

US EPA ARCHIVE DOCUMENT

**PREVENTION OF SIGNIFICANT DETERIORATION PERMIT
FOR GREENHOUSE GAS EMISSIONS
ISSUED PURSUANT TO THE REQUIREMENTS AT 40 CFR § 52.21**

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 6

PSD PERMIT NUMBER: PSD-TX-6819A-GHG

PERMITTEE: Flint Hills Resources Corpus Christi, LLC

FACILITY NAME: Corpus Christi West Refinery

FACILITY LOCATION: 2825 Suntide Road
Corpus Christi, TX 78409

Pursuant to the provisions of the Clean Air Act (CAA), Subchapter I, Part C (42 U.S.C. § 7470, *et seq.*), the Code of Federal Regulations (CFR) Title 40, Section 52.21, and the Federal Implementation Plan at 40 CFR § 52.2305 (effective May 1, 2011 and published at 76 FR 25178), the U.S. Environmental Protection Agency (EPA), Region 6 is issuing a *Prevention of Significant Deterioration* (PSD) permit to Flint Hills Resources (FHR) Corpus Christi, LLC for Greenhouse Gas (GHG) emissions. The permit applies to the addition and modification of several emissions sources as part of a Domestic Crude Project to increase the percentage of domestic (versus foreign) crude oil processed at the existing FHR Corpus Christi West Refinery located in Corpus Christi, Texas.

FHR is authorized to construct the Domestic Crude Project as described herein, in accordance with the permit application (and plans submitted with the permit application), the federal PSD regulations at 40 CFR § 52.21, and other terms and conditions set forth in this PSD permit, in conjunction with the corresponding Texas Commission on Environmental Quality (TCEQ) Permit No. 6819A. Failure to comply with any condition or term set forth in this PSD permit may result in enforcement action pursuant to Section 113 of the Clean Air Act (CAA). This PSD permit does not relieve FHR of the responsibility to comply with any other applicable provisions of the CAA (including applicable implementing regulations in 40 CFR Parts 51, 52, 60, 61, 72 through 75, and 98) or other federal and state requirements (including the state PSD program that remains under approval at 40 CFR § 52.2303).

In accordance with 40 CFR § 124.15(b), this PSD permit becomes effective 30 days after the service of notice of this final decision unless review is requested on the permit pursuant to 40 CFR § 124.19.

Wren Stenger, Director
Multimedia Planning and Permitting Division

Date

Flint Hills Resources Corpus Christi, LLC (PSD-TX-6819A-GHG)
Prevention of Significant Deterioration Permit
For Greenhouse Gas Emissions
Draft Permit Conditions

PROJECT DESCRIPTION

The proposed project at the Corpus Christi West Refinery, known as the Domestic Crude Project, would add and modify certain equipment which would enable the facility to process a larger percentage of domestic (versus foreign) crude oil. Because the domestic crude oil is much lighter than foreign crude oil, the project includes construction of a new process unit and other equipment to process additional lighter-end products. The project would also increase the refinery's capacity to process crude oil by approximately 7% through the new and modified equipment, increased utilization of existing equipment, and debottlenecking.

Specifically, the changes at the existing FHR Corpus Christi West Refinery involve modification of equipment at the Continuous Catalytic Regeneration (CCR) Hot Oil Heater and the addition of a new Saturates Gas Plant (No. 3), which will contain a new hot oil heater. Both heaters will have new, energy efficient low nitrous oxide (low-NO_x) burners, a new air preheat system, and Selective Catalytic Reduction for control of nitrogen oxide (NO_x) emissions. Additionally, the new Saturates Gas Plant No. 3 Hot Oil Heater will have a catalyst bed for control of carbon monoxide (CO) and volatile organic compound (VOC) emissions.

In addition, FHR will install a new Mid-Plant Cooling Tower (No. 2) and new equipment piping as part of the project. Installation of the new process vessels and two new storage tanks, which do not emit greenhouse gases during normal operations, will result in greenhouse gas emissions when maintenance activities are performed after purged vessels and equipment are opened to the atmosphere, and when maintenance emissions are routed to control devices that generate greenhouse gases. These maintenance emissions are listed as maintenance, startup, and shutdown (MSS) fugitive emissions in this permit and in the Statement of Basis.

Implementation of the project will also increase emissions at some units due to increased utilization or debottlenecking. The project will result in an increase in actual emissions due to increased utilization at Boilers 06BF657, 06BF658, 06BF659, and 43BF1; the API separator Flare; and the Marine Vapor Combustor; and an increase in actual emissions due to debottlenecking of the Distillate Hydrotreating Unit (DHT) Stripper Reboiler (part of the conversion of the Gas Oil Hydrotreating Unit to a DHT). Also, the project will result in an increase in the annual marine loading throughput of naphtha and gasoline, and tank crude oil at tanks 08FB137, 08FB142, 08FB147, 40FB4010 and 40FB4011.

EQUIPMENT LIST

The following new and modified units are subject to this GHG PSD permit:

FIN	EPN	Description
SATGASHTR	SATGASHTR	Sat Gas No. 3 Hot Oil Heater. This heater has a maximum heat input rate of 450 million British thermal units per hour (MMBtu/hr) Higher Heating Value (HHV).
39BA3901	JJ-4	CCR Hot Oil Heater. This heater has a maximum heat input rate of 123.6 MMBtu/hr (HHV).
44EF2	F-S-202	Mid-Plant Cooling Tower No. 2 emissions from heat exchanger leaks.
F-SATGAS3	F-SATGAS3	Sat Gas No. 3 fugitive emissions from new equipment piping components.
14-UDEX	F-14-UDEX	Universal Dow Extraction (UDEX) fugitive emissions from new equipment piping components.
37	F-37	DHT fugitive emissions from new equipment piping components.
39	F-39	Naphtha Hydrotreater (NHT)/CCR fugitive emissions from new equipment piping components.
40	F-40	West Crude Unit fugitive emissions from new equipment piping components.
42	F-42	Mid Crude Unit fugitive emissions from new equipment piping components.
P-VOC	F-TK-VOC	Tank Farm - VOC Tank/Loading fugitive emissions from new equipment piping components.
P-GB	F-GB	Gasoline Blending System fugitive emissions from new equipment piping components.
MSSFUGS- DC	MSSFUGS- DC	MSS fugitive emissions from maintenance activities.

I. GENERAL PERMIT CONDITIONS

A. PERMIT EXPIRATION

As provided in 40 CFR § 52.21(r), this PSD permit shall become invalid if construction:

1. is not commenced (as defined in 40 CFR § 52.21(b)(9)) within 18 months after the approval takes effect;
2. is discontinued for a period of 18 months or more; or
3. is not completed within a reasonable time.

Pursuant to 40 CFR § 52.21(r), EPA may extend the 18-month period upon a satisfactory showing, in writing, that an extension is justified.

B. PERMIT NOTIFICATION REQUIREMENTS

Permittee shall notify EPA Region 6 in writing or by electronic mail of the:

1. date construction is commenced, postmarked within 30 days of such date;
2. actual date of initial startup, as defined in 40 CFR § 60.2, postmarked within 15 days of such date; and
3. date upon which initial performance tests will commence, in accordance with the provisions of Section V, postmarked not less than 30 days prior to such date. Notification may be provided with the submittal of the performance test protocol required pursuant to Condition V.C.

C. FACILITY OPERATION

At all times, including periods of startup, shutdown, and maintenance, Permittee shall, to the extent practicable, maintain and operate the facility, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to EPA, which may include, but is not limited to, monitoring results, review of operating maintenance procedures and inspection of the facility.

D. MALFUNCTION REPORTING

1. Permittee shall notify EPA by mail, or other means identified by EPA, within 48 hours following the discovery of any failure of air pollution control equipment, process equipment, or of a process to operate in a normal manner, which results in an increase in

GHG emissions above the allowable emission limits stated in Section II and III of this permit.

2. Within 10 days of the restoration of normal operations after any failure described in I.D.1., Permittee shall provide a written supplement to the initial notification that includes a description of the malfunctioning equipment or abnormal operation, the date of the initial malfunction, the period of time over which emissions were increased due to the failure, the cause of the failure, the estimated resultant emissions in excess of those allowed in Section II and III, and the methods utilized to mitigate emissions and restore normal operations.
3. Compliance with this malfunction notification provision shall not excuse or otherwise constitute a defense to any violation of this permit or any law or regulation such malfunction may cause.

E. RIGHT OF ENTRY

EPA authorized representatives, upon the presentation of credentials, shall be permitted:

1. to enter the premises where the facility is located or where any records are required to be kept under the terms and conditions of this PSD permit;
2. during normal business hours, to have access to and to copy any records required to be kept under the terms and conditions of this PSD permit;
3. to inspect any equipment, operation, or method subject to requirements in this PSD permit; and
4. to sample materials and emissions from the source(s).

F. TRANSFER OF OWNERSHIP

In the event of any changes in control or ownership of the facilities to be constructed, this PSD permit shall be binding on all subsequent owners and operators. Permittee shall notify the succeeding owner and operator of the existence of the PSD permit and its conditions by letter, and a copy of the letter shall be forwarded to EPA Region 6 within 30 days of the letter signature.

G. SEVERABILITY

The provisions of this PSD permit are severable, and, if any provision of the PSD permit is held invalid, the remainder of this PSD permit shall not be affected.

H. ADHERENCE TO APPLICATION AND COMPLIANCE WITH OTHER ENVIRONMENTAL LAWS

Permittee shall construct this project in compliance with this PSD permit, the application on which this permit is based, TCEQ permit No. 6819A, and all other applicable federal, state, and local air quality regulations. In addition, Permittee shall comply with the federally issued Consent Decree (CD), Civil Action Case Number 00-cv-2756, December 22, 2000, as amended by the First Amendment in 2006 and the Second Amendment in 2008.

This PSD permit does not release the Permittee from any liability for compliance with other applicable federal, state and local environmental laws and regulations, including the CAA.

I. ACRONYMS AND ABBREVIATIONS

BACT	Best Available Control Technology
CAA	Clean Air Act
CEMS	Continuous Emissions Monitoring System
CFR	Code of Federal Regulations
CH ₄	Methane
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
EPN	Emission Point Number
F	Fahrenheit
FIN	Facility Identification Number
FR	Federal Register
GCV	Gross Calorific Value
GHG	Greenhouse Gas
GWP	Global Warming Potential
HHV	High Heating Value
hr	Hour
lb	Pound
LDAR	Leak Detection and Repair
MMBtu	Million British Thermal Units
MSS	Maintenance, Start-up and Shutdown
NSR	New Source Review
N ₂ O	Nitrous Oxides
No.	Number
NSPS	New Source Performance Standards
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
TPY	Tons per Year
USC	United States Code

II. Annual Emission Limits

Annual emissions of carbon dioxide equivalent (CO₂e), in tons per year (tpy) on a 12-month rolling total basis, shall not exceed the following:

Table 1. Annual Emission Limits

FIN	EPN	Description	GHG Mass Basis		TPY CO ₂ e ^{1,2,3}	BACT Requirements
				TPY ²		
SATGAS HTR	SATGAS HTR	Sat Gas No. 3 Hot Oil Heater	CO ₂	236,004	236,242	<ul style="list-style-type: none"> • 119.7 lbs CO₂/MMBtu of fuel on a 365-day rolling average⁴ • Excess Oxygen (O₂) ≤ 4% on a 365-day rolling average • Exhaust Temperature ≤ 350 degrees F on a 365-day rolling average • Energy Efficient Design • Energy Efficient Operating Procedures • Use of Low Carbon Fuels • See permit conditions III.A.1.
			CH ₄	4.35		
			N ₂ O	0.43		
39BA3901	JJ-4	CCR Hot Oil Heater	CO ₂	62,890	63,193	<ul style="list-style-type: none"> • 116.2 lbs CO₂/MMBtu of fuel on a 365-day rolling average • Excess O₂ ≤ 4% on a 365-day rolling average • Exhaust Temperature ≤ 350 degrees F on a 365-day rolling average • Energy Efficient Design • Energy Efficient Operating Procedures • Use of Low Carbon Fuels • See permit condition III.A.1.
			CH ₄	4.58		
			N ₂ O	0.72		

FIN	EPN	Description	GHG Mass Basis		TPY CO ₂ e ^{1,2,3}	BACT Requirements
				TPY ²		
44EF2	F-S-202	Mid-Plant Cooling Tower No. 2	CH ₄	No Numerical Emission Limit ⁵	No Numerical Emission Limit ⁵	<ul style="list-style-type: none">Leak detection and monthly monitoring of cooling water, and heat exchanger repair in accordance with Consent Decree (CD)⁶ and TCEQ Permit.See permit condition III.A.2.
F-SATGAS3 14-UDEX 37 39 40 42 P-VOC P-GB	F-SATGAS3 F-14-UDEX F-37 F-39 F-40 F-42 F-TK-VOC F-GB	Equipment Piping Fugitive Emissions	CH ₄	No Numerical Emission Limit ⁷	No Numerical Emission Limit ⁷	<ul style="list-style-type: none">Enhanced LDAR in accordance with the CD and 28 VHP Fugitive Monitoring Requirements. Annual flange/connector monitoring in accordance with TCEQ Permit. See permit condition III.A.3.
MSSFUGS-DC	MSSFUGS-DC	MSS Fugitive Emissions	CO ₂	No Numerical Emission Limit ⁸	No Numerical Emission Limit ⁸	<ul style="list-style-type: none">Good operational practices in accordance with TCEQ Permit. See permit condition III.A.4.
			CH ₄	No Numerical Emission Limit ⁸		
			N ₂ O	No Numerical Emission Limit ⁸		
			CO ₂	299,122 ¹⁰	299,884 CO ₂ e ^{9, 10}	
			CH ₄	16.76 ¹⁰		
			N ₂ O	1.15 ¹⁰		

- Compliance with the annual emission limits in tpy is based on a 12-month rolling total.
- The tpy emission limits specified in this table, which include emissions from the facility during all operations including MSS activities, shall not be exceeded for this facility.
- Global Warming Potentials (GWP): CH₄ = 25, N₂O = 298. The GWP are multipliers used to convert pounds CH₄ and N₂O to pounds CO₂e.
- The 119.7 lb CO₂/MMBtu limit does not apply to the Merox off-gas stream.
- Estimated cooling tower GHG emissions are entirely from methane and total .55 tpy methane, which equates to 13.75 tpy CO₂e. GHG emissions from the cooling tower are from the stripping of VOCs (including methane) from the cooling water. In lieu of an emission limit, the emissions will be limited by implementation of work practice standards as BACT.
- The Consent Decree (CD) refers to the federally issued Consent Decree, Civil Action Case Number 00-cv-2756, December 22, 2000, as amended by the First Amendment in 2006 and the Second Amendment in 2008.
- Estimated new equipment piping component fugitive emissions are entirely from methane and total 8.22 tpy methane, which equates to 205.5 tpy CO₂e. (In tpy CO₂e: F-SATGAS3, 161; F-14-UDEX, 0.25; F-37, 3.75; F-39, 1.5; F-40, 8; F-42, 22.75; F-TK-VOC, 7.25; and F-GB 1.) In lieu of an emission limit, the emissions will be limited by implementation of work practice standards as BACT.

8. Estimated MSS fugitive emissions are 228 tpy CO₂, 0.06 tpy CH₄, and 0.0018 N₂O for a total of 230 tpy CO₂e. MSS fugitive emissions are from vacuum truck loading, tank degassing, and tank refilling. In lieu of an emission limit, the emissions will be limited by implementation of work practice standards as BACT.
9. The total estimated emissions are for the units that are new or modified by this project, including the baseline emissions of the CCR Hot Oil Heater of 20,484 CO₂e. Emissions from downstream units that will have emission increases due to increased utilization and debottlenecking are not included in this table or this permit.
10. Total emissions are listed for informational purposes only and do not constitute emission limits.

III. SPECIAL PERMIT CONDITIONS

A. Emission Unit BACT Requirements, Operational Requirements, and Work Practices

1. Hot Oil Heaters: Sat Gas No. 3 Hot Oil Heater (EPN: SATGASHTR) and CCR Hot Oil Heater (EPN: JJ-4)
 - a. Permittee shall calculate the CO₂e emissions based on the procedures and Global Warming Potentials (GWP) contained in Greenhouse Gas Regulations, 40 CFR Part 98, Subpart A, Table A-1, published on November 29, 2013 (78 FR 71904). Permittee shall demonstrate compliance with the CO₂e Annual Emission Limit on a 12-month rolling total basis, as follows:
 - i. Permittee shall calculate, on a monthly basis, the amount of CO₂ emitted from combustion in tpy using the measured fuel consumption, the measured carbon content, the molecular weight of the fuel, and equation C-5 in 40 CFR Part 98, Subpart C, converted to short tons. This calculation shall not include the Merox Treating Unit off-gas stream.
 - ii. Permittee shall calculate, on a monthly basis, the CH₄ and N₂O emissions from combustion using the measured fuel consumption and equation C-8b in 40 CFR Part 98, Subpart C, converted to short tons. This calculation shall not include the Merox Treating Unit off-gas stream.
 - iii. Permittee shall calculate, on a monthly basis, the CO₂, CH₄ and N₂O emissions in tpy from combustion of the Merox Treating Unit off-gas stream using equation Y-19 in 40 CFR Part 98, Subpart Y, converted to short tons.
 - iv. Permittee shall sum the totals from permit conditions III.A.1.i-iii for each GHG on a monthly basis. Permittee shall complete calculations no later than 30 days after the end of the 12-month rolling period and add the results to the 12-month rolling total.
 - b. Permittee shall demonstrate compliance with the BACT limit of 119.7 lbs of CO₂/MMBtu on a 365-day rolling average for the natural gas fired in the Sat Gas No. 3 Hot Oil Heater (EPN: SATGASHTR) and the BACT limit of 116.2 lbs of CO₂/MMBtu for the CCR refinery fuel gas fired in the CCR Hot Oil heater (EPN: JJ-4), as follows:

- i. Permittee shall calculate, on a daily basis, the mass emissions of CO₂ from each hot oil heater using the measured fuel consumption, the carbon content and molecular weight, and equation C-5 in 40 CFR Part 98, Subpart C.
 - ii. Permittee shall calculate, on a daily basis, the fuel gas firing rate in MMBtu based on the heating value of the fuel gas (HHV) and the volume of gaseous fuel combusted.
 - iii. Permittee shall divide the daily amount of CO₂ emitted in pounds by the daily fuel gas firing rate in MMBtu.
 - iv. Permittee shall add the result to the 365-day rolling average for comparison with the BACT numerical limit, and update the average on a daily basis.
 - v. This compliance demonstration shall not apply to the Merox treating unit off-gas stream fired in the Sat Gas No. 3 Hot Oil Heater (EPN:SATGASHTR).
- c. Continuous Emissions Monitoring Systems (CEMS):
 - i. As an alternative to the CO₂ calculations in Special Condition III.A.1.a and b., Permittee may install a CO₂ CEMS and volumetric stack gas flow monitoring system with an automated data acquisition and handling system for measuring and recording CO₂ emissions discharged to the atmosphere, and use these values to show compliance with the CO₂ emission limits in Table 1.
 - ii. Permittee shall ensure compliance with the specifications and test procedures for CO₂ CEMS at stationary sources, 40 CFR Part 75, or 40 CFR Part 60, Appendix B, Performance Specification numbers 1 through 9, as applicable.
- d. Fuel Requirements:
 - i. Permittee shall limit fuel to the Sat Gas No. 3 Hot Oil Heater to the off-gas stream from the Merox Treating Unit and to natural gas. Permittee shall limit fuel for the CCR Hot Oil Heater to CCR refinery fuel gas.
 - ii. Permittee shall determine the fuel gross calorific value (GCV) high heat value (HHV), carbon content, and molecular weight on a weekly basis by the procedures contained in 40 CFR § 98.34(b)(3).
 - iii. Permittee shall, upon request, provide EPA a sample and/or an analysis of the fuel that is fired in each heater or shall allow EPA to take samples for analysis.
 - iv. Permittee shall measure and record the natural gas flow rate at the inlet of the Sat Gas No. 3 Hot Oil Heater (EPN: SATGASHTR) and the CCR refinery fuel gas flow rate at the inlet of the CCR Hot Oil Heater (EPN: JJ-4) using flow monitoring instrumentation. This requirement shall not apply to the Merox Treating Unit off-gas stream.

- v. Permittee shall calibrate and perform a preventative maintenance check of the fuel flow meters annually, in accordance with 40 CFR Part 98, Subpart C, and document the results.
- e. Permittee shall monitor the hot oil heaters (SATGASHTR and JJ-4) continuously for exhaust temperature and excess oxygen (O₂).
- f. Permittee shall perform and document a preventative maintenance check on the oxygen analyzer on each of the hot oil heaters (SATGASHTR and JJ-4) annually.
- g. Excess Oxygen Operating Requirements:
 - i. Permittee shall limit excess O₂ in each hot oil heater exhaust to 4% or less on a 365-day rolling average basis, excluding periods of heater start-up, shutdown, and low firing rates (<60% of maximum design capacity).
 - ii. Permittee shall determine, on a daily basis, the average excess O₂ level in the exhaust of each heater, add the result to the 365-day rolling average, and update the average on a daily basis.
 - iii. Permittee shall determine the 365-day rolling average excess O₂ level in each heater's exhaust using the following formula: 365-day average excess O₂ level=(Sum of valid excess O₂ readings in a 365-day period)/(Quantity of valid excess O₂ Readings in a 365-day period).
- h. Temperature Operating Requirements:
 - i. Permittee shall limit the stack gas exhaust temperature of each hot oil heater to 350 degrees Fahrenheit (F) on a 365-day rolling average basis, excluding periods of heater start-up, shutdown, and low firing rates (<60% of maximum design capacity).
 - ii. Permittee shall determine, on a daily basis, the average stack exhaust temperature for each heater, add the result to the 365-day rolling average, and update the average on a daily basis. Stack exit temperatures recorded during periods of monitoring instrumentation malfunction and maintenance shall be excluded from use in the 365-day rolling average, provided that monitoring operation downtime does not exceed 5% of any 365-day rolling period.
 - iii. Permittee shall determine the 365-day rolling average stack exit temperature in each heater's exhaust using the following formula: 365-day average temperature=(Sum of valid temperature readings in a 365-day period)/(Quantity of valid temperature readings in a 365-day period).
 - iv. Permittee shall determine the 24-hour average stack exit temperature for each heater using the following formula: 24-hour average temperature=(Sum of valid temperature readings in a 24-hour period)/(Quantity of valid temperature readings in a 24-hour period).
 - v. Permittee shall perform corrective action on a hot oil heater if the average stack exhaust temperature is above 350 degrees F for the 24-hour period,

excluding periods of start-up, shutdown, and low firing rates (<60% of maximum design capacity). This occurrence shall be considered an excursion. Permittee shall minimize the period of an excursion, and restore normal operation of the hot oil heater as expeditiously as practicable, in accordance with good air pollution control practices and safety practices.

- vi. Permittee shall report temperature monitor downtime in excess of 5% of any 365-day period and excursions, and include a discussion of the corrective actions taken for each excursion in the quarterly excess emissions report described in permit condition IV.4.
 - i. Permittee shall install, operate, and maintain an automated air/fuel control system. The air/fuel control system may operate in manual mode during periods of heater startup, shutdown, maintenance, and malfunction.
 - j. Permittee shall calibrate and perform preventative maintenance on the air/fuel control analyzers once per quarter.
 - k. Permittee shall conduct a physical inspection, clean the burner tips, and perform combustion tuning and optimization, in accordance with 40 CFR § 63.7540 (a)(10)(i) - (a)(10)(vi).
 - l. Permittee shall utilize insulation materials (e.g. ceramic fiber blankets and Kaolite™) where feasible to reduce heat loss.
 - m. The heaters shall not have GHG emissions in excess of the permitted annual emissions during periods of startup, shutdown, or maintenance.
2. Cooling Tower: Mid-Plant Cooling Tower No. 2 (EPN: F-S-202)
- a. Permittee shall monitor the cooling tower waters in accordance with the provisions of the CD, Civil Action Case Number 00-cv-2756, as amended. Permittee shall repair leaks and confirm corrections within the timelines prescribed in the CD, Civil Action Case Number 00-cv-2756, as amended.
 - b. Permittee shall comply with the Benzene Waste Provisions (Section V) in the CD, Civil Action Case Number 00-cv-2756, as amended, including the training requirements.
 - c. The Permittee shall maintain records of cooling tower monitoring, maintenance, and corrective actions consistent with TCEQ Permit No. 6819A, and the CD, Civil Action Case Number 00-cv-2756, as amended.

3. Equipment Piping Fugitive Emissions (EPNs: F-SATGAS3, F-14-UDEX, F-37, F-39, F-40, F-42, F-TK-VOC, and F-GB)
- a. Permittee shall install new and reworked valves and piping connections in a location that is accessible for fugitive emission monitoring during plant operations, to the extent that good engineering practice will allow.
 - b. Permittee shall install low-leaking valves (<100 ppm leakage as purchased).
 - c. Permittee shall use high quality components and materials of construction that are compatible with the service in which they are employed.
 - d. Permittee shall implement the leak detection and repair (LDAR) program in TCEQ 28 VHP Fugitive Monitoring Requirements.
 - e. Permittee shall implement an as-observed Audio, Visual, Olfactory (AVO) program to monitor for fugitive emissions between instrumented monitoring as required in 3(d) above.
 - f. Permittee shall conduct annual flange and connector monitoring in accordance with TCEQ Permit No. 6819A.
 - g. Permittee shall comply with the LDAR provisions (Section VI) in the CD, Civil Action Case Number 00-cv-2756, as amended, including the requirement that LDAR personnel make a “first attempt” at repair of any valve that has a reading above 50 ppmv, excluding control valves and other components that LDAR personnel are not authorized to repair, and that Permittee use the lower internal leak definition of 500 ppmv for all valves and 2000 ppmv for all pumps.
 - h. Permittee shall amend its written refinery-wide program for LDAR compliance to include provisions for monitoring of, repairing, and reporting on the equipment components associated with the fugitive emissions from the new equipment piping components, and shall include this information in the employee LDAR training.
4. MSS Fugitive Emissions (EPN: MSSFUGS-DC)
- a. Permittee shall minimize maintenance degassing emissions at Sat Gas Unit No. 3 process vessels by first pumping liquids to recovery, depressuring, and purging to a control device.
 - b. Permittee shall open the new Sat Gas No. 3 process vessels to the atmosphere only when the methane or VOC concentration is below 10,000 ppmv, unless doing so would create an unsafe condition.
 - c. Permittee shall maintain records of MSS activities and emissions monitoring consistent with TCEQ Permit No. 6819A.

- d. Permittee shall route non-fugitive emissions from vacuum trucks and tank maintenance to a control device as required by TCEQ Permit 6819A.

IV. Recordkeeping and Reporting

1. Permittee shall monitor the following parameters at the frequency required by permit condition III.A.1. and summarize the data on a calendar month basis, to demonstrate compliance with the GHG emission limits in Table 1:
 - a. Operating hours for the Sat Gas No. 3 Hot Oil Heater (EPN: SATGASHTR) and the CCR Hot Oil Heater (EPN: JJ-4);
 - b. Fuel usage for the Sat Gas No. 3 Hot Oil Heater (EPN: SATGASHTR) and the CCR Hot Oil Heater (EPN: JJ-4), using continuous fuel flow monitors. (A group of equipment can utilize a common fuel flow meter, as long as actual fuel usage is allocated to the individual equipment based upon actual operating hours and maximum firing rate); and
 - c. Weekly fuel sampling for natural gas and CCR refinery fuel gas.
2. Permittee shall maintain a file of all records, data, measurements, reports, and documents related to the operation of the subject units at the facility, including, but not limited to, all records or reports pertaining to the following: significant maintenance performed on any emission unit or control device at the facility; duration of startup or shutdown; initial startup period for the emission units; pollution control units; malfunctions; performance tests, calibrations, checks, and monitoring of combustion equipment; duration of inoperative periods of monitoring devices and emission units and the corresponding emission data; and all other information required by this permit. Permittee shall record the information in a permanent form suitable for inspection and retain the file for not less than five years following the date of such measurements, maintenance, reports, and records.
3. Permittee shall maintain records of all CO₂ emission certification tests and monitoring and compliance information for all GHG emission units subject to this permit.
4. Permittee shall maintain records and submit a written report of all excess emissions to EPA quarterly, except when more frequent reporting is specifically required by an applicable subpart or the Administrator or authorized representative, on a case-by-case basis, determines that more frequent reporting is necessary to accurately assess the compliance status of the source. Permittee shall submit the report by the 30th day following the end of each calendar quarter and shall include the following in the report:
 - a. Time intervals, data and the magnitude of the excess emissions, the nature and cause (if known), corrective actions taken, and preventive measures adopted;
 - b. Applicable time and date of each period during which the monitoring equipment was inoperative (monitoring down-time);

- c. A statement in the report of a negative declaration, that is, a statement when no excess emissions occurred or when the monitoring equipment had not been inoperative, repaired or adjusted; and
 - d. All instances of failure to conduct required source testing, monitoring, or other compliance activities.
- 5. Excess emissions shall be defined as any period in which the facility emissions exceed a maximum emission limit set forth in this permit, a malfunction occurs, or any other unauthorized emissions occur.
- 6. Excess emissions indicated by GHG emission source certification testing or compliance monitoring shall be considered violations of the applicable emission limit for the purpose of this permit.
- 7. Permittee shall retain all records required by this PSD permit for not less than five years following the date of such measurements, maintenance, and reporting.

V. Initial Performance Testing Requirements:

Permittee shall perform stack sampling and other testing (performance tests) to establish the actual pattern and quantities of CO₂ being emitted into the atmosphere individually from the Sat Gas No. 3 Hot Oil Heater (EPN: SATGASHTR) and the CCR Hot Oil Heater (JJ-4), once it is modified, to determine the initial compliance with the CO₂ emission limits established in this permit. Permittee shall conduct sampling in accordance with 40 CFR § 60.8 and EPA Method 3a or 3b for the concentration of CO₂.

- A. Permittee shall calculate the annual CO₂ emissions, determine compliance, and document exceedances for each of the two hot oil heaters, based on the following:
 - 1. Multiply the CO₂ hourly average emission rate determined under maximum operating test conditions by 8,760 hours.
If the above calculated CO₂ emission total does not exceed the CO₂ emission limit in tpy specified on Table 1, Permittee need not develop a compliance strategy.
 - 2. If the above calculated CO₂ emission total exceeds the CO₂ emission limit in tpy specified in Table 1, Permittee shall:
 - a. Document the exceedance in the test report; and
 - b. Explain within the report how it will assure compliance with the CO₂ emission limit listed in Table 1.
- B. Permittee must conduct performance tests within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup of the facility. Permittee must furnish EPA a written report of the performance test results within 90 days of the completion of the test. Additional testing or sampling may be required by TCEQ or EPA.

- C. Permittee shall submit a performance test protocol to EPA no later than 30 days prior to the test to allow review of the test plan and to arrange for an observer to be present at the test. The performance test shall be conducted in accordance with the submitted protocol, and any changes required by EPA.
- Permittee shall operate the Sat Gas No. 3 Hot Oil Heater (EPN: SATGASHTR) and the CCR Hot Oil Heater (EPN: JJ-4) at maximum production rates during the performance test.
- D. Permittee shall conduct performance tests under such conditions to ensure representative performance of the affected facility. Permittee shall make available to EPA such records as may be necessary to determine the conditions during the performance tests.
- E. Permittee shall provide EPA at least 30 days' prior notice of any performance test, except as specified under other subparts, to afford EPA the opportunity to have an observer present and attend a pre-test meeting. If there is a delay in the original test date, Permittee shall provide at least 7 days' prior notice of the rescheduled date of the performance test.
- F. Permittee shall provide, or cause to be provided, performance testing facilities as follows:
1. Sampling ports adequate for test methods applicable to this facility,
 2. Safe sampling platform(s),
 3. Safe access to sampling platform(s), and
 4. Utilities for sampling and testing equipment.
- G. Unless otherwise specified, each performance test shall consist of three separate runs using the applicable test method. Permittee shall conduct each run for the time and under the conditions specified in the applicable standard. For purposes of determining compliance with an applicable standard, Permittee shall use the arithmetic mean of the results of the three runs.
- H. Permittee shall conduct performance tests of the Sat Gas No. 3 Hot Oil Heater (EPN: SATGASHTR) and the CCR Hot Oil Heater (EPN: JJ-4), every five years, plus or minus six months, after the previous performance test was performed, or within 180 days after the issuance of a permit renewal, whichever comes later, to verify continued performance at the permitted emission limits.

VI. Agency Notifications

Permittee shall submit GHG permit applications, permit amendments, and other applicable permit information to:

Multimedia Planning and Permitting Division
EPA Region 6
1445 Ross Avenue (6 PD-R)
Dallas, TX 75202
Email: Group R6AirPermits@EPA.gov

Permittee shall submit a copy of all compliance and enforcement correspondence required by this Approval to Construct to:

Compliance Assurance and Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN)
Dallas, TX 75202

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