217/782-2113

CONSTRUCTION PERMIT – NESHAP SOURCE – NSPS SOURCE

PERMITTEE

ConocoPhillips Wood River Refinery
Attn: Neal Sahni
900 South Central Avenue
Roxana, Illinois 62084

Application No.: 05050062 I.D. No.: 119090AAA
Applicant's Designation: Date Received: May 19, 2005
Subject: Low Sulfur Gasoline (SZU)
Date Issued: January 9, 2006
Location: 900 South Central Avenue, Roxana

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

1.0 OVERALL SOURCE CONDITIONS

1.1 Project Description

This construction permit is for the second phase of a low sulfur gasoline project which will allow the refinery to produce lower sulfur gasoline, as required by the USEPA Tier 2 gasoline sulfur requirements. Phase 1, which was permitted June 13, 2002 (Joint Construction and Operating Permit 01120044), was designed to accomplish desulfurization of heavy catalytic naphtha (HCN), and light straight run (LSR) gasoline.

Phase 2 involves the modification of the existing KHT (Kerosene Hydrotreater) unit and installation of a new sorbent regeneration system. The combined KHT unit and new sorbent regeneration system will comprise a new process unit designated as the S Zorb™ Unit (SZU). In the SZU, the intermediate gasoline feed stream is combined with hydrogen and sent to a reactor, which removes sulfur compounds through contact with a fluidized bed of sorbent. The treated hydrocarbon stream is then sent through the modified KHT and on to product tankage for gasoline blending.

Spent sorbent is sent from the SZU reactor to the SZU regenerator through a lockhopper. In the SZU regenerator, the sorbent is oxidized by burning the sulfur compounds off of the spent sorbent. The SO_2 and PM emitted from this oxidation will be controlled by a new caustic scrubber.

This project will involve installation of piping and associated components. The potential exists for VOM emissions to occur from leaks associated with the flanges, valves, pumps, and other components associated with the piping. These fugitive emissions will be controlled by an existing leak detection and repair program.

1.2 Source-Wide Applicable Provisions and Regulations

1.2.1 Specific emission units at this source are subject to particular regulations as set forth in Section 2 (Unit-Specific Conditions for Specific Emission Units) of this permit.

1.2.2 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.

b. Pursuant to 35 IAC 212.123(a), 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, except as allowed by 35 IAC 212.123(b) and 212.124.

1.2.3 This permit is issued based upon no new Individual Drain Systems (IDS) being installed as part of this project.

1.3 Source-Wide Non-Applicability of Regulations of Concern

1.3.1. Prevention of Significant Deterioration/NAA NSR

a. The Permittee has addressed the applicability and compliance of 40 CFR 52.21, Prevention of Significant Deterioration (PSD) and 35 IAC Part 203, Major Stationary Sources Construction and Modification (MSSCAM). The limits established by this permit are intended to ensure that the project addressed in this construction permit does not constitute a major modification of the refinery pursuant to these rules.

b. This permit is issued based on this project not being considered a single project with Phase 1 of the Low Sulfur Gasoline Project, which was permitted June 13, 2002 (Joint Construction and Operating Permit 01120044), as specifically explained by the Permittee in this application.

1.4 Source-Wide Production and Emission Limitations

1.4.1 Debottlenecked Cooling Water Tower (CWT 12B)

a. Emissions and operation of the cooling water tower (CWT 12B) shall not exceed the following limits:

Flow Rate (Gallons/Minute)	VOM Emissions (Tons/Mo)	VOM Emissions (Tons/Yr)	$PM/PM_{10}/PM_{2.5}$ Emissions (Tons/Mo)	$PM/PM_{10}/PM_{2.5}$ Emissions (Tons/Yr)
7,500	1.2	11.8	3.0	29.6

b. Compliance with the annual limits shall be determined from a running total of 12 months of data.

1.4.2 Debottlenecked Storage Tanks

a. Emissions and operation of tanks A-106, A-108, A-113, A-119, and A-123 shall not exceed the following limits:

Throughput (10^6 Gal/Month)	Throughput (10^6 Gal/Year)	VOM Emissions (Tons/Month)	VOM Emissions (Tons/Year)
73.2	732.2	5.0	49.8

Note: The annual limit represents a VOM emissions increase of 9.9 tons (actual VOM emissions for the tanks are 39.9 tons).

b. The Permittee shall not store material with a maximum true vapor pressure in excess of 9.7 psia in tanks A-106, A-108, A-113, A-119, and A-123.

c. Compliance with the annual limits shall be determined from a running total of 12 months of data.

1.5 Source-Wide Recordkeeping Requirements

1.5.1 Retention and Availability of Records

a. All records and logs required by this permit shall be retained for at least five years from the date of entry (unless a longer retention period is specified by the particular recordkeeping provision herein), shall be kept at a location at the source that is readily accessible to the Illinois EPA or USEPA, and shall be made available for inspection and copying by the Illinois EPA or USEPA upon request.

b. The Permittee shall retrieve and print, on paper during normal source office hours, any records retained in an

electronic format (e.g., computer) in response to an Illinois EPA or USEPA request for records during the course of a source inspection.

1.5.2 The Permittee shall maintain records of the following items to demonstrate compliance with Condition 1.4:

a. i. Cooling water tower 12B flow rate (gallons/minute);

ii. Emissions of VOM, PM, PM_{10}, and $PM_{2.5}$ from the cooling water tower 12B (tons/month and tons/year) with supporting calculations and documentation.

b. i. The type, characteristic and quantity of each material stored in tanks A-106, A-108, A-113, A-119, and A-123, including the maximum true vapor pressure;

ii. Throughput for tanks A-106, A-108, A-113, A-119, and A-123 (gallons/month and gallons/year);

iii. Actual emissions of VOM emissions from tanks A-106, A-108, A-113, A-119, and A-123 (tons/month and tons/year).

1.6 Source-Wide Reporting Requirements

1.6.1 Written Test Plan Requirements

a. At least 30 days prior to the actual date of emission testing required by Conditions 2.1.7 and 2.2.7, a written test plan shall be submitted to the Compliance Section of the Division of Air Pollution Control for review. This plan shall describe the specific procedures for testing, including as a minimum:

i. The person(s) who will be performing sampling and analysis and their experience with similar tests.

ii. The specific conditions under which testing will be performed, including a discussion of why these conditions will be representative of maximum emissions and the means by which the operating parameters for the emission unit and any control equipment will be determined.

iii. The specific determinations of emissions and operation which are intended to be made, including sampling and monitoring locations.

iv. The test method(s) which will be used, with the specific analysis method, if the method can be used with different analysis methods.

v. Any minor changes in standard methodology proposed to accommodate the specific circumstances of testing, with justification.

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

vii. The format and content of the Source Test Report.

1.6.2 Contents of Final Test Report(s)

a. Copies of the Final Report(s) for the emission tests required by Conditions 2.1.7 and 2.2.7 shall be submitted to the Illinois EPA within 60 days after completion of the performance test. 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

B. Control equipment information, i.e., equipment condition and operating parameters during testing, and

C. A discussion of any preparatory actions taken, i.e., inspections, maintenance and repair

v. Data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration

vi. An explanation of any discrepancies among individual tests or anomalous data.

1.6.3 Where To Send Reports and Notifications

a. One copy of required reports and notifications concerning equipment operation or repairs, performance testing or a continuous monitoring system shall be sent to:

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

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

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

And one copy of reports and notifications concerning performance testing or continuous monitoring systems shall be sent to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Source Monitoring Unit
9511 West Harrison
Des Plaines, Illinois 60016

1.6.4 Notifications Prior To Tests

a. The Illinois EPA shall be notified prior to the emission tests required by Conditions 2.1.7 and 2.2.7 to enable the Illinois EPA to observe these tests. Notification of the expected date of testing shall be submitted a minimum of thirty days prior to the expected date. Notification of the actual date and expected time of testing shall be submitted a minimum of five 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.

1.7 The new/modified emission units addressed by this construction permit may be operated under this permit until renewal of the CAAPP permit or a modification of the CAAPP permit is issued provided the Permittee submits a timely application to amend the current CAAPP permit to incorporate this project.

2.0 UNIT SPECIFIC CONDITIONS FOR SPECIFIC EMISSION UNITS

2.1 Process Heater

2.1.1 Description

The SZU process heater will provide heat to the SZU operation. The heater will be capable of burning natural gas, refinery fuel gas and SZU waste gas (Whenever possible, the lockhopper purge gas will be routed to the SZU process heater). The heater will have a maximum design firing rate of 70 mmBtu/hr. This heater will be equipped with ultra low NO_x burners.

2.1.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
HTR-SZU-H3	SZU Process Heater	Ultra Low NO_x Burners

2.1.3 Applicable Provisions and Regulations

a. The "affected heater" for the purpose of these unit-specific conditions, is a heater described in Conditions 2.1.1 and 2.1.2.

b. i. This permit is issued based upon the affected heater being subject to the NSPS for Petroleum Refineries, 40 CFR 60 Subparts A and J.

ii. The Permittee shall not burn in the affected heater any fuel gas that contains hydrogen sulfide (H2S) in excess of 230 mg/dscm (0.10 gr/dscf) [40 CFR 60.104(a)(1)].

c. This permit is issued based upon the affected heater being subject to National Emission Standards for Hazardous Air Pollutants For Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR 63, Subpart DDDDD. The Permittee shall comply with all applicable requirements of 40 CFR Part 63 Subpart DDDDD.

d. The Permittee shall not cause or allow the emission of carbon monoxide (CO) into the atmosphere from the affected heater to exceed 200 ppm, corrected to 50 percent excess air [35 IAC 216.121].

2.1.4 Non-Applicability of Regulations of Concern

a. This permit is issued based on the affected heater not being subject to 40 CFR 60 Subpart Dc, NSPS for Small Industrial-Commercial-Institutional Steam Generating Units

because the affected heater is a process heater as defined in Subpart Dc.

2.1.5 Control Requirements and Work Practices

a. The affected heater shall be equipped, operated, and maintained with ultra low NO_x burners. These burners shall be operated and maintained in conformance with good air pollution control practices.

b. Natural gas, refinery fuel gas and SZU waste gas, or a combination of such fuels shall be the only fuels fired in the affected heater.

c. Pursuant to 40 CFR 63.7505(b), the Permittee shall always operate and maintain the affected heater, including air pollution control and monitoring equipment, according to the provisions in 40 CFR 63.6(e)(1)(i).

d. Pursuant to 40 CFR 63.7505(e), the Permittee shall develop and implement a written startup, shutdown, and malfunction plan (SSMP) according to the provisions in 40 CFR 63.6(e)(3).

2.1.6 Production and Emission Limitations

a. The maximum design firing rate of the affected heater shall not exceed 70 mmBtu/hr.

b. Emissions from the affected heater shall not exceed the following limits:

Pollutant	Emissions (Tons/Month)	(Tons/Year)
NO_x	1.3	12.4
CO	2.5	25.1
SO_2	0.7	6.8
$PM/PM_{10}/PM_{2.5}$	0.3	2.3
VOM	0.2	1.6

c. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).

d. Pursuant to 40 CFR 63.7500(a)(1) and 63.7505(a), CO emissions from the affected heater shall not exceed 400 ppm by volume on a dry basis corrected to 3 percent oxygen (3-run average), except during periods of startup, shutdown, and malfunction.

2.1.7 Testing Requirements

a. Nitrogen Oxides Testing

i. Within 60 days after achieving the maximum production rate at which the affected heater will be operated, but not later than 180 days after initial startup, the nitrogen oxide emissions of the affected heater shall be measured during conditions which are representative of maximum emissions.

ii. The following methods and procedures shall be used for testing of emissions, unless another method is approved by the Illinois EPA: Refer to 40 CFR 60, Appendix A, and 40 CFR 61, Appendix B, for USEPA test methods.

Location of Sample Points	USEPA Method 1
Gas Flow and Velocity	USEPA Method 2
Flue Gas Weight	USEPA Method 3
Moisture	USEPA Method 4
Nitrogen Oxides	USEPA Method 7e or USEPA Method 19

b. Carbon Monoxide Testing

i. Pursuant to 40 CFR 63.7510(g), the Permittee shall demonstrate initial compliance with the CO emission limits no later than 180 days after startup of the affected heater.

A. The Permittee shall use the applicable performance tests and procedures specified by 40 CFR 63.7520 and 63.7530.

B. Pursuant to 40 CFR 63.7510(c), the initial compliance demonstration is conducting a performance test for carbon monoxide according to Table 5 of 40 CFR 63 Subpart DDDDD.

ii. Pursuant to 40 CFR 63.7515(e), the Permittee shall conduct all applicable performance tests according to 40 CFR 63.7520 on an annual basis. Annual performance tests must be completed between 10 and 12 months after the previous performance test.

c. Hydrogen Sulfide Testing

In accordance with 40 CFR 60.8, within 60 days after achieving the maximum production rate at which the affected heater will be operated, but not later than 180 days after initial startup of the affected heater and at such other

times as may be required by the Illinois EPA, the Permittee shall conduct performance test(s) in accordance with 40 CFR 60.106(e) and furnish the Illinois EPA a written report of the results of such performance test(s).

Note: The hydrogen sulfide testing requirement is not necessary if the H_2S content of the fuel gas to the affected heater is monitored by an existing CEM.

2.1.8 Monitoring Requirements

a. Pursuant to 40 CFR 63.7505(d), the Permittee shall develop a site-specific monitoring plan according to the requirements in 40 CFR 63.7505(d)(1) through (4).

b. i. The Permittee shall comply with the monitoring requirements specified in 40 CFR 60.105 by installing, calibrating, maintaining and operating an instrument for continuously monitoring and recording the concentration (dry basis) of H_2S in fuel gases before being burned in the affected heater.

ii. Notwithstanding the above, pursuant to 40 CFR 60.13(i), after receipt and consideration of written application, the USEPA may approve alternatives to the above monitoring procedures.

c. The Permittee shall determine compliance with the H_2S standard in 40 CFR 60.104(a)(1) as follows: Method 11, 15, 15A, or 16 shall be used to determine the H_2S concentration in the fuel gas. The gases entering the sampling train should be at about atmospheric pressure. If the pressure in the refinery fuel gas lines is relatively high, a flow control valve may be used to reduce the pressure. If the line pressure is high enough to operate the sampling train without a vacuum pump, the pump may be eliminated from the sampling train. The sample shall be drawn from a point near the centroid of the fuel gas line [40 CFR 60.106(e)(1)].

d. The Permittee shall maintain records of the concentration (dry basis) of H_2S in fuel gases before being burned in the affected heater to demonstrate compliance with Condition 2.1.3(b)(ii).

2.1.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected heater:

a. The Permittee shall comply with the applicable recordkeeping requirements specified by 40 CFR 63.7555.

b. i. A file showing documentation of the maximum rated firing rate of the affected heater (mmBtu/hr).

ii. A file showing the potential emissions from the affected heater with supporting calculations and documentation (tons/year).

2.1.10 Reporting Requirements

a. The Permittee shall promptly notify the Illinois EPA, Air Compliance Unit, of deviations of an affected heater with the permit requirements of this section (Section 2.1). Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken.

b. Pursuant to 40 CFR 63.7515(g), the Permittee shall report the results of performance tests within 60 days after the completion of the performance tests. This report should also verify that the operating limits for affected heater have not changed or provide documentation of revised operating parameters established according to 40 CFR 63.7530 and Table 7 to 40 CFR Part 63 Subpart DDDDD, as applicable. The reports for all subsequent performance tests should include all applicable information required in 40 CFR 63.7550.

c. The Permittee shall comply with the applicable notification and recordkeeping requirements specified by 40 CFR 63.7545 and 63.7550, respectively.

2.1.11 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected heater.

2.1.12 Compliance Procedures

a. Emissions from the affected heater shall be determined from appropriate emission factors for the affected heater as developed from testing of the affected equipment or testing by the manufacturer or other similar testing.

2.2 SZU Process Vents

2.2.1 Description

Spent sorbent is sent from the SZU reactor to the SZU regenerator through a lockhopper. In the SZU regenerator, the sorbent is oxidized by burning the sulfur compounds off of the spent sorbent. The SO_2 and PM emitted from this oxidation will be controlled by a new caustic scrubber.

The lockhopper will be purged between each phase of the transfer sequence. The lockhopper purge gas will be routed to the SZU Process Heater to be combusted as a supplemental fuel if sufficient organics are present or to atmosphere.

Fresh sorbent used in the SZU regenerator will be loaded in the storage drum using a pneumatic transfer system. The storage drum exhaust will be vented to atmosphere.

2.2.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
SZU Regenerator Vent	Sorbent Regeneration Section Exhaust	Caustic Scrubber
Lockhopper Vent	Purging Of The Lockhopper	SZU Process Heater or None
Sorbent Storage Drum Vent	Storage Of Fresh Sorbent	None

2.2.3 Applicable Provisions and Regulations

a. An "affected process vent" for the purpose of these unit-specific conditions, are the vents described in Conditions 2.2.1 and 2.2.2.

b. The lockhopper vent is subject to 35 IAC Part 219, Subpart R: Petroleum Refining and Related Industries. Pursuant to 35 IAC 219.441(c)(1), no person shall cause or allow the discharge of more than 8 lbs/hour of organic material into the atmosphere from the affected process vents.

c. The sorbent storage drum vent and the SZU regenerator vent are subject to 35 IAC 214.301, which provides that no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission source to exceed 2000 ppm.

d. The SZU regenerator vent and the sorbent storage drum is subject to 35 IAC 212.321, which provides that no person

shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit, 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 subsection (c) of 35 IAC 212.321 [35 IAC 212.321(a)].

2.2.4 Non-Applicability of Regulations of Concern

Non-applicability of regulations of concern are not set for the affected process vents.

2.2.5 Control Requirements and Work Practices

a. The caustic scrubber shall be in operation at all times the SZU regenerator vent is in operation.

2.2.6 Production and Emission Limitations

a. i. Emissions from the SZU regenerator vent shall not exceed the following limits, except as authorized in Condition 2.2.6(a)(ii):

Pollutant	Emissions (Lbs/Hour)	(Tons/Month)	(Tons/Year)
NO_x	---	0.9	8.2
CO	---	1.6	15.5
SO_2	5.73	---	25.7
$PM/PM_{10}/PM_{2.5}$	0.59	---	2.6
VOM	---	0.6	5.7

ii. A. Emissions of SO_2 from the SZU regenerator vent during restart of the regenerator shall not exceed 7.2 lb/hour.

B. Operation during restart of the SZU regenerator is allowed for up to 150 hours/year.

b. This permit is issued based upon negligible emissions of volatile organic material from the lockhopper vent. For this purpose, emissions shall not exceed a nominal emission rate of 0.2 tons per year.

c. This permit is issued based upon negligible emissions of particulate matter from the SZU sorbent storage drum. For this purpose, emissions shall not exceed a nominal emission rate of 0.1 tons per year.

d. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).

2.2.7 Testing Requirements

a. Sulfur Dioxide and Particulate Matter Testing

i. Within 60 days after achieving the maximum production rate at which the SZU regenerator vent will be operated, but not later than 180 days after initial startup, the SO_2 and PM emissions of the caustic scrubber shall be measured during conditions which are representative of maximum emissions.

ii. The following methods and procedures shall be used for testing of emissions, unless another method is approved by the Illinois EPA: Refer to 40 CFR 60, Appendix A, and 40 CFR 61, Appendix B, 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
Sulfur Dioxide	USEPA Method 6, 6A, 6B, or 6C

2.2.8 Monitoring Requirements

a. The Permittee shall continuously monitor the pH of the scrubber solution and the water/caustic flow rates of the scrubber.

2.2.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected process vents:

a. Records for the scrubber:

i. A log documenting the pH of the scrubber solution including additions to the solution to maintain proper pH.

ii. Water/caustic flow rate of the scrubber

b. Records for the lockhopper vent:

i. Periods of time when the lockhopper vents to the SZU process heater rather than directly to atmosphere.

c. Records of emissions:

i. A file containing engineering calculations with supporting documentation for the maximum annual emissions which could result from the lockhopper vent and the SZU sorbent storage drum.

ii. Emissions of NO_x, CO, SO_2, $PM/PM_{10}/PM_{2.5}$, and VOM from the SZU regenerator vent with supporting calculations and documentation (tons/month and tons/year for NO_x, CO and VOM; pounds/hour and tons/year for SO_2 and $PM/PM_{10}/PM_{2.5}$).

2.2.10 Reporting Requirements

a. The Permittee shall promptly notify the Illinois EPA, Air Compliance Unit, of deviations of an affected process vent with the permit requirements of this section (Section 2.2). Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken.

2.2.11 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected process vents.

2.2.12 Compliance Procedures

a. Emissions from the affected process vents shall be determined from appropriate emission factors for the affected process vents as developed from testing of the affected equipment or testing by the manufacturer or other similar testing.

2.3 Unit: Components

2.3.1 Description

As part of the piping and pumping equipment associated with Phase 2 of the low sulfur gasoline project, leaks may occur from components such as valves, connectors, and seals.

2.3.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Components	Components (compressors, open-ended lines, valves, connectors)	None

2.3.3 Applicable Provisions and Regulations

a. An "affected component" for the purpose of these unit-specific conditions, is a new component installed as part of the second phase of the low sulfur gasoline project as described in Conditions 2.3.1 and 2.3.2, and any subsequent replacement of such new component.

b. This permit is issued based upon certain affected components being subject to National Emission Standards for Hazardous Air Pollutants From Petroleum Refineries, 40 CFR 63, Subparts A and CC. The Illinois EPA administers the NESHAP for subject sources in Illinois pursuant to a delegation agreement with the USEPA. The Permittee shall comply with all applicable requirements of 40 CFR 63, Subparts A and CC.

   Note: The refinery has indicated that it generally complies with the equipment leak requirements specified in 40 CFR 63, Subpart CC by complying with the Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry 40 CFR 60, Subpart VV.

c. This permit is issued based upon certain affected components being subject to Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries, 40 CFR 60, Subparts A and GGG. The Illinois EPA administers the NSPS for subject sources in Illinois pursuant to a delegation agreement with the USEPA. The Permittee shall comply with all applicable requirements of 40 CFR 60, Subparts A and GGG.

   Note: The refinery has indicated that it generally complies with the equipment leak requirements specified in 40 CFR 60, Subpart GGG by complying with the Standards of Performance for Equipment Leaks of VOC in the Synthetic

Organic Chemicals Manufacturing Industry 40 CFR 60, Subpart VV.

d. This permit is issued based on the affected components associated with the project being subject to 35 IAC Part 219 Subpart R: Petroleum Refining and Related Industries; Asphalt Materials.

Note: When the requirements for equipment leaks under 40 CFR Part 63 Subpart CC, or 40 CFR 60 Subpart GGG are more stringent than the LDAR requirements in 35 IAC 219.445-452, compliance with 40 CFR Part 63 Subpart CC or 40 CFR 60 Subpart GGG for the applicable component shall be deemed compliance with 35 IAC 219.445-452.

2.3.4 Non-Applicability of Regulations of Concern

a. Pursuant to 40 CFR 63.640(p), components that would be also subject to the provisions of 40 CFR Parts 60 and 61 are required only to comply with the provisions of 40 CFR Part 63 Subpart CC, rather than Parts 60 and 61.

2.3.5 Control Requirements and Work Practices

a. Affected components shall comply with the general standards in 40 CFR 60.482-1 (Subpart VV) for components in gas/vapor service and light liquid service, and the following specific standards:

i. Affected pumps (light liquid service) shall comply with the standards for pumps in light liquid service in 40 CFR 60.482-2.

ii. Affected compressors (gas service) shall comply with the standards for compressors in 40 CFR 60.482-3.

iii. Affected valves (gas service and liquid service) shall comply with the standards for valves in gas/vapor service and in light liquid service in 40 CFR 60.482-7.

iv. Affected connectors (gas service and light liquid service) shall comply with the standards for connectors in 40 CFR 60.482-8.

v. Affected pressure relief devices (gas service and light liquid service) shall comply with the standards for pressure relief devices in light liquid service in 40 CFR 60.482-8.

2.3.6 Production and Emission Limitations

a. Emissions of VOM from the affected components (i.e., valves, flanges, etc.) shall not exceed 10.1 tons per year.

2.3.7 Testing Requirements

a. The Permittee shall comply with the applicable Test Methods and Procedures of 40 CFR 60.485.

b. The Permittee shall repair and retest the leaking components as soon as possible within 22 days after the leak is found, but no later than June 1 for the purposes of 35 IAC 219.447(a)(1), unless the leaking components cannot be repaired until the unit is shut down for turnaround.

2.3.8 Monitoring Requirements

a. The Permittee shall develop a monitoring program plan consistent with the provisions of 35 IAC 219.446.

b. The Permittee shall conduct a monitoring program consistent with the provisions of 35 IAC 219.447.

c. The Permittee shall identify each affected component consistent with the monitoring program plan submitted pursuant to 35 IAC 219.446;

2.3.9 Recordkeeping Requirements

a. i. The Permittee shall comply with the Recordkeeping requirements of 40 CFR 60.486.

ii. The Permittee shall maintain the records required by 40 CFR 60.486 for a minimum of 5 years, pursuant to 40 CFR 63.648(h).

b. The Permittee shall record all leaking components which have a volatile organic material concentration exceeding 10,000 ppm consistent with the provisions of 35 IAC 219.448.

c. The Permittee shall maintain records of the following items for affected components:

i. Number of components by unit or location and type.

ii. Calculated VOM emissions including supporting calculations, attributable to these components determined in accordance with Condition 2.3.12 (tons/year).

2.3.10 Reporting Requirements

a. The Permittee shall promptly notify the Illinois EPA, Air Compliance Unit, of deviations of an affected component with the permit requirements of this section (Section 2.3). Reports shall describe the probable cause of such deviations, and any corrective actions or preventable measures taken. As the operation of affected components is addressed by reporting requirements under applicable rules, this requirement may be satisfied with the reporting required by such regulations.

b. The Permittee shall comply with the applicable Reporting requirements of 40 CFR 60.487.

c. The Permittee shall report to the Illinois EPA consistent with the provisions of 35 IAC 219.449.

2.3.11 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected components.

2.3.12 Compliance Procedures

a. Emissions from the components shall be determined from standard emission estimate methodology published by USEPA in "Protocol for Equipment Leak Emission Estimates", EPA-453/R-95-017 (November 1995).

2.4 Unit: Storage Tanks

2.4.1 Description

As part of this project, two existing tanks (A-150 and A-151) will be modified as existing NSR limits will be increased.

2.4.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Tank A-150	Internal Floating Roof Storage Tank	Internal Floating Roof
Tank A-151	Internal Floating Roof Storage Tank	Internal Floating Roof

2.4.3 Applicable Provisions and Regulations

a. An "affected tank" for the purpose of these unit-specific conditions, is a storage tank as described in Conditions 2.4.1 and 2.4.2.

b. The affected tanks are subject to 40 CFR 60, Subpart Kb: Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984.

c. The affected tanks are subject to National Emission Standards for Hazardous Air Pollutants From Petroleum Refineries, 40 CFR 63, Subparts A and CC. The Illinois EPA administers the NESHAP for subject sources in Illinois pursuant to a delegation agreement with the USEPA. The Permittee shall comply with all applicable requirements of 40 CFR 63, Subparts A and CC.

   Note: pursuant to 40 CFR 63.640(n)(1), the affected tanks are required to comply only with the requirements of 40 CFR Part 60, Subpart Kb, except as provided in 40 CFR 63.640(n)(8).

d. The affected tanks are subject to 35 IAC Part 219, Subpart B: Organic Emissions From Storage and Loading Operations.

2.4.4 Non-Applicability of Regulations of Concern

a. This permit is issued based on the affected tanks not being subject to 35 IAC 219.120 pursuant to 219.119(e) because the affected tanks are only used to store petroleum liquids.

b. This permit is issued based on the affected tanks not being subject to 35 IAC 219.123: Petroleum Liquid Storage Tanks, because the affected tanks are subject to NSPS for storage vessels of petroleum liquid, 40 CFR Part 60, Subpart Kb, pursuant to 35 IAC 219.123(a)(5).

c. This permit is issued based on the affected tanks not being subject to 40 CFR 63.646: Storage Vessel Provisions, because the affected tanks are subject to new source performance standards for storage vessels of petroleum liquid, 40 CFR Part 60, Subpart Kb, pursuant to 40 CFR 63.640(n)(1), except as provided by 40 CFR 63.640(n)(8).

2.4.5 Control Requirements and Work Practices

a. NSPS Control Requirements: The affected tanks shall be equipped with a fixed roof in combination with an internal floating roof meeting the following specifications:

i. The internal floating roof shall rest or float on the liquid surface (but not necessarily in complete contact with it) inside a storage vessel that has a fixed roof. The internal floating roof shall be floating on the liquid surface at all times, except during initial fill and during those intervals when the storage vessel is completely emptied or subsequently emptied and refilled. When the roof is resting on the leg supports, the process of filling, emptying, or refilling shall be continuous and shall be accomplished as rapidly as possible [40 CFR 60.112b(a)(1)(i)].

ii. The internal floating roof shall be equipped with the following closure device between the wall of the storage vessel and the edge of the internal floating roof:

A. A foam-or liquid-filled seal mounted in contact with the liquid (liquid-mounted seal). A liquid-mounted seal means a foam-or liquid-filled seal mounted in contact with the liquid between the wall of the storage vessel and the floating roof continuously around the circumference of the tank [40 CFR 60.112b(a)(1)(ii)(A)].

iii. Each opening in a noncontact internal floating roof except for automatic bleeder vents (vacuum breaker vents) and the rim space vents is to provide a projection below the liquid surface [40 CFR 60.112b(a)(1)(iii)].

iv. Each opening in the internal floating roof except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains is to be equipped with a cover or lid which is to be maintained in a closed position at all times (i.e., no visible gap) except when the device is in actual use. The cover or lid shall be equipped with a gasket. Covers on each access hatch and automatic gauge float well shall be bolted except when they are in use [40 CFR 60.112b(a)(1)(iv)].

v. Automatic bleeder vents shall be equipped with a gasket and are to 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)(1)(v)].

vi. Rim space vents shall be equipped with a gasket and are to be set to open only when the internal floating roof is not floating or at the manufacturer's recommended setting [40 CFR 60.112b(a)(1)(vi)].

vii. Each penetration of the internal floating roof for the purpose of sampling shall be a sample well. The sample well shall have a slit fabric cover that covers at least 90 percent of the opening [40 CFR 60.112b(a)(1)(vii)]

viii. Each penetration of the internal floating roof that allows for passage of a column supporting the fixed roof shall have a flexible fabric sleeve seal or a gasketed sliding cover [40 CFR 60.112b(a)(1)(viii)].

ix. Each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover [40 CFR 60.112b(a)(1)(ix)].

b. The affected tanks shall be designed and equipped with a floating roof which rests on the surface of the volatile petroleum liquid and is equipped with a closure seal or seals between the roof edge and the tank wall. Such floating roof shall not be permitted if the volatile petroleum liquid has a vapor pressure of 86.19 kPa (12.5 psia) or greater at 294.3 K (70 F). No person shall cause or allow the emission of air contaminants into the atmosphere from any gauging or sampling devices attached to such tanks, except during sampling or maintenance operations [35 IAC 219.121(b)(1)].

c. The affected tanks shall be equipped with a permanent submerged loading pipe, submerged fill, or an equivalent

device approved by the Illinois EPA according to the provisions of 35 Ill. Adm. Code 201 [35 IAC 219.122(b)].

2.4.6 Production and Emission Limitations

a. Emissions and operation of the affected tanks shall not exceed the following limits:

Throughput		VOM Emissions	
(Gallons/Month)	(Gallons/Year)	(Tons/Month)	(Tons/Year)
13,230,000	132,300,000	1.2	11.7

b. The Permittee shall not store material with a maximum true vapor pressure in excess of 7.65 psia in the affected storage tanks.

c. Compliance with the annual limit shall be determined from a running total of 12 months of data.

2.4.7 Testing and Inspection Requirements

a. The Permittee shall fulfill all applicable testing and procedures requirements of 40 CFR 60.113b(b) for the affected tanks [40 CFR 60.113b(b)].

i. If the owner or operator determines that it is unsafe to perform the seal gap measurements required in 40 CFR 60.113b(b), the owner or operator shall comply with the requirements in either 40 CFR 63.120(b)(7)(i) or 40 CFR 63.120(b)(7)(ii) [40 CFR 63.640(n)(8)(ii)].

ii. If a failure is detected during the seal gap measurements required by 40 CFR 60.113b(b)(1), and the vessel cannot be repaired within 45 days and the vessel cannot be emptied within 45 days, the owner or operator may utilize up to two extensions of up to 30 additional calendar days each. The owner or operator is not required to provide a request for the extension to the Administrator [40 CFR 63.640(n)(8)(iii)].

b. The Permittee shall fulfill all applicable monitoring of operations requirements of 40 CFR 60.116b for the affected tanks [40 CFR 60.116b].

2.4.8 Monitoring Requirements

Monitoring requirements are not set for the affected tanks.

2.4.9 Recordkeeping Requirements

a. The Permittee shall maintain records of the following items:

i. The type, characteristic and quantity of each material stored in the affected tanks, including the maximum true vapor pressure;

ii. Throughput (gallons/month and gallons/year);

iii. Actual emissions of VOM emissions from the affected tanks (tons/month and tons/year).

b. The Permittee shall fulfill all applicable recordkeeping requirements of 40 CFR 60.115b for the affected tanks [40 CFR 60.115b].

c. The Permittee shall fulfill all applicable recordkeeping requirements of CFR 63.654 for the affected tanks.

2.4.10 Reporting Requirements

a. The Permittee shall promptly notify the Illinois EPA, Air Compliance Unit, of deviations of an affected tank with the permit requirements of this section (2.5). Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken. As certain requirements regarding the operation of affected tanks is addressed by reporting requirements under applicable rules, this requirement may be satisfied with the reporting required by such regulations.

b. The Permittee shall fulfill all applicable reporting requirements specified in 40 CFR 60.115b for the affected tanks [40 CFR 60.115b].

i. Owners and operators of storage vessels complying with Subpart Kb of Part 60 may submit the inspection reports required by 40 CFR 60.115b(b)(4) as part of the periodic reports required by 40 CFR Part 63, Subpart CC, rather than within the 30-day period specified in 40 CFR 60.115b(b)(4) [40 CFR 63.640(n)(8)(v)].

ii. The reports of rim seal inspections specified in 40 CFR 60.115b(b)(2) are not required if none of the measured gaps or calculated gap areas exceed the limitations specified in 40 CFR 60.113b(b)(4). Documentation of the inspections shall be recorded as specified in 40 CFR 60.115b(b)(3) [40 CFR 63.640(n)(8)(vi)].

c. If an extension is utilized in accordance with 40 CFR 63.640(n)(8)(iii), the owner or operator shall, in the next periodic report, identify the vessel, provide the information listed in 40 CFR 60.113b(b)(4)(iii), and describe the nature and date of the repair made or provide the date the storage vessel was emptied [40 CFR 63.640(n)(8)(iv)].

d. The Permittee shall fulfill all applicable reporting requirements of CFR 63.654 for the affected tanks.

2.4.11 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected tanks.

2.4.12 Compliance Procedures

a. Emissions from the affected tanks shall be determined through the use of an approved USEPA methodology, such as the TANKS program, appropriate AP-42 factors or other approved methods.

If you have any questions on this permit, please contact Jason Schnepp at 217/782-2113.

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

DES:JMS:psj

cc: Region 3
Lotus Notes
CES

Attachment 1 – Project Emission Increases Summary

Item of Equipment	NO_x Emissions (Tons/Year)	CO Emissions (Tons/Year)	SO_2 Emissions (Tons/Year)	VOM Emissions (Tons/Year)	PM Emissions (Tons/Year)	PM_{10} Emissions (Tons/Year)	$PM_{2.5}$ Emissions (Tons/Year)
SZU Process Heater	12.4	25.1	6.8	1.60	2.3	2.3	2.3
SZU Regenerator Exhaust	8.2	15.5	25.7	5.70	2.6	2.1	2.1
Lockhopper Vent				0.20			
SZU Components				6.60			
Tanks A-150, A-151				6.00			
Debottlenecked Cooling Water Tower 12B				2.40	5.9	5.9	5.9
Debottlenecked Storage Tanks				9.90			
SZU Sorbent Storage Drum					0.1	0.1	0.1
Total:	20.6	40.6	32.5	32.4	10.9	10.4	10.4
Significance Threshold:	40	100	40	40	25	15	---

JMS:psj