nature of opacity at the conclusion of startup, if above normal; and
- G. Whether exceedance of Condition 7.11.3(b) may have occurred during startup, with explanation and estimated duration (minutes).

c. Records for Continued Operation During Malfunctions and Breakdowns

The Permittee shall maintain records, pursuant to 35 IAC 201.263, related to malfunction and breakdown for the North Sulfur Recover Unit/Tail Gas Recovery Unit/Thermal Oxidizer (11-B-32) that as a minimum, shall include:

- i. A maintenance and repair log for the North Sulfur Recover Unit/Tail Gas Recovery Unit/Thermal Oxidizer (11-B-32) and associated equipment, listing each activity performed with date; and
- ii. Records for each incident when operation of the North Sulfur Recover Unit/Tail Gas Recovery Unit/Thermal Oxidizer (11-B-32) continued during malfunction or breakdown with excess emissions, as provided by Condition 7.11.3(d), including the following information:
 - A. Date and duration of malfunction or breakdown;

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- B. A detailed explanation of the malfunction or breakdown;
 - C. An explanation why continued operation of the North Sulfur Recover Unit/Tail Gas Recovery Unit/Thermal Oxidizer (11-B-32) was necessary;
 - D. The measures used to reduce the quantity of emissions and the duration of the event;
 - E. The steps taken to prevent similar malfunctions or breakdowns or reduce their frequency and severity; and
 - F. An estimate of the amount of excess emissions released during malfunction/breakdown.
- d. The Permittee shall maintain appropriate records for the South Sulfur Recovery Unit/Afterburners (11-B-3 & 11-B-23) and the North Sulfur Recovery Unit/Tail Gas Recovery Unit/Thermal Oxidizer (11-B-32) so as to allow the Illinois EPA to verify compliance with 35 IAC 212.123 (Condition 7.11.3(b)).
- e. The Permittee shall maintain records of the following items to demonstrate compliance with Condition 7.11.6:
- i. The quantity of gas treated by each of the sulfur recovery units, million cubic feet per month;
 - ii. Actual emissions of SO₂, PM, PM₁₀, NO_x, H₂S, and CO from the North Sulfur Recovery Unit, tons/month;
 - iii. Actual emissions of SO₂, PM, PM₁₀, NO_x, VOM, and CO from both sulfur recovery units;
 - iv. Annual emissions of SO₂, PM, PM₁₀, NO_x, H₂S, and CO from the North Sulfur Recovery Unit for the current month and the previous 11 months, tons/year;

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- v. Annual emissions of SO₂, PM, PM₁₀, NO_x, VOM, and CO from both sulfur recovery units combined for the current month and the previous 11 months, tons/year;
- vi. The time periods when the North Sulfur Recovery Unit is not operating, date and hours, and the sulfur emissions from the South Sulfur Recovery Unit during these time periods, total tons.
- vii. Actual emissions of SO₂, NO_x, CO, VOM, PM, and PM₁₀ from the FCC Unit and both sulfur recovery units combined, with supporting documentation; and
- viii. Annual emissions of SO₂, NO_x, CO, VOM, PM, and PM₁₀ from the FCC Unit and both sulfur recovery units combined for the current month and the previous 11 months.

7.11.10 Reporting Requirements

a. Quarterly Report

Pursuant to 40 CFR 60.7(c), the owner or operator required to install a continuous monitoring system pursuant to 40 CFR 60 Subpart J (Condition 7.11.8(a)) shall submit a written report of excess emissions (as defined by 40 CFR Subpart J) to the Illinois EPA, Compliance Section for each calendar quarter. This report shall be postmarked by the 30th day following the end of each calendar quarter and shall include the following information:

- i. The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions;
- ii. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the North Sulfur Recovery Unit/Tail Gas Recovery

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Unit/Thermal Oxidizer (11-B-32). The nature and cause of any malfunction (if known), the corrective actions taken or preventative measures adopted;

- iii. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments; and
- iv. When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

For the purposes of this report, the NSPS 40 CFR 60.105(e)(3) defines an exceedance of sulfur dioxide as "Any twelve-hour period during which the average concentration of SO₂ in the gases discharged into the atmosphere from any Claus sulfur recovery plant subject to 40 CFR 60.104(a)(2) exceeds 250 ppm at zero percent oxygen on a dry basis if compliance is achieved through the use of an oxidation control system or a reduction control system followed by incineration..."

- b. Reporting of Continued Operation During Malfunctions and Breakdowns for the North Sulfur Recovery Unit/Tail Gas Recovery Unit/Thermal Oxidizer (11-B-32)

The Permittee shall provide the following notifications and reports to the Illinois EPA, Compliance Section and Regional Field Office, pursuant to 35 IAC 201.263, concerning each incident when operation of the North Sulfur Recovery Unit/Tail Gas Recovery Unit/Thermal Oxidizer (11-B-32) continued during malfunction or breakdown with excess emissions as allowed by Condition 7.11.3(d).

- 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 days, for each incident.

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- ii. Upon completion of the incident, the Permittee shall give a written follow-up notice to the Illinois EPA, Compliance Section and Regional Field Office, within 15 days providing a detailed explanation of the event, an explanation why continued operation of the North Sulfur Recovery Unit/Tail Gas Recovery Unit/Thermal Oxidizer (11-B-32) 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 the amount of acid gas feed to both sulfur recovery units was reduced so as to comply with the combined hourly limitation of Condition 7.11.6(c).

c. Reporting of Non-Compliance

The Permittee shall promptly notify the Illinois EPA, Compliance Section of noncompliance of the South Sulfur Recovery Unit/Afterburners (11-B-3 & 11-B-23) or the North Sulfur Recovery Unit/Tail Gas Recovery Unit/Thermal Oxidizer (11-B-32) 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:

Within 30 days of exceedance of the limits in Conditions 7.11.3 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; and
- v. When compliance was reestablished.

d. Annual Emission Report

The Permittee shall submit the following information along with its annual emission report;

- i. The annual emissions of NO_x, CO, PM, PM₁₀, VOM, and SO₂ from the South Sulfur Recovery Unit/Afterburners (11-B-3 & 11-B-23) and the North Sulfur Recovery Unit/Tail Gas Recovery Unit/Thermal Oxidizer (11-B-32) on a per plant basis, for each month of the previous calendar year, to demonstrate compliance with Condition 7.11.6(b) and (c), tons/year (e.g., for the month of January, the emissions from February, of the preceding calendar year through January, for the month of February, the emissions from March of the preceding calendar year through February, 12 months in all);
- ii. The annual emissions of NO_x, CO, PM, PM₁₀, VOM, and SO₂ from the South Sulfur Recovery Unit/Afterburners (11-B-3 & 11-B-23) and the North Sulfur Recovery Unit/Tail Gas Recovery Unit/Thermal Oxidizer (11-B-32) (combined), for each month of the previous calendar year, to demonstrate compliance with Condition 7.11.6(c), tons/year (e.g., for the month of January, the emissions from February, of the preceding calendar year through January, for the month of February, the emissions from March of the preceding calendar year through February, 12 months in all);
- iii. A summarization of the time periods when the North Sulfur Recovery Unit was not in operation including the dates it was out of service and the total hours it was out of service and the emissions of SO₂ from the South Sulfur Recovery Unit during these time periods, with sufficient information to show the average hourly emissions from the South Sulfur Recovery Unit during the North Sulfur Recovery Unit downtime.
- iv. A summary of exceedances of the limits in Conditions 7.11.3 or 7.11.6, if any, which

required notification to the Compliance
Section in accordance with Condition
7.11.10(c).

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 process heater 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 requirements of 35 IAC 212.123 (Condition 7.11.3(b)) shall be demonstrated by the records required in Condition 7.11.9(e).
- b. Pursuant to 40 CFR 60.106(d) for the purposes of determining compliance of the North Sulfur Recovery Unit/Tail Gas Recovery Unit/Thermal Oxidizer (11-B-32) with 40 CFR 60.104(a)(2) Method 6 shall be used to determine the SO₂ concentration. Ongoing compliance is assured by the reporting requirements of Condition 7.11.10(a). Pursuant to 40 CFR 60.8(c) emissions in excess of the level of the applicable emission limits (Condition 7.11.3(a) and the hourly SO₂ and H₂S limit of Condition 7.11.6(b)) during periods of startup, shutdown, and malfunction shall not be considered a violation of the applicable emission limits.
- c. For purposes of reporting emissions including for the Annual Emission Report, emissions of SO₂ for the North Sulfur Recovery Unit/Tail Gas Recovery Unit/Thermal Oxidizer (11-B-32) shall be quantified using the required SO₂ continuous emissions monitor.
- d. For purposes of reporting emissions including for the Annual Emission Report, emissions of SO₂ for the South Sulfur Recovery Unit/Afterburners (11-B-3 & 11-

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B-23) shall be calculated based on the acid gas flow and H₂S concentration, and the destruction efficiency of the afterburners.

- e. For purposes of reporting emissions including for the Annual Emission Report, emissions of VOM and PM for the South Afterburners (11-B-3 & 11-B-23) and the North Thermal Oxidizer (11-B-32) shall be calculated using AIRS emission factors based on the combustion of refinery fuel gas (supplemental fuel) as follows:

VOM	2.8 lb/MM cubic feet burned
PM	5 lb/MM cubic feet burned

- f. For purposes of reporting emissions including for the Annual Emission Report, emissions of NO_x for the South Afterburners (11-B-3 & 11-B-23) shall be calculated using AIRS emission factors based on the combustion of refinery fuel gas (supplemental fuel) as follows:

NO _x	140 lb/MM cubic feet burned
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- g. For purposes of reporting emissions including for the Annual Emission Report, emissions of CO for the South Sulfur Recovery Unit/Afterburners (11-B-3 & 11-B-23) shall be calculated based on a unit specific emission factor of 250 lb/hr.

- h. For purposes of reporting emissions including for the Annual Emission Report, emissions of NO_x and CO for the North Thermal Oxidizer (11-B-32) shall be calculated on a monthly basis based on unit specific emission factors, derived from previous testing as follows:

$$\text{NO}_x = 5.8 \text{ lb NO}_x / \text{hr (test)} \times \frac{(\text{average daily fuel flow MSCFD})}{1306 \text{ MSCFD test fuel flow}}$$

$$\text{CO} = 9.0 \text{ lb CO} / \text{hr (test)} \times \frac{(\text{avg daily fuel} + \text{RGG flow MSCFD})}{1528 \text{ MSCFD fuel} + \text{RGG test flow}}$$

RGG = Reducing Gas Generator

7.12 Auxiliary Boiler/Co-Generation Unit (Units 55 & 20)

7.12.1 Description

The Auxiliary Boiler produces steam by indirect heat transfer. The Co-Generation Unit produces electricity in a gas turbine engine that rotates a generator. Steam is also produced by recovered exhaust gas from the turbine, combined with supplemental fuel burning in the Waste Heat Steam Generator that is used to indirectly heat water to steam.

7.12.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Auxiliary Boiler (55-B-100)	600 mmBtu/hr boiler capable of firing fuel gas, oil, or a combination of fuels	Low-NO _x burners
Gas Turbine Generator (20-N-1)	24 KW turbine capable of firing gaseous fuels	CO Catalytic Converter and Steam Injection
Waste Heat Steam Generator (20-B-1)	143 mmBtu/hr waste heat steam generator capable of firing gaseous fuels	CO Catalytic Converter

7.12.3 Applicability Provisions and Applicable Regulations

- a. An "affected boiler" for the purpose of these unit-specific conditions, is a boiler that is located in the Chicago major metropolitan area, has the ability to burn gas, liquid, or a combination of fuels, and was constructed prior to April 14, 1972.
- b. An "affected turbine" for the purpose of these unit-specific conditions, is a stationary gas turbine with a heat input at peak load equal to or greater than 10.7 gigajoules per hour, based on the lower heating value of the fuel fired that commenced construction after October 3, 1977.
- c. An "affected waste heat steam generator" is a steam generating unit that has a capacity of greater than 100 mmBtu/hr but less than 250 mmBtu/hr, fires only gaseous fuels, and was constructed or modified after June 19, 1984.

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- d. Pursuant to 40 CFR 60.44b(a), no owner or operator of an affected waste heat steam generator shall cause to be discharged into the atmosphere from any affected waste heat steam generator any gases that contain nitrogen oxides (expressed as NO₂) in excess of 86 ng/J (0.20 lb/mmBtu).
- e. Pursuant to 40 CFR 60.40b(d) and 40 CFR 60.104(a)(1), no owner or operator shall burn in any affected waste heat steam generator any fuel gas which contain hydrogen sulfide in excess of 230 mg/dscm (0.10 gr/dscf).
- f. Pursuant to 40 CFR 60.332(a)(2), no owner or operator shall cause to be discharged into the atmosphere from any affected turbine, any gases which contain nitrogen oxides in excess of the rate specified by the formula found in 40 CFR 60.332(a)(2).
- g. Pursuant to 40 CFR 60.333(a), no owner or operator of an affected turbine shall cause to be discharged into the atmosphere from an affected turbine any gases which contain sulfur dioxide in excess of 0.015 percent by volume at 15 percent oxygen and on a dry basis.
- h.
 - i. Pursuant to 35 IAC 212.123 the emissions of smoke or other particulate matter into the atmosphere from an affected boiler, affected turbine, or affected waste heat generator shall not be greater than 30 percent except as provided below;
 - ii. The smoke or other particulate matter emissions from an affected boiler, affected turbine, or affected waste heat generator may have an opacity greater than 30 percent but not greater than 60 percent ("more opaque emissions") for a period or periods aggregating 8 minutes in any 60 minute period, provided that such periods of more opaque emissions are limited to three (3) times in any 24-hour period, and such periods of more opaque emissions may not simultaneously occur at other such emission units located within a

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305 m (1,000 ft) radius of an affected boiler, affected turbine, or affected waste heat generator when the affected boiler, affected turbine, or affected waste heat generator is experiencing periods of more opaque emissions.

- i. Pursuant to 35 IAC 212.206 no person shall cause or allow the emissions of PM into the atmosphere in any one hour period to exceed 0.15 kg of PM per MW-hr (0.10 lbs/mmBtu) of actual heat input from any affected boiler using liquid fuel exclusively;
- j. Pursuant to 35 IAC 212.207 no person, while simultaneously burning more than one type of fuel in an affected boiler, shall cause or allow the emissions of PM into the atmosphere in any one hour period in excess of the following equation:

$$E = AS + BL$$

Where:

- E = Allowable emission rate (kg/hr or lbs/hr);
 - A = Solid fuel particulate emission standard which is applicable (kg/MW-hr or lbs/mmBtu);
 - B = Constant (0.155(metric) or 0.10(English));
 - S = Actual heat input from solid fuel (MW or mmBtu/hr); and
 - L = Actual heat input from liquid fuel (MW or mmBtu/hr).
- k. Pursuant to 35 IAC 214.161 no person shall cause or allow the emissions of SO₂ into the atmosphere in any one hour period from an affected boiler, burning liquid fuel exclusively;
 - i. To exceed 1.55 kg of SO₂ per MW-hr (1.0 lbs/mmBtu) of actual heat input when residual fuel oil is burned; or

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- ii. To exceed 0.46 kg of SO₂ per MW-hr (0.3 lbs/mmBtu) of actual heat input when distillate fuel oil is burned.
1. Pursuant to 35 IAC 214.162 no person, while simultaneously burning more than one type of fuel in an affected boiler, shall cause or allow the emissions of SO₂ into the atmosphere in any one hour period in excess of the following equation:

$$E = AX + BY + CZ$$

Where:

- E = Allowable SO₂ emission rate (kg/hr or lbs/hr);
- A = Solid fuel SO₂ emission standard which is applicable (kg/MW-hr or lbs/mmBtu);
- B = Distillate oil SO₂ emission standard (0.46 kg/MW-hr or 0.3 lbs/mmBtu);
- C = Residual fuel oil SO₂ emission standard which is applicable (1.55 kg/MW-hr or 1.0 lbs/mmBtu);
- X = Actual heat input from solid fuel (MW or mmBtu/hr);
- Y = Actual heat input from distillate fuel oil (MW or mmBtu/hr);
- Z = Actual heat input from residual fuel oil (MW or mmBtu)

That portion of actual heat input that is derived:

- i. From the burning of gaseous fuels produced by the gasification of solid fuels shall be included in X;
- ii. From the burning of gaseous fuels produced by the gasification of distillate fuel oil shall be included in Y;

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- iii. From the burning of gaseous fuels produced by the gasification of residual fuel oil shall be included in Z;
 - iv. From the burning of gaseous fuels produced by the gasification of any other liquid fuels shall be included in Z; and
 - v. From the burning of by-product gases such as those produced from a blast furnace or a catalyst regeneration unit in a petroleum refinery shall be included in Z.
- m. Pursuant to 35 IAC 216.121, no person shall cause or allow the emissions of CO from an affected boiler or affected waste heat generator to exceed 200 ppm, corrected to 50% excess air;
- n. Pursuant to 35 IAC 217.141, no person shall cause or allow the emissions of NO_x into the atmosphere in any one hour period from any affected boiler with an actual heat input greater than 73.2 MW (250 mmBtu/hr) to exceed the following limitations:
- i. For gaseous and/or liquid fossil fuel firing, 0.46 kg/MW-hr (0.3 lbs/mmBtu) of actual heat input;
 - ii. For solid fossil fuel firing, 1.39 kg/MW-hr (0.9 lbs/mmBtu) of actual heat input;
 - iii. For simultaneous burning of any combination of solid, liquid and gaseous fuel, the allowable emission rate shall be determined by the following equation:

$$E = (AG + BL + CS)Q$$

Where:

E = allowable NO_x emissions (kg/hr or lbs/hr);

Q = actual heat input(MW or mmBtu/hr);

G = percent of actual heat input derived from gaseous fossil fuel;

L = percent of actual heat input derived from
liquid fossil fuel;

S = percent of actual heat input derived from
solid fossil fuel;

$G + L + S = 100.0;$

A = 0.023(metric) or 0.003(English);

B = 0.023(metric) or 0.003(English);

C = 0.068(metric) or 0.009(English)

7.12.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on the affected boiler(s) not being subject to the New Source Performance Standards (NSPS) for Petroleum Refineries, 40 CFR 60, Subpart J, because the affected boiler(s) were constructed or last modified on or before June 11, 1973.
- b. This permit is issued based on the affected boiler(s) and affected waste heat generator(s) not being subject to 35 IAC 214.301 because they are not process emission sources, but rather fuel combustion emission sources.
- c. This permit is issued based on the affected waste heat generator(s) not being subject to 35 IAC 217.141 because the actual heat input is less than 250 mmBtu/hr.
- d. The affected turbine(s) are hereby shielded from the requirements of 35 IAC 212.321 because the rule can not be practically applied as there is no process weight rate for this equipment.

7.12.5 Operational and Production Limits and Work Practices

- a. The operation of the Co-Generation Unit (Gas Turbine Generator [20-N-1] and Waste Heat Steam Generator [20-B-1]) shall be coordinated with the operation of the Auxiliary Boiler (55-B-100) and the East and West

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CO Boilers (14-B-3 & 14-B-4) [Section 7.3] as follows:

- i. When the Co-Generation Unit and East and West CO Boilers are operating, the Auxiliary Boiler shall be operated at a reduced rate not to exceed 260 mmBtu/hr;
- ii. When the Co-Generation Unit is shutdown or one or both of the East and West CO Boilers is malfunctioning or shutdown, the Auxiliary Boiler may be operated at a firing rate above 260 mmBtu/hr provided that if the Co-Generation Unit is operating, the firing rate of the Auxiliary Boiler shall not exceed the level of 260 mmBtu/hr plus the amount by which the firing rate of the East and West CO Boilers or the Co-Generation Unit has been reduced below the load (3-day average) which the shutdown East or West CO Boiler or Co-Generation Unit was operating prior to shutdown.

The above limitations were established in Permit 86010009 pursuant to 40 CFR 52.21, Prevention of Significant Deterioration. These limits in combination with Condition 7.12.6 ensure that the construction/modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to the federal rules for PSD, 40 CFR 52.21. [T1]

7.12.6 Emission Limitations

- a. The Co-Generation Unit shall not be operated for more than 8,585 hours per year or exceed the following restrictions: [T1]

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<u>Source</u>	<u>Fuel Type</u>	<u>Combined Firing Rate mmBtu/hr</u>	<u>Emissions [lb/hr (combined)]</u>	
			<u>NO_x</u>	<u>CO</u>
Gas Turbine Generator (20-N-1)	Pipeline Quality Ref. Fuel Gas or Natural Gas	373	57.8	15.3
Waste Heat Steam Generator (20-B-1)	Refinery Fuel Gas or Natural Gas			

b. Annual Emissions from the Co-Generation Unit (Gas Turbine Generator 20-N-1 and Waste Heat Steam Generator 20-B-1) shall not exceed the following:
 [T1]

<u>PM</u>	<u>Annual Emissions (Tons/Year)</u>			
	<u>SO₂</u>	<u>NO_x</u>	<u>OM</u>	<u>CO</u>
13.9	15.4	248.3	53.4	65.8

c. Annual emissions of NO_x and CO from the Co-Generation Unit (Gas Turbine Generator 20-N-1 and Waste Heat Steam Generator 20-B-1) and the Auxiliary Boiler (55-B-100) combined shall not exceed 323.0 tons/year and 97.8 tons/year, respectively. [T1]

The above limitations were established in permits 72110567 and 86010009 pursuant to 40 CFR 52.21, Prevention of Significant Deterioration. These limits in combination with Condition 7.12.5(a) ensure that the construction/modification addressed in the aforementioned permits does not constitute a new major source or major modification pursuant to the federal rules for PSD, 40 CFR 52.21. [T1]

7.12.7 Operating Requirements

None

7.12.8 Monitoring Requirements

- a. Pursuant to 40 CFR 60.105(a)(4), the owner or operator shall install, calibrate, maintain, and operate a continuous monitoring system that continuously monitors and records concentrations of hydrogen sulfide in fuel gases burned in any affected waste heat steam generator. Fuel gas combustion devices, including any affected waste heat generator, having a common source of fuel gas may be monitored at one location, if monitoring at this location accurately represents the concentration of H₂S in the fuel burned. The span of this continuous monitoring system shall be 300 ppm.

These monitoring system(s) shall be the basis for quarterly reporting of exceedances of the NSPS 40 CFR 60.104(a)(1) (Condition 7.12.3(e)) in accordance with 40 CFR 60.7(c) and 60.105(e). [See also Condition 7.12.10(a)]

- b. Pursuant to 40 CFR 60.334(a), the owner or operator of any affected turbine using water injection to control NO_x emissions shall install and operate a continuous monitoring system to monitor and record the fuel consumption and the ration of water to fuel being fired in the affected turbine. This system shall be accurate to within ±5.0 percent.

These monitoring system(s) shall be the basis for quarterly reporting of exceedances of the NSPS 40 CFR 60.332(a)(2) (Condition 7.12.3(f)) in accordance with 40 CFR 60.7(c) and 60.34(c). [See also Condition 7.12.10(a)]

- c. Pursuant to 40 CFR 60.334(b) the owner or operator of any affected turbine shall monitor sulfur content and nitrogen content of the fuel being fired in the affected turbine. The frequency of determination of these values shall be as follows:
 - i. If the affected turbine is supplied its fuel from a bulk storage tank, the values shall be determined on each occasion that fuel is transferred to the storage tank from any other source;

- ii. If the affected turbine is supplied its fuel without intermediate bulk storage the values shall be determined and recorded daily. Owners, operators or fuel vendors may develop custom schedules for determination of the values based on the design and operation of the affected turbine and the characteristics of the fuel supply. These custom schedule must be substantiated with data and must be approved by the Illinois EPA before they can be used to comply with this condition.

These monitoring system(s) shall be the basis for quarterly reporting of exceedances of the NSPS 40 CFR 60.333(a) (Condition 7.12.3(g)) in accordance with 40 CFR 60.7(c) and 60.34(c). [See also Condition 7.12.10(a)]

7.12.9 Recordkeeping Requirements

- a. Records for Continuous H₂S Monitoring Systems

Pursuant to Section 39.5(7)(b) of the Act, the Permittee shall maintain records for the H₂S monitoring system on each affected waste heat steam generator required by Condition 7.12.8(a) that as a minimum shall include:

- i. Operating records for each H₂S monitoring system, including:
 - A. H₂S measurements;
 - B. Continuous monitoring system performance testing measurements;
 - C. Performance evaluations;
 - D. Calibration checks;
 - E. Maintenance and adjustment performed;
 - F. Quarterly reports submitted in accordance with 40 CFR 60.7(c) (Condition 7.12.10(a)); and

- G. Data reduction information used pursuant to Condition 7.12.12(c).
- ii. Records to verify compliance with the limitations of Condition 7.12.3(e), including:
 - A. Hourly H₂S content from each affected waste heat steam generator as derived from the data obtained by the H₂S monitor, gr/dscf;
 - B. Any three-hour block averaging period when the total H₂S concentration exceeded 230 mg/dscm (0.10 gr/dscf)
- b. Records for Fuel Consumption/Water Ratio Monitoring Systems

Pursuant to Section 39.5(7)(b) of the Act, the Permittee shall maintain records for the fuel consumption/water ratio monitoring system on each affected turbine required by Condition 7.12.8(b) that as a minimum shall include:

- i. Operating records for each fuel consumption/water ratio monitoring system, including:
 - A. Water-to-fuel ratio measurements;
 - B. Continuous monitoring system performance testing measurements;
 - C. Performance evaluations;
 - D. Maintenance and adjustment performed;
 - E. Quarterly reports submitted in accordance with 40 CFR 60.7(c) (Condition 7.12.10(a)); and
 - F. Data reduction information used pursuant to Condition 7.12.12(c).

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- ii. Records to verify compliance with the limitations of Condition 7.12.3(f), including;
 - A. Average hourly water-to-fuel ratio for each affected turbine;
 - B. Any one-hour period during which the average water-to fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ration determined to demonstrate compliance by the initial performance test completed in accordance with the requirements of 40 CFR 60.8.
- c. Records for Monitoring of Sulfur and Nitrogen Fuel Content

Pursuant to Section 39.5(7)(b) of the Act, the Permittee shall maintain records of sulfur and nitrogen fuel content monitoring on each affected turbine required by Condition 7.12.8(a) that as a minimum shall include:

- i. Operating records for sulfur and nitrogen fuel content monitoring, including:
 - A. The date of the measurements;
 - B. Sulfur content;
 - C. Nitrogen content;
 - D. Quarterly reports submitted in accordance with 40 CFR 60.7(c) (Condition 7.12.10(a)); and
 - E. Data reduction information used pursuant to Condition 7.12.12(c).
- ii. Records to verify compliance with the limitations of Condition 7.12.3(g), including;
 - A. Daily sulfur content of fuel fired in each affected turbine;

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- B. Any daily period during which the sulfur content of the fuel being fired in an affected gas turbine exceeds 0.8 percent.

- d. The Permittee shall maintain appropriate records for each affected boiler, turbine, and waste heat steam generator so as to allow the Illinois EPA to verify compliance with 35 IAC 212.123 (Condition 7.12.3(h)).

- e. The Permittee shall maintain records of the following items for each affected boiler to demonstrate compliance with the limits of Condition 7.12.3(i), (j), (k), (m) and (n):
 - i. The sulfur content of each fuel burned in each affected boiler, with supporting documentation;
 - ii. Quantity of each fuel, i.e., refinery fuel gas, natural gas, and fuel oil burned in each affected boiler, daily;
 - iii. Daily heat input from each fuel burned in each affected boiler, mmBtu;
 - iv. Average daily NO_x emissions, with supporting calculations, lb/mmBtu;
 - v. Average daily PM emissions, with supporting calculations, lb/mmBtu; and
 - vi. Average daily SO₂ emissions, with supporting calculations, lb/mmBtu.

- f. The Permittee shall maintain records of the following items to demonstrate compliance with the limits of Conditions 7.12.5 and 7.12.6:
 - i. Hours of operation of the Auxiliary Boiler (55-B-100), the Gas Turbine Generator (20-N-1), and the Waste Heat Steam Generator (20-B-1);
 - ii. Quantity of each fuel burned in the Auxiliary Boiler (55-B-100), the Gas Turbine Generator (20-N-1), and the Waste Heat Steam Generator

(20-B-1), daily, with supporting documentation;

- iii. The sulfur content of each fuel burned in the Auxiliary Boiler (55-B-100), the Gas Turbine Generator (20-N-1), and the Waste Heat Steam Generator (20-B-1), with supporting documentation;
- iv. Actual emissions of SO₂, NO_x, CO, OM, and PM in tons/month with supporting documentation for the Auxiliary Boiler (55-B-100), the Gas Turbine Generator (20-N-1), and the Waste Heat Steam Generator (20-B-1); and
- v. Annual emissions of SO₂, NO_x, CO, OM, and PM from the Auxiliary Boiler (55-B-100), the Gas Turbine Generator (20-N-1), and the Waste Heat Steam Generator (20-B-1) for the current month and the previous 11 months, tons/year.
- vi. Date and hours that either the Co-Generation Unit (the Gas Turbine Generator (20-N-1) and the Waste Heat Steam Generator (20-B-1)) were shutdown, or the East or West CO Boiler(s) were malfunctioning or shutdown.

7.12.10 Reporting Requirements

a. Quarterly Report

Pursuant to 40 CFR 60.7(c), the owner or operator required to install a continuous monitoring system pursuant to 40 CFR 60 Subpart J (Condition 7.12.8(a)) or a continuous monitoring system pursuant to Subpart GG (Condition 7.12.8(b) and (c)) shall submit a written report of excess emissions (as defined by 40 CFR Subpart J or GG) to the Illinois EPA, Compliance Section for each calendar quarter. This report shall be postmarked by the 30th day following the end of each calendar quarter and shall include the following information:

- i. The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factor(s) used, and the date and

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time of commencement and completion of each time period of excess emissions;

- ii. The average water-to-fuel ratio, average fuel consumption, ambient conditions, gas turbine load, and nitrogen content of the fuel to an affected turbine during the period of excess NO_x emissions;
- iii. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of an affected waste heat steam generator or affected turbine. The nature and cause of any malfunction (if known), the corrective actions taken or preventative measures adopted;
- iv. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments; and
- v. When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

For the purposes of this report, the NSPS 40 CFR 60.105(e)(3) defines an exceedance of sulfur dioxide from an affected waste gas steam generator as "Any three-hour period during which the average concentration of H₂S in any fuel gas combusted in any fuel gas combustion device subject to 40 CFR 60.104(a)(1) exceeds 230 mg/dscm (0.10 gr/dscf), if compliance is achieved by removing H₂S from the fuel gas before it is burned."

For the purpose of this report, the NSPS 40 CFR 60.334(c)(1) defines periods of excess emissions of NO_x from an affected turbine as "Any one-hour period during which the average water-to-fuel, as measured by the continuous monitoring system, falls below the water-to-fuel ration determined to demonstrate compliance with 40 CFR 60.322 by the performance test required in 40 CFR 60.8 or any period during which

the fuel-bound nitrogen of the fuel is greater than the maximum nitrogen content allowed by the fuel-bound nitrogen allowance used during the performance test required in 40 CFR 60.8."

For the purpose of this report, the NSPS 40 CFR 60.334(c)(2) defines periods of excess emissions of SO₂ as "Any daily period during which the sulfur content of the fuel being fired in an affected turbine exceeds 0.8 percent."

b. Reporting of Non-Compliance

The Permittee shall promptly notify the Illinois EPA, Compliance Section of noncompliance of an affected boiler, affected turbine, or affected waste heat steam generator 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:

Within 30 days of exceedance of the limits in Conditions 7.12.3(h), 7.12.5, or 7.12.6, 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; and
- v. When compliance was reestablished.

c. Annual Emission Report

The Permittee shall submit the following information along with its annual emission report;

- i. The annual emissions of NO_x, CO, PM, OM, and SO₂ from the Auxiliary Boiler (55-B-100), the

Gas Turbine Generator (20-N-1), and the Waste Heat Steam Generator (20-B-1) for each month of the previous calendar year, to demonstrate compliance with Condition 7.12.6(b), tons/year (e.g., for the month of January, the emissions from February, of the preceding calendar year through January, for the month of February, the emissions from March of the preceding calendar year through February, 12 months in all);

- ii. A summary of the time when the Auxiliary Boiler (55-B-100) was operated in excess of 260 mmBtu/hr with an explanation of why, e.g. Co-Generation Unit was shutdown.
- iii. A summary of exceedances of the limits in Conditions 7.12.3, 7.12.5, or 7.12.6, if any, which required notification to the Compliance Section in accordance with Condition 7.12.10(b).

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 boiler, affected turbine, or affected waste heat steam generator 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. Compliance with the requirements of 35 IAC 212.123 (Condition 7.12.3(h)) shall be demonstrated by the records required in Condition 7.12.9(d).
- b. Compliance with 35 IAC 216.121 (Condition 7.12.3(m)) is considered to be assured by the inherent nature of the operations at this source, as demonstrated by historical operation.

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- c. Pursuant to 40 CFR 60.106(c) for the purposes of determining compliance with 40 CFR 60.104(a)(1) Method 11 shall be used to determine the H₂S concentration. Ongoing compliance is assured by the reporting requirements of Condition 7.12.10(a). Pursuant to 40 CFR 60.8(c) emissions in excess of the level of the applicable emission limit during periods of startup, shutdown, and malfunction shall not be considered a violation of the applicable emission limit.
- d. Compliance with Conditions 7.12.5 and 7.12.6 shall be demonstrated by the records required by Condition 7.12.9(f).

SO₂ emissions for the Auxiliary Boiler (55-B-100), Gas Turbine Generator (20-N-1), and Waste heat Steam Generator (20-B-1) shall be calculated based on the H₂S content of the fuel gas and sulfur content of fuel oil combusted.

NO_x emissions for the Auxiliary Boiler (55-B-100) shall be calculated using unit specific emission factor of 0.0817 lb/mmBtu when at a firing rate of 260 mmBtu/hr or less, or a unit specific emission factor of [0.000822(Auxiliary Boiler firing duty, mmBtu/hr) - 0.1314], based on previous testing completed on the unit.

CO emissions for the Auxiliary Boiler (55-B-100) shall be calculated based on a unit specific emission factor of 0.0278 lb/mmBtu, based on previous testing completed on the unit.

NO_x emissions for the Gas Turbine Generator (20-N-1) and the Heat Recovery Steam Generator (20-B-1) shall be calculated based on a unit specific emission factor of 0.1527 lb/mmBtu, as derived from previous testing completed on the unit.

CO emissions for the Gas Turbine Generator (20-N-1) and the Heat Recovery Steam Generator (20-B-1) shall be calculated based on a unit specific emission factor of 0.0186 lb/mmBtu, as derived from previous testing completed on the unit.

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Emissions of VOM and PM from the Auxiliary Boiler (55-B-100) and the Waste Heat Steam Generator (20-B-1) shall be calculated using AIRS emission factors as follows:

i. Process Gas/Natural Gas (30600106/30600105)

VOM	2.8 lb/MM cubic feet burned
PM	3.0 lb/MM cubic feet burned

ii. Oil

VOM	0.3 lb/1,000 gal burned
PM	12.0 lb/1,000 gal burned

Emissions of VOM and PM from the Gas Turbine Generator (20-N-1) shall be calculated using AIRS emission factors as follows:

Fuel Gas/Natural Gas (20200203)

VOM	12.6 lb/MM cubic feet burned
PM	14.0 lb/MM cubic feet burned

7.13 Benzene Waste Operation (Unit 38)

7.13.1 Description

The Benzene Waste Operation manages wastewater streams that contain benzene concentrations typically greater than 10 ppmw prior to the water being sent to the wastewater treatment plant. The operation includes slop oil/water tanks, a surge tank, and the Benzene Removal Unit (BRU) which strips the benzene from the wastewater and then routes the waste stream to the thermal vapor incinerator for destruction.

7.13.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Benzene Removal Unit (BRU)	Packed column air stripper used to remove benzene	Thermal Vapor Incinerator (38-B-1)
Lift Station #2 including associated tank water draws	Sump and covered drains	Carbon Canister
Lift Station #9	Sump	Carbon Canister
Surge Tank 103	External floating roof storage tank	Primary & Secondary Seals
Slop oil/water tank 523	External floating roof storage tank	Primary & Secondary Seals
Slop oil/water tank 524	External floating roof storage tank	Primary & Secondary Seals
Tank 101 (backup tank)	External floating roof storage tank	Primary & Secondary Seals
Tank 204 (backup tank)	External floating roof storage tank	Primary & Secondary Seals
Tank 205 (backup tank)	External floating roof storage tank	Primary & Secondary Seals

7.13.3 Applicability Provisions and Applicable Regulations

- a. An "affected benzene waste operation" for the purposes of these unit specific conditions, is a benzene waste operation at a petroleum refinery with an initial total annual benzene quantity equal to or greater than 10 Mg/yr as determined in accordance

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with the Test Methods, Procedures, and Compliance Provisions of 40 CFR 61.355.

- b. An "affected BRU" for the purposes of these unit specific conditions, is a treatment process that is part of an affected benzene waste operation.
- c. An "affected tank" for the purposes of these unit specific conditions, is a waste management unit that is part of an affected benzene waste operation.
- d. An "affected lift station" for the purposes of these unit specific conditions, is an individual drain system that is part of an affected benzene waste operation.
- e. Pursuant to 40 CFR 61.342(e), the owner or operator of an affected benzene waste operation shall:
 - i. Manage and treat facility waste with a flow-weighted annual average water content of less than 10 percent as follows:
 - A. Remove or destroy the benzene contained in the waste using a treatment process or wastewater treatment system that complies with the standards in 40 CFR 61.348;
 - B. Comply with the requirements of 40 CFR 61.343 through 61.347 for each waste management unit that receives or manages the waste stream prior to and during treatment of the waste stream in accordance with Condition 7.13.3(e)(i)(A); and
 - C. Each waste management unit used to manage or treat waste streams that will be recycled to a process shall comply with the requirements of Condition 7.13.7(a). Once the waste stream is recycled to a process, including to a tank used for the storage of production process feed, product, or product intermediates, unless this tank is used primarily for the

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storage of wastes, the material is no longer subject to Condition 7.13.3(e)(i);

- ii. Manage and treat facility waste (including remediation and process unit turnaround 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, in accordance with the following:
 - A. The benzene quantity for the wastes described in Condition 7.13.3(e)(ii) must be equal to or less than 6.0 Mg/yr, as determined in accordance with 40 CFR 61.355(k) (Condition 7.13.12(a)). Wastes described in Condition 7.13.3(e)(ii) that are transferred off-site shall be included in the determination of benzene quantity as required by 40 CFR 61.355(k); and
 - B. The determination of benzene quantity for each waste stream defined in Condition 7.13.3(e)(ii) shall be made in accordance with 40 CFR 61.355(k) (Condition 7.13.12(a)).
- f. Operation During Malfunction/Breakdown

In the event of a malfunction or breakdown of the thermal vapor incinerator (38-B-1), the Permittee is authorized to continue operation of the affected BRU in violation of the emission limitations of Condition 7.13.6(h), as necessary to prevent risk of injury to personnel or severe damage to equipment. This authorization is subject to the following requirements:

- i. The Permittee shall repair the damaged feature(s) of the thermal vapor incinerator (38-B-1) or take steps to reduce the emissions from the affected BRU including reducing the process rate of the affected BRU if possible. This shall be accomplished within 6 days

unless the feature(s) cannot be repaired within 6 days, or the process rate cannot be reduced due to capacity limitations of tank 103, and the Permittee obtains an extension from the Illinois EPA. The request for such an extension must document that the feature(s) cannot be repaired within 6 days, the process rate cannot be reduced due to the capacity limitations of tank 103, and specify a schedule of actions the Permittee will take that will assure the feature(s) will be repaired of the process rate will be reduced as soon as possible.

- ii. The Permittee shall fulfill the applicable recordkeeping and reporting requirements of Condition 7.13.9(j) and 7.13.10(c).

- g. Storage tanks 101, 204 and 205 are designated as backup tanks to be used as part of the benzene waste operation in the event that they are needed. Currently the tanks are used to store various petroleum products, as such are subject to the requirements of Section 7.17. If used to store wastewater, the tank(s) shall comply with the requirements for an affected tank as defined in Section 7.13 instead of the requirements of Section 7.17. The Permittee shall notify the Illinois EPA within 30 days of changing the service of tank 101, 204, or 205, indicate the current service of the tank(s) and the rules under which the tank is currently operating (Section 7.13 or 7.17).

7.13.4 Non-Applicability of Regulations of Concern

- a. Each affected benzene waste operation subject to 40 CFR 61 Subpart FF is hereby shielded from compliance with 35 IAC 218.986. This shield is issued to streamline the applicable requirements for the source, based on the Illinois EPA's finding that compliance with 40 CFR 61, Subpart FF assures compliance with 35 IAC 218.986, following the review of the requirements of 40 CFR 60 Subpart FF and 35 IAC 218.986.

7.13.5 Control Requirements

- a. Pursuant to 40 CFR 61.349 for each closed-vent system and control device used to comply with standards in accordance with Conditions 7.13.7(a) and (b), the owner or operator shall properly design, install, operate, and maintain the closed-vent system and control device in accordance with the following requirements:
 - i. The closed-vent system shall be designed to operate with no detectable emissions as indicated by an instrument reading of less than 500 ppmv above background, as determined initially and thereafter at least once per year by the methods specified in 40 CFR 61.355(h) (Condition 7.13.12(e));
 - ii. A flow indicator that provides a record of vent stream flow away from the control device at least once every 15 minutes, shall be installed, maintained, and operated in accordance to the manufacturer's specifications at the entrance of any bypass line that could divert the vent stream away from the control device to the atmosphere, except where the bypass line valve is secured in the closed position with a car-seal or a lock-and-key type configuration;
 - iii. All gauging and sampling devices shall be gas-tight except when gauging or sampling is taking place;
 - iv. For each closed-vent system complying with Condition 7.13.5(a), one or more devices which vent directly to the atmosphere may be used on the closed-vent system provided each device remains in a closed, sealed position during normal operations except when the device needs to open to prevent physical damage or permanent deformation of the closed-vent system resulting from malfunction of the unit in accordance with good engineering and safety practices for handling flammable, explosive, or other hazardous materials.

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- v. Each enclosed combustion device (e.g., vapor incinerator) shall meet one of the following conditions:
 - A. Reduce the organic emissions vented to it by 95 weight percent or greater;
 - B. Achieve a total organic compound concentration of 20 ppmv (as the sum of the concentrations for individual compounds using Method 18) on a dry basis corrected to 3 percent oxygen; or
 - C. Provide a minimum residence time of 0.5 seconds at a minimum temperature of 760 °C.

Currently the Permittee complies by the method described in Condition 7.13.5(a)(v)(C).
- vi. Pursuant to 40 CFR 61.349(e) the Illinois EPA or USEPA may request at any time the owner or operator demonstrate that a control device meets the applicable requirements specified in Condition 7.13.5(a) by conducting a performance test using the test methods and procedures as required by 40 CFR 61.355 (Condition 7.13.12(f)).
- b. Pursuant to 40 CFR 61.349(a)(2)(ii) any vapor recovery system (e.g., carbon adsorption system) shall recover or control the organic emissions vented to it with an efficiency of 95 weight percent or greater, or shall recover or control the benzene emission vented to it with an efficiency of 98 weight percent or greater.
- c. Pursuant to 40 CFR 61.351(a)(2), each affected tank shall comply with the requirements of 40 CFR 60.112b(a)(2)(i), which requires the use of an external floating roof that is equipped with a primary and secondary seal as follows:
 - i. The primary seal shall be either a mechanical shoe seal or a liquid mounted seal. Except as

provided in Condition 7.13.7(d)(vi)(40 CFR 60.113b(b)(4)), the seal shall completely cover the annular space between the edge of the floating roof and the tank wall; and

- ii. The 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 as allowed in Condition 7.13.7(d)(vi)(40 CFR 60.113b(b)(4));
- d. Each affected tank shall also be equipped with a permanent submerged loading pipe, pursuant to 35 IAC 218.122(b).

7.13.6 Inspection/Testing Requirements and Emission Limitations

- a. Pursuant to 40 CFR 61.349(f) each closed-vent system and control device shall be visually inspected quarterly. 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.
- b. Except as provided in 40 CFR 61.350 (Condition 7.13.7(c)), 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)]
- c. The Permittee shall fulfill the applicable testing and procedures requirements of 40 CFR 60.113b(b) for each affected tank equipped with an external floating roof as follows:
 - i. The Permittee shall measure gaps between the tank wall and the secondary seal at least once per year (Annual Measurement) and the primary seals at least one every five years (Five Year Measurement). The measurement shall be

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conducted in accordance with the following methods and procedures: [40 CFR 60.113b(b)(2) and (b)(3)]

- A. Measure seal gaps, if any, at one or more floating roof levels when the roof is floating off the roof leg supports;
 - B. Measure seal gaps around the entire circumference of the tank in each place where a 0.32-cm diameter uniform probe passes freely (without forcing or binding against seal) between seal and the wall of the storage vessel and measure 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 Condition 7.13.7(d).
 - E. Prior notification for the above inspection shall be given to the Illinois EPA as specified in Condition 7.13.10(h)(ii).
- d. i. Visually inspect the external floating roof, the primary seal, the secondary seal 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

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seal fabric) that the Permittee shall repair the features prior to refilling the storage tank with VOL. [40 CFR 60.113b(b)(6)(i)]

- ii. Prior notification for the above inspection shall be given to the Illinois EPA as specified in Condition 7.13.10(i)(ii).
- e. i. Pursuant to 40 CFR 61.346(a)(2), each cover seal, access hatch, and all other opening at an affected lift station shall be checked by visual inspection quarterly to ensure that no cracks or gaps occur and that access hatches and other openings are closed and gasketed properly;
- ii. Pursuant to 40 CFR 61.346(a)(3), except as provided in 40 CFR 61.350 (Condition 7.13.7(c)), when a broken seal or gasket or other problem at an affected lift station is identified, or when detectable emissions are measured, first efforts at repair shall be made as soon as practicable, but not later than 15 calendar days after identification.
- f. i. Pursuant to 40 CFR 61.348(e), each seal, access door, and all other openings at an affected BRU shall be checked by visual inspection quarterly to ensure that no cracks or gaps occur and that openings are closed and gasketed properly;
- ii. Except as provided in 40 CFR 61.350 (Condition 7.13.7(c)), when a broken seal or gasket or other problem is identified, first efforts at repair shall be made as soon as practicable, but not later than 15 calendar days after identification.
- g. Pursuant to 40 CFR 61.348(f) the Illinois EPA or USEPA may request at any time the owner or operator demonstrate that the affected BRU meets the applicable requirements specified in Condition 7.13.3(e) by conducting a performance test using the test methods and procedures as required by 40 CFR 61.355 (Condition 7.13.12(d)).

- h. i. The benzene and VOM emissions from the affected BRU and associated thermal vapor incinerator shall not exceed the following, except as allowed by Condition 7.13.3(g):

<u>Material</u>	<u>Emissions (ton/yr)</u>
Benzene	0.9
VOM	1.8

- ii. The minimum destruction efficiency of the thermal vapor incinerator shall be 95%.
- i. Emissions of SO₂ from the thermal vapor incinerator as a result of combustion of sulfides also stripped from tank 103 water shall not exceed 143.7 ton/yr.

7.13.7 Operating Requirements

- a. Pursuant to 40 CFR 61.346, the owner or operator of an affected lift station in which waste is placed in accordance with 40 CFR 61.342(c)(1)(ii) (Condition 7.13.3(e)(i)(B)) shall meet the following:
 - i. Install, operate, and maintain on each affected lift station opening a cover and closed-vent system that routes all organic vapors vented from the affected lift station to a control device. The closed-vent system and control device shall be designed and operated in accordance with 40 CFR 61.349 (Condition 7.13.5(b)). The cover shall meet the following requirements:
 - A. The cover and all openings (e.g., access hatches, sampling ports) shall be designed to operate with no detectable emissions as indicated by an instrument reading of less than 500 ppmv above background, initially and thereafter at least once per year by methods specified in 40 CFR 61.355(h) (Condition 7.13.12(e)); and

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- B. Each opening shall be maintained in a closed, sealed position (e.g., covered by a lid that is gasketed and latched) at all times that waste is in the drain system except when it is necessary to use the opening for waste sampling or removal, or for equipment inspection, maintenance, or repair;
- b. i. Pursuant to 40 CFR 61.348(a)(1), the owner or operator shall treat the waste stream in accordance with the following requirements:
 - A. Design, install, operate, and maintain an affected BRU that removes benzene from the waste stream to a level less than 10 parts per million by weight (ppmw) on a flow-weighted annual average basis;
 - B. Each affected BRU shall be designed and operated in accordance with the appropriate waste management unit standards specified in 40 CFR 61.343 through 61.347.
 - C. For the purposes of complying with the requirements of (A) above, the intentional or unintentional reduction in the benzene concentration of a waste stream by dilution of the waste stream with other wastes or materials is not allowed.
 - D. An owner or operator may aggregate or mix together individual waste streams to create a combined waste stream for the purpose of facilitating treatment of waste to comply with the requirements of (A) above.
 - ii. The owner or operator shall demonstrate that each affected BRU achieves the appropriate conditions specified in (i) above in accordance with the following requirements:
 - A. Engineering calculations in accordance with requirements specified in 40 CFR

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61.356(e) (Condition 7.13.9(c)(ii)); or
[40 CFR 61.348(c)(1)]

- B. Performance tests conducted using the test methods and procedures that meet the requirements specified in 40 CFR 61.355 (Condition 7.13.12(d)). [40 CFR 61.348(c)(2)]

- iii. Except as specified below and during inspection and maintenance, as addressed by Condition 7.13.6(f), if the affected BRU has any opening (e.g., access doors, hatches, etc.), all such opening shall be sealed (e.g., gasketed, latched, etc.) and kept closed at all times when waste is being treated; [40 CFR 61.348(e)]

If the cover and closed-vent system operate such that the affected BRU is maintained at a pressure less than atmospheric pressure, the owner or operator may operate the system with an opening that is not sealed and kept closed at all times if the following conditions are met:

- A. The purpose of the opening is to provide dilution air to reduce the explosion hazard;
- B. The opening is designed to operate with no detectable emissions as indicated by an instrument reading of less than 500 ppmv above background, as determined initially and thereafter at least once per year by the methods specified in 40 CFR 61.355(h) (Condition 7.13.12(e)); and
- C. The pressure is monitored continuously to ensure that the pressure in the affected BRU remain below atmospheric pressure.

- c. Pursuant to 40 CFR 61.350, delay of repair of facilities or units that are subject to the requirements of 40 CFR Subpart FF will be allowed if the repair is technically impossible without a

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complete or partial facility or unit shutdown, and then such repairs shall occur before the end of the next facility or unit shutdown.

- d. Each affected tank shall be operated in compliance with the operating requirements of 40 CFR 60.112b(a)(2) and 60.113b(b), as follows:
- i. The external floating roof shall float 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 60.112b(a)(2)(iii)]
 - ii. Each opening in a non-contact external floating roof except for automatic bleeder vents (vacuum breaker vents) and the rim space vents shall provide a projection below the liquid surface. [40 CFR 60.112b(a)(2)(ii)]
 - iii. Each opening in the external floating roof except for automatic bleeder vents, rim space vents, roof drains, and leg sleeves shall be equipped with a gasketed cover, seal, or lid which is maintained in a closed position at all times (i.e., no visible gaps) except when the device is in actual use. [40 CFR 60.112b(a)(2)(ii)]
 - iv. Automatic bleeder vents shall be equipped with a gasket and be closed at all times when the roof is floating except when the roof is being floated off or is being landed on the roof leg supports. [40 CFR 60.112b(a)(2)(ii)]
 - v. Rim space vents shall be equipped with a gasket and be set to open only when the external floating roof is being floated off the roof leg support or at the manufacturer's recommended setting. [40 CFR 60.112b(a)(2)(ii)]

- vi. Each emergency roof drains is to be provided with a slotted membrane fabric cover that covers at least 90 percent of the area of the opening. [40 CFR 60.112b(a)(2)(ii)]
- vii. 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 exceeds 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 60.113b(b)(4)]
- viii. 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, or the gaskets no longer close off. [40 CFR 60.113b(b)(4)]

7.13.8 Monitoring Requirements

- a. Pursuant to 40 CFR 61.354 the owner or operator of an affected BRU shall monitor each affected BRU to ensure the unit is properly operated and maintained by one of the following monitoring procedures:
 - i. Measure the benzene concentration of the waste stream exiting the affected BRU complying with 40 CFR 61.348(a)(1)(i) (Condition 7.13.7(b)) at least once per month by collecting and analyzing one or more samples using the

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procedures specified in 40 CFR 61.355(c)(3)
(Condition 7.13.12(c));

- ii. Install, calibrate, operate, and maintain according to manufacturer's specifications equipment to continuously monitor and record a process parameter (or parameters) for the affected BRU that indicates proper system operation. The owner or operator shall inspect at least once each operating day the data recorded by the monitoring equipment (e.g., temperature monitor or flow indicator) to ensure that the unit is operating properly.

- b. Pursuant to 40 CFR 61.354(c) an owner or operator using a thermal vapor incinerator to comply, shall install, calibrate, maintain, and operate, according to the manufacturer's specifications, a temperature monitoring device equipped with a continuous recorder. The device shall have an accuracy of ± 1 percent of the temperature being monitored in $^{\circ}\text{C}$ or $\pm 0.5^{\circ}\text{C}$, whichever is greater. The temperature sensor shall be installed at a representative location in the combustion chamber. The owner or operator shall inspect at least once each operating day the data recorded by the temperature monitor to ensure that the control device is operating properly.

- c. Pursuant to 40 CFR 61.354(d), for a carbon adsorption system that does not regenerate the carbon directly on site in the control device (e.g., a carbon canister), either the concentration level of the organic compounds or the concentration level of the benzene in the exhaust vent stream from the carbon adsorption system shall be monitored on a regular schedule, and the existing carbon shall be replaced with fresh carbon immediately when carbon breakthrough is indicated. The device shall be monitored on a daily basis or at intervals no greater than 20 percent of the design carbon replacement interval, whichever is greater. As an alternative to conducting this monitoring, an owner or operator may replace the carbon in the carbon adsorption system with fresh carbon at a regular predetermined interval that is determined by the maximum design flow rate and either the organic concentration or the benzene

concentration in the gas stream vented to the carbon adsorption system.

7.13.9 Recordkeeping Requirements

- a. Pursuant to 40 CFR 61.356(b), each owner or operator shall maintain records that identify each waste stream at the facility subject to 40 CFR 61 Subpart FF, and indicate whether or not the waste stream is controlled for benzene emission in accordance with 40 CFR 61 Subpart FF. In addition the owner or operator shall maintain the following records:
 - i. For each waste stream not controlled for benzene emissions in accordance with Subpart FF, the records shall include all test results, measurements, calculations, and other documentation used to determine the following information for the waste stream:
 - A. Waste stream identification;
 - B. Water content;
 - C. Whether or not the waste stream is a process wastewater stream;
 - D. Annual waste quantity;
 - E. Range of benzene concentrations;
 - F. Annual average flow-weighted benzene concentration; and
 - G. Annual benzene quantity.
 - ii. Where waste streams are controlled for benzene emissions in accordance with 40 CFR 61.342(e) (Condition 7.13.3(e)), the records shall include for each waste stream all measurements, including:
 - A. The locations of the measurements;
 - B. Calculations; and

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- C. Other documentation used to determine that the total benzene quantity does not exceed 6.0 Mg/yr.

- iii. Where the annual waste quantity for process unit turnaround waste is determined in accordance with 40 CFR 61.355(b)(5) (Condition 7.13.12(b)(ii)), the records shall include all test results, measurements, calculations, and other documentation used to determine the following information:
 - A. Identification of each process unit at the facility that undergoes turnarounds;
 - B. The date of the most recent turnaround for each process unit;
 - C. Identification of each process unit turnaround waste;
 - D. The water content of each process unit turnaround waste;
 - E. The water content of each process unit turnaround waste;
 - F. The annual waste quantity determined in accordance with 40 CFR 61.355(b)(5) (Condition 7.13.12(b)(ii));
 - G. The range of benzene concentrations in the waste;
 - H. The annual flow-weighted benzene concentration of the waste; and
 - I. The annual benzene quantity calculated in accordance with 40 CFR 61.355(a)(1)(iii).

- b. Pursuant to 40 CFR 61.356(c), an owner or operator transferring waste off-site to another facility for treatment in accordance with 40 CFR 61.342(f) shall maintain documentation of each off-site waste shipment that includes the following information:

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- i. Date waste is shipped off-site;
 - ii. Quantity of waste shipped off-site;
 - iii. Name and address of facility receiving the waste; and
 - iv. A copy of the notice sent with the waste shipment.
- c. An owner or operator using an affected BRU in accordance with 40 CFR 61.348 (Condition 7.13.7(b)) shall maintain the following records for the life of the unit:
- i. A statement signed and dated by the owner or operator certifying that the unit is designed to operate at the documented performance level when the waste stream entering the unit is at the highest waste stream flow rate and benzene content expected to occur;
 - ii. If engineering calculations are used to determine the affected BRU performance, then the owner or operator shall maintain the complete design analysis for the unit. The design analysis shall include for example the following information:
 - A. Design specifications;
 - B. Drawings;
 - C. Schematics;
 - D. Piping and instrumentation diagrams; and
 - E. Other documentation necessary to demonstrate the unit performance.
 - iii. If performance tests are used to determine the affected BRU performance, then the owner or operator shall maintain all test information necessary to demonstrate the unit performance, including:

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- A. A description of the unit including the following information: type of treatment process; manufacturer's name and model number; and for each waste stream entering and existing the unit, the waste stream type (e.g., process wastewater, sludge, slurry, etc.), and the design flow rate and benzene content;
 - B. Documentation describing the test protocol and the means by which sampling variability and analytical variability were accounted for in the determination of the unit performance. The description of the test protocol shall include the following information: sampling locations, sampling method, sampling frequency; and analytical procedures used for sample analysis;
 - C. Records of unit operating conditions during each test run including all key process parameters; and
 - D. All test results.
- d. Pursuant to 40 CFR 61.356(f), an owner or operator using a closed-vent system and control device in accordance with 40 CFR 61.349 (Condition 7.13.5) shall maintain the following records for the life of the control device:
- i. A statement signed and dated by the owner or operator certifying that the closed-vent system and control device is designed to operate at the documented performance level when the waste management unit vented to the control device is or would be operating at the highest load or capacity expected to occur;
 - ii. If engineering calculations are used to determine control device performance in accordance with 40 CFR 61.349(c) (Condition 7.13.5(a) and (b)) then a design analysis for the control device that includes for example: Specifications, drawings, schematics, and

pipng and instrumentation diagrams prepared by the owner or operator, or the control device manufacturer or vendor that describe the control device design based on acceptable engineering texts.

- A. For a thermal vapor incinerator, the design analysis shall address the vent stream composition, constituent concentrations, and flow rate, as well as, establish the design minimum and average temperature in the combustion zone and the combustion zone residence time;
 - B. For a carbon adsorption system that does not regenerate the carbon be directly on-site in the control device such as a carbon canister, the design analysis shall consider the vent stream composition, constituent concentrations, flow rate, relative humidity, and temperature as well as establish the design exhaust vent stream benzene concentration level, capacity of carbon bed, type and working capacity of activated carbon used for carbon bed, and design carbon replacement interval based on the total carbon working capacity of the control device and source operating schedule.
- e. Pursuant to 40 CFR 61.356(g), the owner or operator shall maintain a record for each visual inspection required by Condition 7.13.6 that identifies a problem which could result in benzene emissions. The record shall include:
- i. The date of the inspection;
 - ii. Waste management unit and control equipment location where the problem is identified;
 - iii. A description of the problem;
 - iv. A description of the corrective action taken; and

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- v. The date the corrective action was completed.
- f. Pursuant to 40 CFR 61.356(h), the owner or operator shall maintain a record for each test of no detectable emissions required by Condition 7.13.6, including the following information:
 - i. Date the test is performed;
 - ii. Background level measured during test; and
 - iii. Maximum concentration indicated by the instrument reading measured for each potential leak interface.

If detectable emissions are measured at a leak interface, then the record shall also include:

- iv. The waste management unit;
- v. Control equipment;
- vi. Leak interface location where detectable emissions were measured;
- vii. A description of the problem;
- viii. A description of corrective actions taken; and
- ix. The date the corrective action was completed.
- g. Pursuant to 40 CFR 61.356(i), for each affected BRU operated to comply with 40 CFR 61.348, the owner or operator shall maintain documentation that includes the following information regarding the unit operation:
 - i. Dates of startup and shutdown of the unit;
 - ii. If measurements of waste steam benzene concentrations are performed in accordance with 40 CFR 61.354(a)(1) (Condition 7.13.8(a)(i)), the owner or operator shall maintain records that include date each test is performed and all test results.

- iii. If a process parameter is continuously monitored in accordance with 40 CFR 61.354(a)(2) (Condition 7.13.8(a)(ii)), the owner or operator shall maintain records for the life of the unit, that include a description of the operating parameter (or parameters) to be monitored to ensure that the unit will be operated in conformance with these standards and the unit's design specifications, and an explanation of the criteria used for selection of that parameter (or parameters);
 - iv. Periods when the unit is not operated as designed.
- h. Pursuant to 40 CFR 61.356(j), for each control device, the owner or operator shall maintain documentation that includes the following information regarding the control device operation:
- i. Dates of startup and shutdown of the closed-vent system and control device;
 - ii. A description of the operating parameter (or parameters) to be monitored to ensure that the control device will be operated in conformance with these standards and the control device's design specifications and an explanation of the criteria used for selection of that parameter (or parameters) for the life of the control device;
 - iii. Periods when the closed-vent system and control device are not operated as designed including all periods and the duration when:
 - A. Any valve car-seal or closure mechanism required under 40 CFR 61.349(a)(1)(ii) (Condition 7.13.5(a)(ii)) is broken or the by-pass line valve position has changed;
 - B. The flow monitoring devices required under 40 CFR 61.349(a)(1)(ii) (Condition 7.13.5(a)(ii)) indicate that vapors are

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not routed to the control device as required.

- iv. If a thermal vapor incinerator is used, then the owner or operator shall maintain continuous records of the temperature of the gas stream in the combustion zone of the incinerator and records of all 3-hour periods of operation during which the average temperature of the gas stream in the combustion zone is more than 28°C below the design combustion zone temperature;
- v. If a carbon adsorber that is not regenerated directly on site in the control device is used, then the owner or operator shall maintain records of dates and times when the control device is monitored, when breakthrough is measured, and shall record the date and time when the existing carbon in the control device is replaced with fresh carbon.
- i. Pursuant to 40 CFR 61.356(k) the owner or operator shall fulfill the applicable recordkeeping requirements of 40 CFR 60.115b for each affected tank, as follows:
 - i. Keep a record of each Annual, Five-Year, and Out-of-Service Measurement performed as required by Condition 7.13.6(c) and (d). [40 CFR 60.115b(b)(3)]
 - 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 7.13.6(c); and
 - E. Summary of compliance.
 - ii. The Permittee shall maintain records of the following for each affected tank to demonstrate compliance with the Out-of-Service

Measurement requirements of Condition
7.13.6(d)(i):

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.

- iii. The Permittee shall keep the operating records required by 40 CFR 60.116b for each affected tank, as follows:

Records of the VOL stored, the period of storage, and the maximum true vapor pressure of that VOL during the respective storage period. [40 CFR 60.116b(c)]

- j. Records for Continued Operation During Malfunctions and Breakdowns

The Permittee shall maintain records pursuant to 35 IAC 201.263, related to malfunction and breakdown for the thermal vapor incinerator that as a minimum, shall include:

- i. A maintenance and repair log for the thermal vapor incinerator and associated equipment, listing each activity performed with date; and
- ii. Records for each incident when operation of the affected BRU continued during malfunction or breakdown of the thermal vapor incinerator with excess emissions, as provided by Condition 7.13.3(f), including the following information:
 - A. Date and duration of malfunction or breakdown;
 - B. A detailed explanation of the malfunction or breakdown;
 - C. An explanation why continued operation of the affected BRU was necessary;

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- D. The measures used to reduce the quantity of emissions and duration of event;
 - E. The steps taken to prevent future occurrences and their frequency; and
 - F. An estimate of the amount of excess emissions released during malfunction/breakdown.
- k. The Permittee shall maintain records of the following items to demonstrate compliance with Condition 7.13.6(h) and (i):
- i. Benzene emissions from the affected BRU, lbs/yr, with supporting information;
 - ii. VOM emissions from the affected BRU, tons/yr, with supporting information;
 - iii. Sulfide concentration, on at least a monthly basis, of the water going to the affected BRU, mg/l;
 - iv. Sulfide concentration, on at least a monthly basis, of the water leaving the affected BRU, mg/l;
 - v. SO₂ emissions from the affected BRU, tons/yr, with supporting information.

7.13.10 Reporting Requirements

- a. Pursuant to 40 CFR 61.357(d)(2), the owner or operator shall submit to the Illinois EPA an annual report that updates the information initially submitted in accordance with 40 CFR 61.357(a)(1) through (3). If the information in the annual report has not changed in the following year, the owner or operator may submit a statement to that effect;
- b. Pursuant to 40 CFR 61.357(d)(5) the report required by Condition 7.13.10(a) shall include a table presenting the following information for each waste stream:

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- i. For each waste stream identified as not being controlled for benzene emissions in accordance with the requirements of this subpart, the following information for the waste stream as determined at the point of waste generation:
 - A. Annual waste quantity;
 - B. Range of benzene concentrations; and
 - C. Annual benzene quantity.
- ii. For each waste stream identified as being controlled for benzene emissions in accordance with the requirements of 40 CFR 61 Subpart FF, the following information for the waste stream as determined at the applicable location described in 40 CFR 61.355(k)(2) (Condition 7.13.12(a)(ii)):
 - A. Annual waste quantity;
 - B. Range of benzene concentrations;
 - C. Annual average flow-weighted benzene concentrations; and
 - D. Annual benzene quantity.
- c. Reporting of Continued Operation During Malfunctions and Breakdowns

The Permittee shall provide the following notifications and reports to the Illinois EPA, Compliance Section and Regional Field Office, pursuant to 35 IAC 201.263, concerning each incident when operation of an affected BRU continued during malfunction or breakdown of the associated thermal vapor incinerator as allowed by Condition 7.13.3(f);

- 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 days, for each incident; and

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- ii. Upon completion of the incident, the Permittee shall give a written follow-up notice to the Illinois EPA, Compliance Section and Regional Field Office, within 15 days providing a detailed explanation of the event, an explanation why continued operation of the affected BRU 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 repairs were completed, or when the affected BRU was taken out of service.

- d. Pursuant to 40 CFR 61.357(d)(6), the owner or operator shall submit quarterly reports to the Illinois EPA certifying that all of the required inspections have been carried out in accordance with the requirements of Conditions 7.13.6.

- e. Pursuant to 40 CFR 61.357(d)(7), the owner or operator shall submit a quarterly report to the Illinois EPA that includes:
 - i. For an affected BRU monitored in accordance with 40 CFR 61.354(a)(1) (Condition 7.13.8(a)(i)), each period of operation during which the concentration of benzene in the monitored waste stream exiting the unit is equal to or greater than 10 ppmw;

 - ii. For a control device monitored in accordance with 40 CFR 61.354(c) (Condition 7.13.8(b)), each period of operation monitored during which any of the following conditions occur, as applicable to the control device:

Each 3-hour period of operation during which the average temperature of the gas stream in the combustion zone of the thermal vapor incinerator, as measured by the temperature monitoring device, is more than 28°C below the design combustion zone temperature;

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- f. Pursuant to 40 CFR 61.357(d)(8), the owner or operator shall submit an annual report to the Illinois EPA that summarizes all inspections required by 40 CFR 61.342 through 61.354 (Condition 7.13.6) during which detectable emissions are measured or a problem that could result in benzene emissions is identified, including information about the repairs or corrective action taken.
- g. Pursuant to 40 CFR 61.357(f) an owner or operator who elects to install an operate the control equipment in 40 CFR 61.351 (Condition 7.13.5(c)) shall comply with the reporting requirements of 40 CFR 60.115b as follows:
- h. The Permittee shall submit written notifications and reports to the Illinois EPA, Compliance Section as required by the NSPS, for each affected tank, as follows:
 - i. A report identifying any deficiencies or shortcomings identified in the Annual or Five Year Measurement required by Condition 7.13.6(c) within 60 days of performing the seal gap measurements. This report shall include the information specified in 40 CFR 60.115b(b)(2).
 - ii. Notification at least 30 days prior any gap measurements required by Condition 7.13.6(d)(i) to afford the Illinois EPA with the opportunity to have an observer present. [40 CFR 60.113b(b)(5)]
- i. The Permittee shall submit written notifications and reports to the Illinois EPA, Compliance Section for each affected tank, as follows:
 - i. A report identifying any deficiencies or shortcomings identified in the Annual or Five-Year Measurement required by Condition 7.13.6(c) within 30 days of Measurement. This report shall include the information specified in 40 CFR 60.115b(b)(2).

- ii. A. Notification at least 30 days prior to refilling an affected tank for which an Out-of-Service Measurement is required by Condition 7.13.6(d)(i) to afford the Illinois EPA with the opportunity to have an observer present. [40 CFR 60.113b(b)(6)(ii)]
- B. If the inspection is not planned and the owner or operator of the tank could not have known about refilling the tank 30 days in advance, a shorter notification may be accepted as provided for in 40 CFR 60.113b(b)(6)(ii).
- iii. A report identifying any deficiencies or shortcomings identified in the Out-of-Service Measurement within 30 days of the measurement required by Condition 7.13.6(d)(i). This report shall include the following information:
 - A. The date the inspection was performed;
 - B. Who performed the measurement;
 - C. The method of inspection;
 - D. The observed condition of each feature of the external floating roof (seals, roof decks, and fittings), with raw data recorded during the inspection; and
 - E. Summary of compliance.

7.13.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to an affected tank without prior notification to the IEPA 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:

- a. Operation of tank 101, tank 204 or tank 205 as part of the benzene waste operation (Section 7.13) or as a storage tank for various petroleum products (Section 7.17).

7.13.12 Test Methods, Compliance Provisions and Procedures

- a. Pursuant to 40 CFR 61.355(k), the owner or operator shall determine the benzene quantity for the purposes of the calculation required by 40 CFR 61.342(e)(2) by the following procedures:
 - i. For each waste stream having a flow-weighted annual average water content greater than 10 percent water, on a volume basis as total water, or is mixed with water or other wastes at any time and the resulting mixture has an annual average water content greater than 10 percent as specified in 40 CFR 61.342(a), that is not controlled for air emissions in accordance with 40 CFR 61.343 through 348(a), as applicable to the waste management unit that manages the waste, the benzene quantity shall be determined as specified below:
 - A. Determine the annual waste quantity for each waste stream using the procedures specified in Condition 7.13.12(b).
 - B. Determine the flow-weighted annual average benzene concentration for each waste stream using the procedures specified in Condition 7.13.12(c).
 - C. Calculate the annual benzene quantity for each waste stream by multiplying the annual waste quantity of the waste stream times the flow-weighted annual average benzene concentration.
 - ii. For each waste stream that is controlled for air emissions in accordance with 40 CFR 61.343 through 348(a), as applicable to the waste management unit that manages the waste, the determination of annual waste quantity and flow-weighted annual average benzene

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concentration shall be made at the first applicable location as described in (A) through (C) below, and prior to any reduction of benzene concentration through volatilization of the benzene using the methods given in (D) and (E):

- A. Where the waste stream enters the first waste management unit not complying with 40 CFR 61.343 through 61.348(a) that are applicable to the waste management unit;
 - B. For each waste stream that is managed or treated only in compliance with 40 CFR 61.343 through 348(a) up to the point of final direct discharge from the facility, the determination of benzene quantity shall be prior to any reduction of benzene concentration through volatilization of the benzene; or
 - C. For wastes managed in units controlled for air emissions in accordance with 40 CFR 61.343 through 348(a), and then transferred offsite, facilities shall use the first applicable offsite location as described in (A) and (B) if they have documentation from the offsite facility of the benzene quantity at this location. Facilities without this documentation for offsite wastes shall use the benzene quantity determined at the point where the transferred waste leaves the facility.
 - D. Annual waste quantity shall be determined using the procedures in Conditions 7.13.12(b)(iii),(iv), or (v).
 - E. The flow-weighted annual average benzene concentration shall be determined using the procedures identified in Condition 7.13.12(c)(ii). [40 CFR 61.355(c)(2) or (3)]
- iii. The benzene quantity in a waste steam that is generated less than one time per year,

including process unit turnaround waste, shall be included in the determination of benzene quantity as determined in Condition 7.13.12(a)(vi) for the year in which the waste is generated. The benzene quantity in this waste stream shall not be annualized or averaged over the time interval between the activities that resulted in generation of the waste for purposes of determining benzene quantity as determined in Condition 7.13.12(a)(vi).

- iv. The benzene quantity for each waste stream in Condition 7.13.12(a)(ii) shall be determined by multiplying the annual waste quantity of each waste stream times its flow-weighted annual average benzene concentration.
- v. The total benzene quantity for the purpose of the calculation required by 40 CFR 61.342(e)(2) shall be determined by adding together the benzene quantities determined in accordance with Conditions 7.13.12(a)(i) and (v) for each applicable waste stream.
- vi. If the benzene quantity determined in accordance with Condition 7.13.12(a)(vi) exceeds 6.0 Mg/yr only because of multiple counting of the benzene quantity for a waste stream, the owner or operator may use the following procedures for the purpose of the calculation required by 40 CFR 61.342(e)(2):
 - A. Determine which waste management units are involved in the multiple counting of benzene;
 - B. Determine the quantity of benzene that is emitted, recovered, or removed from the affected units identified in (A), or destroyed in the units if applicable, using either direct measurements or the best available estimation techniques approved by the Illinois EPA.

- C. Adjust the benzene quantity to eliminate the multiple counting of benzene based on the results from (B) and determine the total benzene quantity for the purposes of the calculation required by 40 CFR 61.342(e)(2).
 - D. Submit in the annual report required by Condition 7.13.10(a) (40 CFR 61.357(d)) a description of the methods used and the resulting calculations for the alternative procedure of Condition 7.13.12(a)(vii), the benzene quantity determination from Condition 7.13.12(a)(vi), and the adjusted benzene quantity determination from Condition 7.13.12(a)(vii)(C).
- b. Pursuant to 40 CFR 61.355(b), for purposes of the calculation required by Condition 7.13.12(a), the owner or operator shall determine the annual waste quantity at the point of waste generation, unless otherwise specified in (i) below, by one of the methods given (ii) through (v).
- i. Select the highest annual quantity of waste managed from historical records representing the most recent 5 years of operation;
 - ii. Use the maximum design capacity of the waste management unit; or
 - iii. Use measurements that are representative of maximum waste generation rates.
- c. Pursuant to 40 CFR 61.355(c), for the purposes of the calculation required by Condition 7.13.12(a), an owner or operator shall determine the flow-weighted annual average benzene concentration in a manner that meets the requirements in (i) below, using either of the methods identified in (ii).
- i. The determination of flow-weighted annual average benzene concentration shall meet all of the following criteria:

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- A. Volatilization of the benzene by exposure to air shall not be used in the determination to reduce the benzene concentration.
 - B. Mixing or diluting the waste stream with other wastes or other materials shall not be used in the determination to reduce the benzene concentration.
 - C. The determination shall be made prior to any treatment of the waste that removes benzene, except as specified in (A).
 - D. For wastes with multiple phases, the determination shall provide the weighted-average benzene concentration based on the benzene concentration in each phase of the waste and the relative proportion of the phases.
- ii. The owner or operator shall provide sufficient information to document the flow-weighted annual average benzene concentration of each waste stream (e.g., material balances, records of chemicals purchased, previous test results that are still relevant to the current waste stream conditions, etc.) If test data are used, then the owner or operator shall provide documentation describing the testing protocol and the means by which sampling variability and analytical variability were accounted for in the determination of the flow-weighted annual average benzene concentration for the waste stream. When an owner or operator and the Illinois EPA or USEPA do not agree on determinations of the flow-weighted annual average benzene concentration based on knowledge of the waste, the procedures found in 40 CFR 61.355(c)(3) shall be used to resolve the disagreement.
- d. Pursuant to 40 CFR 61.355(d), the owner or operator using performance tests to demonstrate compliance of an affected BRU with Condition 7.13.7(b) shall measure the flow-weighted annual average benzene

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concentration of the waste stream exiting the treatment process by collecting and analyzing a minimum of three representative samples of the waste stream using the procedures identified in 40 CFR 61.355(c)(3). The test shall be conducted under conditions that exist when the treatment process is operating at the highest inlet waste stream flow rate and benzene content expected to occur. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a test. The owner or operator shall record process information as is necessary to document the operating conditions during the test.

- e. Pursuant to 40 CFR 61.355(h), the owner or operator shall test equipment for compliance with not detectable emissions as required in Condition 7.13.6 in accordance with the following requirements:
 - i. Monitoring shall comply with Method 21 from Appendix A of 40 CFR Part 60.
 - ii. The detection instrument shall meet the performance criteria of Method 21.
 - iii. The instrument shall be calibrated before use on each day of its use by the procedures specified in Method 21.
 - iv. Calibration gases shall be:
 - A. Zero air (less than 10 ppm of hydrocarbon in air); and
 - 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.
 - v. The background level shall be determined as set forth in Method 21.
 - vi. The instrument probe shall be traversed around all potential leak interfaces as close as possible to the interface as described in Method 21.

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- vii. The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared to 500 ppm for determining compliance.
- f. Pursuant to 40 CFR 61.355(i), the owner or operator using a performance test to demonstrate compliance of a control device with either the organic reduction efficiency requirement or the benzene reduction efficiency requirement specified in 40 CFR 61.349(a)(2) (Condition 7.13.5(b)) shall use the procedures identified in 40 CFR 61.355(i)(1) through (4).
- g. Compliance with Condition 7.13.6(h) and (i) shall be demonstrated by the recordkeeping requirements of Condition 7.13.9(k)

For purposes of reporting emissions, including for the Annual Emission Report, emissions of benzene shall be calculated based on the benzene monitoring requirements of Condition 7.13.8(a).

For purposes of reporting emissions from the affected BRU, including for the Annual Emission Report, emissions of VOM shall be calculated using unit specific emission factor 0.024 lb VOM/hr.

For purposes of reporting emissions, including for the Annual Emission Report, emissions of SO₂ shall be calculated based on the difference between the concentration of the sulfides in the water to the affected BRU and the water leaving the affected BRU and the assumption that 100% of the difference in sulfide concentration is converted to SO₂.

7.14 Wastewater Treatment Plant

7.14.1 Description

The wastewater treatment plant is a continuous process that utilizes a combination of chemical, gravitational, and biological mechanisms to remove contaminants from the refinery wastewater prior to its discharge into the river.

7.14.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Diversion Basin	Surge Flow Containment	N/A
API Separators and Pre-Flumes	Floating Oil and Solids Gravity Separation Process	N/A
Dissolved Air Flotation Units	Oil/Solids Separation by Way of Chemical Coagulation and Air Flootation	N/A
Upper and Lower Neutralization Tanks	Fluoride Removal Process	N/A

7.14.3 Applicability Provisions and Applicable Regulations

- a. An "affected wastewater treatment plant" for the purposes of these unit specific conditions, is a wastewater treatment system at a petroleum refinery with an initial total benzene quantity equal to or greater than 10 Mg/yr as determined in accordance with the Test Methods, Procedures, and Compliance Provisions of 40 CFR 61.355.
- b. Pursuant to 40 CFR 61.342(e), the owner or operator of an affected wastewater treatment plant shall:
 - i. Manage and treat facility waste (including remediation and process unit turnaround 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, in accordance with the following:

- A. The benzene quantity for the wastes described in Condition 7.14.3(b)(i) must be equal to or less than 6.0 Mg/yr, as determined in accordance with 40 CFR 61.355(k) (Condition 7.14.12(a)). Wastes described in Condition 7.14.3(b)(i) that are transferred off-site shall be included in the determination of benzene quantity as required by 40 CFR 61.355(k); and
- B. The determination of benzene quantity for each waste stream defined in Condition 7.14.3(b)(i) shall be made in accordance with 40 CFR 61.355(k) (Condition 7.14.12(a)).

7.14.4 Non-Applicability of Regulations of Concern

- a. This permit is being issued based on the affected wastewater treatment plant not being subject to 35 IAC 218.986 because it qualifies for the exemption of 35 IAC 218.980(f) This is based on the Illinois EPA's May 20, 1992 determination that since the oil and grease concentrations of the influent to the system are lower than the influent to many publicly owned treatment works, the affected wastewater treatment plant qualifies, for the purposes of this regulation, as a sewage treatment plant.

7.14.5 Control Requirements

None

7.14.6 Emission Limitations

There are no specific emission limitations for this unit.

7.14.7 Operating Requirements

None

7.14.8 Inspection Requirements

N/A

7.14.9 Recordkeeping Requirements

- a. Pursuant to 40 CFR 61.356(b), each owner or operator shall maintain records that identify each waste stream at the facility subject to 40 CFR 61 Subpart FF, and indicate whether or not the waste stream is controlled for benzene emission in accordance with 40 CFR 61 Subpart FF. In addition the owner or operator shall maintain the following records:
 - i. For each waste stream not controlled for benzene emissions in accordance with Subpart FF, the records shall include all test results, measurements, calculations, and other documentation used to determine the following information for the waste stream:
 - A. Waste stream identification;
 - B. Water content;
 - C. Whether or not the waste stream is a process wastewater stream;
 - D. Annual waste quantity;
 - E. Range of benzene concentrations;
 - F. Annual average flow-weighted benzene concentration; and
 - G. Annual benzene quantity.
 - ii. Where waste streams are controlled for benzene emissions in accordance with 40 CFR 61.342(e) (Condition 7.14.3(b)), the records shall include for each waste stream all measurements, including:
 - A. The locations of the measurements;
 - B. Calculations; and
 - C. Other documentation used to determine that the total benzene quantity does not exceed 6.0 Mg/yr.

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- iii. Where the annual waste quantity for process unit turnaround waste is determined in accordance with 40 CFR 61.355(b)(5) (Condition 7.14.12(b)(ii)), the records shall include all test results, measurements, calculations, and other documentation used to determine the following information:
 - A. Identification of each process unit at the facility that undergoes turnarounds;
 - B. The date of the most recent turnaround for each process unit;
 - C. Identification of each process unit turnaround waste;
 - D. The water content of each process unit turnaround waste;
 - E. The water content of each process unit turnaround waste;
 - F. The annual waste quantity determined in accordance with 40 CFR 61.355(b)(5) (Condition 7.14.12(b)(ii));
 - G. The range of benzene concentrations in the waste;
 - H. The annual flow-weighted benzene concentration of the waste; and
 - I. The annual benzene quantity calculated in accordance with 40 CFR 61.355(a)(1)(iii).
- b. Pursuant to 40 CFR 61.356(c), an owner or operator transferring waste off-site to another facility for treatment in accordance with 40 CFR 61.342(f) shall maintain documentation of each off-site waste shipment that includes the following information:
 - i. Date waste is shipped off-site;
 - ii. Quantity of waste shipped off-site;

- iii. Name and address of facility receiving the waste; and
- iv. A copy of the notice sent with the waste shipment.

7.14.10 Reporting Requirements

- a. Pursuant to 40 CFR 61.357(d)(2), the owner or operator shall submit to the Illinois EPA an annual report that updates the information initially submitted in accordance with 40 CFR 61.357(a)(1) through (3). If the information in the annual report has not changed in the following year, the owner or operator may submit a statement to that effect;
- b. Pursuant to 40 CFR 61.357(d)(5) the report required by Condition 7.14.10(a) shall include a table presenting the following information for each waste stream:
 - i. For each waste stream identified as not being controlled for benzene emissions in accordance with the requirements of this subpart, the following information for the waste stream as determined at the point of waste generation:
 - A. Annual waste quantity;
 - B. Range of benzene concentrations; and
 - C. Annual benzene quantity.
 - ii. For each waste stream identified as being controlled for benzene emissions in accordance with the requirements of 40 CFR 61 Subpart FF, the following information for the waste stream as determined at the applicable location described in 40 CFR 61.355(k)(2) (Condition 7.14.12(a)(ii)):
 - A. Annual waste quantity;
 - B. Range of benzene concentrations;

C. Annual average flow-weighted benzene concentrations; and

D. Annual benzene quantity.

c. For the purposes of demonstrating that this affected wastewater treatment plant qualifies for exclusion from the control requirements of 35 IAC 218 Subpart TT as addressed by Condition 7.14.4, the Permittee shall submit an annual report along with the annual emission report that includes the following information:

- i. Oil and grease concentration levels, weekly test values; and
- ii. Average annual oil and grease concentration levels.

7.14.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to an affected tank without prior notification to the IEPA 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

7.14.12 Compliance Procedures

a. Pursuant to 40 CFR 61.355(k), the owner or operator shall determine the benzene quantity for the purposes of the calculation required by 40 CFR 61.342(e)(2) by the following procedures:

- i. For each waste stream having a flow-weighted annual average water content greater than 10 percent water, on a volume basis as total water, or is mixed with water or other wastes at any time and the resulting mixture has an annual average water content greater than 10 percent as specified in 40 CFR 61.342(a), that

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is not controlled for air emissions in accordance with 40 CFR 61.343 through 348(a), as applicable to the waste management unit that manages the waste, the benzene quantity shall be determined as specified below:

- A. Determine the annual waste quantity for each waste stream using the procedures specified in Condition 7.14.12(b).
 - B. Determine the flow-weighted annual average benzene concentration for each waste stream using the procedures specified in Condition 7.14.12(c).
 - C. Calculate the annual benzene quantity for each waste stream by multiplying the annual waste quantity of the waste stream times the flow-weighted annual average benzene concentration.
- ii. For each waste stream that is controlled for air emissions in accordance with 40 CFR 61.343 through 348(a), as applicable to the waste management unit that manages the waste, the determination of annual waste quantity and flow-weighted annual average benzene concentration shall be made at the first applicable location as described in (A) through (C) below, and prior to any reduction of benzene concentration through volatilization of the benzene using the methods given in (D) and (E):
- A. Where the waste stream enters the first waste management unit not complying with 40 CFR 61.343 through 61.348(a) that are applicable to the waste management unit;
 - B. For each waste stream that is managed or treated only in compliance with 40 CFR 61.343 through 348(a) up to the point of final direct discharge from the facility, the determination of benzene quantity shall be prior to any reduction of benzene

concentration through volatilization of
the benzene; or

- C. For wastes managed in units controlled for air emissions in accordance with 40 CFR 61.343 through 348(a), and then transferred offsite, facilities shall use the first applicable offsite location as described in (A) and (B) if they have documentation from the offsite facility of the benzene quantity at this location. Facilities without this documentation for offsite wastes shall use the benzene quantity determined at the point where the transferred waste leaves the facility.
 - D. Annual waste quantity shall be determined using the procedures in Conditions 7.14.12(b)(iii),(iv), or (v).
 - E. The flow-weighted annual average benzene concentration shall be determined using the procedures identified in Condition 7.14.12(c)(ii). [40 CFR 61.355(c)(2) or (3)]
- iii. The benzene quantity in a waste stream that is generated less than one time per year, including process unit turnaround waste, shall be included in the determination of benzene quantity as determined in Condition 7.14.12(a)(vi) for the year in which the waste is generated. The benzene quantity in this waste stream shall not be annualized or averaged over the time interval between the activities that resulted in generation of the waste for purposes of determining benzene quantity as determined in Condition 7.14.12(a)(vi).
 - iv. The benzene quantity for each waste stream in Condition 7.14.12(a)(ii) shall be determined by multiplying the annual waste quantity of each waste stream times its flow-weighted annual average benzene concentration.

- v. The total benzene quantity for the purpose of the calculation required by 40 CFR 61.342(e)(2) shall be determined by adding together the benzene quantities determined in accordance with Conditions 7.14.12(a)(i) and (iv) for each applicable waste stream.

- vi. If the benzene quantity determined in accordance with Condition 7.14.12(a)(v) exceeds 6.0 Mg/yr only because of multiple counting of the benzene quantity for a waste stream, the owner or operator may use the following procedures for the purpose of the calculation required by 40 CFR 61.342(e)(2):
 - A. Determine which waste management units are involved in the multiple counting of benzene;

 - B. Determine the quantity of benzene that is emitted, recovered, or removed from the affected units identified in (A), or destroyed in the units if applicable, using either direct measurements or the best available estimation techniques approved by the Illinois EPA.

 - C. Adjust the benzene quantity to eliminate the multiple counting of benzene based on the results from (B) and determine the total benzene quantity for the purposes of the calculation required by 40 CFR 61.342(e)(2).

 - D. Submit in the annual report required by Condition 7.14.10(a) (40 CFR 61.357(d)) a description of the methods used and the resulting calculations for the alternative procedure of Condition 7.14.12(a)(vi), the benzene quantity determination from Condition 7.14.12(a)(v), and the adjusted benzene quantity determination from Condition 7.14.12(a)(vi)(C).

- b. Pursuant to 40 CFR 61.355(b), for purposes of the calculation required by Condition 7.14.12(a), the

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owner or operator shall determine the annual waste quantity at the point of waste generation, by one of the methods given (i) through (iii).

- i. Select the highest annual quantity of waste managed from historical records representing the most recent 5 years of operation;
 - ii. Use the maximum design capacity of the waste management unit; or
 - iii. Use measurements that are representative of maximum waste generation rates.
- c. Pursuant to 40 CFR 61.355(c), for the purposes of the calculation required by Condition 7.14.12(a), an owner or operator shall determine the flow-weighted annual average benzene concentration in a manner that meets the requirements in (i) below, using either of the methods identified in (ii).
- i. The determination of flow-weighted annual average benzene concentration shall meet all of the following criteria:
 - A. Volatilization of the benzene by exposure to air shall not be used in the determination to reduce the benzene concentration.
 - B. Mixing or diluting the waste stream with other wastes or other materials shall not be used in the determination to reduce the benzene concentration.
 - C. The determination shall be made prior to any treatment of the waste that removes benzene.
 - D. For wastes with multiple phases, the determination shall provide the weighted-average benzene concentration based on the benzene concentration in each phase of the waste and the relative proportion of the phases.

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- ii. The owner or operator shall provide sufficient information to document the flow-weighted annual average benzene concentration of each waste stream (e.g., material balances, records of chemicals purchased, previous test results that are still relevant to the current waste stream conditions, etc.) If test data are used, then the owner or operator shall provide documentation describing the testing protocol and the means by which sampling variability and analytical variability were accounted for in the determination of the flow-weighted annual average benzene concentration for the waste stream. When an owner or operator and the Illinois EPA or USEPA do not agree on determinations of the flow-weighted annual average benzene concentration based on knowledge of the waste, the procedures found in 40 CFR 61.355(c)(3) shall be used to resolve the disagreement.

7.15 Flare System (Unit 49)

7.15.1 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.

7.15.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Flare System Piping, Knock-Out Drums and Seal Drums	Gas Collection System with High and Low Pressure Header	East and West Flares
East Flare (49-B-305a)	Steam Assisted Smokeless Flare	N/A
South Flare (49-B-305b)	Steam Assisted Smokeless Flare	N/A

7.15.3 Applicability Provisions and Applicable Regulations

- a. An "affected flare" for the purposes of these unit-specific conditions, is a smokeless flare that is used to safely destruct releases from safety relief valves, vapor blowdown systems, etc.
- b. Pursuant to 35 IAC 218.143, each affected flare operated as a control device for the purposes of controlling emissions from safety relief valves and vapor blowdown system shall be smokeless.
- c.
 - i. Pursuant to 35 IAC 212.123 the emissions of smoke or other particulate matter into the atmosphere from an affected flare shall not be greater than 30 percent except as provided below;
 - ii. The smoke or other particulate matter emissions from an affected flare may have an opacity greater than 30 percent but not

greater than 60 percent ("more opaque emissions") for a period or periods aggregating 8 minutes in any 60 minute period, provided that such periods of more opaque emissions are limited to three (3) times in any 24-hour period, and such periods of more opaque emissions may not simultaneously occur at other such emission units located within a 305 m (1,000 ft) radius of an affected flare when the affected flare is experiencing periods of more opaque emissions.

7.15.4 Non-Applicability of Regulations of Concern

N/A

7.15.5 Control Requirements

None

7.15.6 Emission Limitations

There are no specific emission limitations for this unit.

7.15.7 Operating Requirements

Pursuant to 40 CFR 60.18(c) and (d), each affected flare shall be operated at all times when emissions may be vented to the flare and in such a manner as to meet the following requirements:

- a. There shall be no visible emissions as determined by USEPA Method 22, except for periods not to exceed a total of five minutes during any two consecutive hours;
- b. There shall be a flame present at all times, as determined by the monitoring requirements of Condition 7.15.8(a);
- c. The net heating value of the gas being combusted shall be greater than or equal to 37.3 MJ/scm (1,000 Btu/scf); and
- d. The exit velocity shall be greater than 18.3 m/sec (60 ft/sec) but less than 122 m/sec (400 ft/sec).

7.15.8 Monitoring Requirements

- a. Pursuant to 40 CFR 60.18(f)(2) the presence of each affected flare's pilot flame shall be monitored using a thermocouple or other equivalent device to detect the presence of a flame.

7.15.9 Recordkeeping Requirements

- a. The Permittee shall maintain appropriate records for each affected flare so as to allow the Illinois EPA to verify compliance with the 35 IAC 212.123 (Condition 7.15.3(c)).
- b. The Permittee shall maintain the following records so as to allow the Illinois EPA to verify compliance with the requirements of Condition 7.15.7 and 7.15.8.
 - i. Date and duration of any time when the pilot flame monitoring equipment of an affected flare was not in operation, with explanation;
 - ii. Date and duration of any time when there was no pilot flame present at an affected flare, with explanation.

7.15.10 Reporting Requirements

- a. Reporting of Non-Compliance

The Permittee shall promptly notify the Illinois EPA, Compliance Section of noncompliance of an affected flare 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:

Within 30 days of exceedance of the limits in Conditions 7.15.7, 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; and
- v. When compliance was reestablished.

7.15.11 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 IEPA 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

7.15.12 Compliance Procedures

- a. Compliance with the operating requirements of Condition 7.15.7 is assured through proper operation of each affected flare, i.e., the presence of a flame, as demonstrated by the monitoring, recordkeeping and reporting requirements of Conditions 7.15.8, 7.15.9, and 7.15.10.

7.16 Wharf Loading Facility

7.16.1 Description

The Wharf Loading Facility is comprised of five loading arms used to transfer Crude Oil, additives, various intermediate petroleum products, finished distillates, finished gasoline, and aqueous salt & caustic solutions to and from marine vessels.

7.16.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Wharf Loading Facility	Five Arm Wharf Loading Operation Used to Transfer Various Petroleum Products and Associated Products to and From Marine Vessels	None

7.16.3 Applicability Provisions and Applicable Regulations

Components associated with this unit are subject to the fugitive emission regulations as addressed by Section 7.28, including the inspection, recordkeeping, reporting requirements and compliance procedures.

- a. An "affected wharf loading facility" for the purposes of these unit specific conditions is a marine vessel loading operation that was constructed on or before May 13, 1994, is collocated at a petroleum facility, has annual HAP emissions of less than 10/25 tons/year, and has a throughput of less than 10 M barrels of gasoline or 200 M barrels of crude oil annually.
- b. Pursuant to 35 IAC 218.762(c)(3), as an alternative to the control and operating requirements of 35 IAC 218.762(a) and (b), the owner or operator has elected to not load gasoline or crude oil into marine vessels at the affected wharf loading facility during the regulatory control period of May 1 to September 15 of each year.

7.16.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on the affected wharf loading facility not being subject to the control requirements of the National Emission Standards for Marine Tank Vessel Tank Loading Operations, 40 CFR 63, Subpart Y, and the National Emission Standards for Hazardous Air Pollutants from Petroleum Refineries because it is an existing source with HAP emissions of less than 10/25 tons/year.

7.16.5 Control Requirements

None

7.16.6 Emission Limitations

- a.
 - i. VOM emissions attributable to working losses from tanks 403, 404, 405, 421, 422, 431, 432, 441-444, 233, and loading of asphalt at the wharf loading facility shall not exceed 31.93 tons/year. This limitation was established based on the fact that emissions attributable to breathing losses should not increase as a result of the changes in throughput attributable to the Crude Upgrade Project.
[T1]
 - ii. Only VOM emissions attributable to working losses at storage tanks 233, 403, 404, 405, 421, 422, 431, 432, 441-444 have been accounted for in the Crude Upgrade Project since breathing losses will not change as a result of this project. To ensure that the breathing losses do not change, the Permittee shall only operate these tanks with material that was used to estimate the future potential emissions from these tanks as a result of this project. Specifically, tank 233 shall be used to store asphalt or a less volatile material, tanks 403-405 shall be used to store gasoline or a less volatile material, and tanks 421*, 422*, 431, 432, and 441-444 shall be used to store distillates or a less volatile material.
[T1]

- * Exceptions: Tanks 421 and 422 may be used to store other material provided breathing losses attributable to the storage of such other material is accounted for when quantifying annual emissions from working losses as required in Condition 7.19.9(c).

The above limitations were established in Permit 97030078 pursuant to 35 IAC Part 203. These limits ensure that the construction/modification addressed in the aforementioned Permit does not constitute a new major source or major modification pursuant to 35 IAC Part 203.

7.16.7 Operating Requirements

- a. The Permittee shall not load gasoline or crude oil into a marine vessel from an affected wharf loading facility during the regulatory control period of May 1 to September 15 of each year.

7.16.8 Inspection Requirements

N/A

7.16.9 Recordkeeping Requirements

- a. The Permittee shall maintain the following records, pursuant to Section 39.5(7)(b) of the Act, for each affected wharf loading facility so as to allow the Illinois EPA to verify compliance with Condition 7.16.7.
 - i. Date of each loading event;
 - ii. Identification of the type of material loaded; and
 - iii. Quantity of material loaded.
- b. Pursuant to 40 CFR 63.567(j)(4) the owner or operator shall maintain a record of the annual estimate of HAP emissions from each affected wharf loading facility, excluding emissions from commodities with a vapor press of less than 10.3 kilopascals (kPa)(1.5 pounds

per square inch, absolute)(psia) at standard conditions, 20°C and 760 millimeters Hg (mm Hg), with supporting information.

- c. The Permittee shall maintain records of the following items to demonstrate compliance with the limits in Condition 7.16.6(a):
 - i. The type and characteristics of each material stored in each of the following tanks: 233, 403-405, 421, 422, 431, 433, and 441-444;
 - ii. Actual emissions of VOM attributable to working losses, on a monthly basis from tanks 233, 403-405, 421, 431, 433, and 441-444, tons/month;
 - iii. Actual emissions of VOM from the wharf loading of asphalt, tons/month; and
 - iv. Annual emissions of VOM attributable to working losses from tanks 233, 403-405, 421, 422, 531, 433, and 441-444 and the wharf loading of asphalt combined for the current month and the previous 11 months.

7.16.10 Reporting Requirements

- a. Reporting of Non-Compliance

The Permittee shall promptly notify the Illinois EPA, Compliance Section of noncompliance of an affected wharf loading facility 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:

Within 5 days of noncompliance with the operating requirements in Condition 7.16.7, the notification shall include:

- i. Identification of the material that was loaded;
- ii. Duration of the loading event;

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- iii. An estimate of the amount of material loaded;
- iv. A description of the cause of the noncompliance; and
- v. When compliance was reestablished.

b. Annual Emission Report

The Permittee shall submit the following information along with its annual emission report;

- i. The annual emissions of HAPs from each affected wharf loading facility for each month of the previous calendar year, to demonstrate that each affected wharf loading facility is not subject to the control requirements of 40 CFR 63, Subpart Y, tons/year (e.g., for the month of January, the emissions from February, of the preceding calendar year through January, for the month of February, the emissions from March of the preceding calendar year through February, 12 months in all);
- ii. A summary of the time when an affected wharf loading facility was used to load gasoline or crude oil into a marine vessel during the regulatory control period of May 1 to September 15; and
- iii. The annual emissions of VOM attributable to working losses, from the Storage Tanks and Wharf Loading (tanks 233, 403-405, 421, 422, 431, 432, 441-444 and wharf asphalt loading) for each month of the previous calendar year, to demonstrate compliance with Condition 7.20.6(a), tons/year (e.g., for the month of January, the emissions from February of the preceding year through January, for the month of February, the emissions from March of the preceding calendar year through February, 12 months in all).

7.16.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.16.12 Compliance Procedures

- a. Compliance with the emission limitations of Condition 7.16.6(a) shall be demonstrated by the recordkeeping

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and reporting requirements of Conditions 7.16.9(c)
and 7.16.10(b).

- b. Compliance with the requirements of Condition 7.16.7 is demonstrated by the recordkeeping and reporting requirements of Conditions 7.16.9(a) and 7.16.10(a).
- c. Pursuant to 40 CFR 63.565(1), HAP emission estimates and emission factors shall be based on test data, or if test data is not available, they shall be based on measurement or estimating techniques generally accepted in industry practice for operating conditions at the source.

7.17 Group A Storage Tanks

Existing external floating roof storage tanks

7.17.1 Description

The Permittee operates existing external floating roof storage tank(s) to store various petroleum products (including intermediate products). Permanent submerged loading must be used at these tanks, minimizing turbulence and evaporation of VOM during loading.

7.17.2 List of Emission Units and Pollution Control Equipment

Tank	Description	Emission Control Equipment
Tank 101	External Floating Roof Storage Tank	Floating Roof, Shoe-Mounted Primary Seal, Rim-Mounted Secondary Seal, and a Permanent Submerged Loading Pipe
Tank 102	External Floating Roof Storage Tank	Floating Roof, Shoe-Mounted Primary Seal, Rim-Mounted Secondary Seal, and a Permanent Submerged Loading Pipe
Tank 201	External Floating Roof Storage Tank	Floating Roof, Shoe-Mounted Primary Seal, Rim-Mounted Secondary Seal, and a Permanent Submerged Loading Pipe
Tank 202	External Floating Roof Storage Tank	Floating Roof, Shoe-Mounted Primary Seal, Rim-Mounted Secondary Seal, and a Permanent Submerged Loading Pipe
Tank 203	External Floating Roof Storage Tank	Floating Roof, Shoe-Mounted Primary Seal, Rim-Mounted Secondary Seal, and a Permanent Submerged Loading Pipe
Tank 204	External Floating Roof Storage Tank	Floating Roof, Shoe-Mounted Primary Seal, Rim-Mounted Secondary Seal, and a Permanent Submerged Loading Pipe

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Tank	Description	Emission Control Equipment
Tank 205	External Floating Roof Storage Tank	Floating Roof, Shoe-Mounted Primary Seal, Rim-Mounted Secondary Seal, and a Permanent Submerged Loading Pipe
Tank 310	External Floating Roof Storage Tank	Floating Roof, Shoe-Mounted Primary Seal, Rim-Mounted Secondary Seal, and a Permanent Submerged Loading Pipe
Tank 313	External Floating Roof Storage Tank	Floating Roof, Shoe-Mounted Primary Seal, Rim-Mounted Secondary Seal, and a Permanent Submerged Loading Pipe
Tank 314	External Floating Roof Storage Tank	Floating Roof, Shoe-Mounted Primary Seal, Rim-Mounted Secondary Seal, and a Permanent Submerged Loading Pipe
Tank 315	External Floating Roof Storage Tank	Floating Roof, Liquid-Mounted Primary Seal, Rim-Mounted Secondary Seal, and a Permanent Submerged Loading Pipe
Tank 316	External Floating Roof Storage Tank	Floating Roof, Shoe-Mounted Primary Seal, Rim-Mounted Secondary Seal, and a Permanent Submerged Loading Pipe
Tank 317	External Floating Roof Storage Tank	Floating Roof, Shoe-Mounted Primary Seal, Rim-Mounted Secondary Seal, and a Permanent Submerged Loading Pipe
Tank 318	External Floating Roof Storage Tank	Floating Roof, Shoe-Mounted Primary Seal, Rim-Mounted Secondary Seal, and a Permanent Submerged Loading Pipe

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Tank	Description	Emission Control Equipment
Tank 319	External Floating Roof Storage Tank	Floating Roof, Shoe-Mounted Primary Seal, Rim-Mounted Secondary Seal, and a Permanent Submerged Loading Pipe
Tank 401	External Floating Roof Storage Tank	Floating Roof, Shoe-Mounted Primary Seal, Rim-Mounted Secondary Seal, and a Permanent Submerged Loading Pipe
Tank 402	External Floating Roof Storage Tank	Floating Roof, Shoe-Mounted Primary Seal, Rim-Mounted Secondary Seal, and a Permanent Submerged Loading Pipe
Tank 403	External Floating Roof Storage Tank	Floating Roof, Liquid-Mounted Primary Seal, Rim-Mounted Secondary Seal, and a Permanent Submerged Loading Pipe
Tank 404	External Floating Roof Storage Tank	Floating Roof, Shoe-Mounted Primary Seal, Rim-Mounted Secondary Seal, and a Permanent Submerged Loading Pipe
Tank 406	External Floating Roof Storage Tank	Floating Roof, Shoe-Mounted Primary Seal, Rim-Mounted Secondary Seal, and a Permanent Submerged Loading Pipe
Tank 505	External Floating Roof Storage Tank	Floating Roof, Shoe-Mounted Primary Seal, Rim-Mounted Secondary Seal, and a Permanent Submerged Loading Pipe
Tank 507	External Floating Roof Storage Tank	Floating Roof, Shoe-Mounted Primary Seal, Rim-Mounted Secondary Seal, and a Permanent Submerged Loading Pipe

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Tank	Description	Emission Control Equipment
Tank 522	External Floating Roof Storage Tank	Floating Roof, Shoe-Mounted Primary Seal, Rim-Mounted Secondary Seal, and a Permanent Submerged Loading Pipe
Tank 525	External Floating Roof Storage Tank	Floating Roof, Shoe-Mounted Primary Seal, Rim-Mounted Secondary Seal, and a Permanent Submerged Loading Pipe
Tank 526	External Floating Roof Storage Tank	Floating Roof, Shoe-Mounted Primary Seal, Rim-Mounted Secondary Seal, and a Permanent Submerged Loading Pipe

7.17.3 Applicability Provisions and Applicable Regulations

- a. An "affected tank," for the purpose of these unit specific conditions is an existing storage tank that is subject to the control requirements of 35 IAC 218.122(b) and 40 CFR 63 Subpart CC (40 CFR 63 Subpart G) that relies on an external floating roof for compliance and is currently complying with the control requirements of 40 CFR 63 Subpart CC (40 CFR 63 Subpart G). An existing storage tank associated with a HAP source on or after July 14, 1994 is subject to the control requirements of 40 CFR 63 Subpart CC (40 CFR 63 Subpart G) if it has a capacity greater than or equal to 177 m³ (47,000 gallons) storing a VOL with a maximum true vapor pressure of 10.4 kPa (1.5 psia) and containing a HAP liquid concentration greater than 4 percent by weight total organic HAP. The affected tanks are identified in Condition 7.17.2.
- b. Each storage tank subject to 40 CFR 63 Subpart CC (40 CFR 63 Subpart G) is hereby shielded from compliance with 35 IAC 218.121, 123, and 124, except for the requirements of Conditions 7.17.5(b) and (c). This shield is issued to streamline the applicable requirements for the source, based on the IEPA's finding that compliance with 40 CFR 63 Subpart CC

assures compliance with 35 IAC 218.121, 123, and 124 following the review of the requirements of 40 CFR 63 Subpart CC (40 CFR 63 Subpart G) and 35 IAC 218.121, 123, and 124.

- c. Storage tanks 101, 204 and 205 are designated as backup tanks to be used as part of the benzene waste operation (Section 7.13) in the event that they are needed. Currently they are used to store various petroleum products and as such are subject to the requirements of Section 7.17. If used to store wastewater, the tank(s) shall comply with the requirements for an affected tank as defined in Section 7.13 rather than the requirements of Section 7.17. The Permittee shall notify the Illinois EPA within 30 days of changing the service of tank 101, 204 or 205, indicate the current service of the tank(s) and the rules under which the tank is currently operating (Section 7.13 or 7.17).

7.17.4 Non-Applicability of Regulations of Concern

- a. The affected tank(s) are not subject to the requirements of 35 IAC 218.120 pursuant to 218.119(e) because the tanks are used solely for the storage of petroleum liquids.

7.17.5 Control Requirements

- a. Each affected tank 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 as follows:
 - i. The primary seal shall be either a metallic shoe seal or a liquid mounted seal; and
 - ii. 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 7.17.8 (40 CFR 63.120(b));
- b. All drains (for drainage of rainwater, also known 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 218.124(a)(3)];

- c. 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 218.123(b)(3) and 218.124(a)(4)]; and
- d. Each affected tank shall also be equipped with a permanent submerged loading pipe, pursuant to 35 IAC 218.122(b).

7.17.6 Emission Limitations

- a. Emissions of VOM from storage tank 402 shall not exceed 10 tons/year. This limit places the minimum control requirements on this tank so that the permanent reduction of 25 tons/yr is assured. [T1]
- b.
 - i. VOM emissions attributable to working losses from tanks 403, 404, 405, 421, 422, 431, 432, 441-444, 233, and loading of asphalt at the wharf loading facility shall not exceed 31.93 tons/year. This limitation was established based on the fact that emissions attributable to breathing losses should not increase as a result of the changes in throughput attributable to the Crude Upgrade Project. [T1]
 - ii. Only VOM emissions attributable to working losses at storage tanks 233, 403, 404, 405, 421, 422, 431, 432, 441-444 have been accounted for in the Crude Upgrade Project since breathing losses will not change as a result of this project. To ensure that the breathing losses do not change, the Permittee shall only operate these tanks with material that was used to estimate the future potential emissions from these tanks as a result of this project. Specifically, tank 233 shall be used to store asphalt or a less volatile material, tanks 403-405 shall be used to store gasoline

or a less volatile material, and tanks 421*, 422*, 431, 432, and 441-444 shall be used to store distillates or a less volatile material. [T1]

* Exceptions: Tanks 421 and 422 may be used to store other material provided breathing losses attributable to the storage of such other material is accounted for when quantifying annual emissions from working losses as required in Condition 7.19.9(c).

The above limitations were established in Permit 97030078 pursuant to 35 IAC Part 203. These limits ensure that the construction/modification addressed in the aforementioned Permit does not constitute a new major source or major modification pursuant to 35 IAC Part 203. [T1]

- c. Annual emissions of VOM from the identified storage tanks shall not exceed the following: [T1]

<u>Tank Number</u>	<u>VOM (Tons/Year)</u>
204	1.51
313	1.86
406	5.60

The above limitations have been included to assure the reduction in actual VOM emissions of 88.8 tons/year, due to the upgrade in seals from these tanks, are considered credible decreases.

- d. Emissions of VOM from storage tank 319 shall not exceed 8.6 tons/year. [T1]

The above limitations were established in Permit 97110005 pursuant to 35 IAC Part 203. These limits ensure that the construction/modification addressed in the aforementioned Permit does not constitute a new major source or major modification pursuant to 35 IAC Part 203. [T1]

7.17.7 Operating Requirements

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Each affected tank shall be operated in compliance with the operating requirements of 40 CFR 63.119(c), (d), and 63.120(b) as follows:

- a. 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)]
- b. 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)]
- c. The secondary seal shall completely cover the space between the roof edge and the vessel wall except as provided in (e), and there shall be no holes, tears, or other openings in the seal or seal fabric. [40 CFR 63.120(b)(6)]
- d. 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)]
- e. 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 7.18.7. [40 CFR 63.120(b)(4)]
- f. 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:

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- i. 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)]
 - ii. 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)]
 - iii. 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)];
- g. 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 218.121(b)(1)].
- h. 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)]
- i. 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)]

7.17.8 Inspection Requirements

The Permittee shall fulfill the applicable testing and procedures requirements of 40 CFR 63.120(b) for each affected tank equipped with an external floating roof as follows:

- a. Except as provided in (b) 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)]
 - i. Measure seal gaps, if any, at one or more floating roof levels when the roof is not resting on the roof leg supports;
 - ii. 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;
 - iii. 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;
 - iv. 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 7.17.7(d) and (e).
 - v. Prior notification for the above inspection shall be given to the Illinois EPA as specified in Condition 7.17.10(b).

- b. 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 7.17.7(d) or (e) 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:
 - i. 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
 - ii. 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 7.17.9(c). A maximum of two extensions may be utilized for an occurrence.

- c.
 - i. 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)]

 - ii. Prior notification for the above inspection shall be given to the Illinois EPA as specified in Condition 7.17.10(a).

7.17.9 Recordkeeping Requirements

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- 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 7.17.8(a) and (c). 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 7.17.8(a); 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 7.17.8(c):
 - i. 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

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Condition 7.17.8(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 7.17.7(h)) 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 of the following items to demonstrate compliance with the limits in Condition 7.17.6(a):
- i. The type and characteristics of each material stored in tank 402;
 - ii. Actual emissions of VOM on a monthly basis from tank 402, tons/month; and
 - iii. Annual emissions of VOM from tank 402 for the current month and the previous 11 months, tons/year.

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- f. The Permittee shall maintain records of the following items to demonstrate compliance with the limits in Condition 7.17.6(b):
- i. The type and characteristics of each material stored in each of the following tanks: 233, 403-405, 421, 422, 431, 433, and 441-444;
 - ii. Actual emissions of VOM attributable to working losses, on a monthly basis from tanks 233, 403-405, 421, 431, 433, and 441-444, tons/month;
 - iii. Actual emissions of VOM from the wharf loading of asphalt, tons/month; and
 - iv. Annual emissions of VOM attributable to working losses from tanks 233, 403-405, 421, 422, 531, 433, and 441-444 and the wharf loading of asphalt combined for the current month and the previous 11 months.
- g. The Permittee shall maintain records of the following items to demonstrate compliance with the limits in Condition 7.17.6(c):
- i. The type and characteristics of each material stored in tanks 204, 313, and 406;
 - ii. Actual emissions of VOM on a monthly basis from tanks 204, 313, and 406, tons/month; and
 - iii. Annual emissions of VOM from tanks 204, 313, and 406 for the current month and the previous 11 months, tons/year.
- h. The Permittee shall maintain records of the following items to demonstrate compliance with the limits in Condition 7.17.6(d):
- i. The type and characteristics of each material stored in tank 319;
 - ii. Actual emissions of VOM on a monthly basis from tank 319, tons/month; and

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- iii. Annual emissions of VOM from tank 319 for the current month and the previous 11 months, tons/year.

- i. 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 7.17.6 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 TANKS program are used for emission estimates.

- j. 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 7.17.6 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;

- k. The following items shall be maintained on a monthly basis for the previous month:
 - i. The throughput (or change in tank level) of each organic liquid through each tank; and
 - ii. The volatile organic material emissions attributable to each organic liquid stored in each tank, tons/month, with supporting

calculations, calculated utilizing an approved USEPA methodology, such as the TANKS program.

7.17.10 Reporting Requirements

- a. The Permittee shall notify the IEPA, 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 HAP's, pursuant to 40 CFR 63.654(h)(2)(i) so the IEPA 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 IEPA, Compliance Unit and Regional Field Office, at least 30 days before the planned performance of seal gap measurements, pursuant to 40 CFR 63.654(h)(2)(ii), so the IEPA may observe the measurements.
- c. The Permittee shall promptly notify the IEPA, 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 7.17.5), 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 7.17.5) 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

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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 7.17.8(a), (b), or (c) as follows:
 - i. When the requirements of Condition 7.17.7(b), (c), (d), or (e) 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 7.17.8(a);
 - C. A description of any seal condition specified in Condition 7.17.7(b) or (c) that is not met; and
 - 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 7.17.8(b), the following shall be provided in the next periodic report:
 - A. Identification of the vessel;
 - B. The documentation required in Condition 7.17.9(c);
 - C. The date the vessel was emptied; and
 - D. The nature of and date the repair was made.
 - iii. If an extension is utilized in accordance with Condition 7.17.7(h), the following shall be provided in the next periodic report:
 - A. Identification of the vessel;

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- B. The documentation required in Condition 7.17.9(d);
 - C. The date the vessel was emptied; and
 - 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 7.17.8(c), the following information shall be included:
- A. Date of inspection;
 - B. Identification of storage vessel(s) with failure;
 - C. Description of failure; and
 - D. Nature of and date of repair.
- e. The Permittee shall submit the following information along with its annual emission report:
- i. The annual emissions of VOM from Storage Tank 402 for each month of the previous calendar year, to demonstrate compliance with Condition 7.17.6(a), tons/year (e.g., for the months of January, the emissions from February of the preceding year through January, for the month of February, the emissions from March of the preceding calendar year through February, 12 months in all);
 - ii. The annual emissions of VOM attributable to working losses, from the Storage Tanks and Wharf Loading (tanks 233, 403-405, 421, 422, 431, 432, 441-444 and wharf asphalt loading) for each month of the previous calendar year, to demonstrate compliance with Condition 7.17.6(b), tons/year (e.g., for the months of

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January, the emissions from February of the preceding year through January, for the month of February, the emissions from March of the preceding calendar year through February, 12 months in all);

- iii. The annual emissions of VOM from Storage Tanks 204, 313, and 406 for each month of the previous calendar year, to demonstrate compliance with Condition 7.17.6(c), tons/year (e.g., for the months of January, the emissions from February of the preceding year through January, for the month of February, the emissions from March of the preceding calendar year through February, 12 months in all); and
- iv. The annual emissions of VOM from Storage Tank 319 for each month of the previous calendar year, to demonstrate compliance with Condition 7.17.6(d), tons/year (e.g., for the months of January, the emissions from February of the preceding year through January, for the month of February, the emissions from March of the preceding calendar year through February, 12 months in all).

7.17.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to an affected tank without prior notification to the IEPA 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:

- a. Changes in the material stored in a tank, provided the tank continues to comply with the Conditions in Section 7.17 of this permit.
- b. Operation of tank 101, tank 204 or tank 205 as part of the benzene waste operation (Section 7.13).

7.17.12 Compliance Procedures

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- a. Compliance with the control and operating requirements of Condition 7.17.5 and 7.17.7 shall be demonstrated by the inspection, recordkeeping and reporting requirements of Condition 7.17.8, 7.17.9(a), (b), (c), (d), 7.17.10(a), (b), (c), and (d).
- b. Compliance with the emission limitations of Condition 7.17.6(a) shall be demonstrated by the recordkeeping and reporting requirements of Conditions 7.17.9(e) and 7.17.10(e)(i).
- c. Compliance with the emission limitations of Condition 7.17.6(b) shall be demonstrated by the recordkeeping and reporting requirements of Conditions 7.17.9(f) and 7.17.10(e)(ii).
- d. Compliance with the emission limitations of Condition 7.17.6(c) shall be demonstrated by the recordkeeping and reporting requirements of Conditions 7.17.9(g), (h), (i) and 7.17.10(e)(iii).
- e. Compliance with the emission limitations of Condition 7.17.6(d) shall be demonstrated by the recordkeeping and reporting requirements of Conditions 7.17.9(h), (i), (j) and 7.17.10(e).

7.18 Group B Storage Tanks

Existing external floating roof storage tanks that require a rim-mounted secondary seal that are subject to future applicable requirements under 40 CFR 63 Subpart CC

7.18.1 Description

The Permittee operates external floating roof storage tanks that are required to have a rim-mounted secondary seal to store various petroleum products (including intermediate products). Permanent submerged loading must be used at these tanks, minimizing turbulence and evaporation of VOM during loading.

7.18.2 List of Emission Units and Pollution Control Equipment

Storage Tank	Description	Emission Control Equipment
312	External Floating Roof Tank	Floating Roof, Vapor-Mounted Primary Seal, Rim-Mounted Secondary Seal, and a Permanent Submerged Loading Pipe
405	External Floating Roof Tank	Floating Roof, Vapor-Mounted Primary Seal, Rim-Mounted Secondary Seal, and a Permanent Submerged Loading Pipe

7.18.3 Applicability Provisions

- a. An "affected tank," for the purposes of these unit-specific conditions, is a storage tank that is currently only subject to the requirements of 35 IAC 218.121, 218.122(b), 218.123, and 218.124. Each storage tank with a capacity of 151.42 cubic meters (approx. 40,000 gallons) or more, storing volatile petroleum liquid (VPL), equipped with an external floating roof is subject to the requirements of 35 IAC 218.124(a) unless it is exempted pursuant to 35 IAC 218.124(b). A tank may be permanently exempt based on applicability of a NSPS. A tank also may be exempt due to the current service, features, or other circumstances associated with the tank. A tank must comply with other rules if the vapor pressure of the VPL is 86.19 kPa (12.5 psia) or greater at 294.3°K

(70°F). Each affected tank will be subject to the requirements of 40 CFR 63 Subpart CC (40 CFR 63 Subpart G) upon completion of the next degassing and cleaning activity of the tank or on August 18, 2005, whichever is first. At such time, the affected tank(s) will no longer be subject to the unit specific condition of this section (7.18), but will become subject to the unit specific condition of section 7.17. The affected tanks are identified in Condition 7.18.2.

b. Malfunction and Breakdown Provisions

In the event of a malfunction or breakdown of a floating roof, primary seal, or secondary seal of an affected tank, the Permittee is authorized to continue operation of the tank in violation of the applicable requirement of 35 IAC 218.121, 218.123, and/or 218.124, as necessary to prevent risk of injury to personnel or severe damage to equipment. This authorization is subject to the following requirements:

- i. The Permittee shall repair the damaged feature(s) of the storage tank or empty and remove the tank from VPL service as soon as practicable. This shall be accomplished within 45 days unless the feature(s) can not be repaired within 45 days and the storage tank cannot be emptied and removed from VPL service within 45 days, and the Permittee obtains an extension, for up to 30 days, from the IEPA. The request for such an extension must document that alternative storage capacity is unavailable and specify a schedule of actions the Permittee will take that will assure the feature(s) will be repaired or the storage tank emptied as soon as possible.
- ii. The Permittee shall fulfill applicable recordkeeping and reporting requirements of Condition 7.18.9(a) and 7.18.10(c).

7.18.4 Non-Applicability of Regulations of Concern

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- a. The affected tank(s) are not subject to the requirements of 35 IAC 218.120 pursuant to 218.119(e) because the tanks are used solely for the storage of petroleum liquids.

7.18.5 Control Requirements

Each affected tank shall be equipped with the following:

- a. A floating roof which rests on the surface of the VOL that is equipped with a primary seal [35 IAC 218.121(b)(1)].
- b. A floating roof that is equipped with a continuous seal extending from the floating roof to the tank wall (rim mounted secondary seal) [35 IAC 218.124(a)(1)] (The Illinois EPA has not approved use of other equivalent equipment in lieu of a rim mounted secondary seal.).
- c. 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 218.124(a)(3)].
- d. 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 218.123(b)(3) and 218.124(a)(4)].
- e. A permanent submerged loading pipe. [35 IAC 218.122(b)]

7.18.6 Emission Limitations

None

7.18.7 Operating Requirements

- a. Each affected tank shall be operated so that the floating roof including the seal closure devices meet each of the following requirements:
 - i. There shall be no visible holes, tears, or other defects in the seal or any seal fabric or material of the floating roof [35 IAC 218.123(b)(2)];

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- ii. The seal is intact and uniformly in place around the circumference of the floating roof between the floating roof and tank wall [35 IAC 218.124(a)(2)(A)];
- iii. The accumulated area of gaps exceeding 0.32 centimeter (1/8 inch) in width between the secondary seal and the tank wall shall not exceed 21.2 square centimeters per meter of tank diameter (1.0 square inch per foot of tank diameter) [35 IAC 218.124(a)(2)(B)]; and
- iv. 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 petroleum liquid is transferred to or from the tank [35 IAC 218.123(b)(3)(A)];
 - B. Automatic bleeder vents are closed at all times except when the roof is floated off or landed on the roof leg supports [35 IAC 218.123(b)(3)(B)]; and
 - C. Rim vents, if provided, are set to open when the roof is being floated off the roof leg supports or at the manufacturer's recommended setting [35 IAC 218.123(b)(3)(C)].
- b. 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 218.121 (b)(1)].

7.18.8 Inspection Requirements

- a. The Permittee shall inspect each affected tank semiannually, the first inspection being prior to May 1 of each year, to insure compliance with the applicable control and operating requirements [35 IAC 218.123(b)(4) and 218.124(a)(5)].

- b. i. The Permittee shall measure the secondary seal gap of each affected tank prior to May 1 of each year. This measurement shall be conducted in accordance with the methods and procedures specified in 40 CFR 60, Subpart Kb [35 IAC 218.124(a)(6)].
- ii. Prior notification for the above measurements shall be given to the Illinois EPA as specified in Condition 7.18.10(b).
- c. The Permittee shall perform a complete inspection of the cover and seals of each affected tank whenever the tank is emptied for any reasons other than the transfer of liquid during the normal operation of the tank, or whenever repairs are made as a result of any semi-annual inspection or incidence of roof damage or defect [35 IAC 218.123(b)(5)].

7.18.9 Recordkeeping Requirements

- a. Records for Malfunctions and Breakdowns of Storage Tanks

The Permittee shall maintain records, pursuant to 35 IAC 201.263, of continued operation of a storage tank subject to Condition 7.18 (Group B Storage Tanks) during malfunctions and breakdown of the control features of the tank, 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 or the tank emptied and removed from service without risk of injury to personnel or severe damage to equipment;
- iv. The measures used to reduce the quantity of emissions and the duration of the event;

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- 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 the malfunction/breakdown.
- b. The Permittee shall maintain records of the following items for each affected tank, pursuant to 35 IAC 218.123(b)(6) and 218.124(a)(7):
- i. A list of the types of volatile petroleum liquid stored on a monthly basis;
 - ii. The maximum true vapor pressure of each type of liquid as stored, psia;
 - iii. The results of any inspections or measurements required by the Condition 7.18.8(a), (b) and/or (c), including:
 - A. Type of inspection;
 - B. When the inspection and/or measurement was performed;
 - C. Who performed the inspection and/or measurement;
 - D. The method of inspection and/or measurement;
 - E. The observed condition of each feature of the external floating roof (seals, roof deck and fittings) with raw data recorded during the inspection and/or measurement; and
 - F. Summary of compliance.
- c. The Permittee shall maintain records of the following for each affected tank to demonstrate compliance with Condition 7.18.8(c) (Cover and Seal Inspection) [35 IAC 218.123(b)(6)]:

Records that are sufficient to identify whenever the tank is emptied for any reason other than the transfer of liquid during normal operation or whenever repairs are made as a result of regular inspections or incident of roof damage or defect.

- d. The Permittee shall maintain the following records to allow the Illinois EPA to determine when an affected tank will become subject to the requirements of Condition 7.17.
 - i. The date an affected tank is degassed and cleaned;
 - ii. The date the vapor-mounted primary seal is replaced on an affected, with identification of the type of replacement seal;
 - iii. The date the affected tank is placed back in service, after the degassing and cleaning; and
 - iv. A record of the Notice of Compliance that is required by Condition 7.18.10(d).

7.18.10 Reporting Requirements

- a. The Permittee shall notify the Illinois EPA, Compliance Section and Regional Field Office, at least 30 days before the planned performance of seal gap measurements, so the Illinois EPA may observe the measurements.
- b. The Permittee shall promptly notify the Illinois EPA, Compliance Section 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 7.18.5, 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 7.18.5) 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.

c. Reporting of Malfunctions and Breakdowns for Storage Tanks

The Permittee shall provide the following notification and reports to the IEPA, Compliance Unit and Regional Field Office, pursuant to 35 IAC 201.263, concerning continued operation of an affected storage tank subject to Condition 7.18 (Group B Storage Tanks) during malfunction or breakdown of the control features of the tank.

- i. The Permittee shall notify the IEPA's regional office by telephone as soon as possible during normal working hours, but not later than 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 IEPA, Compliance Unit and Regional Field Office, providing a detailed explanation of the event, an explanation why continued operation of the storage tank 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 unit was emptied and 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 IEPA, Compliance Unit 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 tank will be taken out of service.

- d. Pursuant to 40 CFR 63.654(f) the Permittee shall submit a Notification of Compliance Status for each affected storage tank within 150 days of placing the tank in service after the next degassing and cleaning or August 18, 2005, whichever occurs first, signaling the start of applicability of 40 CFR 63 Subpart CC (Condition 7.17). The Notification of Compliance Status report shall include the following information:
- i. Identification of the affected tank;
 - ii. Whether the affected tank is a Group 1 or Group 2 storage vessel, as defined by 40 CFR 63 Subpart CC; and
 - iii. The method of compliance with the requirements of 40 CFR 63 Subpart CC.

7.18.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to an affected tank 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:

- a. Changes in the material stored in a tank, provided the tank continues to comply with the Conditions in Section 7.18 of this permit.

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7.18.12 Compliance Procedures

- a. Compliance with the control and operating requirements of Conditions 7.18.5 and 7.18.7 shall be demonstrated by the inspection, recordkeeping, and reporting requirements of Conditions 7.18.8, 7.18.9, and 7.18.10.

7.19 Group C Storage Tank

Existing internal floating roof storage tanks and existing external floating roof storage tanks converted to internal floating roof storage tanks

7.19.1 Description

The Permittee operates existing internal floating roof storage tank(s) and external floating roof storage tank(s) converted to internal floating roof storage tanks to store various petroleum products (including intermediate products). Permanent submerged loading must be used at these tanks, minimizing turbulence and evaporation of VOM during loading.

7.19.2 List of Emission Units and Pollution Control Equipment

Tank	Description	Emission Control Equipment
Tank 309	External floating roof storage tank converted to internal floating roof storage tank by addition of dome	Floating roof, shoe-mounted primary seal, and a permanent submerged loading pipe
Tank 311	External floating roof storage tank converted to internal floating roof storage tank by addition of dome	Floating roof, vapor-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe
Tank 421	Internal floating roof storage tank	Floating roof, liquid-mounted primary seal, and a permanent submerged loading pipe
Tank 422	Internal floating roof storage tank	Floating roof, liquid-mounted primary seal, and a permanent submerged loading pipe

7.19.3 Applicability Provisions and Applicable Regulations

- a. An "affected tank," for the purpose of these unit specific conditions is an existing storage tank that is subject to the control requirements of 35 IAC 218.122(b) and 40 CFR 63 Subpart CC (40 CFR 63 Subpart G) that relies on an internal floating roof or an external floating roof converted to an internal

floating roof by the addition of a dome for compliance and is currently complying with the control requirements of 40 CFR 63 Subpart CC. An existing storage tank associated with a HAP source on or after July 14, 1994 is subject to the control requirements of 40 CFR 63 Subpart CC (40 CFR 63 Subpart G) if it has a capacity greater than or equal to 177 m³ (47,000 gallons) storing a VOL with a maximum true vapor pressure of 10.4 kPa (1.5 psia) and containing a HAP liquid concentration greater than 4 percent by weight total organic HAP. The affected tanks are identified in Condition 7.19.2.

- b. Each storage tank subject to 40 CFR 63 Subpart CC (40 CFR 63 Subpart G) is hereby shielded from compliance with 35 IAC 218.121 and 123. This shield is issued to streamline the applicable requirements for the source, based on the IEPA's finding that compliance with 40 CFR 63 Subpart CC assures compliance with 35 IAC 218.121 and 123 following the review of the requirements of 40 CFR 63 Subpart CC (40 CFR 63 Subpart G) and 35 IAC 218.121 and 124.

7.19.4 Non-Applicability of Regulations of Concern

- a. The affected tank(s) are not subject to the requirements of 35 IAC 218.120 pursuant to 218.119(e) because the tanks are used solely for the storage of petroleum liquids.

7.19.5 Control Requirements

- a. Each affected tank shall comply with the requirements of 40 CFR 63.119(b) or (d), 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 that is equipped with one of the following seal configurations:
 - 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 7.19.8.
The primary seal may be vapor-mounted;

- b. Each affected tank shall also be equipped with a permanent submerged loading pipe, pursuant to 35 IAC 218.122(b).

7.19.6 Emission Limitations

- a. VOM emissions attributable to working losses from tanks 421, 422, 403, 404, 405, 431, 432, 441-444, 233, and loading of asphalt at the wharf loading facility shall not exceed 31.93 tons/year. This limitation was established based on the fact that emissions attributable to breathing losses should not increase as a result of the changes in throughput attributable to the Crude Upgrade Project. [T1]
- b. Only VOM emissions attributable to working losses at storage tanks 421, 422, 233, 403, 404, 405, 431, 432, 441-444 have been accounted for in the Crude Upgrade Project since breathing losses will not change as a result of this project. To ensure that the breathing losses do not change, the Permittee shall only operate these tanks with material that was used to estimate the future potential emissions from these tanks as a result of this project. Specifically, tank 233 shall be used to store asphalt or a less volatile material, tanks 403-405 shall be used to store gasoline or a less volatile material, and tanks 421*, 422*, 431, 432, and 441-444 shall be used to store distillates or a less volatile material. [T1]

* Exceptions: Tanks 421 and 422 may be used to store other material provided breathing losses attributable to the storage of such other material is accounted for when quantifying annual emissions from working losses as required in Condition 7.19.9(c).

The above limitations were established in Permit 97030078 pursuant to 35 IAC Part 203. These limits ensure that the construction/modification addressed in the aforementioned Permit does not constitute a new major source or major modification pursuant to 35 IAC Part 203. [T1]

- c. VOM emissions from storage tank 309 shall not exceed 6.8 tons/year. Compliance with annual limits shall be determined from a running total of 12 months of data. This limit was established in Permit 97050157 pursuant to 35 IAC Part 203. This limit ensures that the construction/modification addressed in the aforementioned Permit does not constitute a new major source or major modification pursuant to 35 IAC Part 203. [T1]

7.19.7 Operating Requirements

Each 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:

- a. 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)]
- b. 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:
 - i. 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)]
 - ii. 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)]
 - iii. 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)];

- c. 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 218.121(b)(1)].
- d. 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 granted. [40 CFR 63.120(a)(4)]
- e. 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)]

7.19.8 Inspection Requirements

The Permittee shall fulfill the applicable testing and procedures requirements of 40 CFR 63.120(a) for each affected tank equipped with an internal floating roof or an external floating roof converted to an internal floating roof as follows:

- a. 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);
- b. For each affected tank equipped with a double-seal system, 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).

- c. Prior notification for the above inspection shall be given to the Illinois EPA as specified in Condition 7.19.10(b).

7.19.9 Recordkeeping Requirements

- 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, and Out-of-Service Inspection performed as required by Condition 7.19.8(a) and (b). The records shall include the following information: [40 CFR 63.123(c)]
 - A. The date the inspection was performed;
 - B. Who performed the measurement; and
 - C. 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 7.19.8(a):

Records that are sufficient to identify whenever the tank is empty for any reason or

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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 7.19.7(d)) 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 vessel will be emptied as soon as possible.

- d. The Permittee shall maintain records of the following items to demonstrate compliance with the limits in Condition 7.17.6(a):
 - i. The type and characteristics of each material stored in each of the following tanks: 233, 403-405, 421, 422, 431, 433, and 441-444;
 - ii. Actual emissions of VOM attributable to working losses, on a monthly basis from tanks 233, 403-405, 421, 431, 433, and 441-444, tons/month;
 - iii. Actual emissions of VOM from the wharf loading of asphalt, tons/month; and
 - iv. Annual emissions of VOM attributable to working losses from tanks 233, 403-405, 421, 422, 531, 433, and 441-444 and the wharf loading of asphalt combined for the current month and the previous 11 months.

- e. 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 7.19.6 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 TANKS program are used for emission estimates.
- f. 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 7.19.6 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 affected tank;
- iii. The volatile organic material emissions attributable to each organic liquid stored in each affected tank, tons/month, with supporting calculations, calculated utilizing an approved USEPA methodology, such as the TANKS program;

7.19.10 Reporting Requirements

- a. The Permittee shall notify the IEPA, Compliance Unit and Regional Field Office, when an affected storage

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tank has been emptied and degassed, and at least 30 days before the planned refilling of the tank with organic HAP's, pursuant to 40 CFR 63.654(h)(2)(i) so the IEPA may inspect the affected tank prior to refilling, except as allowed in 40 CFR 63.654(h)(2)(i)(B).

- b. The Permittee shall promptly notify the IEPA, 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 7.19.5, e.g., "no primary 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 7.19.5) 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.
- c. Pursuant to 40 CFR 63.654, the Permittee shall submit Periodic Reports no later than 60 days after each Annual Inspection required by Condition 7.19.8(a) or (b) as follows:
 - i. Any time in which the internal floating roof was not resting on the surface of the liquid in the affected tank and is not resting on the leg supports, there is liquid on the floating roof, the seal is detached from the internal floating roof, the seal has holes, tears, or

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other openings in the seal or seal fabric or there are visible gaps between the seal and the tank wall that is identified during the Annual Inspection(s) required by Condition 7.19.8(a) or (b), the following information shall be included:

- A. Date of inspection;
 - B. Identification of storage vessel(s) with failure;
 - C. Description of failure;
 - 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 7.19.7(d), the following shall be provided in the next periodic report:
- A. Identification of the vessel;
 - B. The documentation required in Condition 7.19.9(c);
 - C. The date the vessel was emptied;
 - D. The nature of and date the repair was made.
- d. Pursuant to 40 CFR 63.654, the Permittee shall submit Periodic Reports no later than 60 days after each or Out-of-Service Inspection required by Condition 7.19.8(a) or (b) as follows:

Any time in which the internal floating roof was not resting on the surface of the liquid in the affected tank and is not resting on the leg supports, there is liquid on the floating roof, the primary seal has holes, tears, or other openings in the seal or seal fabric, or the secondary seal (if one has been installed) has holes, tears, or other openings in the seal or seal fabric that is identified during the or Out-of-Service Inspection required by Condition

7.19.8(a) or (b), the following information shall be included:

- i. Date of inspection;
 - ii. Identification of storage vessel(s) with failure;
 - iii. Description of failure;
 - iv. A description of the nature of and date the repair was made, or the date the vessel was emptied.
- e. The Permittee shall submit the following information along with its annual emission report:
- i. The annual emissions of VOM attributable to working losses, from the Storage Tanks and Wharf Loading (tanks 233, 403-405, 421, 422, 431, 432, 441-444 and wharf asphalt loading) for each month of the previous calendar year, to demonstrate compliance with Condition 7.19.6, tons/year (e.g., for the months of January, the emissions from February of the preceding year through January, for the month of February, the emissions from March of the preceding calendar year through February, 12 months in all);
 - ii. The annual emissions of VOM attributable to storage tank 309 for each month of the previous calendar year, to demonstrate compliance with Condition 7.19.6, tons/year (e.g., for the months of January, the emissions from February of the preceding year through January, for the month of February, the emissions from March of the preceding calendar year through February, 12 months in all);

7.19.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to an affected tank without prior notification to the IEPA 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:

- a. Changes in the material stored in a tank, provided the tank continues to comply with the Conditions in Section 7.19 of this permit.

7.19.12 Compliance Procedures

- a. Compliance with the control and operating requirements of Condition 7.19.5 and 7.19.7 shall be demonstrated by the inspection, recordkeeping and reporting requirements of Condition 7.19.8, 7.19.9(a), (b), (c), 7.19.10(a), (b), and (c).
- b. Compliance with the emission limitations of Condition 7.19.6 shall be demonstrated by the recordkeeping and reporting requirements of Conditions 7.19.9(a), (b), (c), 7.19.10(d), (e), and (f).

7.20 Group D Storage Tanks
 Existing Fixed Roof Storage Tanks

7.20.1 Description

The Permittee operates fixed roof storage tanks with a capacity greater than 40,000 gallons used to store various petroleum products (including intermediate products) and distillate fuels.

7.20.2 List of Emission Units and Pollution Control Equipment

Storage Tank	Description	Emission Control Equipment
Tank 211	Fixed roof storage tank	Permanent submerged loading
Tank 212	Fixed roof storage tank	Permanent submerged loading
Tank 213	Fixed roof storage tank	Permanent submerged loading
Tank 214	Fixed roof storage tank	Permanent submerged loading
Tank 215	Fixed roof storage tank	Permanent submerged loading
Tank 216	Fixed roof storage tank	Permanent submerged loading
Tank 221	Fixed roof storage tank	Permanent submerged loading
Tank 222	Fixed roof storage tank	Permanent submerged loading
Tank 223	Fixed roof storage tank	Permanent submerged loading
Tank 224	Fixed roof storage tank	Permanent submerged loading
Tank 225	Fixed roof storage tank	Permanent submerged loading
Tank 231	Fixed roof storage tank	Permanent submerged loading
Tank 232	Fixed roof storage tank	Permanent submerged loading
Tank 233	Fixed roof storage tank	Permanent submerged loading
Tank 234	Fixed roof storage tank	Permanent submerged loading
Tank 235	Fixed roof storage tank	Permanent submerged loading
Tank 236	Fixed roof storage tank	Permanent submerged loading
Tank 431	Fixed roof storage tank	Permanent submerged loading
Tank 432	Fixed roof storage tank	Permanent submerged loading
Tank 441	Fixed roof storage tank	Permanent submerged loading
Tank 442	Fixed roof storage tank	Permanent submerged loading
Tank 443	Fixed roof storage tank	Permanent submerged loading
Tank 444	Fixed roof storage tank	Permanent submerged loading
Tank 515	Fixed roof storage tank	Permanent submerged loading
Tank 516	Fixed roof storage tank	Permanent submerged loading
Tank 527	Fixed roof storage tank	Permanent submerged loading

7.20.3 Applicability Provisions and Applicable Regulations

- a. An "affected tank," for the purpose of these unit-specific conditions, is a storage tank with a capacity of 40,000 gallons or more that stores various petroleum products with a vapor pressure of less than 1.5 psia at 70°F or liquids with a maximum true vapor pressure of less than 0.5 psia. The affected tanks are identified in Condition 7.20.2.

7.20.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on the affected tank(s) not being subject to 35 IAC 218.120 pursuant to 218.119(a) because the affected tank(s) are only used to store petroleum liquids or liquids with a vapor pressure of less than 0.5 psia.
- b. This permit is issued based on the affected tank(s) not being subject to 35 IAC 218.121 because the affected tank(s) are only used to store liquids with a vapor pressure of less than 10.34 kPa (1.5 psia) at 294.3°K (70°F).
- c. This permit is issued based on storage tanks 234, 235, and 236 not being subject to the control requirements of 40 CFR 60 Subpart Kb because they are only used to store liquids with a maximum true vapor pressure of less than 3.5 kPa (0.5 psia at 70°F).
- d. This permit is issued based on the affected tank(s) not being subject to the control requirements of 40 CFR 63 Subpart CC because the tanks do not qualify as Group 1 storage tanks because the affected tank(s) are at an existing source and are used to store liquid with a maximum true vapor pressure less than 10.4 kPa (1.5 psia).

7.20.5 Control Requirements

None

7.20.6 Emission Limitations

- a. i. VOM emissions attributable to working losses from tanks 403, 404, 405, 421, 422, 431, 432,

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441-444, 233, and loading of asphalt at the wharf loading facility shall not exceed 31.93 tons/year. This limitation was established based on the fact that emissions attributable to breathing losses should not increase as a result of the changes in throughput attributable to the Crude Upgrade Project.
[T1]

- ii. Only VOM emissions attributable to working losses at storage tanks 233, 403, 404, 405, 421, 422, 431, 432, 441-444 have been accounted for in the Crude Upgrade Project since breathing losses will not change as a result of this project. To ensure that the breathing losses do not change, the Permittee shall only operate these tanks with material that was used to estimate the future potential emissions from these tanks as a result of this project. Specifically, tank 233 shall be used to store asphalt or a less volatile material, tanks 403-405 shall be used to store gasoline or a less volatile material, and tanks 421*, 422*, 431, 432, and 441-444 shall be used to store distillates or a less volatile material.
[T1]

* Exceptions: Tanks 421 and 422 may be used to store other material provided breathing losses attributable to the storage of such other material is accounted for when quantifying annual emissions from working losses as required in Condition 7.19.9(c).

The above limitations were established in Permit 97030078 pursuant to 35 IAC Part 203. These limits ensure that the construction/modification addressed in the aforementioned Permit does not constitute a new major source or major modification pursuant to 35 IAC Part 203.

- b. Emissions from the asphalt truck loading rack (Section 7.23), tanks 234, 235, and 236, the asphalt additive station, and associated piping, valves, and pumps shall not exceed 17.1 tons/year. Compliance

with annual limits shall be determined from a running total of 12 months of data. [T1]

The above limitation was established in Permit 97050137 pursuant to 35 IAC Part 203. These limits ensure that the construction/modification addressed in the aforementioned Construction Permit does not constitute a new major source or major modification pursuant to 35 IAC Part 203. [T1]

7.20.7 Operating Requirements

- a. The Permittee shall not store petroleum liquid with a vapor pressure of 1.5 psia or greater or non-petroleum liquid (fuel oil) with a vapor pressure of 0.5 psia or greater in any affected tank.
- b. The Permittee shall not store material with a vapor pressure of 0.5 or greater in storage tank 234, 235, or 236.

7.20.8 Inspection Requirements

N/A

7.20.9 Recordkeeping Requirements

- 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. [40 CFR 63.123(b)]
- b. The Permittee shall maintain records of the following items to demonstrate compliance with the limits in Conditions 7.20.6(a) and 7.20.7:

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- i. The type and characteristics of each material stored in each affected storage tank.
 - ii. Actual emissions of VOM attributable to working losses, on a monthly basis from tanks 233, 403-405, 421, 422, 531, 433, and 441-444 and the wharf loading of asphalt combined for the current month and the previous 11 months.
- c. 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 7.20.6 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 TANKS program are used for emission estimates.
- d. The Permittee shall maintain records of the following items to allow the Illinois EPA to review compliance with the limits of Conditions 7.20.6(b) and 7.20.7:
- i. The throughput of each organic liquid through tank(s) 234, 235, and 236, gallons/month;
 - ii. The organic material emissions from tank(s) 234, 235, and 236 attributable to organic liquid stored in each tank, tons/month;
 - iii. Identification of each organic liquid shipped through the truck loading rack;
 - iv. The throughput of each organic liquid shipped through the loading rack, gallons/month; and

- v. The organic material emissions attributable to the truck loading rack, tons/month.

7.20.10 Reporting Requirements

- a. The Permittee shall promptly notify the IEPA, Compliance unit of noncompliance with the operating requirements as follows pursuant to Section 39.5(7)(f)(ii) of the Act:
 - i. Any storage of petroleum liquid with a vapor pressure of 1.5 psia or greater in an affected tank, 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 taken to avoid future non-compliance.
 - ii. Any storage of non-petroleum liquid with a vapor pressure of 0.5 psia or greater in an affected tank, 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 taken to avoid future non-compliance.
 - iii. Any storage of material with a vapor pressure of 0.5 psia or greater in tank 234, 235, or 236, 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 taken to avoid future non-compliance.
- b. The Permittee shall submit the following information along with its annual emission report:
 - i. The annual emissions of VOM attributable to working losses, from the Storage Tanks and Wharf Loading (tanks 233, 403-405, 421, 422, 431, 432, 441-444 and wharf asphalt loading) for each month of the previous calendar year,

to demonstrate compliance with Condition 7.20.6(a), tons/year (e.g., for the month of January, the emissions from February of the preceding year through January, for the month of February, the emissions from March of the preceding calendar year through February, 12 months in all);

- ii. The annual emissions of VOM attributable to the truck loading rack (Section 7.23), tanks 234, 235, and 236, the chemical additive station, and associated piping, valves, and pumps for each month of the previous calendar year, to demonstrate compliance with Condition 7.20.6(b), tons/year (e.g., for the month of January, the emissions from February of the preceding year through January, for the month of February, the emissions from March of the preceding calendar year through February, 12 months in all);

7.20.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to an affected tank without prior notification to the IEPA 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:

Changes in the material stored in a tank, provided the tank continues to comply with the Conditions in Section 7.20 of this permit.

7.20.12 Compliance Procedures

- a. Compliance with the operating requirements of Condition 7.20.7 shall be demonstrated by the recordkeeping and reporting requirements of Condition 7.20.9(b) and 7.20.10(a).
- b. Compliance with the emission limitations of Condition 7.20.6(a) shall be demonstrated by the recordkeeping

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and reporting requirements of Condition 7.20.9(b) and 7.20.10(b).

- c. Compliance with the emission limitations of Condition 7.20.6(b) shall be demonstrated by the recordkeeping and reporting requirements of Condition 7.20.9(c), (d), and 7.20.10(b).

7.21 Group E Storage Tanks
 Existing Fixed Roof Storage Tanks

7.21.1 Description

The Permittee operates fixed roof storage tanks with a capacity less than 40,000 gallons used to store various petroleum products (including intermediate products) and organic material.

7.21.2 List of Emission Units and Pollution Control Equipment

Storage Tank	Description	Emission Control Equipment
Tank 540	Fixed roof storage tank	Permanent submerged loading
Tank 541	Fixed roof storage tank	Permanent submerged loading
Tank 542	Fixed roof storage tank	Permanent submerged loading
Tank 543	Fixed roof storage tank	Permanent submerged loading
Tank 544	Fixed roof storage tank	Permanent submerged loading
Tank 545	Fixed roof storage tank	Permanent submerged loading
Tank 546	Fixed roof storage tank	Permanent submerged loading
Tank 547	Fixed roof storage tank	Permanent submerged loading
Tank 548	Fixed roof storage tank	Permanent submerged loading
Tank 553	Fixed roof storage tank	Permanent submerged loading
Tank 554	Fixed roof storage tank	Permanent submerged loading
Tank 556	Fixed roof storage tank	Permanent submerged loading
Tank 557	Fixed roof storage tank	Permanent submerged loading
Tank 559	Fixed roof storage tank	Permanent submerged loading

7.21.3 Applicability Provisions and Applicable Regulations

- a. An "affected tank," for the purpose of these unit-specific conditions, is a storage tank that is only subject to 35 IAC 218.122(b). A storage tank is subject to the requirements of 35 IAC 218.122(b) if the tank has a capacity greater than 250 gallons and is used to store a volatile organic liquid with a vapor pressure of 2.5 psia at 70°F. The affected tanks are identified in Condition 7.21.2.

7.21.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on the affected tank(s) not being subject to 35 IAC 218.120 pursuant to

218.119 because the affected tank(s) have a capacity of less than 40,000 gallons.

- b. This permit is issued based on the affected tank(s) not being subject to the control requirements of 40 CFR 63 Subpart CC because the tanks do not qualify as Group 1 storage tanks because the affected tank(s) are at an existing source and have a capacity of less than 177 m³.

7.21.5 Control Requirements

- a. Each affected tank shall be equipped and operated with a permanent submerged loading pipe, pursuant to 35 IAC 215.122(b). (The Illinois EPA has not approved use of other equivalent equipment in lieu of a permanent submerged loading pipe.)

7.21.6 Emission Limitations

There are no specific emission limitations for these units.

7.21.7 Operating Requirements

None

7.21.8 Inspection Requirements

None

7.21.9 Recordkeeping Requirements

- 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. [40 CFR 63.123(b)]

- b. The Permittee shall maintain records of the following items to demonstrate compliance with Condition 7.21.5 pursuant to Section 39.5(7)(b) of the Act:
 - i. Design information for the tank showing the presence of a permanent submerged loading pipe; and
 - ii. Maintenance and repair records for the tank, as related to the repair or replacement of the loading pipe.

- c. 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 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 TANKS program are used for emission estimates.

7.21.10 Reporting Requirements

The Permittee shall promptly notify the IEPA, Compliance unit of noncompliance with the operating requirements as follows pursuant to Section 39.5(7)(f)(ii) of the Act:

- a. Any storage of VOL in an affected tank that is not in compliance with the control requirements due to absence of the features required by Condition 7.21.5, 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 control requirements (Condition 7.21.5) 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.

7.21.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to an affected tank without prior notification to the IEPA 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:

- a. Changes in the material stored in a tank, provided the tank continues to comply with the Conditions in Section 7.21 of this permit.

7.21.12 Compliance Procedures

None

7.22 Group F Storage Tanks
 Pressurized Storage Tanks

7.22.1 Description

The Permittee operates pressurized storage tanks used to store various petroleum products (including intermediate products) and organic material under pressure.

7.22.2 List of Emission Units and Pollution Control Equipment

Storage Tank	Description	Emission Control Equipment
Tank 601	Pressurized storage tank	Pressure vessel
Tank 602	Pressurized storage tank	Pressure vessel
Tank 603	Pressurized storage tank	Pressure vessel
Tank 610	Pressurized storage tank	Pressure vessel
Tank 621	Pressurized storage tank	Pressure vessel
Tank 622	Pressurized storage tank	Pressure vessel
Tank 623	Pressurized storage tank	Pressure vessel
Tank 624	Pressurized storage tank	Pressure vessel

7.22.3 Applicability Provisions and Applicable Regulations

- a. An "affected tank," for the purpose of these unit-specific conditions, is a pressure vessel designed to operate in excess of 204.9 kPa (29.7 psia) and without emissions to the atmosphere. The affected tanks are identified in Condition 7.22.2.

7.22.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on the affected tank(s) not being subject to 35 IAC 218.120 pursuant to 218.119 because the affected tank(s) are pressure vessels designed to operate in excess of 29.4 psia and without emissions to the atmosphere.
- b. This permit is issued based on the affected tank(s) not being subject to 35 IAC 218.121, 122, or 123 pursuant to 218.121(a) because the affected tank(s) are pressure tanks capable of withstanding the vapor pressure of such liquid or the pressure of the gas, so as to prevent vapor or gas loss to the atmosphere at all times.

- c. This permit is issued based on the affected tank(s) not being subject to the control requirements of 40 CFR 60 Subpart Kb or 40 CFR 63 Subpart CC because the tanks do not meet the definition of a storage vessel pursuant to 40 CFR 63.641 because the affected tank(s) are pressure vessels designed to operate in excess of 204.9 kPa (29.7 psia) and without emissions to the atmosphere.

7.22.5 Control Requirements

None

7.22.6 Emission Limitations

There are no specific emission limitations for these units.

7.22.7 Operating Requirements

None

7.22.8 Inspection Requirements

None

7.22.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items to demonstrate compliance with Condition 7.22.3 pursuant to Section 39.5(7)(b) of the Act:

- a. Design information for the tank showing that the tank is designed to be operated in excess of 204.9 kPa and without emissions to the atmosphere

7.22.10 Reporting Requirements

None

7.22.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to an affected tank without prior notification to the IEPA or revision of this

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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:

- a. Changes in the material stored in a tank, provided the tank continues to comply with the Conditions in Section 7.22 of this permit.

7.22.12 Compliance Procedures

None

7.23 Asphalt Truck Loading Facility

7.23.1 Description

The Permittee operates an asphalt truck loading rack that is used to load asphalt products into trucks. Additionally, the asphalt truck loading facility includes an additive station that allows loading of chemicals and additive (typically non-VOM material) into the asphalt trucks.

7.23.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Truck Loading Rack	Two-bay asphalt truck loading rack	None
Asphalt Additive Station	Chemical/Additive loading station	None

7.23.3 Applicability Provisions and Applicable Regulations

- a. Components associated with this unit are subject to the fugitive emission regulations as addressed by Section 7.28, including the inspection, recordkeeping, reporting requirements and compliance procedures.

7.23.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on the truck loading rack not being subject to 40 CFR 63 Subpart CC or 35 IAC 218 Subpart Y, Gasoline Distribution because the truck loading rack is not used to load gasoline.

7.23.5 Control Requirements

None

7.23.6 Emission Limitations

- a. VOM emissions from the truck loading rack, tanks 234, 235, and 236 (Section 7.20), the asphalt additive station, and associated piping, valves, and pumps shall not exceed 17.1 tons/year. Compliance with

annual limits shall be determined from a running total of 12 months of data. [T1]

- b. The above limitation was established in Permit 97050137 pursuant to 35 IAC Part 203. These limits ensure that the construction/modification addressed in the aforementioned Permit does not constitute a new major source or major modification pursuant to 35 IAC Part 203. [T1]

7.23.7 Operating Requirements

- a. The Permittee shall only load asphalt and asphalt related materials at the truck loading rack.

7.23.8 Inspection Requirements

N/A

7.23.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items to allow the Illinois EPA to review compliance with the limits of Conditions 7.23.6 and 7.23.7:

- a. The throughput of each organic liquid through tank(s) 234, 235, and 236, gallons/month;
- b. The organic material emissions from tank(s) 234, 235, and 236 attributable to organic liquid stored in each tank, tons/month;
- c. The throughput of each organic liquid shipped through the loading rack, gallons/month; and
- d. The organic material emissions attributable to the truck loading rack, tons/month.

7.23.10 Reporting Requirements

- a. The Permittee shall promptly notify the IEPA, Compliance unit of noncompliance with the operating requirements as follows pursuant to Section 39.5(7)(f)(ii) of the Act:

- i. Any loading of material other than asphalt or asphalt related materials at the truck loading rack, 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 taken to avoid future non-compliance.
- b. The Permittee shall submit the following information along with its annual emission report:
 - i. The annual emissions of VOM attributable to the truck loading rack, tanks 234, 235, and 236 (Section 7.20), the chemical additive station, and associated piping, valves, and pumps for each month of the previous calendar year, to demonstrate compliance with Condition 7.20.6(b), tons/year (e.g., for the month of January, the emissions from February of the preceding year through January, for the month of February, the emissions from March of the preceding calendar year through February, 12 months in all);

7.23.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to an affected tank without prior notification to the IEPA 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:

- a. Changes in the material loading at the truck loading rack provided all material is asphalt or asphalt related material and the truck loading rack continues to comply with the Conditions in Section 7.23 of this permit.

7.23.12 Compliance Procedures

- a. Compliance with the emission limitations and operating requirements of Condition 7.23.6 and 7.23.7

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shall be demonstrated by the recordkeeping and reporting requirements of Condition 7.23.9 and 7.23.10

- b. For purposes of reporting emissions including for the Annual Emission Report, emissions of VOM from the loading of trucks shall be calculated using an emission factor derived from the following AP-42 equation (Chapter 4, Equation 1):

$$L_L = 12.46 (S \times P \times M)/T$$

Where:

S = Saturation factor, dimensionless

P = True vapor pressure of liquid loaded @ T, psia

M = Molecular weight of vapors lb/lb-mole

T = Temperature of bulk liquid loaded, °R

L_L = Loading loss, lb VOM/1000 gal loaded. For asphalt, $L_L = 0.2266$ lb VOM/1000 gallons loaded

7.24 Propane/Propylene Sales Unit (P/P Sales Unit)

7.24.1 Description

The Permittee operates a P/P Sales Unit that separates propane and propylene from an intermediate FCC Unit/Unsaturation Gas Plant stream. The resulting streams are then either used for feed to other process units or routed through a catalyst bed to remove sulfur and other impurities and then routed through one of two driers to remove trace amounts of moisture prior to storage.

7.24.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
P/P Sales Unit	Closed-vent system with pumps and compressors used for separation	None

7.24.3 Applicability Provisions and Applicable Regulations

- a. Components associated with this unit are subject to the fugitive emission regulations as addressed by Section 7.28, including the inspection, recordkeeping, reporting requirements and compliance procedures.

7.24.4 Non-Applicability of Regulations of Concern

N/A

7.24.5 Control Requirements

None

7.24.6 Emission Limitations

- a. VOM emissions attributable to leaking valves and flanges of the P/P Sales Unit shall not exceed 0.7 tons/year. Compliance with annual limits shall be determined using fugitive emissions monitoring data acquired through the facility-wide fugitive monitoring program addressed in Section 7.28. [T1]

- b. The above limitation was established in Permit 95050158 pursuant to 35 IAC Part 203. This limit ensures that the construction/modification addressed in the aforementioned Permit does not constitute a new major source or major modification pursuant to 35 IAC Part 203. [T1]

7.24.7 Operating Requirements

None

7.24.8 Inspection Requirements

N/A

7.24.9 Recordkeeping Requirements

- a. The Permittee shall maintain records of the fugitive VOM emissions associated with the P/P Sales Unit. These emissions shall be quantified based on the facility-wide fugitive monitoring program addressed in Section 7.28.

7.24.10 Reporting Requirements

The Permittee shall submit the following information along with its annual emission report:

- a. The annual emissions of VOM attributable to fugitive emissions from the P/P sales unit to demonstrate compliance with Condition 7.24.6, tons/year, for the preceding calendar year.

7.24.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.24.12 Compliance Procedures

- a. Compliance with the emission limitations of Condition 7.24.6 shall be demonstrated by the recordkeeping and reporting requirements of Conditions 7.24.9 and 7.24.10.

7.25 Coke Processing and Handling Operations

7.25.1 Description

The Permittee operates coke processing and handling equipment to screen, crush, transfer, and store coke including a crane, screen, crusher, hoppers, conventional conveyors, a pipeline conveyor, stackers, storage piles, front end loaders, and trucks. This system handles coke that has been produced in the Coker Unit. Fugitive dust emissions are minimized by the use of water in the coke cutting operation, enclosures used on the conveyors, and the design features of the pipeline conveyor.

7.25.2 List of Emission Units and Pollution Control Equipment

The following is a list of the coke processing equipment.

Screen
Crusher

The following is a list of the coke handling equipment.

Crane
Two Hoppers
Enclosed Conventional Conveyors
Pipeline Conveyor
Front End Loaders
Stacker
Coke Piles
Haul Trucks

7.25.3 Applicability Provisions and Applicable Regulations

An "affected coke processing operation," for the purpose of these unit-specific conditions, is an individual process emission unit at the source that was constructed prior to April 14, 1972 and is used for the purpose of processing coke.

"Affected coke handling equipment," for the purpose of these unit-specific conditions, is an emission unit that is used solely for the purpose of transferring coke from one location to another for storage of coke, without changing the size of the coke stream, e.g., by crushing or screening.

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As of the "date issued" as shown on page 1 of this permit, the affected coke processing and handling equipment is identified in Condition 7.25.2.

- a. Each affected coke processing operation shall comply with the visible emission limitations in Condition 5.2.2(a). [35 IAC 212.301]
- b. Each affected coke processing operation shall comply with the opacity limitations found in Condition 5.2.2(c). [35 IAC 212.123]
- c. i. Each affected coke processing operation shall comply with 35 IAC 212.322, which provides that:

No person shall cause or allow the emissions of particulate matter into the atmosphere in any one hour period from any existing process emission unit, which either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced prior to April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in Condition 7.25.3(c)(ii).

- ii. For this purpose, the emissions of particulate matter into the atmosphere in any one hour period from each of the affected coke processing operations shall not exceed the allowable emission rates specified by the following equation from 35 IAC 212.322(b):

$$E = C + A(P)^B$$

Where:

P = Process weight rate; and
E = Allowable emission rate; and

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- A. For process weight rates up to 27.2 Mg/hr (30 T/hr):

	<u>Metric</u>	<u>English</u>
P	Mg/hr	T/hr
E	kg/hr	lbs/hr
A	1.985	4.10
B	0.67	0.67
C	0	0

- B. For process weight rates in excess of 27.2 Mg/hr (30 T/hr):

	<u>Metric</u>	<u>English</u>
P	Mg/hr	T/hr
E	kg/hr	lbs/hr
A	25.21	55.0
B	0.11	0.11
C	-18.4	-40.0

- d. 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.
- e. 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.

7.25.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on each affected coke processing operation not being subject to 35 IAC 212.321, Process Emission Units For Which Construction or Modification Commenced On or After April 14, 1972, because each affected coal processing operation was constructed before this date and has not been modified thereafter.

- b. Affected coke handling equipment is not subject to the requirements of 35 IAC 212.321 or 212.322 because of the disperse nature of coke handling equipment as addressed by 35 IAC 212.323.
- c. The coke storage piles are not subject to the requirements of 35 IAC 212.204(a) pursuant to 35 IAC 212.304(b) because particulate matter emissions from the storage piles do not cross the property line either from direct wind action or reentrainment.

7.25.5 Control Requirements

- a. Each affected coke processing operation shall be operated with coke that contains sufficient moisture or that has been treated with dust suppressant to prevent, in conjunction with other control measures, to minimize visible emissions of fugitive particulate matter emissions escaping from the coke processing operation.
- b. Affected coke handling equipment shall be operated consistent with good industry practice for handling of coke, including operation with coke that contains sufficient moisture or that has been treated with dust suppressant or operation of other control measures, to minimize visible emissions of fugitive particulate matter emissions escaping from the coke handling equipment.

7.25.6 Emission Limitations

There are no unit specific emission limitations for these units.

7.25.7 Operating Requirements

None

7.25.8 Inspection Requirements

N/A

7.25.9 Recordkeeping Requirements

- a. The Permittee shall maintain an up-to-date record of the maximum process weight rate at which each coke processing operation can physically be operated (tons coke/hour), an analysis of the control efficiency necessary to assure compliance with Condition 7.25.3(c) at this maximum rate, a demonstration that such measures are present, with supporting documentation for the efficiency of control measures and supporting emission calculations.
- b. The Permittee shall maintain records of the practices that it will follow as good industry practice to minimize visible emissions of fugitive particulate matter, including the minimum practices that are sufficient to assure compliance with Condition 7.25.6(e).
- c. The Permittee shall maintain records of the following items for affected coke handling equipment to demonstrate compliance with Condition 7.25.5 pursuant to Section 39.5(7)(b) of the Act:

Identification, date, and hours of operation of any affected coke handling equipment without the minimum associated pollution control measures operating as required, including the reason why the minimum associated pollution control measures were not operating as required.

7.25.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section of noncompliance with the emission limitations as follows pursuant to Section 39.5(7)(f)(ii) of the Act:

- a. Notification within 30 days of any operation of an affected coke processing operation that was not in compliance with applicable requirements as determined from the records required by Condition 7.25.9(a), with a copy of such records for each incident.

- b. Notification within 30 days of operation of affected coke handling equipment that was not in compliance with applicable requirements in Condition 7.25.3(d) or (e).

7.25.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to affected coal handling equipment 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

7.25.12 Compliance Procedures

- a. Compliance with the requirement of Condition 7.25.3 is to be shown by compliance with the control and recordkeeping requirements of Condition 7.25.5 and 7.25.9.

7.26 Cooling Towers

7.26.1 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.

7.26.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
General Cooling Tower	60,301 gpm Non-contact process water cooling tower	None
Alky Cooling Tower	32,771 gpm Non-contact process water cooling tower	None
Hamon Cooling Tower	11,488 gpm Non-contact process water cooling tower	None

7.26.3 Applicability Provisions and Applicable Regulations

- a. An "affected cooling tower" for the purposes of these unit specific conditions, is a non-contact industrial process cooling tower as described in 7.26.1 and 2.
- b. Pursuant to 40 CFR 63.402, the Permittee shall not use chromium-based water treatment chemicals in any affected cooling tower.
- c. Each affected cooling tower shall comply with the control requirements of 35 IAC 218.986(d) as included in Conditions 7.26.8, 7.26.9, and 7.26.10.

7.26.4 Non-Applicability of Regulations of Concern

N/A

7.26.5 Control Requirements

None

7.26.6 Emission Limitations

There are no specific emission limitations for this unit.

7.26.7 Operating Requirements

None

7.26.8 Inspection and Monitoring Requirements

- a. In accordance with the procedures identified in the cooling tower inspection and monitoring program submitted to the Illinois EPA pursuant to 35 IAC 218.986(d)(3)(B), the Permittee shall, at least once per day sample for hydrocarbons at each affected cooling tower as follows:
 - i. Samples of cooling water are taken at each affected cooling towers cooling water return header. The samples are taken by filling a sample bottle 2/3 full with cooling water and agitating the sample with air.
 - ii. The wand of a LEL hydrocarbon meter is then inserted into the air space within the sample bottle to measure Lower Explosive Limit (LEL).
 - iii. A LEL reading other than zero indicates there may possibly be a hydrocarbon leak in the cooling water system for the subject cooling tower.
 - iv. Additionally, a quart sample of cooling water is also taken from the Alky Cooling Tower return header. A check is then made on the sample for fluoride (a surrogate parameter for VOM at the Alky Cooling Tower). If the result shows the presence of fluorides at a level greater than 10 ppm, there could be a hydrocarbon leak.
 - v. If either of the monitoring results indicate the potential for a leak to exist, additional hydrocarbon tests are done at each Process Unit Battery Limit Cooling Water return header

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sample point in an effort to identify the process unit that may have the leak.

- vi. Once the Process Unit with the hydrocarbon leak is identified, individual exchangers in the unit are checked for leaks. Once the leaking exchanger is found it is taken out of service as soon as possible to repair. (Note: As allowed by 35 IAC 218.986(d)(1)(C)(ii), if the exchanger can't be removed from service without disrupting production, appropriate steps are implemented to assure the repair is made to the leaking component at the next reasonable opportunity).
- vii. If the fluoride level in the Alky Cooling Tower return water indicates a hydrocarbon leak, then the Alky Unit exchangers are checked for fluoride leaks. Once the leaking exchanger is found it is taken out of service as soon as possible to repair. (Note: As allowed by 35 IAC 218.986(d)(1)(C)(ii), if the exchanger can't be removed from service without disrupting production, appropriate steps are implemented to assure the repair is made to the leaking component at the next reasonable opportunity).
- viii. In addition to the monitoring and inspection procedures identified above, chlorine levels in the cooling towers are monitored on a continuous basis. If the chlorine level in any of the cooling towers drops significantly, the cooling tower with the low chlorine level may be checked for hydrocarbons as a significant change in chlorine level in the cooling water could be an indication of a potential hydrocarbon leak.
- ix. First, the possibility of a chlorine pump problem is eliminated. Once this potential problem is ruled out, then the cooling water is sampled for hydrocarbons in a manner consisted with the methods identified above.

- b. Pursuant to 35 IAC 218.986(d)(1)(B) and 218.986(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 the cooling water tower.
- c. Pursuant to 35 IAC 218.986(d)(1)(C) and 218.986(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.

7.26.9 Recordkeeping Requirements

- a. Pursuant to 35 IAC 218.986(d)(5), the owner or operator of a non-contact process water cooling tower shall keep records as follows:
 - i. Records of inspection and monitoring activity.
 - ii. Records of each leak identified in such 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.

7.26.10 Reporting Requirements

Pursuant to 35 IAC 218.986(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:

- a. The number of leaks identified in each cooling tower.
- b. A general description of activity to repair or eliminate leaks which were identified.
- c. 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.
- d. Identification of any periods when required inspection and monitoring activities were not carried out.

7.26.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to the affected cooling towers 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

7.26.12 Compliance Procedures

- a. Compliance with the inspection and monitoring requirements of Condition 7.26.8 is assured by the recordkeeping and reporting requirements of 7.26.9 and 7.26.10.

7.27 Temporary Rental Boiler

7.27.1 Description

The Permittee operates temporary rental boiler(s) used for back-up steam production in the event that the CO Boilers or the Auxiliary Boiler, either alone or in any combination are shutdown/derated for maintenance.

7.27.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Rental Boiler 1	98.8 mmBtu/hr (or less) rental boiler	None
Rental Boiler 2	98.8 mmBtu/hr (or less) rental boiler	None

7.27.3 Applicability Provisions and Applicable Regulations

- a. An "affected rental boiler" for the purposes of these unit specific conditions, is a boiler with a maximum firing rate of less than 100 mmBtu/hr that was constructed after June 9, 1989, that fires only gaseous fuels as described in Condition 7.27.2.
- b. The affected rental boilers are subject to the NSPS for Small Industrial-Commercial Institutional Steam Generating Units, 40 CFR 60 Subparts A and Dc, because the construction, modification, or reconstruction is commenced after June 9, 1989 and has a maximum design heat input capacity of 29 megawatts (MW) (100 million Btu per hour (Btu/hr)) or less, but greater than or equal to 2.9 MW (10 million Btu/hr). The Illinois EPA administers the NSPS for subject sources in Illinois pursuant to a delegation agreement with the USEPA.
- c. Pursuant to 40 CFR 60.104(a)(1), no owner or operator shall burn in any affected rental boiler any fuel gas which contains hydrogen sulfide in excess of 230 mg/dscm (0.10 gr/dscf).
- d. i. Pursuant to 35 IAC 212.123 the emissions of smoke or other particulate matter into the atmosphere from an affected rental boiler

shall not be greater than 30 percent except as provided below;

- ii. The smoke or other particulate matter emissions from an affected rental boiler may have an opacity greater than 30 percent but not greater than 60 percent ("more opaque emissions") for a period or periods aggregating 8 minutes in any 60 minute period, provided that such periods of more opaque emissions are limited to three (3) times in any 24-hour period, and such periods of more opaque emissions may not simultaneously occur at other such emission units located within a 305 m (1,000 ft) radius of an affected rental boiler when the affected rental boiler is experiencing periods of more opaque emissions.
- e. Pursuant to 35 IAC 216.121, no person shall cause or allow the emissions of CO from an affected process heater to exceed 200 ppm, corrected to 50% excess air;

7.27.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on the affected rental boiler(s) not being subject to 40 CFR 60 Subpart Db, NSPS for Industrial-Commercial-Institutional Steam Generating Units because the affected rental boiler(s) firing rate is less than 100 mmBtu/hr.
- b. This permit is issued based on the affected rental boiler(s) not being subject to the notification requirements of 40 CFR 60.7(a)(1) or (2). This determination is based on the fact that the affected rental boiler(s) are used as emergency back-up equipment and as such, a thirty day notice is not practical.
- c. This permit is issued based on the affected rental boiler(s) not being subject to 35 IAC 212.206, 212.207, or 214.162 because the affected rental boiler(s) do not burn liquid fuel or a combination of fuels.

- d. This permit is issued based on the affected rental boiler(s) not being subject to 35 IAC 214.301 because the rental boiler(s) are not process emission sources, but rather fuel combustion emission sources.
- e. This permit is issued based on the affected rental boiler(s) not being subject to 35 IAC 217.121 because the actual heat input of each heater is less than 250 mmBtu/hr.

7.27.5 Control Requirements

None

7.27.6 Emission Limitations

- a. Emissions from each affected rental boiler shall not exceed the following limits:

<u>Item of Equipment</u>	<u>Fuel Usage (mmscf/yr)</u>	<u>NO_x Emissions (Ton/Yr)</u>	<u>CO Emissions (Ton/Yr)</u>
Rental Boiler	116.2	7.3	2.0

Compliance with annual limits shall be determined from a running total of 12 months of data. [T1]

The above limitations were established in Permits 97120082 pursuant to 40 CFR 52.21, Prevention of Significant Deterioration. These limits ensure that the construction/modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to the federal rules for PSD, 40 CFR 52.21. [T1]

- b. The affected rental boiler(s) and existing boilers; East CO Boiler (14-B-3), West CO Boiler (14-B-4), and Auxiliary Boiler (55-B-1) shall only be operated at the same time as needed to provide a steady supply of steam for existing refinery operations.
- c. This permit is issued based on temporary operation of an affected rental boiler so that maintenance can be performed on the existing boilers, East CO Boiler (14-B-3), West CO Boiler (14-B-4), and Auxiliary Boiler (55-B-1) without any increase in actual NO_x,

SO₂, CO, PM, or OM over the levels that are currently being emitted by the existing boilers.

7.27.7 Operating Requirements

- a. The Permittee shall not utilize solid or liquid fuels in any affected rental boiler.

7.27.8 Monitoring Requirements

Pursuant to 40 CFR 60.105(a)(4), the owner or operator shall install, calibrate, maintain, and operate a continuous monitoring system that continuously monitors and records concentrations of hydrogen sulfide in fuel gases burned in any affected rental boiler. Fuel gas combustion devices, including any affected rental boiler, having a common source of fuel gas may be monitored at one location, if monitoring at this location accurately represents the concentration of H₂S in the fuel burned. The span of this continuous monitoring system shall be 300 ppm.

These monitoring system(s) shall be the basis for quarterly reporting of exceedances of the NSPS 40 CFR 60.104(a)(1) (Condition 7.27.3(b)) in accordance with 40 CFR 60.7(c) and 60.105(e). [See also Condition 7.27.10(a)]

The above requirement is not applicable when the affected rental boiler(s) is burning natural gas, which is the typical fuel utilized in the affected temporary boiler(s).

7.27.9 Recordkeeping Requirements

- a. Records for Continuous H₂S Monitoring Systems

Pursuant to Section 39.5(7)(b) of the Act, the Permittee shall maintain records for the H₂S monitoring system on each affected rental boiler required by Condition 7.27.8 that as a minimum shall include:

- i. Operating records for each H₂S monitoring system, including:
 - A. H₂S measurements;

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- B. Continuous monitoring system performance testing measurements;
 - C. Performance evaluations;
 - D. Calibration checks;
 - E. Maintenance and adjustment performed;
 - F. Quarterly reports submitted in accordance with 40 CFR 60.7(c) (Condition 7.27.10(a)); and
 - G. Data reduction information used pursuant to Condition 7.27.12(a).
- ii. For time periods when refinery fuel gas is used in an affected temporary boiler, records to verify compliance with the limitations of Condition 7.27.3(b), including;
- A. Hourly H₂S content from each affected rental boiler as derived from the data obtained by the H₂S monitor, gr/dscf;
 - B. Any three-hour block averaging period when the total H₂S concentration exceeded 230 mg/dscm (0.10 gr/dscf)
- c. The Permittee shall maintain appropriate records for each affected process heater so as to allow the Illinois EPA to verify compliance with 35 IAC 212.123 (Condition 7.27.3(c)).
- d. The Permittee shall maintain records of the following items to allow the Illinois EPA to review compliance with the limits of Conditions 7.27.6:
- i. Time periods when an affected rental boiler is in operation;
 - ii. Fuel usage of the affected rental boiler(s), mmft³/mo;

- iii. Each period of time that an existing boiler, e.g., East CO Boiler (14-B-3), is out of service for maintenance and a description of the maintenance performed; and
- iv. Emissions of NO_x and CO for each affected rental boiler, tons/month.

7.27.10 Reporting Requirements

a. Quarterly Report

Pursuant to 40 CFR 60.7(c), the owner or operator required to install a continuous monitoring system pursuant to 40 CFR 60 Subpart J (Condition 7.27.8) shall submit a written report of excess emissions (as defined by 40 CFR Subpart J) to the Illinois EPA, Compliance Section for each calendar quarter. This report shall be postmarked by the 30th day following the end of each calendar quarter and shall include the following information:

- i. The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions;
- ii. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of an affected rental boiler. The nature and cause of any malfunction (if known), the corrective actions taken or preventative measures adopted;
- iii. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments; and
- iv. When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

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For the purposes of this report, the NSPS 40 CFR 60.105(e)(3) defines and exceedance of sulfur dioxide as "Any three-hour period during which the average concentration of H₂S in any fuel gas combusted in any fuel gas combustion device subject to 40 CFR 60.104(a)(1) exceeds 230 mg/dscm (0.10 gr/dscf), if compliance is achieved by removing H₂S from the fuel gas before it is burned."

The above monitoring requirement is not applicable when the affected rental boiler(s) is burning natural gas, which is the typical fuel utilized in the affected temporary boiler(s).

- b. The Permittee shall promptly notify the Illinois EPA, Compliance Section of noncompliance with the emission limitations as follows pursuant to Section 39.5(7)(f)(ii) of the Act:

Notification within 5 days of operation of affected rental boiler that was not in compliance with applicable requirements in Condition 7.27.3(b).

- c. The Permittee shall submit the following information along with its annual emission report:

The annual emissions of NO_x and CO from each affected rental boiler for each month of the previous calendar year, to demonstrate compliance with Condition 7.27.6, tons/year (e.g., for the month of January, the emissions from February of the preceding year through January, for the month of February, the emissions from March of the preceding calendar year through February, 12 months in all);

- d. The Permittee shall submit the following information to the Illinois EPA Compliance Unit within 15 days of startup of an affected rental boiler:

- i. The actual date of startup [40 CFR 60.7(a)(3)];
- ii. The actual rated capacity of the affected rental boiler, mmBtu/hr;

- iii. The reason the affected rental boiler was placed in operation; and
- iv. Anticipated duration of operation of the affected rental boiler.

7.27.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to affected rental boiler(s) 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 except as otherwise addressed here:

- a. The Permittee may "install" affected rental boilers on an emergency basis to provide necessary steam during time periods that the existing boilers can't supply adequate steam due to maintenance being performed without acquiring a construction permit from the Illinois EPA. This privilege only extends to rental boilers of less than 98.6 mmBtu/hr firing gaseous fuels only that complies with the requirements of Section 7.27, for which the notification requirement of Condition 7.27.10(c) is fulfilled.

7.27.12 Compliance Procedures

- a. Pursuant to 40 CFR 60.106(c) for the purposes of determining compliance with 40 CFR 60.104(a)(1) Method 11 shall be used to determine the H₂S concentration. Ongoing compliance is assured by the reporting requirements of Condition 7.2.10(a). Pursuant to 40 CFR 60.8(c) emissions in excess of the level of the applicable emission limit during periods of startup, shutdown, and malfunction shall not be considered a violation of the applicable emission limit.

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- b. Compliance with the requirements of 35 IAC 212.123 (Condition 7.27.3(c)) shall be demonstrated by the records required by Condition 7.27.9(b).
- c. Compliance with 35 IAC 216.121 (Condition 7.27.3(d)) is considered to be assured by the inherent nature of the operations at this source, as demonstrated by historical operation.
- d. Compliance with the requirements of Condition 7.27.6 shall be demonstrated by the recordkeeping requirements of Condition 7.27.9(c).

NO_x emissions for affected rental boilers shall be calculated using unit specific emission factors of 0.125 lb NO_x/10⁶ BTU.

CO emissions for affected rental boiler shall be calculated using AIRS emission factor of 35 lb CO/10⁶ ft³.

7.28 Fugitive Emissions/Equipment Leaks

7.28.1 Description

The Permittee operates petroleum refining process units that include components that are considered equipment in organic HAP service.

7.28.2 List of Emission Units and Pollution Control Equipment

Equipment in organic HAP service includes various pumps, compressors, relief valves, sampling connections, valves, and connectors.

7.28.3 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 that was either constructed or reconstructed on or before July 14, 1994, or was constructed or reconstructed after July 14, 1994 and does not have the potential to emit 10 tons/year or more of any HAP or 25 tons/year or more of any combination of HAPs. The Permittee has chosen to comply with the equipment leak requirements of 40 CFR 63 Subpart CC by complying with the provisions of 40 CFR 60 Subpart VV pursuant to 40 CFR 63.648(a).
- b. In an effort to streamline recordkeeping requirements, and account for all possible operating scenarios, all affected petroleum refining process units are considered to be in organic HAP service and calculation of percentage leaking equipment is done on a sourcewide basis.
- c. Each affected petroleum refining process unit subject to 40 CFR 60 Subpart CC (40 CFR 60 Subpart VV) is hereby shielded from compliance with 35 IAC 218.445-452. This shield is issued to streamline the applicable requirements for the source, based on the IEPA's finding that compliance with 40 CFR 63 Subpart CC assures compliance with 35 IAC 218.445-452 following the review of the requirements of 40 CFR 63 Subpart CC and 35 IAC 218.445-452.

7.28.4 Non-Applicability of Regulations of Concern

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

7.28.5 Control Requirements

- a. Compressors
 - i. Each compressor, except compressors meeting the criteria specified in 40 CFR 60.482-3(h) or (i) 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)].
 - 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;
 - 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 7.28.5(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)]:
 - 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.

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 7.28.8(f).

b. Sampling Connection Systems

Except for in-situ sampling systems and sampling systems without purges, each sampling connection system 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. Captures and transports all the purged process fluid to a control device that complies with the requirements of 40 CFR 60.482-10 (Condition 7.28.5(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. Currently, the Permittee only utilizes flares to control fugitive emissions. [also see Section 7.15]

7.28.6 Emission Limitations

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

7.28.7 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 7.28.8(f). [40 CFR 60.482-4(b)]
- b. Open-ended Valves or Lines
 - i. 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(a)].

7.28.8 Inspection and Monitoring Requirements

a. Pumps in Light Liquid Service

- i. Each pump in light liquid service, except pumps meeting the criteria specified in 40 CFR 60.482-2(d), (e), or (f) 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 7.28.8(f).

b. Pressure Relief Devices in Gas/Vapor Service

Pressure relief devices subject to the requirements of Condition 7.28.7(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

- 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

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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 7.28.8(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. Any valve for which a leak is not detected for 2 successive months may be monitored the first month of every quarter, beginning with the next quarter, until a leak is detected, at such time, 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 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

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leaking equal to 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 7.28.8(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 7.28.8(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 7.28.8(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)];

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- 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 7.28.8(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
7.28.5(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.
- 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.

7.28.9 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 7.28.8(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.

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- 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 effected 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)]:

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- 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 7.28.8(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;
 - 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 7.28.7(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

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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;
 - 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)].

7.28.10 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. For the initial semi-annual report only, the 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. For the initial semi-annual report only, the 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;
 - ii. Number of valves for which leaks were not repaired;
 - iii. Number of pumps for which leaks were detected;
 - iv. Number of pumps for which leaks were not repaired;

- v. Number of compressors for which leaks were detected;
 - vi. Number of compressors for which leaks were not repaired; 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; and
- g. Revisions to items reported in accordance with 7.28.10(a-d) if changes have occurred since the initial report or subsequent revisions to the initial report.

7.28.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational changes with respect to fugitive emission components 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:

- a. Replacement and/or relocation of components, including pumps, compressors, pressure relief devices, sampling connections, valves, flanges, and other connectors with like kind or similar components at emission units included in this permit, provided the replacement and/or relocation of the component does not cause a realized or potential increase in emissions from the emission unit or other emission unit at the facility.

7.28.12 Compliance Procedures

- a. Compliance with the control, operating, and inspection and monitoring requirements of Condition 7.28.5, 7.28.7, and 7.28.8 shall be demonstrated by the recordkeeping and reporting requirements of Condition 7.28.9 and 7.28.10.

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 _____ **{insert public notice start date}** (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 without applying for or obtaining an amendment to this permit, provided that the changes do not constitute a modification under Title I of the CAA, emissions will not exceed the emissions allowed under this permit following implementation of the physical or operational change, and 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 [Section 39.5(12)(a) of the Act]. This notice shall:

- a. Describe the physical or operational change;
- b. Identify the schedule for implementing the physical or operational change;
- c. 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;
- d. Provide emission calculations which demonstrate that the physical or operational change will not result in a modification; and
- e. 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

A report summarizing required monitoring 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:

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Mobil Oil Corporation - Joliet Refinery
I.D. No.: 197800AAA
Application No.: 95120304
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- 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
Eisenhower Tower
1701 South First Avenue
Maywood, Illinois 60153
 - iii. Illinois EPA - Air Permit Section (MC 11)

Illinois Environmental Protection Agency
Division of Air Pollution Control
Permit Section
P.O. Box 19506
Springfield, Illinois 62794-9506
 - iv. USEPA Region 5 - Air Branch

USEPA (AR - 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)(p)(ii) of the Act]:

- 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; 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.

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)(l), (n), and (o) of the Act].

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Mobil Oil Corporation - Joliet Refinery
I.D. No.: 197800AAA
Application No.: 95120304
April 10, 2000

10.0 ATTACHMENTS

10.1 Attachment 1 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: _____

JRC:psj

I. INTRODUCTION

This source has applied for a Clean Air Act Permit Program (CAAPP) operating permit for its existing operation. The CAAPP is the program established in Illinois for the operating permits for significant stationary sources required by the federal Clean Air Act, as amended in 1990. The conditions in a CAAPP permit are enforceable by both the Illinois Environmental Protection Agency (Illinois EPA) and the USEPA.

Mobil Oil Corporation - Joliet Refinery is a fully integrated petroleum refinery which was built to provide high quality gasoline, diesel fuels, and other petroleum products to the marketplace. The refinery basically performs four common refining functions throughout its processing of crude oil: Separation, Conversion, Purification, and Blending.

II. EMISSION UNITS

Significant emission units at this source are as follows:

Emission Unit	Description	Date Constructed	Emission Control Equipment
Crude Atmospheric Heater (1-B-1A)	389 mmBtu/hr process heater capable of firing fuel gas, oil, or a combination of fuels	1-71	Decoking Pot (1-D-18A)
Crude Atmospheric Heater (1-B-1B)	389 mmBtu/hr process heater capable of firing fuel gas, oil, or a combination of fuels	1-71	Decoking Pot (1-D-18B)
Crude Vacuum Heater (13-B-2)	277 mmBtu/hr process heater capable of firing fuel gas, oil, or a combination of fuels	1-71	Decoking Pot (1-D-18C)
Crude Unit Feed Preheater (1-B-3/13-B-4)	240 mmBtu/hr process heater capable of firing fuel gas, or a combination of fuels	1-71	Decoking Pot (1-D-18D)
Coker East Charge Heater (16-B-1A)	183 mmBtu/hr process heater capable of firing fuel gas	1-71	Low-NO _x burners and Decoking Pot (16-M-50A)
Coker East Charge Heater (16-B-1B)	183 mmBtu/hr process heater capable of firing fuel gas	1-71	Low-NO _x burners and Decoking Pot (16-M-50B)
Coker Blowdown System including three settled oil tanks (16-F-2A, 2B, and 2F)	Blowdown of hydrocarbon vapors from coke drum and liquid recovery	1-71	Flare System for the vapor blowdown

Emission Unit	Description	Date Constructed	Emission Control Equipment
Coke Cutting Operation including Coke Drums (16-D-5A, 5B, 5C, and 5D) and hydraulic water jet	Coke cutting and handling operation where petroleum coke is cut with water from coke drums and transferred to storage piles	1-71	-
FCC Unit	Fluid Catalytic Cracking Unit	1-71	FCC Regenerator Cyclones, Third Stage Separator Cyclones, and East & West CO Boilers
Air Preheater (4-B-1)	196 mmBtu/hr air preheater capable of firing fuel gas	1-71	None
FCC Catalyst Hoppers, Additive Bins, and Fines Bin (4-D-1, 4-D-2, 4-D-46, 4-D-48, 14-D-25)	Catalyst Handling equipment	1-71	FCC Catalyst Bin Wet Gas Scrubber (4-M-14) and Baghouses (4-D-47 and 4-D-49)
East & West CO Boilers (14-B-3 & 14-B-4) when operating independent of the FCC Unit	530 mmBtu/hr each combustion units capable of combusting CO waste gas from the FCC with refinery fuel gas, CO waste gas from the FCC with refinery fuel gas and blended fuel oil, or fuel gas only	1-71	None
Unsaturation Gas Plant (Unit 05)	Closed-vent system with pumps and compressors used for separation	1-71	None
LPG Treater (Unit 15)	Closed-vent system with pumps used to treat LPG streams	1-71	None
Gasoline Treater (Unit 09)	Closed-vent system with pumps used to treat gasoline streams	1-71	None
Fuel Gas Sales (Unit 19)	Closed-vent system used to compress and treat fuel gas	1-71	None
Alky Iso-Stripper Reboiler (7-B-1)	138 mmBtu/hr process heater capable of firing fuel gas or a combination of fuels	11-70	None

Emission Unit	Description	Date Constructed	Emission Control Equipment
PreTreater Reactor Vent	Reactor vessel vent that is open only during catalyst regeneration phase of unit startup	1-71	None
PreTreater Charge Heater (17-B-1)	140 mmBtu/hr fuel gas fired process heater	1-71	None
PreTreater Debutanizer Reboiler (17-B-2)	180 mmBtu/hr fuel gas fired process heater	1-71	None
CCR Regenerator Vent (2-D-89)	CCR flue gas vent	1-71	Vent gas wash tower (2-D-90)
CCR Charge Heaters (2-B-3, 4, 5, & 6)	Four process heaters with common breaching (combined duty - 620 mmBtu/hr) capable of firing fuel gas	1-71	Low-NO _x burners
CCR Reformate Debutanizer Reboiler (2-B-7)	91 mmBtu/hr process heater capable of firing fuel gas	1-71	None
HDF Reactor Vent Stack (12-D-2)	Reactor vessel vent that is open only during catalyst regeneration phase of unit startup	3-80	None
HDF Unit Charge Heater (12-B-1)	13 mmBtu/hr process heater capable of firing gaseous fuels	4-80	None
2 CHD Reactor Vents	One reactor vessel vent per reactor that is open only during catalyst regeneration phase of startup	3-80	None
CHD Charge Heater (3-B-1)	158 mmBtu/hr process heater capable of firing gaseous fuels, oil, or a combination of fuels	1-71	Decoking Pot
CHD Stripper Reboiler Heater (3-B-2)	129 mmBtu/hr process heater capable of firing gaseous fuels	1-71	None
Saturate Gas Plant Reboiler (8-B-1)	74 mmBtu/hr process heater capable of firing gaseous fuels	1-71	None
Sour Water Stripper	Stripping & purification unit for removal of hydrogen and ammonia from sour water	1-71	-

Emission Unit	Description	Date Constructed	Emission Control Equipment
East Amine Train	Acid gas removal system	1-71	-
West Amine Train	Acid gas removal system	1-71	-
North Amine Train	Acid gas removal system including amine sump & lean amine tank	3-91	Carbon canister adsorbers for sump and tank
South Sulfur Recovery Unit	Claus sulfur recovery process	11-70	Afterburner (11-B-3 & 11-B-23)
North Sulfur Recovery Unit	Claus sulfur recovery process/tail gas recovery including amine tank	3-91	Thermal oxidizer (11-B-32) and carbon canister for tank
Auxiliary Boiler (55-B-100)	600 mmBtu/hr boiler capable of firing fuel gas, oil, or a combination of fuels	1-71	Low-NO _x burners
Gas Turbine Generator (20-N-1)	24 KW turbine capable of firing gaseous fuels	4-86	CO Catalytic Converter and Steam Injection
Waste Heat Steam Generator (20-B-1)	143 mmBtu/hr waste heat steam generator capable of firing gaseous fuels	4-86	CO Catalytic Converter
Benzene Removal Unit (BRU)	Packed column air stripper used to remove benzene	6-90	Thermal Vapor Incinerator (38-B-1)
Lift Station #2 including associated tank water draws	Sump and covered drains	2-71	Carbon Canister
Lift Station #9	Sump	2-93	Carbon Canister
Surge Tank 103	External floating roof storage tank	2-71	Primary & Secondary Seals
Slop oil/water tank 523	External floating roof storage tank	2-71	Primary & Secondary Seals
Slop oil/water tank 524	External floating roof storage tank	2-71	Primary & Secondary Seals
Tank 101 (backup tank)	External floating roof storage tank	2-71	Primary & Secondary Seals
Tank 204 (backup tank)	External floating roof storage tank	2-71	Primary & Secondary Seals
Tank 205 (backup tank)	External floating roof storage tank	3-80	Primary & Secondary Seals

Emission Unit	Description	Date Constructed	Emission Control Equipment
Diversion Basin	Surge Flow Containment	1-71	N/A
API Separators & Pre-Flumes	Floating Oil and Solids Gravity Separation Process	1-71	N/A
Dissolved Air Flotation Units	Oil/Solids Separation by way of Chemical Coagulation and Air Flotation	1-71	N/A
Upper & Lower Neutralization Tanks	Fluoride Removal Process	1-71	N/A
Flare system piping, knock-out drums and seal drums	Gas collection system with high and low pressure header	11-70	East and West Flares
East Flare (49-B-305A)	Steam assisted smokeless flare	11-70	N/A
South Flare (49-B-305B)	Steam assisted smokeless flare	11-70	N/A
Wharf Loading Facility	Five arm wharf loading operation used to transfer various petroleum products and associated products to and from marine vessels	1-71	None
Tank 101	External floating roof storage tank	2-71	Floating roof, shoe-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe
Tank 102	External floating roof storage tank	2-71	Floating roof, shoe-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe

Emission Unit	Description	Date Constructed	Emission Control Equipment
Tank 201	External floating roof storage tank	2-71	Floating roof, shoe-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe
Tank 202	External floating roof storage tank	2-71	Floating roof, shoe-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe
Tank 203	External floating roof storage tank	2-71	Floating roof, shoe-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe
Tank 204	External floating roof storage tank	2-71	Floating roof, shoe-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe
Tank 205	External floating roof storage tank	3-80	Floating roof, shoe-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe

Emission Unit	Description	Date Constructed	Emission Control Equipment
Tank 310	External floating roof storage tank	3-74	Floating roof, shoe-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe
Tank 313	External floating roof storage tank	2-71	Floating roof, shoe-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe
Tank 314	External floating roof storage tank	2-71	Floating roof, shoe-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe
Tank 315	External floating roof storage tank	2-71	Floating roof, liquid-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe
Tank 316	External floating roof storage tank	2-71	Floating roof, shoe-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe

Emission Unit	Description	Date Constructed	Emission Control Equipment
Tank 317	External floating roof storage tank	2-71	Floating roof, shoe-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe
Tank 318	External floating roof storage tank	2-78	Floating roof, shoe-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe
Tank 312	External floating roof tank	2-71	Floating roof, vapor-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe
Tank 405	External floating roof tank	2-71	Floating roof, vapor-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe
Tank 309	External floating roof storage tank converted to internal floating roof storage tank by addition of dome	1-94	Floating roof, shoe-mounted primary seal, and a permanent submerged loading pipe
Tank 311	External floating roof storage tank converted to internal floating roof storage tank by addition of dome	2-71	Floating roof, vapor-mounted primary seal, rim-mounted secondary seal, and a permanent submerged loading pipe

Emission Unit	Description	Date Constructed	Emission Control Equipment
Tank 421	Internal floating roof storage tank	2-71	Floating roof, liquid-mounted primary seal, and a permanent submerged loading pipe
Tank 422	Internal floating roof storage tank	2-71	Floating roof, liquid-mounted primary seal, and a permanent submerged loading pipe
Tank 211	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 212	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 213	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 214	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 215	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 216	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 221	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 222	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 223	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 224	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 225	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 231	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 232	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 233	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 234	Fixed roof storage tank	6-97	Permanent submerged loading
Tank 235	Fixed roof storage tank	6-97	Permanent submerged loading

Emission Unit	Description	Date Constructed	Emission Control Equipment
Tank 236	Fixed roof storage tank	6-97	Permanent submerged loading
Tank 540	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 541	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 542	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 543	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 544	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 545	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 546	Fixed roof storage tank	2-71	Permanent submerged loading
TANK 547	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 548	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 553	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 554	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 556	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 557	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 559	Fixed roof storage tank	2-71	Permanent submerged loading
Tank 601	Pressurized storage tank	2-71	Pressure vessel
Tank 602	Pressurized storage tank	2-71	Pressure vessel
Tank 603	Pressurized storage tank	2-71	Pressure vessel
Tank 610	Pressurized storage tank	2-71	Pressure vessel
Tank 621	Pressurized storage tank	2-71	Pressure vessel
Tank 622	Pressurized storage tank	2-71	Pressure vessel
Tank 623	Pressurized storage tank	2-71	Pressure vessel
Tank 624	Pressurized storage tank	8-95	Pressure vessel
Truck Loading Rack	Two-bay asphalt truck loading rack	6-97	None
Asphalt Additive Station	Chemical/Additive loading station	6-97	None

Emission Unit	Description	Date Constructed	Emission Control Equipment
P/P Sales Unit	Closed-vent system with pumps and compressors used for separation	9-95	None
Coke Processing and Handling Operations	System handles coke that has been produced in the Coker Unit.	2-71	-
General Cooling Towers	60,301 gpm Non-contact process water cooling tower	1-71	None
Alky Cooling Towers	32,771 gpm Non-contact process water cooling tower	1-71	None
Hamon Cooling Towers	11,488 gpm Non-contact process water cooling tower	8-91	None
Rental Boiler 1	98.8 mmBtu/hr (or less) rental boiler	1-98	None
Rental Boiler 2	98.8 mmBtu/hr (or less) rental boiler	1-98	None
Fugitive Emissions/ Equipment Leaks	Fugitive organic HAP service including various pumps, compressors, relief valves, sampling connections, valves, and connectors.	---	-

III. EMISSIONS

This source is required to have a CAAPP permit since it is a major source of emissions.

For purposes of fees, the source is allowed the following emissions:

Emission limitations are not set for this source for the purpose of permit fees. The Permittee shall be required to pay the maximum fee of \$100,000.00 per year, pursuant to Section 39.5(18)(a)(ii)(A) of the Act.

This permit is a combined Title I/CAAPP permit that may contain terms and conditions which address the applicability, and compliance if determined applicable, of Title I of the Clean Air Act and regulations promulgated thereunder, including 40 CFR 52.21 - federal Prevention of Significant Deterioration (PSD) and 35 IAC Part 203 - Major Stationary Sources Construction and Modification. Any such terms and conditions are identified within the permit by T1, T1R, or T1N. The source has requested that the Illinois EPA establish or revise such conditions in a Title I permit, consistent with the information provided in the CAAPP

application. Any conditions established in a construction permit pursuant to Title I and not revised or deleted in this permit, remain in effect pursuant to Title I provisions until such time that the Illinois EPA revises or deletes them.

IV. APPLICABLE EMISSION STANDARDS

All emission sources in Illinois must comply with the Illinois Pollution Control Board's emission standards. The Board's emission standards represent the basic requirements for sources in Illinois.

All emission sources in Illinois must comply with the federal New Source Performance Standards (NSPS). The Illinois EPA is administering NSPS in Illinois on behalf of the United States EPA under a delegation agreement.

All emission sources in Illinois must comply with the federal National Emission Standards for Hazardous Air Pollutants (NESHAP). The Illinois EPA is administering NESHAP in Illinois on behalf of the United States EPA under a delegation agreement.

V. PROPOSED PERMIT

CAAPP

A CAAPP permit contains all conditions that apply to a source and a listing of the applicable state and federal air pollution control regulations that are the origin of the conditions. The permit also contains emission limits and appropriate compliance procedures. The appropriate compliance procedures may include inspections, work practices, monitoring, record keeping, and reporting to show compliance with these requirements. The Permittee must carry out these procedures on an on-going basis.

Title I

A combined Title I/CAAPP permit contains terms and conditions established by the Illinois EPA pursuant to authority found in Title I provisions, e.g., 40 CFR 52.21 - federal Prevention of Significant Deterioration (PSD) and 35 IAC Part 203 - Major Stationary Sources Construction and Modification. Notwithstanding the expiration date on the first page of the 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.

Because this source is located in the Chicago ozone non-attainment area and emits volatile organic material (VOM), the permit includes conditions to implement the Emissions Reduction Market System (ERMS).

The ERMS is a market-based program designed to reduce VOM emissions from stationary sources to contribute to reasonable further progress toward attainment, as further described in Section 6.0 of the permit. The permit contains the Illinois EPA's determination of the source's baseline emissions and allotment of trading units under the ERMS, and identifies units not subject to further reductions. The permit also provides that the source must begin to operate under the ERMS following the initial issuance of allotment trading units to the source. This will occur for the 2000 seasonal allotment period (rather than the 1999 season as originally intended by the ERMS) due in part to delays in the initial issuance of CAAPP Permits. These delays, which have occurred nationally, are attributable to a variety of causes including the unforeseen complexity of processing these permits and gaps in national guidance. Even though operation under the ERMS will not officially start until the 2000 seasonal allotment period, detailed recordkeeping and reporting of seasonal emissions was required beginning in 1998, which will document emissions reductions achieved by sources in 1999 in preparation for the ERMS.

VI. REQUEST FOR COMMENTS

It is the Illinois EPA's preliminary determination that this source's permit application meets the standards for issuance of a CAAPP permit. The Illinois EPA is therefore proposing to issue a CAAPP permit, subject to the conditions proposed in the draft permit.

Comments are requested on this proposed action by the Illinois EPA and the proposed conditions on the draft permit. If substantial public interest is shown in this matter, the Illinois EPA will consider holding a public hearing in accordance with 35 Ill. Adm. Code Part 164.