Special Conditions

Flexible Permit Numbers 2167 and PSDTX985

Emission Caps and Individual Emission Limitations

1. This permit authorizes emissions (including maintenance, startup, and shutdown (MSS) emissions) only from those points listed in the attached table entitled "Emission Sources - Emissions Caps and Individual Emission Limitations," and the facilities covered by this permit are authorized to emit subject to the emission rate limits on that table and other operating conditions specified in this permit.

2. Non-fugitive emissions from relief valves, safety valves, or rupture discs of gases containing volatile organic compounds (VOC) at a concentration of greater than 1 percent are not authorized by this permit unless authorized on the MAERT. Any releases directly to atmosphere from relief valves, safety valves, or rupture discs of gases containing VOC at a concentration greater than 1 weight percent are not consistent with good practice for minimizing emissions **(10/25)**

Federal Applicability

3. These facilities shall comply with all applicable requirements of the U.S. Environmental Protection Agency (EPA) regulations on Standards of Performance for New Stationary Sources promulgated in Title 40 Code of Federal Regulations Part 60 (40 CFR Part 60). The following subparts apply:

   A. Subpart A, General Provisions.

   B. Subpart J, Standards of Performance for Petroleum Refineries.

   C. Subpart Ja, Standards of Performance for Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After May 14, 2007.

   D. Subpart K, Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978.

   E. Subpart Ka, Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984.

   F. 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.

   G. Subpart Kc, Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After October 4, 2023. **(10/25)**

   H. Subpart VV, Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for which Construction, Reconstruction, or Modification Commenced After January 5, 1981, and on or Before November 7, 2006.

   I. Subpart VVb, Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After April 25, 2023. **(10/25)**

   J. Subpart GGG, Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries for which Construction, Reconstruction, or Modification Commenced After January 4, 1983, and on or Before November 7, 2006.

K. Subpart NNNa, Standards of Performance for Volatile Organic Compound (VOC) Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations for Which Construction, Reconstruction, or Modification Commenced After April 25, 2023. **(10/25)**

L. Subpart QQQ, Standards of Performance for VOC Emissions from Petroleum Refinery Wastewater Systems.

M. Subpart RRRa, Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes for Which Construction, Reconstruction, or Modification Commenced After April 25, 2023. **(10/25)**

4. These facilities shall comply with all applicable requirements of the EPA regulations on National Emission Standards for Hazardous Air Pollutants in 40 CFR Part 61. The following subparts apply:

A. Subpart A, General Provisions.

B. Subpart J, National Emission Standard for Equipment Leaks (Fugitive Emission Sources) of Benzene.

C. Subpart V, National Emission Standard for Equipment Leaks (Fugitive Emission Sources)

D. Subpart Y, National Emission Standard for Benzene Emissions from Benzene Storage Vessels

E. Subpart BB, National Emission Standard for Benzene Emissions from Benzene Transfer Operations.

F. Subpart FF, National Emission Standard for Benzene Waste Operations.

5. These facilities shall comply with all applicable requirements of the EPA regulations on National Emission Standards for Hazardous Air Pollutants for Source Categories in 40 CFR Part 63: The following subparts apply:

A. Subpart A, General Provisions.

B. Subpart F, National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry.

C. Subpart G, National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater.

D. Subpart H, National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks.

E. Subpart CC, National Emission Standards for Hazardous Air Pollutants from Petroleum Refineries.

F. Subpart UUU, National Emission Standards for Hazardous Air Pollutants for Petroleum Refineries: Catalytic Cracking Units, Catalytic Reforming Units, and Sulfur Recovery Units.

G. Subpart FFFF, National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing. **(10/25)**

H. Subpart ZZZZ, National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.

I. Subpart DDDDD, National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters.

J. Subpart GGGGG, National Emission Standards for Hazardous Air Pollutants: Site Remediation.

Initial Determination of Compliance

6. The permit holder shall perform stack sampling and other testing as required to establish the actual pattern and quantities of air contaminants being emitted into the atmosphere from the Sulfur Recovery Unit Tail Gas Thermal Oxidizers to demonstrate compliance with the MAERT. The permit holder is responsible for providing sampling and testing facilities and conducting the sampling and testing operations at his expense. Sampling shall be conducted in accordance with the appropriate procedures of the Texas Commission on Environmental Quality (TCEQ) Sampling Procedures Manual and the EPA Reference Methods.

   A. The appropriate TCEQ Regional Office shall be notified not less than 45 days prior to sampling. The notice shall include:

      (1) Proposed date for pretest meeting.

      (2) Date sampling will occur.

      (3) Name of firm conducting sampling.

      (4) Type of sampling equipment to be used.

      (5) Method or procedure to be used in sampling.

      (6) Description of any proposed deviation from the sampling procedures specified in this permit or TCEQ/EPA sampling procedures.

      (7) Procedure/parameters to be used to determine worst case emissions.

      The purpose of the pretest meeting is to review the necessary sampling and testing procedures, to provide the proper data forms for recording pertinent data, and to review the format procedures for the test reports. The TCEQ Regional Director must approve any deviation from specified sampling procedures.

   B. Air contaminants emitted from the thermal oxidizer(s) to be tested for include (but are not limited to) nitrogen oxide (NO_x), carbon monoxide (CO), Oxygen (O_2), and hydrogen sulfide (H_2S).

   C. Stack sampling shall occur within 60 days after initial start-up of the sulfur recovery complex after completion of installation of oxygen enrichment at the complex and at such other times as may be required by the Executive Director of the TCEQ. Requests for additional time to perform stack sampling shall be submitted to the TCEQ Regional Office.

      Additional time to comply with the applicable requirements of 40 CFR Part 60 and 40 CFR Part 61 requires the EPA approval, and requests shall be submitted to the TCEQ Regional Director.

   D. The units shall operate at no less than 90 percent of maximum production rate during stack emission testing. Primary operating parameters that enable determination of production rate shall be monitored and recorded during the stack test. These parameters are to be determined at the pretest meeting. If the units are unable to operate at the required production rates during testing, then future production rates may be limited to within 10% of the rates established during testing. Additional stack testing may be required when higher production rates are achieved.

E. Copies of the final sampling report shall be forwarded to the TCEQ within 45 days after sampling is completed. Sampling reports shall comply with the attached provisions of Chapter 14 of the TCEQ Sampling Procedures Manual. The reports shall be distributed as follows:

One copy to the TCEQ Houston Regional Office.

One copy to the Harris County Pollution Control Department, Pasadena.

One copy to the Bureau of Air Quality Control, City of Houston.

F. The performance test was completed on January 18, 2013.

Continuous Demonstration of Compliance - Monitoring

7. The holder of this permit shall install, calibrate, and maintain a continuous emissions monitoring system (CEMS) to measure and record the inlet sulfur dioxide (SO_2) and oxygen (O_2) to the fluid catalytic cracking unit (FCCU) wet gas scrubber (WGS) and the outlet SO_2, O_2, NO_x, and CO from the FCCU WGS.

   A. The CEMS shall meet the design and performance specifications, pass the field tests, and meet the installation requirements and data analysis and reporting requirements of NSPS Subpart J and as specified in the applicable rules identified in this condition.

   B. The CEMS shall be zero and span checked daily, and quality-assured once per calendar quarter in accordance with 40 CFR Part 60, Appendix F, Procedure 1. Quality assured (or valid) data must be generated when the FCCU WGS is operating except during the performance of a daily zero and span check. Loss of valid data due to periods of monitor break down, out-of-control operation (producing inaccurate data), repair, maintenance, or calibration may be exempted provided it does not exceed 5 percent of the time that the FCCU WGS operated over the previous rolling 12 month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded. Successive semiannual audits shall occur no closer than four months.

   C. All monitoring data and quality-assurance data shall be maintained by the permit holder for a period of five years. The quarterly CGA reports shall be submitted as part of the NSPS Subpart J quarterly reports to the Executive Director of the TCEQ and to the Houston TCEQ Regional Office. All reports shall be postmarked by the 30th day following the end of each calendar quarter.

8. The holder of this permit shall install, calibrate, and maintain a CEMS to measure and record the in-stack concentration of SO_2, CO, and O_2 from the 435 and 440 Tail Gas Thermal Oxidizers (TGTOs). Demonstration of compliance with the maximum allowable emission rates shall be made using concentration data and exhaust flow rates from the CEMS or as determined by stack sampling.

   The exhaust stack flow rate at each TGTO shall be continuously monitored and recorded by completion of installation of oxygen enrichment at the complex or December 31, 2011, whichever is later. The flow shall be recorded at least every 15 minutes and the hourly average flow rate shall be recorded. Each flow monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, or at least annually, whichever is more frequent, and shall be accurate to within 2 percent of span or 5 percent of the lesser of the design value or the flow measured during the most recent stack test.

Quality assured (or valid) data must be generated when the TGTO is operating except during the performance of a daily zero and span check. Loss of valid data due to periods of monitor break down, out-of-control operation (producing inaccurate data), repair, maintenance, or calibration may be exempted provided it does not exceed 5 percent of the time that the TGTO operated over the previous rolling 12 month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

9. The holder of this permit shall install, calibrate, and maintain a CEMS or predictive emission monitoring system (PEMS) to determine the in-stack concentration of NO_x, CO, and O_2 from all heaters and boilers with maximum firing rates greater than or equal to 100 Million British thermal units per hour (MMBtu/hr). A CEMS may be shared by up to three sources. These sources are listed in Attachment 2. All CEMS or predictive emissions monitoring systems shall be installed in accordance with the requirements in 30 TAC Chapter 117. EPNs 636F0002 and 733F0007 shall be fired at a rate of less than 100 MMBtu/hr.

10. This condition is added as a requirement of the TCEQ Agreed Order, Docket Number 2001-0072-AIR-E, dated August 19, 2002.

    The holder of this permit shall install, calibrate, and maintain a CEMS to measure and record the in-stack concentration of NO_x, CO, and O_2 from the 537 Crude Unit F1 Heater (EPN 537F0001). The CEMS will comply with the requirements in 40 CFR § § 60.8 and 60.13; 40 CFR Part 60, Appendix B, Performance Specifications 2, 3, and 4; and 40 CFR Part 60, Appendix F, Procedure 1. In addition, the holder of this permit shall comply with the following:

    A. The CEMS shall meet the design and performance specifications, pass the field tests, and meet the installation requirements and data analysis and reporting requirements specified in the applicable rules identified in this condition.

    B. The CEMS shall be zero and span checked daily, and quality-assured once per calendar quarter in accordance with 40 CFR Part 60, Appendix F, Procedure 1. These quality assurances shall occur at least two months apart.

    C. All monitoring data and quality-assurance data shall be maintained by the permit holder for a period of five years. The quarterly CGA reports shall be submitted semiannually to the Executive Director of the TCEQ and to the Houston TCEQ Regional Office. All reports shall be postmarked by the 30th day following the end of each calendar quarter.

Continuous Demonstration of Compliance with Emissions Caps

11. In order to demonstrate ongoing compliance with the hourly and annual emission limits specified in the maximum available emissions rates table, the permit holder, at a minimum, is to keep those records required under the section heading titled “Recordkeeping.” Below is a short summary of whether the hourly and annual emissions are based on actual data or worst-case permit representations. Actual data means there is at least one variable that is tracked, recorded, and changing in the calculation methodology used to estimate the emissions for the period (i.e., hourly and annual). The basis shown below is how the permit holder will demonstrate ongoing compliance.

Source Category	Hourly Emissions	Annual Emissions
Process Heaters and Boilers	Actual	Actual
Flares	Actual	Actual

Cooling Towers	Actual*	Actual
Fugitives	Component count	Component count
Storage Tanks	Worst-case	Actual
Loading	Actual **	Actual
Wastewater	Worst-case	Actual
FCCU WGS	Actual	Actual
MSS	Actual	Actual
SRUs	Actual	Actual

*Based on monthly cooling tower return sample results or analyzer data.

**Based on daily total transfer rates averaged over 24 hours.

A. Process Heaters and Boilers: The hourly emissions from each heater and boiler will be determined from the following basic data:

Actual measured fuel consumption from flow meters and actual fuel higher heating value from calorific monitors or lab analyses.

Represented emission factors (from vendor guarantees, stack test data, or AP-42 or other TCEQ/EPA-approved emission factor sources).

Actual CEMS/PEMS readings for NO_x, CO, and SO_2 (SO_2 emission factor for all sources combusting fuel gas will be derived from the H_2S CEMS installed on the outlet of the fuel gas mixing drum).

Actual CEMS readings or values measured by alternative method for ammonia (NH_3) (see required submittals section of this permit).

Annual emissions from each source will be the sum of all its hourly emissions data.

B. Flares: The hourly emissions from each flare will be determined from measured flare header flow rates, measured or known compositions, and the TCEQ and EPA-accepted emission factors and control efficiencies. Annual emissions from each source will be the sum of all its hourly emissions data.

C. Cooling Towers: The hourly emissions from each cooling tower will be determined from maximum design cooling water circulation rate and monthly cooling water return lab analyses or based on continuous flow meters and continuous emission monitors. Annual emissions from each source will be the sum of all its hourly emissions data.

D. Fugitives: The hourly emissions from fugitives (equipment leaks from piping components) will be determined from represented component counts and applicable leak detection and repair (LDAR) program emission factors and allowed control efficiencies. Annual emissions from each area/source will be the sum of all its hourly emissions data.

E. Storage Tanks: The hourly emissions of VOC and benzene from storage tanks will be determined from represented tank attributes (e.g., tank type and capacity, seals, deck fittings, etc.), properties of material stored, and maximum fill/withdrawal rates, as outlined in this permit under Storage and Loading of VOC.

The contributions to hourly VOC and benzene emission caps from storage tanks were based upon worst-case scenarios (i.e., highest vapor pressures of materials stored and maximum fill/withdrawal rates) based upon physical configurations of tanks and maximum capacities of pumps lined up to tanks. For purposes of demonstrating compliance with hourly emission caps, the hourly emissions from storage tanks will be assumed to be these same maximum worst-case emissions and will be recalculated when anything changes which will affect these

maximum possible hourly emission rates (e.g., tank attributes, change of service, pump capacities, etc.)

For each tank, annual emissions will be calculated for each material which was stored based upon actual throughput and annual average properties.

F. Tank Truck, Railcar, and Marine Loading: The hourly emissions of VOC and benzene from loading operations will be determined from properties of material loaded, applicable collection and control efficiencies, and maximum loading rates, as outlined in this permit under Storage and Loading of VOC.

As with storage tanks, the contributions to hourly VOC and benzene emission caps from loading operations were based upon worst-case scenarios, i.e., highest vapor pressures of materials loaded and maximum loading rates. For purposes of demonstrating compliance with hourly emission caps, the hourly emissions from loading operations will be determined based on daily transfer rates averaged over 24 hours.

For each loading point, annual emissions will be calculated for each material which was loaded based upon actual quantity loaded and annual average properties.

G. Wastewater: The hourly emissions of VOC from wastewater will be determined from maximum/design wastewater flow rates, maximum measured or assumed VOC concentrations in wastewater, and applicable control efficiencies.

As with storage tanks and loading, the contributions to hourly VOC emission caps from wastewater were based upon worst-case scenarios. For purposes of demonstrating compliance with hourly emission caps, the hourly emissions from wastewater will be assumed to be these same maximum worst-case emissions and will be recalculated when anything changes which will affect these maximum possible hourly emission rates.

The annual VOC emissions from each wastewater system will be calculated based upon actual annual wastewater flows and wastewater lab analyses.

H. FCCU WGS: The hourly emissions of NO_x, CO, and SO_2 from the FCCU WGS will be determined from actual CEMS readings at the outlet of the FCCU WGS, and particulate matter (PM) and VOC emissions will be calculated.

After Selective Catalytic Reduction (SCR) is installed, NH_3 emissions (slip) will be determined by actual CEMS readings or an alternative method (see Required Submittals section of this permit).

Annual emissions from the FCCU WGS will be the sum of all its hourly emissions data.

I. SRUs: The hourly emissions of SO_2 and CO from the TGTOs will be determined from actual stack CEMS readings and exhaust flow rates. Hourly emissions of NO_x, PM, and VOC will be estimated using stack test data or the represented emission factors.

Annual emissions from the sulfur recovery complex TGTOs will be the sum of all its hourly emissions data.

12. Compliance with the annual emission caps shall be based on a 12-month rolling average of emissions except during the first year after issuance of the flexible permit when compliance will be on a calendar basis beginning January 1, 1999. Emissions shall be calculated monthly and summed for the most recent 12-month period for comparison to the caps. The emission caps will be adjusted accordingly as combustion sources are retrofitted with control technology. Adjustments to the caps will be prorated over the 12-month period to reflect the duration of operation with the control technology retrofit in place. The full increment of the adjustment associated with control technology retrofitting will be represented in the cap 12 months after the retrofit date. Except as

otherwise noted in this paragraph, emission caps are effective January 1 of each year for which an emission cap has been established.

13. The FCCU Regenerator/CO Boiler/WGS and all fired sources with firing rate capacities greater than 40 MMBtu/hr are all candidates for retrofit with SCR or equivalent NOx reduction technology and the installation of those controls necessary will be such that the reductions achieved will meet the Flexible Permit NOx caps and the Mass Emission Cap and Trade Program NOx Caps.

Piping, Valves, Connectors, Pumps, and Compressors in VOC Service-Intensive Directed Maintenance - 28MID

14. Except as may be provided for in the Special Conditions of this permit, the following requirements apply to the above-referenced equipment:

    A. The requirements shall not apply (1) where the volatile organic compounds (VOC) has an aggregate partial pressure or vapor pressure of less than 0.044 pounds per square inch, absolute (psia) at 68°F or (2) operating pressure is at least 5 kilopascals (0.725 psi) below ambient pressure. Equipment excluded from this condition shall be identified in a list to be made available upon request.

    B. Construction of new and reworked piping, valves, pump systems, and compressor systems shall conform to applicable or equivalent codes.

    C. New and reworked underground process pipelines shall contain no buried valves such that fugitive emission monitoring is rendered impractical.

    D. To the extent that good engineering practice will permit, new and reworked valves and piping connections shall be so located to be reasonably accessible for leak-checking during plant operation. Non-accessible valves, as defined by 30 TAC Chapter 115, shall be identified in a list to be made available upon request.

    E. New and reworked piping connections shall be welded or flanged. Screwed connections are permissible only on piping smaller than two-inch diameter. No later than the next scheduled quarterly monitoring after initial installation or replacement, all new or reworked connections shall be gas-tested or hydraulically-tested at no less than normal operating pressure and adjustments made as necessary to obtain leak-free performance. Connectors shall be inspected by visual, audible, and/or olfactory means at least weekly by operating personnel walk-through.

       Each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve. Except during sampling, the second valve shall be closed.

    F. Accessible valves shall be monitored by leak-checking for fugitive emissions at least quarterly using an approved gas analyzer with a directed maintenance program. Sealless/leakless valves (including, but not limited to, welded bonnet bellows and diaphragm valves) and relief valves equipped with a rupture disc upstream or venting to a control device are not required to be monitored. For valves equipped with rupture discs, a pressure-sensing device shall be installed between the relief valve and rupture disc to monitor disc integrity. All leaking discs shall be replaced at the earliest opportunity but no later than the next process shutdown.

       An approved gas analyzer shall conform to requirements listed in 40 CFR § 60.485(a)-(b).

       A directed maintenance program shall consist of the repair and maintenance of components assisted simultaneously by the use of an approved gas analyzer such that a minimum concentration of leaking VOC is obtained for each component being maintained. Replaced components shall be re-monitored within 15 days of being placed back into VOC service.

G. All new and replacement pumps and compressors shall be equipped with a shaft sealing system that prevents or detects emissions of VOC from the seal. These seal systems need not be monitored and may include (but are not limited to) dual pump seals with barrier fluid at higher pressure than process pressure, seals degassing to vent control systems kept in good working order, or seals equipped with an automatic seal failure detection and alarm system. Submerged pumps or sealless pumps (including, but not limited to, diaphragm, canned, or magnetic-driven pumps) may be used to satisfy the requirements of this condition and need not be monitored.

All other pump and compressor seals emitting VOC shall be monitored with an approved gas analyzer at least quarterly.

H. Damaged or leaking valves, connectors, compressor seals, and pump seals found to be emitting VOC in excess of 500 ppmv or found by visual inspection to be leaking (e.g., dripping process fluids) shall be tagged and replaced or repaired. Every reasonable effort shall be made to repair a leaking component, as specified in this paragraph, within 15 days after the leak is found. If the repair of a component would require a unit shutdown, the repair may be delayed until the next scheduled shutdown. All leaking components which cannot be repaired until a scheduled shutdown shall be identified for such repair by tagging. At the discretion of the TCEQ Executive Director or designated representative, early unit shutdown or other appropriate action may be required based on the number and severity of tagged leaks awaiting shutdown.

I. In lieu of the monitoring frequency specified in paragraph F, valves in gas and light liquid service may be monitored on a semiannual basis if the percent of valves leaking for two consecutive quarterly monitoring periods is less than 0.5 percent.

Valves in gas and light liquid service may be monitored on an annual basis if the percent of valves leaking for two consecutive semiannual monitoring periods is less than 0.5 percent.

If the percent of valves leaking for any semiannual or annual monitoring period is 0.5 percent or greater, the facility shall revert to quarterly monitoring until the facility again qualifies for the alternative monitoring schedules previously outlined in this paragraph.

J. The percent of valves leaking used in paragraph I shall be determined using the following formula:

$$(Vl + Vs) \times 100/Vt = Vp$$

Where:

Vl = the number of valves found leaking by the end of the monitoring period, either by Method 21 or sight, sound, and smell.

Vs = the number of valves for which repair has been delayed and are listed on the facility shutdown log.

Vt = the total number of valves in the facility subject to the monitoring requirements, as of the last day of the monitoring period, not including nonaccessible and unsafe-to-monitor valves.

Vp = the percentage of leaking valves for the monitoring period.

K. The results of the required fugitive instrument monitoring and maintenance program shall be made available to the TCEQ Executive Director or designated representative upon request. Records shall indicate appropriate dates, test methods, instrument readings, repair results, justification for delay of repairs, and corrective actions taken for all components. Records of physical inspections are not required unless a leak is detected.

L. Compliance with the requirements of this condition does not assure compliance with requirements of 30 TAC Chapter 115, an applicable NSPS, or an applicable NESHAPS and does not constitute approval of alternative standards for these regulations.

M. For the purpose of establishing the final emission rate caps for this flexible permit, implementation of the 28MID programs and the appropriate reduction credits were utilized. If any other LDAR program is used for a set of components subject to this permit, the fugitive emissions for all components shall be calculated using the appropriate reduction credits for the LDAR program actually used to monitor each component. For components monitored under an LDAR program other than 28MID, the net emission rates for these components must be equivalent or less than those obtained if 28MID were in place.

15. Flanges in the benzene toluene unit shall be monitored according to the requirements in 28MID once per year.

All components exempt from the monitoring requirements of SC 14A are subject to the weekly inspection requirements of SC 14E.

16. Reserved.

Sulfur Recovery Complex - Piping, Valves, Pumps, And Compressors in H_2S Service

17. Audio, olfactory, and visual checks for H_2S leaks within the SRU Complex operating area shall be made every four hours. Immediately, but no later than one-hour upon detection of an H_2S leak, plant personnel shall take the appropriate corrective action including (but not limited to) the following actions:

A. Stop the leak by taking the equipment out of service or bypass the equipment so that it is no longer in service;

B. Isolate the leak;

C. Commence repair or replacement of the leaking component; or,

D. If the leak cannot be repaired within six hours, the holder of this permit shall implement a leak detection or containment system to prevent the leak until repair or replacement can be made if immediate repair is not possible.

Records shall only be maintained at the plant site if leaks are detected. Records include the time leaks were detected and all repairs and replacements made due to leaks. These records shall be maintained for a period of two years and made available to representatives of the TCEQ upon request.

Piping, Valves, Pumps, And Compressors in NH_3 Service

18. Except as may be provided for in the Special Conditions of this permit, the following requirements apply to the above-referenced equipment:

A. Audio, olfactory, and visual checks for leaks within the operating area shall be made every four hours.

B. Immediately, but no later than one hour upon detection of a leak, plant personnel shall take at least one of the following actions:

(1) Isolate the leak.

(2) Commence repair or replacement of the leaking component.

(3) Use a leak collection/containment system to prevent the leak until repair or replacement can be made if immediate repair is not possible.

Date and time of each inspection shall be noted in the operator's log or equivalent. Records shall be maintained at the plant site of all repairs and replacements made due to leaks. These records shall be made available to representatives of the TCEQ upon request.

Storage and Loading of VOC

19. Storage tanks are subject to the following requirements: The control requirements specified in parts A–E of this condition shall not apply (1) where the VOC has an aggregate partial pressure of less than 0.50 psia at the maximum feed temperature or 95°F, whichever is greater, or (2) to storage tanks smaller than 25,000 gallons.

A. The tank emissions must be controlled as specified in one of the paragraphs below:

(1) An internal floating deck or "roof" shall be installed. A domed external floating roof tank is equivalent to an internal floating roof tank. The floating roof shall be equipped with one of the following closure devices between the wall of the storage vessel and the edge of the floating roof: (1) a liquid-mounted seal, (2) two continuous seals mounted one above the other, or (3) a mechanical shoe seal.

(2) An open-top tank shall contain a floating roof (external floating roof tank) which uses double seal or secondary seal technology provided the primary seal consists of either a mechanical shoe seal or a liquid-mounted seal and the secondary seal is rim-mounted. A weathershield is not approvable as a secondary seal unless specifically reviewed and determined to be vapor-tight.

(3) This paragraph is added to satisfy the EPA Storage Tank Emission Reduction Partnership Program (STERPP) Agreement dated May 23, 2001:

"External floating roof storage tanks that are or become "affected facilities" under NSPS Subpart Ka or Kb shall have properly installed, operated, and maintained slotted guidepole controls. For existing or new tanks that become "affected facilities," the controls shall be installed and in place prior to initial startup as an "affected facility."

B. For any tank equipped with a floating roof, the permit holder shall perform the visual inspections and any seal gap measurements specified in Title 40 Code of Federal Regulations § 60.113b (40 CFR § 60.113b) Testing and Procedures (as amended at 54 FR 32973, Aug. 11, 1989) to verify fitting and seal integrity. Records shall be maintained of the dates inspection was performed, any measurements made, results of inspections and measurements made (including raw data), and actions taken to correct any deficiencies noted.

C. The floating roof design shall incorporate sufficient flotation to conform to the requirements of API Code 650 dated November 1, 1998 except that an internal floating cover need not be designed to meet rainfall support requirements and the materials of construction may be steel or other materials.

D. Uninsulated tank exterior surfaces exposed to the sun shall be white or aluminum.

E. For purposes of assuring compliance with VOC emission limitations, the holder of this permit shall maintain a monthly emissions record which describes calculated emissions of VOC from all storage tanks and loading operations - see Continuous Demonstration of Compliance with Emissions Caps in this permit.

F. Emissions for storage tanks shall be calculated using: (a) methods described in AP-42 "Compilation of Air Pollution Emission Factors, Chapter 7 – Liquid Storage Tanks" dated November 2019 and the permit application and (b) the TCEQ publication titled "Technical Guidance Package for Chemical Sources - Storage Tanks." Emissions for loading operations shall be calculated using: (a) AP-42 "Compilation of Air Pollution Emission Factors, Fifth Edition, Chapter 5.2 - Transportation and Marketing of Petroleum Liquids" dated January 1995 and (b) the TCEQ publication titled "Technical Guidance Package for Chemical Sources - Loading Operations."

G. For floating roof storage tanks that are currently storing material with an aggregate VOC partial pressure of less than 0.5 psia that undergo a change of service to store material with an aggregate VOC partial pressure of greater than or equal to 0.5 psia, the tank inspections required by paragraph B of this condition shall be completed per 30 TAC, Chapter 115, Rule §115.114 within 12 months after permanent change in service occurs.

H. The dissolved H_2S in the crude oil shall not cause an exceedance of any MAERT H_2S limits.

(1) In order to demonstrate compliance with this special condition, the permit holder shall determine the dissolved H_2S concentration of each crude oil stock to be stored in the storage tanks identified above. The H_2S concentration may be determined using method ASTM UOP163-10 or ASTM D7621-16. Any additional method of sampling method and analysis used must be approved by the TCEQ. Product analysis (laboratory certificates of analysis or assays) from the delivering source, are acceptable in place of on-site analysis.

(2) The H_2S content of crude shall be determined by product analysis or by the sampling methods described in H(1) the more frequent of:

(a) annual; or

(b) within 60 days of a tank receiving crude oil that has not been previously analyzed.

(3) Records of laboratory certificates or H_2S concentrations measured to meet the requirements of this condition shall be maintained at the plant site.

20. No material having a true vapor pressure of 0.5 psia or greater shall be loaded into tank trucks or railcars unless the vapors are collected and the collected vapors are routed to a control device having at least 98 percent destruction or removal efficiency. Loading operations that are exempt from the control provisions in 30 TAC Chapter 115 are exempt from this condition.

21. Pressure tanks shall be maintained such that there are no emissions of VOC to the atmosphere during normal operating conditions. Tanks not in volatile organic liquid (VOL) service shall not be placed in VOL service unless a permit amendment is first approved by the TCEQ or the change of service meets the requirements of an exemption from permitting under 30 TAC Chapter 106 or other TCEQ authorization. A list of tanks without emissions of VOC to the atmosphere or not in VOC service is contained in Attachment 1.

22. Compounds with VOC vapor pressure of 0.4 psia or greater shall not be loaded onto marine vessels unless the vapors are collected and routed to the marine vapor combustion system (MVCS). These compounds may not be loaded when the MVCS is not operational. "Heavy aromatics" and xylenes shall not be loaded onto marine vessels unless the vapors are collected and routed to the MVCS.

23. Material containing greater than 60 percent benzene by weight may not be stored in any tank within 500 feet of the property line.

Cooling Towers

24. Cooling towers are subject to the following requirements.

A. The cooling tower water shall be monitored at least monthly for VOC leakage from heat exchangers in accordance with the requirements of the TCEQ Sampling Procedures Manual, Appendix P (dated January 2003 or a later edition) or another air stripping method approved by the TCEQ Executive Director. For units equipped with a CEMS, the daily average total VOC concentration shall be used in determination of a leak. When speciated VOC concentrations are available, total VOC shall mean the sum of the individual VOC concentrations detected. Otherwise, total VOC concentration shall mean total VOC as methane.

Total VOC concentration measured in the stripping gas above 6.2 ppmv (above background) indicates a leak. Leaking equipment shall be repaired at the earliest opportunity but no later than 45 days after discovering a leak, except as allowed under the delay of repair provisions below.

If the repair is technically infeasible without a shutdown and the total strippable VOC concentration is initially and remains less than 62 ppmv for all monthly monitoring periods during the delay of repair, repair may be delayed until the next scheduled shutdown of the heat exchange system.

If the repair is technically feasible without shutdown and the necessary equipment, parts, or personnel are not available and the total strippable VOC concentration is initially and remains less than 62 ppmv for all monthly monitoring periods during the delay of repair, repair may be delayed for a maximum of 120 calendar days.

Emissions from the cooling tower are not authorized if the VOC concentration measured in the stripping gas exceeds 62 ppmv above background. The VOC concentrations above 62 ppmv are not subject to extensions for delay of repair under this permit condition. The results of the monitoring and maintenance efforts shall be recorded.

B. Cooling tower EPNs 533CT3701, 536CT3701, 537CT3701, 635CT3701, 637CT3701, 732CT3701, 736CT3701, and 737CT3701 shall be monitored and sampled in accordance with all relevant HRVOC requirements contained in 30 TAC Chapter 115, Subchapter H.

C. Cooling tower EPNs 635CT3701 and 732CT3701 each with flow equal or greater than 50,000 gallon per minute (gpm) shall be operated and monitored in accordance with the following for PM:

(1) Cooling towers shall each be equipped with drift eliminators having manufacturer's design assurance of 0.001% drift or less. Drift eliminators shall be maintained and inspected at least annually. The permit holder shall maintain records of all inspections and repairs.

(2) Total dissolved solids (TDS) in the cooling water drift are considered to be emitted as PM, PM_{10}, and $PM_{2.5}$ as represented in the permit application calculations. TDS shall be monitored to show compliance with the PM, PM_{10}, and $PM_{2.5}$ emissions Caps.

(3) Cooling towers shall be analyzed for particulate emissions using one of the following methods within 180 days after issuance of the 2019 project to renew the permit (project No. 313906):

(a) Cooling water shall be sampled at least once per week for total dissolved solids (TDS); or

(b) TDS monitoring may be reduced to monthly if conductivity is monitored weekly and TDS is calculated using a ratio of TDS-to-conductivity (in ppmw per µmho/cm or ppmw/siemens). The ratio of TDS-to-conductivity shall be determined by concurrently monitoring TDS and conductivity on a monthly basis. The permit holder may use the average of two consecutive TDS-to-conductivity ratios to calculate weekly TDS; or

(c) TDS monitoring may be reduced to quarterly if conductivity is monitored weekly and TDS is calculated using a correlation factor established for each cooling tower. The correlation factor shall be the average of nine consecutive TDS-to-conductivity ratios determined using C(3)(b) above provided the highest ratio is not more than 10% larger than the smallest ratio.

(d) The permit holder shall validate the TDS-to-conductivity correlation factor once each calendar quarter. If the ratio of concurrently sampled TDS and conductivity is more than 10% higher or lower than the established factor, the permit holder shall increase TDS monitoring to monthly until a new correlation factor can be established.

(4) Cooling water sampling shall be representative of the cooling tower feed water and shall be conducted using approved methods.

(a) The analysis method for TDS shall be EPA Method 160.1, ASTM D5907, or SM 2540 C [SM - 19th edition of Standard Methods for Examination of Water]. Water samples should be capped upon collection and transferred to a laboratory area for analysis.

(b) The analysis method for conductivity shall be either ASTM D1125-14 Test Method A (field or routine laboratory testing) or ASTM D1125-14 Test Method B (continuous monitor). The analysis may be conducted at the sample site or with a calibrated process conductivity meter. If a conductivity meter is used, it shall be calibrated at least annually. Documentation of the method and any associated calibration records shall be maintained.

(c) Alternate sampling and analysis methods may be used to comply with C(4)(a) and C(4)(b) with written approval from the TCEQ Regional Director.

(d) Records of all instrument calibrations and test results and process measurements used for the emission calculations shall be retained.

(5) Emission rates of PM, PM_{10} and $PM_{2.5}$ shall be calculated using the measured TDS and the ratio or correlation of TDS to conductivity measurements, the design drift rate and the daily maximum and average actual cooling water circulation rate for the short term and annual average rates. Alternately, the design maximum circulation rate may be used for all calculations. Emission records shall be updated monthly.

D. Cooling tower EPNs 430CT3701, 430CT3791, 533CT3701, 536CT3701, 537CT3701, 637CT3701, 736CT3701, and 737CT3701 each with flow less than 50,000 gpm shall be operated and monitored in accordance with the following for PM:

(1) Each cooling tower shall be equipped with drift eliminators having manufacturer's design assurance of 0.001% drift or less. Drift eliminators shall be maintained and inspected at least annually. The permit holder shall maintain records of all inspections and repairs.

(2) Total dissolved solids (TDS) in the cooling water drift are considered to be emitted as PM, PM_{10}, and $PM_{2.5}$ as represented in the permit application calculations. TDS shall be monitored to show compliance with the PM, PM_{10}, and $PM_{2.5}$ emissions Caps.

(3) Cooling towers shall be analyzed for particulate emissions using one of the following methods:

(a) Cooling water shall be sampled at least once per week for TDS; or

(b) TDS monitoring may be reduced to monthly if conductivity is monitored weekly and TDS is calculated using a ratio of TDS-to-conductivity (in ppmw per µmho/cm or ppmw/siemens). The ratio of TDS-to-conductivity shall be determined by concurrently monitoring TDS and conductivity on a monthly basis. The permit holder may use the average of two consecutive TDS-to-conductivity ratios to calculate weekly TDS; or

(c) TDS monitoring may be reduced to quarterly if conductivity is monitored weekly and TDS is calculated using a correlation factor established for each cooling tower. The correlation factor shall be the average of nine consecutive TDS-to-conductivity ratios determined using (D)(3)(b) above provided the highest ratio is not more than 10% larger than the smallest ratio.

(d) The permit holder shall validate the TDS-to-conductivity correlation factor once each calendar quarter. If the ratio of concurrently sampled TDS and conductivity is more than 10% higher or lower than the established factor, the permit holder shall increase TDS monitoring to monthly until a new correlation factor can be established.

(4) Cooling water sampling shall be representative of the cooling tower feed water and shall be conducted using approved methods.

(a) The analysis method for TDS shall be EPA Method 160.1, ASTM D5907, and SM 2540 C [SM - 19th edition of Standard Methods for Examination of Water]. Water samples should be capped upon collection, and transferred to a laboratory area for analysis.

(b) The analysis method for conductivity shall be either ASTM D1125-14 Test Method A (field or routine laboratory testing) or ASTM D1125-14 Test Method B (continuous monitor). The analysis may be conducted at the sample site or with a calibrated process conductivity meter. If a conductivity meter is used, it shall be calibrated at least annually. Documentation of the method and any associated calibration records shall be maintained.

(c) Alternate sampling and analysis methods may be used to comply with (D)(4)(a) and (D)(4)(b) with written approval from the TCEQ Regional Director.

(d) Records of all instrument calibrations and test results and process measurements used for the emission calculations shall be retained.

(5) Emission rates of PM, PM_{10}, and $PM_{2.5}$ shall be calculated using the measured or calculated TDS, the design drift rate and the daily maximum and average actual cooling water circulation rate for the short term and annual average rates. Alternately, the design maximum circulation rate may be used for all calculations. Emission records shall be updated monthly.

Heater, Boiler, Flare, and MVCS Operation

25. Fuel used in the process heaters and boilers, supplemental fuel for the flares, and fuel for the flare pilots shall be limited to pipeline-quality natural gas, refinery fuel gas, or a combination of natural gas and refinery fuel gas. The H_2S concentration of the fuel gas shall not exceed 0.1 grain per dry standard cubic foot (dscf) (approximately 160 ppmv) on a three-hour rolling average basis. The

H_2S concentration shall be monitored and recorded in accordance with NSPS, Subpart J. Pipeline-quality natural gas shall contain no more than 0.25 grain H_2S and 5.0 grains total sulfur per 100 dscf.

26. Opacity of emissions from the boiler and heater stacks must not exceed 5 percent averaged over a six-minute period, except for those periods described in 30 TAC § 111.111(a)(1)(E).

27. For combustion devices equipped with SCR, the NH_3 slip (emissions of NH_3) shall not exceed 10 ppmvd on an hourly basis when corrected to 3 percent O_2 at any operating load except during periods of start-up or shutdown.

28. Flares shall be designed and operated in accordance with the following requirements:

    A. The flare systems shall be designed such that the combustion zone gas as defined in 40 CFR § 63.641 or gas being combusted, as applicable, in each flare meets the 40 CFR § 63.670 specifications of minimum heating value and maximum tip velocity under normal, upset, and maintenance flow conditions.

       The heating value and velocity requirements shall be satisfied during operations authorized by this permit. Flare testing per 40 CFR § 63.670(g)-(n) may be requested by the appropriate Texas Commission on Environmental Quality (TCEQ) Regional Office to demonstrate compliance with these requirements.

    B. The flares shall be operated with a flame present at all times and/or have a constant pilot flame. The pilot flame shall be continuously monitored by a thermocouple, an ultraviolet sensor, or an infrared monitor. The time, date, and duration of any loss of pilot flame shall be recorded. The flares shall be monitored in accordance with 40 CFR § 63.671. Each monitoring device shall be accurate to, and shall be calibrated at a frequency in accordance with, the manufacturer's specifications.

    C. The flares shall be operated with no visible emissions except periods not to exceed a total of five minutes during any two consecutive hours. This shall be ensured by the use of steam assist to the flare.

    D. Flares shall operate with no less than 98 percent efficiency in disposing of the carbon compounds captured by the collection system. A destruction efficiency of 99 percent will be allowed for C2 and C3 compounds.

29. Opacity of emissions from the flares must not exceed 5 percent averaged over a six-minute period.

30. The Marine Vapor Combustor unit (MVCU) used in the MVCS shall be designed and operated in accordance with the following requirements:

    A. The MVCU shall control waste gas directed to it by maintaining the temperature in, or immediately downstream of, the combustion chamber above 1,400°F. The MVCU shall be equipped with a permissive interlock that stops controlled loading if the temperature fails to meet the minimum combustion chamber temperature.

    B. The temperature monitor shall be installed, calibrated or have a calibration check performed at least annually, and maintained according to the manufacturer's specifications. The device shall have an accuracy of the greater of ± 2 percent of the temperature being measured expressed in degrees Celsius or ± 2.5°C.

    C. The holder of this permit shall install, calibrate, and maintain a CEMS to measure and record the outlet CO and NO_X concentration from the MVCU. The CEMS shall be operated and monitored per all relevant requirements in 30 TAC Chapter 117.

Sulfur Recovery Units (SRUs)

31. Emissions of CO from the 435 and 440 TGTOs shall not exceed 100 ppmvd each on a one-hour average basis.

32. The minimum sulfur recovery efficiency for the SRUs shall be 99.8 percent on a daily average. The sulfur recovery efficiency shall be determined by calculation as follows:

$$\text{Efficiency} = \frac{(\text{S recovered})*(100)}{(\text{S recovered}) + (\text{S TGTO})}$$

Where: Efficiency = sulfur recovery efficiency, percent
S recovered = (elemental S in pit), lbs/day
S TGTO = sulfur in TGTO stack, lbs/day

The sulfur recovery efficiency shall be demonstrated for each calendar day (24-hour period) by a mass balance calculation using data obtained from the TGTO stack sulfur dioxide monitor and sulfur production records. Records and copies of the compliance calculations shall be maintained.

33. The Sulfur Recovery Units (SRUs) and associated equipment or processes are subject to the following:

A. The total sulfur recovered from the 433, 434, and 439 Sulfur Recovery Units (SRUs) shall not exceed the following sulfur recovery rates in long tons per day (LTPD):

Final Production Limits - Claus Trains with All Units Operating (LTPD)			
Unit	Without O_2 Enrichment	With O_2 Enrichment on 433 or 434 Units	With O_2 Enrichment on 433 and 434 Units
Permit Total	730	908	1029
Permit Total is based on 75% redundancy			

B. In case of emergency shutdown of one of the Claus trains with the two tail gas units (TGUs) still in operation, the remaining two SRUs shall not exceed the following sulfur recovery rates in long tons per day (LTPD).

Interim and Final Production Limits w/ Unit Down - Claus Trains (LTPD)			
Units Operational	Without O_2 Enrichment	With O_2 Enrichment on 433 or 434 Units	With O_2 Enrichment on 433 and 434 Units
433 and 434	500	661	822
439 and 433 w/o O_2	730	730	N/A

439 and 434 w/o O_2	730	730	N/A
439 and 433 w/ O_2	N/A	961	N/A
439 and 434 w/ O_2	N/A	961	N/A
Permit Total is based on 75% redundancy			

The company shall make every effort to restart the shutdown SRU as soon as practical using best engineering judgment. Flaring of SO_2 associated with the SRU shutdown shall be limited to four hours per shutdown. If flaring beyond four hours is required by operational necessity, it shall be considered an upset and reported as required under 30 TAC § 101.201.

The Company will maintain documentation to demonstrate that the repair was accomplished as soon as possible. These records shall include relevant work orders and purchase orders that document efforts made to restart the shutdown SRU. Records shall be maintained by the company to show compliance with this condition for a period not less than two years.

C. The total sulfur recovered from the 433, 434, and 439 SRUs shall not exceed 822 LTPD when either 435 TGU or 440 TGU is not operational.

D. The sour water stripper feed tanks shall be manually checked for hydrocarbons at least once per shift using sight glasses. Ten feet of sour water shall be maintained in the feed tanks at any given time. If hydrocarbons are discovered at or below the above indicated level, steps shall be taken to restore the sour water level back to the 10-foot level. Records of all manual interface checks (sight glass checks) shall be maintained.

All sight glasses shall be maintained and kept in operating condition according to manufacturer specifications.

E. The sour water stripper surge system shall have a minimum on-line retention time of 24 hours based on a minimum level of 10 feet in the feed tanks and a typical sour water flow rate of 990 gallons per minute into the tanks. This does not apply during periods of MSS.

There shall be at least 2 days of holdup (excess) capacity maintained for sour water storage. This capacity shall only be used for sour water storage when necessary to avoid flaring of acid gases due to reduced SRU complex capacity or as required during MSS activities. It shall be restored within one week of the return of the sulfur recovery complex to normal operations.

F. The liquid sulfur shall be degassed by an above grade air stripper (or equivalent device). The effluent from the degassing stripper will be routed to the front end of the Claus reactor.

(1) The degassed liquid sulfur shall be routed to a covered sulfur storage tank. The breathing vents from the sulfur tank shall be routed to the TGTO or SRU.

(2) All sulfur shall be degassed to an H_2S content of 100 parts per million (ppm) or less prior to loading.

(3) The holder of this permit shall perform at his or her expense sampling and other testing as required to demonstrate the performance of the sulfur degassing system. The degassing unit shall operate at 90% or higher of design operating rate during sampling.

G. The rich amine charge tanks shall be manually checked for hydrocarbons at least once per shift using sight glasses. Records of manual level checks shall be maintained.

All sight glasses shall be maintained and kept in operating condition according to manufacturer specifications.

34. Quantities of sulfur loaded into barges and tank cars shall not exceed 500 short tons per hour.

35. Emissions from the sulfur pits, sulfur storage tanks, and degassing operations shall be routed to the inlet of the SRUs or the TGTOs.

36. The SRU system is subject to the requirements of 40 CFR 60 Subpart J and, per 40 CFR 60.100(e), Houston Refining has elected to comply with the applicable provisions of 40 CFR 60 Subpart Ja to satisfy the requirements of Subpart J. The flow weighted average SO_2 concentration in the exhaust gas of the 435 and 440 TGTOs shall not exceed the flow weighted 12 hour rolling average as required in Subpart Ja.

37. All waste gas streams from the amine regeneration units containing H_2S and/or VOC shall be routed to the SRUs under normal operating conditions. Only under start of operations, shutdowns, or emergency conditions shall the vent streams be sent to the flare (EPNs 338K0001, 338K0002, 338K0005, 338K0007, 338K0008, and 736K0101A). Any other exception to this condition requires prior review and approval by the TCEQ Executive Director, and such exceptions may be subject to strict monitoring requirements.

38. All acid gas or other waste gases from these facilities shall be burned in the TGTOs and/or flare (emergency use) as specified in the flexible permit application. It is not permissible under any conditions to vent waste gases directly to the atmosphere.

39. The SRUs shall be equipped with an H_2S monitoring system. The systems shall be operated and maintained with the company operating procedures for H_2S monitoring.

Coker Units

40. The following operational restrictions apply to the 736 and 737 Coker Units:

A. There shall be no visible emissions leaving the property during normal coke handling operations.

B. No more than one coke drum per coker unit may be depressured to atmosphere in an hour and no more than one drum opening per coker unit may occur in an hour.

C. No more than 1400 drum cycles (i.e., drum depressurizations to atmosphere and drum openings) per coker unit may occur in a year.

D. Prior to depressuring a drum to atmosphere, the drum shall be routed to a closed blowdown system which recovers and directs the gas flows for recovery or to the fuel gas or flare system.

E. The coke drums shall not be depressured and drained to atmosphere until the drum reaches a top or blowdown pressure of 5 psig or less based on a 5-minute average.

41. Coke dust emissions from the coke pit shall be controlled by maintaining the moisture content at no less than 8 percent moisture. This moisture content shall be maintained by adding additional water when necessary. It shall not be a deviation from this provision if water is added within 24 hours after sampling indicates that the moisture level has dropped below 8 percent.

42. Coke stockpiles above ground shall be permitted only under emergency conditions. Should stockpiles be necessary, the coke shall be tested for moisture content three times per week and shall be maintained at a moisture content not less than 8 percent moisture. It shall not be a deviation from this provision if water is added within 24 hours after sampling indicates that the moisture level has dropped below 8 percent. Records shall be kept for five years.

FCCU and WGS Operation

43. The FCCU and WGS are subject to the following:

A. The continuous opacity monitoring system for the FCCU catalyst regenerator which is required under 40 CFR § 60.105(a)(1) of NSPS, Subpart J and 30 TAC § 111.111(a)(2)(C) is replaced by an alternate method as allowed by 30 TAC § 111.111(a)(3). The alternate method was approved by the EPA (letter dated April 21, 2000) and the TCEQ pursuant to 40 CFR § 60.13(i) and 30 TAC §111.111(a)(1)(F)(iv), and is described as follows:

(1) The FCCU WGS shall be equipped with continuous monitors and recorders for the pressure drop across the scrubber and the ratio of the scrubbing liquid to flue gas treated. An hourly average of the pressure drop and liquid-to-gas ratio shall be calculated and recorded to determine compliance with this condition.

(2) The WGS shall operate such that a minimum pressure drop across the scrubber of 0.91 psi and a minimum liquid-to-gas ratio of 16.0 gallons/1,000 actual cubic feet shall be maintained.

(3) The permit holder shall monitor and record the pressure drop across the scrubber and the ratio of the scrubbing liquid to flue gas treated during all performance tests for PM of the FCCU catalyst regenerator. The arithmetic averages of the three runs shall be used as the baseline average values for the purposes of defining excess emissions. The arithmetic averages of the pressure drop across the WGS and the ratio of the scrubbing liquid to flue gas treated, which were determined during performance testing for PM which was conducted prior to the date of approval (April 21, 2000) of this alternate monitoring, may be used as the baseline average values for the purposes of defining excess emissions.

(4) The pressure monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, or at least annually, whichever is more frequent, and shall be accurate to within 2 percent of span or 5 percent of the design value.

Quality assured (or valid) data must be generated when the WGS is operating except during maintenance or calibration. Loss of valid data due to periods of monitor breakdown, out-of-control operation (producing inaccurate data), repair, maintenance, or calibration may be exempted provided it does not exceed 5 percent of the time (in hours) that the WGS operated over the previous rolling 12-month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

Instrument changes needed to meet the requirements of SC 43A(4) must be made before the start of operations after the next scheduled process unit turnaround after issuance of the 2019 Renewal.

(5) Reports of excess emissions shall be submitted to the TCEQ semiannually. All reports shall be postmarked by the 30th day following the end of each calendar half. Excess emissions are defined as follows:

(a) Any one-hour period when the average pressure drop across the scrubber is less than 70 percent of the average value recorded during the most recent performance testing that demonstrated compliance with the PM standard in 40 CFR § 60.102(a)(1) of NSPS Subpart J. The most recent performance testing average value is 1.3 psi; 70 percent of this value is 0.91 psi.

(b) Any one-hour period when the average ratio of the scrubbing liquid to flue gas treated is less than 70 percent of the average value recorded during the most recent performance testing that demonstrated compliance with the PM standard in 40 CFR § 60.102(a)(1) of NSPS Subpart J. The most recent performance testing average value is 22.8 gallons/1,000 actual cubic feet; 70 percent of this value is 16.0 gallons/1,000 actual cubic feet.

(6) Records of the pressure drop across the WGS, the liquid-to-gas ratio, and excess emissions reports shall be kept at the plant for a rolling five-year period and shall be made available upon request. Performance test data are to be kept for the same length of time or, if the performance test data is being used to satisfy or comply with any part of this condition, then it must be kept until it no longer is to be used or referenced.

Recordkeeping

44. The following are the records required to be kept for each storage tank and loading operation for the section heading Storage and Loading of VOC:

A. Tank or Loading Point ID number;

B. Control Method used;

C. Tank or Vessel Capacity in gallons;

D. Name of the material stored or loaded;

E. VOC molecular weight;

F. VOC monthly average liquid temperature in °F (Exception: This is not required for unheated tanks that receive liquids that are at or below ambient temperatures);

G. VOC monthly maximum liquid temperature in °F;

H. VOC vapor pressure at the monthly average material temperature in psia;

I. VOC vapor pressure at the maximum monthly material temperature in psia;

J. VOC throughput for the previous month and year-to-date; and

K. For tanks equipped with a floating roof: seal integrity records as per 40 CFR §§ 60.113b and 60.115b that include seal inspection dates, seal gap measurement data, and corrective actions taken.

45. Fuel gas H_2S concentration records shall be kept as required per 40 CFR Part 60, Subpart J.

46. Flare/pilot flame monitoring records shall be kept.

47. Recordkeeping requirements for SRUs include the following:

A. Daily records of sulfur quantities loaded shall be maintained in units of LTPD. These records shall clearly indicate the total daily quantities of sulfur loaded for each type of vessel (e.g., tank car, barge, etc.).

B. Hours when any SRU/TGU/TGTO is shutdown, has an upset or excursion and the corrective action taken. Records shall be sufficient to determine compliance with the conditions in the SRUs section of this permit and NSPS Ja.

C. Daily sulfur production from each SRU.

D. Records for each of TGTO CEMS and flow monitor readings used for the hourly average SO_2 and CO concentration determinations, the air and enriched oxygen flows and percent O_2 fired in each Claus unit, the combined air and enriched oxygen flows and percent O_2 concentration, the flow weighted average hourly SO_2 concentration and the calculated concentration limit, the rolling 12 hour flow weighted concentration and the allowable concentration limit, and the instrument quality control and quality assurance measurements and on-line times.

48. Records shall be kept of the coke moisture content sampling done when emergency conditions necessitate storing coke in stockpiles above ground. The coke shall be tested for moisture content three times per week and shall be maintained at a moisture content not less than 8 percent moisture.

49. For the FCCU WGS, records shall be kept of the hourly average pressure drop (psi) across the scrubber and the scrubber hourly average liquid-to-gas (scrubbing liquid to flue gas treated) ratio in gallons/1,000 actual cubic feet.

50. The records required in the conditions of this permit, and those required to demonstrate ongoing compliance with emission caps and individual emission limitations, will be updated monthly or sooner if applicable but no later than three months after a calendar month ends and kept in accordance with General Condition No. 7.

Shutdown Facilities

51. The following are facilities that have been shutdown over the years or are facilities that will be shutdown in the future as a result of various projects.

A. The facilities with EPNs 733F0004, 733-F0006, and 733F0008 were shutdown in 1996.

B. The facilities with EPNs 931F0501A, 931F0501, 931F0500A, and 931F0500B were shutdown in 1999.

C. The facilities with EPNs 332B0012, 340B0013, 333B0014, and 337B0015 were shutdown in July 2002. The facilities with EPNs ENG_AIR1, ENG-AIR2, ENG-AIR3, ENG-AIR4, and ENG-AIR5 will be shutdown in the future. Since the modified and new facilities will startup at different times over an estimated two to six-year period, shutdown of the aforementioned facilities will be staged such that the appropriate reductions as represented in the Clean Air Project permit amendment application submittals are in place prior to the start-up of any of the modified and new facilities. The permit holder at each occurrence must notify the TCEQ and in the notification is to provide the information needed to confirm compliance with this requirement. The notification is to be made no later than 30 days after each occurrence.

D. This permit is conditioned on the completion of the following emission reduction projects represented in the permit alteration application dated August 2003 as follows:

Shutdown of the five facilities with EPNs 932F0501, 734F0103, 734F0104, 734F0105, and 734F0106.

E. The facility with EPN 832F0101 was shut down at the end of 1996 and has not operated since.

F. The following facilities were shutdown effective February 2017: **(10/25)**

EPN(s)	Source Name
133TK0887	Tank 133TK0887
134TK0834	Tank 134TK0834
135TK0176	Tank 135TK0176
137TK0424	Tank 137TK0424
138TK0001	Tank 138TK0001
138TK0078	Tank 138TK0078
138TK0163	Tank 138TK0163
138TK0180	Tank 138TK0180
138TK0181	Tank 138TK0181
138TK0182	Tank 138TK0182
138TK0195	Tank 138TK0195
138TK0633	Tank 138TK0633
138TK0769	Tank 138TK0769
138TK0771	Tank 138TK0771
138TK0772	Tank 138TK0772
138TK7601	Tank 138TK7601
430TK0860	Tank 430TK0860
733F0007	733 REF Fractionator Reboiler
734F0102	HDS Reactor Heater
734F0107	Btu-Reformate Stabilizer Reboiler
734F0108	Btu-Reformate Splitter Reboiler
734F0111	Btu-Extract Stripper Reboiler
735F0002A	735 No. 1 Reactor Heater(A)
735F0003A	735 No. 2 Reactor Heater(A)
735F0003B	735 No. 2 Reactor Heater(B)
735F0003C	735 No. 2 Reactor Heater(C)
735F0003D	735 No. 2 Reactor Heater(D)
735F0004A	735 No. 3 Reactor Heater(A)
735F0004B	735 No. 3 Reactor Heater(B)
735F0004C	735 No. 3 Reactor Heater(C)
735F0004D	735 No. 3 Reactor Heater(D)
735F0004E	735 No. 3 Reactor Heater(E)
735F0004F	735 No. 3 Reactor Heater(F)
735F0005A, B	735 No. 4 Reactor Heater
735F0007A, B	735 Stabilizer Heater
735F0008A, B	735 Naphtha Feed Heater
735F0009	Naphtha Fractionator Reboiler
735F0010	735 Reactor Charge Heater
930F0001	Heartcut Fractionator Heater
932F0001	Isom II West Reactor Feed Heater
932F0002	Isom II Combination Splitter Heater
932F0005	Isom II East Reactor Feed Heater

933F0001	Orthoxylene I Heater
934F0002	Orthoxylene II Heater
934F0003	Isom II Xylene Rerun Tower Heater
FUGITIVES (Partial)	Portion of FUGITIVES EPN comprised of the following process unit areas: 930-UNIT Fugitives (UDEX/HCF), 931-UNIT Fugitives (ADU Isom I), 932-UNIT Fugitives (ADU Isom II), 933-UNIT Fugitives(ADU Ortho I), 934-UNIT Fugitives (ADU Ortho II), 935-UNIT Fugitives (PRU Phase 0), 936-UNIT Fugitives (PRU Phase 1), 937-UNIT Fugitives (PRU Phase 2), 938-UNIT Fugitives (PRU Phase 3), 939-UNIT Fugitives (PRU PT Splitter)

G. Upon start-up of the MoReTec MRT-2 Unit, the following facilities will be shutdown: **(10/25)**

EPNs	Source Name
736D3703	Sulfuric Acid Storage Tank
736F0101A	736 Coker East Heater H-101A
736F0101B	736 Coker West Heater H-101B
737F0001	737 Heater F001
737F0002	737 Heater F002
736-LD-COK	736 Railcar Coke Loading
737-LD-COK	737 Railcar Coke Loading
737-COK-PIT	737 Coke Pit
736CT3701	Coker Cooling Tower (736)
736D101AB/CD (EI EPN 736D0101DP)	736 Coker Drum Depressurization
736D101A/B/C/D (EI EPN 736D0101DO)	736 Coker Drum Opening
736-Unit-CF (EI EPN 736-UNITCF)	736 Coker Unit Coking Fugitives
737D0001AV/BV/CV/DV (EI EPN 737D0001DP)	737 Coker Drum Depressurization
737D0001A/B/C/D (EI EPN 737D0001DO)	737 Coker Drum Opening
737-Unit-CF (EI EPN 737-UNITCF)	737 Coker Unit Coking Fugitives
FUGITIVES (Partial)	Removed fugitive components from FUGITIVES EPN comprised of the following process unit areas: 736-UNIT (736 Coker), 737-UNIT (737 Coker)

Required Submittals

52. Prior to installation of SCR on any facilities, the permit holder shall submit proposed methods for measuring NH_3 slip. When approved by the TCEQ, these methods and associated requirements shall be added to the permit conditions.

53. Prior to installation of SCR on any facilities, the permit holder shall submit a proposal for the NH_3 handling system, with any required safeguards, for approval and incorporation into the permit.
Operational Limitations

54. Reserved.

Maintenance Startup and Shutdown Conditions (MSS)

MSS Emission Caps

55. This permit authorizes the emissions for the planned maintenance, startup, and shutdown (MSS) activities summarized in the following MSS Activity Summary table provided the emissions are compliant with the respective MAERT and special conditions of this permit.

Facilities	Description	Emissions Activity	EPN	MSS Monitoring and Recordkeeping
All process units and tank farms	Line breaks other than process vessels associated with turnaround (piping, valves, pumps, compressors, instrumentation, filters, sight glasses, exchangers, miscellaneous small equipment, etc)	Venting and evaporative losses to atmosphere	Various*	Level 1
All process units and tank farms	Pan emissions	Evaporative losses to atmosphere	Various*	Level 1
All process units and tank farms	Washpad emissions	Evaporative losses to atmosphere	Various*	Level 1
All process units and tank farms	Vacuum Truck Loading	Venting to atmosphere or portable control device	Various*	Level 1
All process units and tank farms	Portable/Frac Tanks	Venting to atmosphere or portable control device	Various*	Level 1
All process units and tank farms	Heat Treating	Emissions to atmosphere	Various*	Level 1
All process units and tank farms	Catalyst Handling	Emissions to atmosphere	Various*	Level 1
All process units and tank farms	Catalyst Reactivation	Emissions to atmosphere	Various*	Level 1
All process units and tank farms	SRU Catalyst Blows	Emissions to atmosphere	Various*	Level 1
All process units and tank farms	Aerosol Degreasing/ Lubrication	Evaporative losses to atmosphere	Various*	Level 1
All process units and tank farms	Surface coating/Aerosol Usage/Abrasive Blasting	Painting/abrasive blasting/aerosol degreasing/lubricat	Various*	Level 2

		ing		
All heaters	Furnace/Heater Decoking	Heater decoking	Portable decoking drum	Level 2
All facilities	Surface Coating	Painting	Various*	Level 2
All facilities	Abrasive Blasting	Surface Preparation	Various*	Level 2
All floating roof tanks	Tank roof landing/product changes/refilling	Operation with landed roof	Various*	Level 3
All tanks	Tank degassing/cleaning/ maintenance	Venting to portable control device	Various*	Level 3
All tanks	Tank degassing/cleaning/ maintenance	Venting to atmosphere	Various*	Level 3
All process units and tank farms	Process vessel line breaks associated with a turnaround - shutdown/depressurize/ purge/degas/drain	Vent to atmosphere	Various*	Level 3
All process units	Process unit startup	Vent to flare or other primary control device (thermal oxidizer/wet gas scrubber/etc)	Various*	Same as Routine Emissions
All process units and tank farms	Process unit line breaks - shutdown/depressurize/ purge/degas/drain	Vent to flare	Various*	Same as Routine Emissions
All heaters	Heater startup, shutdown, or turndown	Variability in emissions during firing rate changes	Various*	Same as Routine Emissions

* Various is not an EPN. All MSS emissions on the MAERT are collectively represented by the MSS Sub-Caps.

The Recordkeeping requirements for these activities are based on the notation in the final column of the above table. Level 1, Level 2, and Level 3 Recordkeeping requirements are defined as follows:

Level	Description
Level 1	Level 1 recordkeeping is for inherently low emitting MSS activities that may be performed at the refinery. Emissions from these activities shall be considered to be equal to the potential to emit represented in the permit application. The estimated emissions from these activities must be revalidated annually. This revalidation shall consist of the estimated emissions for each type of activity and the basis for that emission estimate.
Level 2	Level 2 recordkeeping is for activities that may be tracked through the work orders, purchase records, or equivalent. Emissions from these activities shall be calculated using the number of work orders or equivalent per month and the emissions associated with that activity identified in the permit application.
Level 3	The performance of each Level 3 activity shall be recorded and include at least the following information:

	A. the physical location at which emissions from the MSS activity occurred, including the emission point number and common name for the point at which the emissions were released into the atmosphere; B. the type of planned MSS activity and the reason for the planned activity; C. the common name and the facility identification number, if applicable, of the facilities at which the MSS activity and emissions occurred; D. the date and time of the MSS activity and its duration; E. the estimated quantity of each air contaminant, or mixture of air contaminants, emitted with the data and methods used to determine it. The emissions shall be estimated using the methods identified in the permit application, consistent with good engineering practice.

All MSS emissions shall be summed monthly and the rolling 12-month emissions shall be updated on a monthly basis.

MSS Work Practices

56. Process units and facilities, with the exception of inherently low emitting MSS activities (Level 1) and those complying with Special Condition Nos. 59, 60, and 62, shall be depressurized, drained, and degassed in accordance with the following requirements.

A. The process equipment shall be depressurized to a control device or a controlled recovery system prior to venting to atmosphere, degassing, or draining liquid. Equipment that only contains material that is liquid with VOC partial pressure less than 0.50 psia at the normal process temperature and 95°F may be opened to atmosphere and drained in accordance with paragraph C of this special condition without depressuring or degassing to a control device. The vapor pressure at 95°F may be used if the actual temperature of the liquid is verified to be less than 95°F and the temperature is recorded.

B. If mixed phase materials must be removed from process equipment, the cleared material shall be routed to a knockout drum or equivalent to allow for managed initial phase separation. If the VOC partial pressure is greater than 0.50 psia at either the normal process temperature or 95°F, any vents in the system must be routed to a control device or a controlled recovery system. The vapor pressure at 95°F may be used if the actual temperature of the liquid is verified to be less than 95°F and the temperature is recorded. Control must remain in place until degassing has been completed or the system is no longer vented to atmosphere.

C. All liquids from process equipment or storage vessels must be removed to the maximum extent practical prior to opening equipment to commence degassing and/or maintenance. Liquids must be drained into a closed vessel unless prevented by the physical configuration of the equipment. If it is necessary to drain liquid into an open pan or sump, the liquid must be covered or transferred to a covered vessel within one hour of being drained.

D. If the VOC partial pressure is greater than 0.50 psia at the normal process temperature or 95°F, facilities shall be degassed using good engineering practice to ensure air contaminants are removed from the system through the control device or controlled recovery system to the

extent allowed by process equipment or storage vessel design. The vapor pressure at 95ºF may be used if the actual temperature of the liquid is verified to be less than 95ºF and the temperature is recorded.

(1) For MSS activities identified as Level 2, the following option may be used in lieu of ii. below. The facilities being prepared for maintenance shall not be vented directly to atmosphere, except as necessary to verify an acceptable VOC concentration and establish isolation of the work area, until the VOC concentration has been verified to be less than 10,000 ppmv or 10 percent of the lower explosive limit (LEL) (or equivalent) per the site safety procedures.

(2) For equipment subject to Level 3 Monitoring and Recordkeeping, the following additional requirements apply:

(a) Exit points for the exhaust gases shall be recorded (PFD's or P&ID's may be used to demonstrate compliance with the requirement).

(b) If the process equipment is purged with a gas, purge gas must have passed through the control device or controlled recovery system for a sufficient period of time in accordance with the applicable site operating procedures before the vent stream may be sampled to verify acceptable VOC concentration prior to uncontrolled venting. Documented refinery procedures used to deinventory equipment to a control device for safety purposes (i.e., hot work or vessel entry procedures) that achieve at least the same level of purging may be used in lieu of the above.

(c) The VOC sampling and analysis shall be performed using an instrument meeting the requirements of Special Condition No. 57. The sampling point shall be upstream of the inlet to the control device or controlled recovery system. The sample ports and the collection system must be designed and operated such that there is no air leakage into the sample probe or the collection system downstream of the process equipment or vessel being purged, except to provide dilution air to allow monitoring instruments to function. The facilities shall be degassed to the control device or controlled recovery system until the VOC concentration is less than 10,000 ppmv or 10% of the LEL.

E. Gases and vapors with VOC partial pressure greater than 0.50 psia may be vented directly to atmosphere if all the following criteria are met:

(1) It is not technically practicable to depressurize or degas, as applicable, into the process.

(2) There is not an available connection to a plant control system (flare).

(3) There are no more than 50 lbs of air contaminants to be vented to atmosphere during the MSS activity.

(4) All instances of venting directly to atmosphere per Special Condition No. 56E. must be documented when occurring as part of any MSS activity. The emissions associated with venting without control must be included in the work order or equivalent for those planned MSS activities identified in Level 2.

57. Air contaminant concentration shall be measured using an instrument/detector meeting one set of requirements specified below.

A. VOC concentration shall be measured using an instrument meeting all the requirements specified in EPA Method 21 (40 CFR 60, Appendix A) with the following exceptions:

(1) The instrument shall be calibrated within 24 hours of use. The calibration gas and the gas to be measured, and its approximate response factor shall be recorded. If the RF of the VOC (or mixture of VOCs) to be monitored is greater than 2.0, the VOC concentration shall be determined as follows:

VOC Concentration = Concentration as read from the instrument*RF

(2) Sampling shall be performed as directed by this permit in lieu of section 8.3 of Method 21. During sampling, data recording shall not begin until after two times the instrument response time. The date and time shall be recorded, and VOC concentration shall be monitored for at least 5 minutes and the greatest VOC concentration recorded. This VOC concentration shall not exceed the specified VOC concentration limit prior to uncontrolled venting.

(3) If a TVA-1000 series FID analyzer calibrated with methane is used to determine the VOC concentration, a measured concentration of 34,000 ppmv may be considered equivalent to 10,000 ppmv as VOC.

B. Colorimetric gas detector tubes may be used to determine air contaminant concentrations if they are used in accordance with the following requirements.

(1) The air contaminant concentration measured is less than 80 percent of the range of the tube. If the maximum range of the tube is greater than the release concentration defined in iii., the concentration measured is at least 20 percent of the maximum range of the tube.

(2) The tube is used in accordance with the manufacturer's guidelines.

(3) At least 2 samples taken at least 5 minutes apart must satisfy the following prior to uncontrolled venting:

Measured contaminant concentration (ppmv) < Release concentration.

Where the release concentration is:

10,000*mole fraction of the total air contaminants present that can be detected by the tube.

The mole fraction may be estimated based on process knowledge. The release concentration and basis for its determination shall be recorded.

Records shall be maintained of the tube type, range, measured concentrations, and time the samples were taken.

C. Lower explosive limit measured with a lower explosive limit detector.

(1) The detector shall be calibrated monthly with a certified pentane gas standard at 25% of the lower explosive limit (LEL) for pentane. Records of the calibration date/time and calibration result (pass/fail) shall be maintained.

(2) A daily functionality test shall be performed on each detector using the same certified gas standard used for calibration. The LEL monitor shall read no lower than 90% of the calibration gas certified value. Records, including the date/time and test results, shall be maintained.

(3) A certified methane gas standard equivalent to 25% of the LEL for pentane may be used for calibration and functionality tests provided that the LEL response is within 95% of that for pentane.

58. If the removal of a component for repair or replacement results in an open-ended line or valve, the open-ended line is exempt from any NSR permit condition requirement to install a cap, blind flange, plug, or second valve for 72 hours. If the repair or replacement is not completed within 72 hours, the permit holder must complete either of the following actions within that time period;

    A. a cap, blind flange, plug, or second valve must be installed on the line or valve; or

    B. the permit holder shall verify that there is no leakage from the open-ended line or valve. The open-ended line or valve shall be monitored on a weekly basis in accordance with the applicable NSR permit condition for fugitive emission monitoring except that a leak is defined as any VOC reading greater than background. Leaks must be repaired within 24 hours or a cap, blind flange, plug, or second valve must be installed on the line or valve. The results of this weekly check and any corrective actions taken shall be recorded.

59. This permit authorizes emissions from the storage tanks identified in the attached MAERT during planned floating roof landings. Except for periods in which the tank vapor space is routed to a control device meeting the requirements of Special Condition No. 65, tank roofs may only be landed for changes of tank service or tank inspection/maintenance as identified in the permit application. Emissions from change of service tank landings, for which the tank is not cleaned and degassed, shall not exceed 10 tons of VOC in any rolling 12 month period. Tank roof landings include all operations when the tank floating roof is on its supporting legs. These emissions are subject to the maximum allowable emission rates indicated on the MAERT. The following requirements apply to tank roof landings:

    A. The tank liquid level shall be continuously lowered after the tank floating roof initially lands on its supporting legs until the tank has been drained to the maximum extent practicable without entering the tank. Liquid level may be maintained steady for a period of up to two hours if necessary to allow for valve lineups and pump changes necessary to drain the tank. This requirement does not apply where the vapor under a floating roof is routed to control during this process.

       This requirement does not apply if the level is lowered to allow for maintenance that is expected to be completed in less than 24 hours. In that case, the tank must be filled and the roof floated within 24 hours of landing the roof and the evolution documented in accordance with Special Condition No. 59E.

    B. If the VOC partial pressure of the liquid previously stored in the tank is greater than 0.50 psia at 95°F, tank refilling or degassing of the vapor space under the landed floating roof must begin within 24 hours after the tank has been drained. Floating roof tanks with liquid capacities less than 100,000 gallons may be degassed without control if the VOC partial pressure of the standing liquid in the tank has been reduced to less than 0.02 psia prior to ventilating the tank. Controlled degassing of the vapor space under landed roofs shall be completed as follows:

       (1) Any gas or vapor removed from the vapor space under the floating roof must be routed to a control device or a controlled recovery system and controlled degassing must be maintained until the VOC concentration is less than 10,000 ppmv or 10% of the LEL. The locations and identifiers of vents other than permanent roof fittings and seals, control device or controlled recovery system, and controlled exhaust stream shall be recorded. There shall be no other gas/vapor flow out of the vapor space under the floating roof when degassing to the control device or controlled recovery system.

       (2) The vapor space under the floating roof shall be vented using good engineering practice to ensure air contaminants are flushed out of the tank through the control device or controlled recovery system to the extent allowed by the storage tank design.

(3) A volume of purge gas equivalent to twice the volume of the vapor space under the floating roof must have passed through the control device or into a controlled recovery system, before the vent stream may be sampled to verify acceptable VOC concentration. The measurement of purge gas volume shall not include any combustion air introduced into the control device or recovery system. The VOC sampling and analysis shall be performed as specified in Special Condition No. 57.

(4) The sampling point shall be upstream of the inlet to the control device or controlled recovery system. The sample ports and the collection system must be designed and operated such that there is no air leakage into the sample probe or the collection system downstream of the process equipment or vessel being purged, except to provide dilution air to allow monitoring instruments to function.

(5) If ventilation is to be maintained with emission control, the VOC concentration shall be recorded once an hour.

(6) Degassing must be performed every 24 hours unless there is no standing liquid in the tank or the VOC partial pressure of the remaining liquid in the tank is less than 0.15 psia.

C. The tank shall not be opened except as necessary to set up for degassing and cleaning, or ventilated without control, until either all standing liquid has been removed from the tank or the liquid in the tank has a VOC partial pressure less than 0.02 psia. These criteria may be demonstrated in any one of the following ways.

(1) Low VOC partial pressure liquid that is soluble with the liquid previously stored may be added to the tank to lower the VOC partial pressure of the liquid mixture remaining in the tank to less than 0.02 psia. This liquid shall be added during tank degassing if practicable. The estimated volume of liquid remaining in the drained tank and the volume and type of liquid added shall be recorded. The liquid VOC partial pressure may be estimated based on this information and engineering calculations.

(2) If water is added or sprayed into the tank to remove standing VOC, one of the following must be demonstrated:

(a) Take a representative sample of the liquid remaining in the tank and verify no visible sheen using the static sheen test from 40 CFR 435, Subpart A, Appendix 1.

(b) Take a representative sample of the liquid remaining in the tank and verify hexane soluble VOC concentration is less than 1000 ppmw using EPA method 1664 (may also use 8260B or 5030 with 8015 from SW-846).

(c) Stop ventilation and close the tank for at least 24 hours. When the tank manway is opened after this period, verify VOC concentration is less than 1000 ppmv through the procedure in Special Condition No. 57.

(3) No standing liquid verified through visual inspection.

(4) Once the VOC partial pressure is verified less than 0.02 psia, any subsequent/additional water flushes that may be performed do not trigger additional verification.

The permit holder shall maintain records to document the method used to release the tank.

D. Tanks shall be refilled as rapidly as practicable until the roof is off its legs with the following exceptions:

(1) Tank refilling rate or rates will be managed to maintain hourly emissions within the MAERT limitations.

(2) The vapor space under the floating roof is routed to control during refilling.

E. The occurrence of each roof landing and the associated emissions shall be recorded and the rolling 12-month tank roof landing emissions shall be updated on a monthly basis. These records shall include at least the following information:

(1) The identification of the tank and emission point number, and any control devices or recovery systems used to reduce emissions;

(2) The reason for the tank roof landing;

(3) For the purpose of estimating emissions, the date and time of each of the following events:

(a) the roof was initially landed,

(b) all liquid was pumped from the tank to the extent practical,

(c) start and completion of controlled degassing, and total volumetric flow,

(d) all standing liquid was removed from the tank or any transfers of low VOC partial pressure liquid to or from the tank including volumes and vapor pressures to reduce tank liquid VOC partial pressure to <0.02 psia,

(e) if there is liquid in the tank, VOC partial pressure of liquid, start and completion of uncontrolled degassing, and total volumetric flow,

(f) refilling commenced, liquid filling the tank, and the volume necessary to float the roof; and

(g) tank roof off supporting legs, floating on liquid;

(4) The estimated quantity of each air contaminant, or mixture of air contaminants, emitted between events (c) and (g) with the data and methods used to determine it. The emissions associated with roof landing activities shall be calculated using the methods described in AP-42 "Compilation of Air Pollution Emission Factors, Chapter 7 - Storage of Organic Liquids" dated November 2019 and the permit application.

60. The following requirements apply to degassing of fixed roof tanks:

A. Storage tanks shall not be ventilated without control, until either all standing liquid has been removed from the tank or the liquid in the tank has a VOC partial pressure less than 0.02 psia. This shall be verified and documented through one of the criteria identified in Special Condition No. 59C.

B. Storage tank manways may be opened without emission controls when there is standing liquid with a VOC partial pressure greater than 0.02 psia vapor as necessary to set up for degassing and cleaning. One manway may be opened to provide access to the tank when necessary to allow access to remove or de-volatilize the remaining liquid.

C. The emission control system shall meet the requirements of Special Condition No. 59B(1) through 59.B(5) and records maintained per Special Condition No. 59E(3)c through 59E(4). For fixed roof storage tanks where Special Condition Nos. 59B(1) through 59B(5) refer to “floating roof” it shall be read as “fixed roof” for the purposes of this condition. Low vapor pressure liquid may be added to and removed from the tank as necessary to lower the vapor pressure of the liquid mixture remaining in the tank to less than 0.02 psia.

61. The following requirements apply to vacuum and air mover truck operations to support planned MSS at this site:

A. Vacuum pumps and blowers shall not be operated on trucks containing or vacuuming liquids with VOC partial pressure greater than 0.50 psia at 95ºF unless the vacuum/blower exhaust is routed to a control device or a controlled recovery system.

B. Equip fill line intake with a “duckbill” or equivalent attachment if the hose end cannot be submerged in the liquid being collected.

C. A daily record containing the information identified below is required for each vacuum truck in operation at the site each day.

(1) Prior to initial use, identify any liquid in the truck. Record the liquid level and document that the VOC partial pressure is less than 0.50 psia if the vacuum exhaust is not routed to a control device or a controlled recovery system. After each liquid transfer, identify the liquid transferred and document that the VOC partial pressure is less than 0.50 psia if the vacuum exhaust is not routed to a control device or a controlled recovery system.

(2) For each liquid transfer made with the vacuum operating, record the duration of any periods when air may have been entrained with the liquid transfer. The reason for operating in this manner and whether a “duckbill” or equivalent was used shall be recorded. Short, incidental periods, such as those necessary to walk from the truck to the fill line intake, do not need to be documented.

(3) If the vacuum truck exhaust is controlled with a control device other than an engine or oxidizer, VOC exhaust concentration upon commencing each transfer, at the end of each transfer, and as required by Special Condition No. 65, measured using an instrument meeting the requirements of MSS Special Condition No. 57.

(4) The volume in the vacuum truck at the end of the day, or the volume unloaded, as applicable.

D. The permit holder shall determine the vacuum truck emissions each month using the daily vacuum truck records and the calculation methods utilized in the permit application. If records of the volume of liquid transferred for each pick-up are not maintained, the emissions shall be determined using the physical properties of the liquid vacuumed with the greatest potential emissions. Rolling 12 month vacuum truck emissions shall also be determined on a monthly basis.

E. If the VOC partial pressure of all the liquids vacuumed into the truck is less than 0.10 psia, this shall be recorded when the truck is unloaded or leaves the plant site and the emissions may be estimated as the maximum potential to emit for a truck in that service as documented in the permit application. The recordkeeping requirements in Special Condition Nos. 61A through 61D do not apply.

62. The following requirements apply to frac, or temporary, tanks and vessels used in support of MSS activities.

A. Except for labels, logos, etc. not to exceed 15% of the tank/vessel total surface area, the exterior surfaces of these tanks/vessels that are exposed to the sun shall be white or aluminum effective May 1, 2013. This requirement does not apply to tanks/vessels that only vent to atmosphere when being filled.

B. These tanks/vessels must be covered and equipped with fill pipes that discharge within 6 inches of the tank/vessel bottom.

C. These requirements do not apply to vessels storing less than 100 gallons of liquid that are closed such that the vessel does not vent to atmosphere.

D. The permit holder shall maintain an emissions record which includes calculated emissions of VOC from all frac tanks during the previous calendar month and the past consecutive 12 month period. The record shall include:

(1) tank identification number,

(2) dates put into and removed from service,

(3) control method used (if any),

(4) tank capacity,

(5) volume of liquid stored in gallons,

(6) name of the material stored,

(7) VOC molecular weight, and

(8) VOC partial pressure at the estimated monthly average material temperature in psia.

(9) Filling emissions for tanks shall be calculated using the TCEQ publication titled "Technical Guidance Package for Chemical Sources - Loading Operations" and standing emissions determined using: the TCEQ publication titled "Technical Guidance Package for Chemical Sources - Storage Tanks."

E. If the tank/vessel is used to store liquid with VOC partial pressure less than 0.10 psia at 95ºF, records may be limited to the days the tank is in service and the liquid stored. Emissions may be estimated based upon the potential to emit as identified in the permit application.

63. MSS activities represented in the permit application may be authorized under permit by rule only if the procedures, emission controls, monitoring, and recordkeeping are the same as those required by this permit.

64. All permanent facilities must comply with all operating requirements, limits, and representations during planned startup and shutdown unless alternate requirements and limits are identified in this permit. Alternate requirements for emissions from routine emission points are identified below.

A. Combustion units, with the exception of flares, at this site are exempt from NO_x, CO, and NH_3 operating requirements identified in special conditions in this permit during planned startup and shutdown if the following criteria are satisfied.

(1) The maximum allowable emission rates in the permit authorizing the facility are not exceeded.

(2) The startup period does not exceed 8 hours in duration and the firing rate does not exceed 75 percent of the design firing rate. The time it takes to complete the shutdown does not exceed 4 hours.

(3) Control devices are started and operating properly when venting a waste gas stream.

B. The limits identified below apply to the operations of the specified facilities during startup and shutdown.

(1) FCCU and WGS OPERATION

During start-up or shutdown of the FCCU, the minimum pressure drop (delta P) across the WGS requirement in Special Condition No. 43 cannot be met because this parameter is flue gas flow rate dependent. The two parametric (delta P and ratio of scrubbing liquid to flue gas treated [L:G ratio]) requirements are BACT particulate matter (PM) control for an FCCU. Since, the L:G ratio requirement can be met and is

actually the parameter that controls PM, it will be maintained during start-up, shutdown, and normal operations. For the 36-hours after start-up and prior to shutdown, the delta P will not be met but the hours will be minimized to the extent practicable.

(2) SULFUR RECOVERY UNITS

(a) In lieu of Special Condition No. 31, emissions of CO from the 435 and 440 TGTOs shall not exceed 500 ppmv each on a one-hour average basis for no more than 12-hours during each start-up or shutdown.

(b) The exhaust stack concentration for the 435 and 440 TGTOs shall not exceed 750 ppmv each on a one-hour average basis for no more than 12-hours during each start-up or shutdown.

(c) The minimum sulfur recovery efficiency in Special Condition No. 32 does not apply during periods of startup or shutdown.

C. A record shall be maintained indicating that the start and end times each of the activities identified above occur and documentation that the requirements for each have been satisfied.

65. The VOC control devices required by this permit for emissions from MSS activities are limited to those types identified in this condition. Control devices shall be operated with no visible emissions except periods not to exceed a total of five minutes during any two consecutive hours. Each device used must meet all the requirements identified for that type of control device.

Controlled recovery systems identified in this permit shall be directed to an operating refinery process or to a collection system that is vented through a control device meeting the requirements of this permit condition.

A. Dual Carbon Adsorption or Scrubber System (CAS).

(1) The CAS shall consist of 2 carbon canisters in series with adequate carbon supply for the emission control operation.

(2) The CAS shall be sampled down stream on the first can and the concentration recorded at least once every hour of CAS run time to determine breakthrough of the VOC. The sampling frequency may be extended using either of the following methods:

(a) CAS systems equipped with an upstream liquid scrubber may be sampled once every 12 hours of CAS run time to determine breakthrough.

(b) Sampling frequency may be extended to up to 30 percent of the minimum potential saturation time for a new can of carbon. The permit holder shall maintain records including the calculations performed to determine the minimum saturation time.

(c) The carbon sampling frequency may be extended to longer periods based on previous experience with carbon control of a MSS waste gas stream. The past experience must be with the same VOC, type of facility, and MSS activity. The basis for the sampling frequency shall be recorded. If breakthrough is monitored on the initial sample of the upstream can when the polishing can is put in place, a permit deviation shall be recorded.

(3) The method of VOC sampling and analysis shall be by detector meeting the requirements of Special Condition No. 57.

(4) Breakthrough is defined as the highest measured VOC concentration at or exceeding 100 ppmv above background and 2% of the system inlet concentration. Monitoring

must be done upstream of the carbon when demonstrating collection efficiency. When the condition of breakthrough of VOC from the initial saturation canister occurs, the waste gas flow shall be switched to the second canister and a fresh canister shall be placed as the new final polishing canister within twenty-four hours. In lieu of replacing canisters, the flow of waste gas may be discontinued until the canisters are switched. Sufficient new activated carbon canisters shall be maintained at the site to replace spent carbon canisters such that replacements can be done in the above specified time frame.

(5) Records of CAS monitoring shall include the following:

(a) Sample time and date.

(b) Monitoring results (ppmv).

(c) Canister replacement log.

(6) Single canister systems are allowed if the time the carbon canister is in service is limited to no more than 30% of the minimum potential saturation time. The permit holder shall maintain records for these systems, including the calculations performed to determine the saturation time. The time limit on carbon canister service shall be recorded and the expiration date attached to the carbon can.

(7) Liquid scrubbers may be used upstream of carbon canisters to enhance VOC capture provided such systems are closed systems and the spent absorbing solution is discharged into a closed container, vessel, or system.

B. Single Carbon Adsorption or Scrubber System

A single liquid scrubbing or single carbon adsorption system may be used as a sole control device if the requirements below are satisfied.

(1) The exhaust to atmosphere shall be continuously monitored with a CEM. The VOC concentration shall be recorded at least once every 15 minutes when waste gas is directed to the CAS or scrubber.

(2) The method of VOC sampling and analysis shall be by detector meeting the requirements of Special Condition No. 57 except 57C.

(3) An alarm shall be installed such that an operator is alerted when outlet VOC concentration exceeds 100 ppmv above background. The MSS activity shall be stopped as soon as possible when the VOC concentration exceeds 100 ppmv above background and 2% of the system inlet concentration for more than one minute. Monitoring must be done upstream of the carbon when demonstrating collection efficiency. The date and time of all alarms and the actions taken shall be recorded.

C. Thermal Oxidizer

(1) The thermal oxidizer firebox exit temperature shall be maintained at not less than 1400°F and waste gas flows shall be limited to assure at least a 0.5 second residence time in the fire box while waste gas is being fed into the oxidizer.

(2) The thermal oxidizer exhaust temperature shall be continuously monitored and recorded when waste gas is directed to the oxidizer. The temperature measurements shall be made at intervals of six minutes or less and recorded at that frequency.

The temperature measurement device shall be installed, calibrated, and maintained according to accepted practice and the manufacturer's specifications. The device shall have an accuracy of the greater of ±0.75 percent of the temperature being measured expressed in degrees Celsius or ±2.5ºC.

(3) As an alternative to Special Condition No. 65C(1), the thermal oxidizer may be tested to confirm a minimum 99 wt% destruction efficiency. The results of the test will be used to determine the minimum operating temperature and residence time. Stack Test must have been performed within the last 12 months. Stack VOC concentrations and flow rates shall be measured in accordance with applicable EPA Reference Methods. A copy of the test report shall be maintained with the thermal oxidizer and a summary of the testing results shall be included with the emission calculations.

(4) As an alternative to Special Condition Nos. 65C(1) – (2), the thermal oxidizer may be equipped with continuous VOC monitors (inlet and outlet). The VOC monitors shall be calibrated and maintained according to Special Condition No. 57, except 57C. In order to demonstrate compliance with this requirement, inlet VOC and outlet VOC concentrations shall be measured and inlet and outlet VOC mass rates shall be calculated on an hourly basis to confirm a minimum 99 wt% destruction efficiency or an exhaust concentration not greater than 20 ppmv.

D. Internal Combustion Engine

(1) The internal combustion engine shall have a VOC destruction efficiency of at least 99 percent.

(2) The engine must have been stack tested with butane to confirm the required destruction efficiency within the past 12 months. VOC shall be measured in accordance with the applicable EPA Reference Method during the stack test and the exhaust flow rate may be determined from measured fuel flow rate and measured oxygen concentration. A copy of the stack test report shall be maintained with the engine. There shall also be documentation of acceptable VOC emissions within the first 24-hours of operation for each MSS activity. Stain tube indicators specifically designed to measure VOC concentration shall be acceptable for this documentation, provided a hot air probe or equivalent device is used to prevent error due to high stack temperature, and three sets of concentration measurements are made and averaged. Portable VOC analyzers meeting the requirements of Special Condition No. 57 are also acceptable for this documentation.

(3) The engine shall be operated with an oxygen sensor-based air-to-fuel ratio (AFR) controller. Documentation for each AFR controller that the manufacturer's or supplier's recommended maintenance has been performed, including replacement of the oxygen sensor as necessary for oxygen sensor-based controllers shall be maintained with the engine. The oxygen sensor shall be replaced at least quarterly in the absence of a specific written recommendation.

(4) As an alternative to Special Condition Nos. 65D(1)–(3), the engine may be equipped with continuous VOC monitors (inlet and outlet). The VOC monitors shall be calibrated and maintained in accordance with Special Condition No. 57, except 57C. In order to demonstrate compliance with this requirement, inlet VOC and outlet VOC shall be measured and inlet and outlet VOC mass rates shall be calculated on an hourly basis to confirm a minimum 99 wt% destruction efficiency or an exhaust concentration not greater than 20 ppmv.

E. The plant flare system

All flares must follow the requirements outlined in Special Condition No. 28 and Special Condition No. 10 B.

F. A closed loop refrigerated vapor recovery system

(1) The vapor recovery system shall be installed on the facility to be degassed using good engineering practice to ensure air contaminants are flushed from the facility through

the refrigerated vapor condensers and back to the facility being degassed. The vapor recovery system and facility being degassed shall be enclosed except as necessary to insure structural integrity (such as roof vents on a floating roof tank).

(2) VOC concentration in vapor being circulated by the system shall be sampled and recorded at least once every 4 hours at the inlet of the condenser unit with an instrument meeting the requirements of Special Condition No. 57.

(3) The quantity of liquid recovered from the tank vapors and the tank pressure shall be monitored and recorded each hour. The liquid recovered must increase with each reading and the tank pressure shall not exceed one inch water pressure while the system is operating.

66. The following requirements apply to capture systems for the plant flare system and FCCU WGS.

A. All components in VOC service will be monitored per the requirements in Special Condition No. 14.

B. The control device shall not have a bypass or if there is a bypass for the control device, comply with either of the following requirements:

(1) Install a flow indicator that records and verifies zero flow at least once every fifteen minutes immediately downstream of each valve that if opened would allow a vent stream to bypass the control device and be emitted, either directly or indirectly, to the atmosphere; or

(2) Once a month, inspect the valves, verifying the position of the valves and the condition of the car seals that prevent flow out the bypass.

These requirements do not apply to high point vent and low point drain valves. A deviation shall be reported if the monitoring or inspections indicate bypass of the control device when required to be in service per this permit.

C. If any of the above inspections is not satisfactory, the permit holder shall promptly take necessary corrective action.

67. If spray guns are used to apply paint, they shall be airless, high volume low pressure (HVLP), or have the same or higher transfer efficiency as airless or HVLP spray guns.

68. Emissions from all painting activities at this site must satisfy the criteria below. New compounds may also be added through the use of the procedure below.

A. Short-term (lb/hr) and annual (TPY) emissions shall be determined for each chemical in the paint as documented in the permit application. The calculated emission rate shall not exceed the maximum allowable emissions rate at any emission point.

B. The Effect Screening Level (ESL) for the material shall be obtained from the current TCEQ ESL list or by written request to the TCEQ Toxicology Section.

C. The total painting emissions of any compound must satisfy one of the following conditions:

(1) The total emission rate is less than 0.1 lb/hr and the ESL greater than or equal to 2 $\mu g/m_3$; or

(2) The emission rate of the compound in pounds per hour is less than the ESL for the compound divided by 1000 (ER<ESL/1000).

D. The permit holder shall maintain records of the information below and the demonstrations in steps A though C above. The following documentation is required for each compound:

(1) Chemical name(s), composition, and chemical abstract registry number if available.

(2) Material Safety Data Sheet.

(3) Maximum concentration of the chemical in weight percent

(4) Paint usage and the associated emissions shall be recorded each month and the rolling 12 month total emissions updated.

69. No visible emissions shall leave the property due to painting or abrasive blasting.

70. Black Beauty and Garnet Sand may be used for dry abrasive blasting. The permit holder may also use blast media that meet the criteria below:

A. The media shall not contain asbestos or greater than 1.0 weight percent crystalline silica.

B. The weight fraction of any metal in the blast media with a short term effects screening level (ESL) less than 50 micrograms per cubic meter as identified in the most recently published TCEQ ESL list shall not exceed the ESLmetal/1000.

C. The MSDS for each media used shall be maintained on site.

Blasting media usage and the associated emissions shall be recorded each month and the rolling 12 month total emissions updated.

This special condition does not apply to wet blasting or dry abrasive blasting inside vessels/tanks/equipment.

71. With the exception of the MAERT emission limits, these permit conditions become effective January 1, 2010. Emissions shall be estimated using good engineering practice and methods to provide reasonably accurate representations for emissions. The basis used for determining the quantity of air contaminants to be emitted shall be recorded. During this period, monitoring and recordkeeping shall satisfy the following requirements. The permit holder may maintain abbreviated records of emissions from Level 1 and 2 activities as allowed in Special Condition No. 55 rather than documenting all the information required below.

A. The physical location at which emissions from the MSS activity occurred, including the emission point number and common name for the point at which the emissions were released into the atmosphere;

B. The type of planned MSS activity and the reason for the planned activity;

C. The common name and the facility identification number, if applicable, of the facilities at which the MSS activity and emissions occurred;

D. The start date and time of the MSS activity and its duration.

MoReTec MRT-2 Emission Limitations (10/25)

72. As soon as practicable, but within 60 days of start-up of the MoReTec MRT-2 process, the permit holder shall submit the appropriate permitting action to:

A. Update representations to the equipment associated with the MoReTec MRT-2 process;

B. Remove equipment associated with the 736 Coker Unit and 737 Coker Units that are being shut-down.

C. Update representations to the 236 and/or 230 Gas Plants, 634 Hydrodesulfurization Unit, 636 Hydrodesulfurization Unit, Sour Water Stripping, Amine Regeneration, Sulfur Recovery Processes, and other facilities utilized in the post-processing of the MRT-2 process.

D. Update representations for the fugitive components, as represented in NSR project 381473, in the 134, 136, 236, 634, and 636 units.

73. The MRT-2 Thermal Oxidizer (TO), EPN MRT2-TOX, is subject to the following:

A. Except as otherwise authorized in this permit, vent gas streams from the feedstock preparation, reaction, and separation areas shall be routed to the MRT-2 TO prior to being emitted to the atmosphere.

B. The MRT-2 TO shall maintain the VOC concentration in the exhaust gas less than 10 ppmv on a dry basis, corrected to 3 percent oxygen or achieve a VOC destruction efficiency (DRE) greater than 99.9 percent

C. The MRT-2 TO shall be operated with no visible emissions except periods not to exceed a total of five minutes during any two consecutive hours.

D. The thermal oxidizer firebox exit temperature shall be maintained at not less than 1400 °F and exhaust oxygen concentration not less than 3 percent on a six-minute average while waste gas is being fed into the oxidizer prior to initial stack testing. After the initial stack test, required by Special Condition 83, has been completed, the six minute average temperature shall be equal to, or greater than the minimum hourly average maintained during a satisfactory stack test as required by Special Condition 83.

E. The thermal oxidizer exhaust temperature shall be continuously monitored and recorded when waste gas is directed to the oxidizer. The temperature measurement device shall reduce the temperature readings to an averaging period of 6 minutes or less and record it at that frequency. The temperature measurement device shall be installed, calibrated, and maintained according to accepted practice and the manufacturer's specifications. The device shall have an accuracy of the greater of ±0.75 percent of the temperature being measured expressed in degrees Celsius or ±2.5ºC.

F. The oxygen analyzer used to satisfy Special Condition No. 51 shall continuously monitor and record oxygen concentration when waste gas is directed to the oxidizer. It shall reduce the oxygen readings to an averaging period of 6 minutes or less and record it at that frequency.

G. The oxygen analyzer shall be zeroed and spanned daily and corrective action taken when the 24-hour span drift exceeds two times the amounts specified Performance Specification No. 3, 40 CFR Part 60, Appendix B. Zero and span is not required on weekends and plant holidays if instrument technicians are not normally scheduled on those days.

The analyzer shall be quality-assured at least semiannually using cylinder gas audits (CGAs) in accordance with 40 CFR Part 60, Appendix F, Procedure 1, § 5.1.2, with the following exception: a relative accuracy test audit is not required once every four quarters (i.e., two successive semiannual CGAs may be conducted). An equivalent quality-assurance method approved by the TCEQ may also be used. Successive semiannual audits shall occur no closer than four months. Necessary corrective action shall be taken for all CGA exceedances of ±15 percent accuracy and any continuous emissions monitoring system downtime in excess of 5 percent of the incinerator operating time. These occurrences and corrective actions shall be reported to the appropriate TCEQ Regional Director on a quarterly basis. Supplemental stack concentration measurements may be required at the discretion of the appropriate TCEQ Regional Director. There may be other case specific ways that are used to ensure adequate oxygen concentration.

H. Quality assured (or valid) data must be generated when the thermal oxidizer is operating except during the performance of a daily zero and span check. Loss of valid data due to periods of monitor break down, out-of-control operation (producing inaccurate data), repair, maintenance, or calibration may be exempted provided it does not exceed 5 percent of the time (in minutes) that the (type) oxidizer operated over the previous rolling 12 month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

74. The following requirements apply to capture systems for the MRT-2 Thermal Oxidizer (TO), EPN MRT2-TOX.

A. If used for VOC control, complete either of the following:

(1) Conduct a once a month visual, audible, and/or olfactory inspection of the capture system to verify there are no leaking components in the capture system; or

(2) Once a year, verify the capture system is leak-free by inspecting in accordance with 40 CFR Part 60, Appendix A, Test Method 21. Leaks shall be indicated by an instrument reading greater than or equal to 500 ppmv above background.

B. If there is a bypass for the control device, comply with either of the following requirements:

(1) Install a flow indicator that records and verifies zero flow at least once every fifteen minutes immediately downstream of each valve that if opened would allow a vent stream to bypass the control device and be emitted, either directly or indirectly, to the atmosphere; or

(2) Once a month, inspect the valves, verifying that the position of the valves and the condition of the car seals prevent flow out the bypass.

A bypass does not include authorized analyzer vents, highpoint bleeder vents, low point drains, or rupture discs upstream of pressure relief valves if the pressure between the disc and relief valve is monitored and recorded at least weekly. A deviation shall be reported if the monitoring or inspections indicate bypass of the control device when it is required to be in service.

C. Records of the inspections required shall be maintained and if the results of any of the above inspections are not satisfactory, the permit holder shall promptly take necessary corrective action.

75. The MRT-2 Fabric Filters: EPNs MRT2-C022, MRT2-C023, MRT2-C031, MRT2-C042, MRT2-C101, and MRT2-C201, are subject to the following:

A. Particulate matter outlet grain loading shall not exceed 0.005 grain per dscf of air from MRT-2 EPNs MRT2-C022, MRT2-C023, MRT2-C031, MRT2-C042, MRT2-C101, and MRT2-C201. There shall be no visible emissions exceeding 30 seconds in any six-minute period as determined using U.S. Environmental Protection Agency (EPA) Test Method 22.

B. The vents covered by Special Condition 75 shall not operate unless control devices and associated equipment are maintained in good working order and operating. All vents will be inspected for visible emissions once per day and a spare-parts filter inventory will be maintained on site. Records shall be maintained of all inspections and maintenance performed.

C. The differential pressure across each fabric filter shall be continuously monitored when the filters are in operation and be recorded at least once an hour. The pressure drop shall be at least 2 inches of water column and shall not exceed 6 inches of water column.

D. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications or at least annually, whichever is more frequent, and shall be accurate to within (insert pressure value in units represented by the applicant that is 5-10% of the minimum pressure drop necessary to ensure compliance with the outlet grain loading at the minimum waste gas flow).

E. Quality assured (or valid) data must be generated when the MRT-2 facilities are operating except during the performance of a daily zero check. Loss of valid data due to periods of monitor breakdown, out-of-control operation (producing inaccurate data), repair, maintenance, or calibration may be exempted provided it does not exceed 5 percent of the time (in hours) that the MRT-2 facilities are operated over the previous rolling 12-month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

76. The MRT-2 Char Handling and Storage System, EPN MRT2-C042, is subject to the following:

A. Total VOC emitted to the atmosphere from the Char Nitrogen Purge Vent, EPN MRT2-C042, shall not exceed 80 pounds of VOC/million (MM) pounds of char. The 12-month rolling average VOC emitted to the atmosphere from EPN MRT2-C042 shall not exceed 40 pounds of VOC/MM pounds of char.

B. Ongoing compliance with VOC emission limits for the char handling system will be determined by calculation using hourly and monthly production rates and monthly average sampling and testing of the char for residual VOC at the outlet of EPN MRT2-C042. Monthly average sampling will be based on a minimum of three samples. Separate samples are required for each product type produced during the month.

C. Sampling and testing of the char product using a headspace analysis method approved by the executive director per 30 TAC §116. 115 (b)(2)(C), which measures the ppmw that might evolve off the product. Alternate sampling and testing methods shall be approved by the TCEQ regional office.

77. Tank Truck and Railcar Loading, EPN 136-LOAD, are subject to the following requirements

A. The permit holder shall maintain and update a monthly emissions record which includes calculated emissions of VOC from all loading operations over the previous rolling 12-month period. The record shall include the loading spot, control method used, quantity loaded in gallons, name of the liquid loaded, vapor molecular weight, liquid temperature in degrees Fahrenheit, liquid vapor pressure at the liquid temperature in psia, liquid throughput for the previous month and rolling 12 months to date. Records of VOC temperature are not required to be kept for liquids loaded from unheated tanks which receive liquids at or below ambient temperatures. Emissions shall be calculated using the TCEQ publication titled "Technical Guidance Package for Chemical Sources - Loading Operations."

B. All lines and connectors shall be visually inspected for any defects prior to hookup. Lines and connectors that are visibly damaged shall be removed from service. Operations shall cease immediately upon the detection of any liquid leaking from the lines or connections.

C. Each tank truck loading materials with a true vapor pressure of 0.5 psia or greater shall be leak checked and certified annually in accordance with Title 40 Code of Federal Regulations Part 60, Subpart XX.

The permit holder shall not allow a tank truck to be filled unless it has passed a leak-tight test within the past year as evidenced by a certificate which shows the date the tank truck last passed the leak-tight test required by this condition and the identification number of the tank truck.

D. Truck loading emissions of materials with a true vapor pressure of 0.5 psia or greater shall be vented to the Unit 136 Loading Area Vapor Combustor Unit (VCU), EPN 136-VCU.

78. The 136 Unit Vapor Combustor Unit (VCU), EPN 136-VCU, shall be designed and operated in accordance with the following requirements:

A. The VCU shall achieve 99.5% control of the waste gas directed to it. This shall be ensured by maintaining the temperature in, or immediately downstream of, the combustion chamber above 1,400°F prior to the initial stack test performed in accordance with Special Condition 83. Following the completion of that stack test, the six minute average temperature shall be maintained above the minimum one-hour average temperature maintained during a satisfactory stack test as required by Special Condition 83.

B. The VCU temperature shall be continuously monitored and recorded at all times waste gas could be directed to it. The temperature measurement device shall reduce the temperature readings to an averaging period of 6 minutes or less and record it at that frequency. The temperature monitor shall be installed, calibrated at least annually, and maintained according to the manufacturer's specifications. The device shall have an accuracy of the greater of ±2 percent of the temperature being measured expressed in degrees Celsius or ±2.5ºC.

C. Quality assured (or valid) data must be generated when the VCU is operating. Loss of valid data due to periods of monitor breakdown, out-of-control operation (producing inaccurate data), repair, maintenance, or calibration may be exempted provided it does not exceed 5 percent of the time (in minutes) that the VCU operated over the previous rolling 12-month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

D. The VCU shall be operated with no visible emissions except periods not to exceed a total of five minutes during any two consecutive hours.

79. Marine loading MoReTec MRT-2 products are subject to the requirements in Special Condition 22.

80. Atmospheric and pressurized storage tanks utilized in the MoReTec MRT-2 process are subject to the requirements in Special Conditions 19 and 21, respectively.

81. Maintenance, Startup, and Shutdown activities and emissions associated with the MoReTec MRT-2 process are subject to Special Conditions 55 through 70.

Piping, Valves, Connectors, Pumps, Agitators and Compressors, in VOC Service, in the MRT-2 Unit - Intensive Directed Maintenance – 28MID (10/25)

82. Except as may be provided for in the Special Conditions of this permit, the following requirements apply to the above-referenced equipment:

A. The requirements of paragraphs F and G shall not apply (1) where the volatile organic compounds (VOC) has an aggregate partial pressure or vapor pressure of less than 0.044 pounds per square inch, absolute (psia) at 68°F or (2) operating pressure is at least 5 kilopascals (0.725 psi) below ambient pressure. Equipment excluded from this condition shall be identified in a list or by one of the methods described below to be made available upon request.

The exempted components may be identified by one or more of the following methods:

- piping and instrumentation diagram (PID);

- a written or electronic database or electronic file;
- color coding;
- a form of weatherproof identification; or
- designation of exempted process unit boundaries.

B. Construction of new and reworked piping, valves, pump systems, agitators, and compressor systems shall conform to applicable American National Standards Institute (ANSI), American Petroleum Institute (API), American Society of Mechanical Engineers (ASME), or equivalent codes.

C. New and reworked underground process pipelines shall contain no buried valves such that fugitive emission monitoring is rendered impractical. New and reworked buried connectors shall be welded.

D. To the extent that good engineering practice will permit, new and reworked valves and piping connections shall be so located to be reasonably accessible for leak-checking during plant operation. Difficult-to-monitor and unsafe-to-monitor valves, as defined by Title 30 Texas Administrative Code Chapter 115 (30 TAC Chapter 115), shall be identified in a list to be made available upon request. The difficult-to-monitor and unsafe-to-monitor valves may be identified by one or more of the methods described in Paragraph A above. If an unsafe to monitor component is not considered safe to monitor within a calendar year, then it shall be monitored as soon as possible during safe to monitor times. A difficult to monitor component for which quarterly monitoring is specified may instead be monitored annually.

E. New and reworked piping connections shall be welded or flanged. Screwed connections are permissible only on piping smaller than two-inch diameter. Gas or hydraulic testing of the new and reworked piping connections at no less than operating pressure shall be performed prior to returning the components to service or they shall be monitored for leaks using an approved gas analyzer within 15 days of the components being returned to service. Adjustments shall be made as necessary to obtain leak-free performance. Connectors shall be inspected by visual, audible, and/or olfactory means at least weekly by operating personnel walk-through.

Each open-ended valve or line shall be equipped with an appropriately sized cap, blind flange, plug, or a second valve to seal the line. Except during sampling, both valves shall be closed. If the isolation of equipment for hot work or the removal of a component for repair or replacement results in an open-ended line or valve, it is exempt from the requirement to install a cap, blind flange, plug, or second valve for 72 hours. If the repair or replacement is not completed within 72 hours, the permit holder must complete either of the following actions within that time period;

(1) a cap, blind flange, plug, or second valve must be installed on the line or valve; or

(2) the open-ended valve or line shall be monitored once for leaks above background for a plant or unit turnaround lasting up to 45 days with an approved gas analyzer and the results recorded. For all other situations, the open-ended valve or line shall be monitored once by the end of the 72 hours period following the creation of the open-ended line and monthly thereafter with an approved gas analyzer and the results recorded. For turnarounds and all other situations, leaks are indicated by readings of 500 ppmv and must be repaired within 24 hours or a cap, blind flange, plug, or second valve must be installed on the line or valve.

F. Accessible valves shall be monitored by leak-checking for fugitive emissions at least quarterly using an approved gas analyzer with a directed maintenance program. Sealless/leakless valves (including, but not limited to, welded bonnet bellows and diaphragm valves) and relief

valves equipped with a rupture disc upstream or venting to a control device are not required to be monitored. For valves equipped with rupture discs, a pressure-sensing device shall be installed between the relief valve and rupture disc to monitor disc integrity. All leaking discs shall be replaced at the earliest opportunity but no later than the next process shutdown.

A check of the reading of the pressure-sensing device to verify disc integrity shall be performed at least quarterly and recorded in the unit log or equivalent. Pressure-sensing devices that are continuously monitored with alarms are exempt from recordkeeping requirements specified in this paragraph.

An approved gas analyzer shall conform to requirements listed in Method 21 of 40 CFR part 60, appendix A. The gas analyzer shall be calibrated with methane. In addition, the response factor of the instrument for a specific VOC of interest shall be determined and meet the requirements of Section 8 of Method 21. If a mixture of VOCs is being monitored, the response factor shall be calculated for the average composition of the process fluid. A calculated average is not required when all of the compounds in the mixture have a response factor less than 10 using methane. If a response factor less than 10 cannot be achieved using methane, then the instrument may be calibrated with one of the VOC to be measured or any other VOC so long as the instrument has a response factor of less than 10 for each of the VOC to be measured.

A directed maintenance program shall consist of the repair and maintenance of components assisted simultaneously by the use of an approved gas analyzer such that a minimum concentration of leaking VOC is obtained for each component being maintained. A first attempt to repair the leak must be made within 5 days. Records of the first attempt to repair shall be maintained. Replaced components shall be re-monitored within 15 days of being placed back into VOC service.

G. All new and replacement pumps, compressors, and agitators shall be equipped with a shaft sealing system that prevents or detects emissions of VOC from the seal. These seal systems need not be monitored and may include (but are not limited to) dual pump seals with barrier fluid at higher pressure than process pressure, seals degassing to vent control systems kept in good working order, or seals equipped with an automatic seal failure detection and alarm system. Submerged pumps or sealless pumps (including, but not limited to, diaphragm, canned, or magnetic-driven pumps) may be used to satisfy the requirements of this condition and need not be monitored.

All other pump, compressor, and agitator seals shall be monitored with an approved gas analyzer at least quarterly.

H. Damaged or leaking valves, connectors, compressor seals, pump seals, and agitator seals found to be emitting VOC in excess of 500 parts per million by volume (ppmv) or found by visual inspection to be leaking (e.g., dripping process fluids) shall be tagged and replaced or repaired. A leaking component shall be repaired as soon as practicable, but no later than 15 days after the leak is found. If the repair of a component would require a unit shutdown that would create more emissions than the repair would eliminate, the repair may be delayed until the next scheduled shutdown. All leaking components which cannot be repaired until a scheduled shutdown shall be identified for such repair by tagging. A listing of all components that qualify for delay of repair shall be maintained on a delay of repair list. The cumulative daily emissions from all components on the delay of repair list shall be estimated by multiplying by 24 the mass emission rate for each component calculated in accordance with the instructions in 30 TAC 115.782 (c)(1)(B)(i)(II). The calculations of the cumulative daily emissions from all components on the delay of repair list shall be updated within ten days of when the latest leaking component is added to the delay of repair list. When the cumulative daily emission rate of all components on the delay of repair list times the number of days until the next scheduled unit shutdown is equal to or exceeds the total emissions from a unit

shutdown as calculated in accordance with 30 TAC 115.782 (c)(1)(B)(i)(I) or 500 pounds, whichever is greater, the TCEQ Regional Manager and any local programs shall be notified and may require early unit shutdown or other appropriate action based on the number and severity of tagged leaks awaiting shutdown. This notification shall be made within 15 days of making this determination.

I. In lieu of the monitoring frequency specified in paragraph F, valves in gas and light liquid service may be monitored on a semiannual basis if the percent of valves leaking for two consecutive quarterly monitoring periods is less than 0.5 percent.

Valves in gas and light liquid service may be monitored on an annual basis if the percent of valves leaking for two consecutive semiannual monitoring periods is less than 0.5 percent.

If the percent of valves leaking for any semiannual or annual monitoring period is 0.5 percent or greater, the facility shall revert to quarterly monitoring until the facility again qualifies for the alternative monitoring schedules previously outlined in this paragraph.

J. The percent of valves leaking used in paragraph I shall be determined using the following formula:

$$(Vl + Vs) \times 100/Vt = Vp$$

Where:

Vl = the number of valves found leaking by the end of the monitoring period, either by Method 21 or sight, sound, and smell.

Vs = the number of valves for which repair has been delayed and are listed on the facility shutdown log.

Vt = the total number of valves in the facility subject to the monitoring requirements, as of the last day of the monitoring period, not including nonaccessible and unsafe-to-monitor valves.

Vp = the percentage of leaking valves for the monitoring period.

K. Records of repairs shall include date of repairs, repair results, justification for delay of repairs, and corrective actions taken for all components. Records of instrument monitoring shall indicate dates and times, test methods, and instrument readings. The instrument monitoring record shall include the time that monitoring took place for no less than 95% of the instrument readings recorded. Records of physical inspections shall be noted in the operator's log or equivalent.

L. Compliance with the requirements of this condition does not assure compliance with requirements of 30 TAC Chapter 115, an applicable New Source Performance Standard, or an applicable National Emission Standard for Hazardous Air Pollutants and does not constitute approval of alternative standards for these regulations.

MoReTec MRT-2: Initial Demonstration of Compliance (10/25)

83. Initial Demonstration of Compliance: MRT-2 TO (EPN MRT2-TOX) and Unit 136 VCU (EPN 136-VCU).

A. The permit holder shall perform stack sampling and other testing as required to establish the actual pattern and quantities of air contaminants being emitted into the atmosphere from the MRT2 TO and Unit 136 VCU and to demonstrate compliance with Special Conditions 74 and 78, respectively. The permit holder is responsible for providing sampling and testing facilities and conducting the sampling and testing operations at his expense. Sampling shall be

conducted in accordance with the appropriate procedures of the Texas Commission on Environmental Quality (TCEQ) Sampling Procedures Manual and the U.S. Environmental Protection Agency (EPA) Reference Methods.

Requests to waive testing for any pollutant specified in this condition shall be submitted to the TCEQ Office of Air, Air Permits Division. Test waivers and alternate/equivalent procedure proposals for Title 40 Code of Federal Regulation Part 60 (40 CFR Part 60) testing which must have EPA approval shall be submitted to the TCEQ Regional Director.

(1) The appropriate TCEQ Regional Office shall be notified not less than 45 days prior to sampling. The notice shall include:

(a) Proposed date for pretest meeting.

(b) Date sampling will occur.

(c) Name of firm conducting sampling.

(d) Type of sampling equipment to be used.

(e) Method or procedure to be used in sampling.

(f) Description of any proposed deviation from the sampling procedures specified in this permit or TCEQ/EPA sampling procedures.

(g) Procedure/parameters to be used to determine worst case emissions may include MRT-2 production rate, product loading rate, air flow rate, and oxidizer or vapor combustor temperature during the sampling period.

(h) The purpose of the pretest meeting is to review the necessary sampling and testing procedures, to provide the proper data forms for recording pertinent data, and to review the format procedures for the test reports. The TCEQ Regional Director must approve any deviation from specified sampling procedures.

B. Air contaminants emitted from the MRT2 TO and Unit 136 VCU to be tested for include, but are not limited to, nitrogen oxide (NO_x), carbon monoxide (CO), Oxygen (O_2), and Volatile Organic Compounds (VOC).

C. Sampling shall occur within 60 days after achieving the maximum operating rate, but no later than 180 days after initial start-up of the facilities (or increase in production, as appropriate) and at such other times as may be required by the TCEQ Executive Director. Requests for additional time to perform sampling shall be submitted to the appropriate regional office.

D. The facility being sampled shall operate at no less than 90 percent (%) of the design maximum hourly production rate and conditions. Operations for the MoReTec Process and Unit 136 Loading operations during stack sampling shall be those that are expected to cause maximum emissions for each air contaminant tested.

These conditions/parameters and any other primary operating parameters that affect the emission rate shall be monitored and recorded during the stack test. Any additional parameters shall be determined at the pretest meeting and shall be stated in the sampling report. Permit conditions and parameter limits may be waived during stack testing performed under this condition if the proposed condition/parameter range is identified in the test notice specified in paragraph A and accepted by the TCEQ Regional Office. Permit allowable emissions and emission control requirements are not waived and still apply during stack testing periods.

E. During subsequent operations, stack sampling shall be performed within 120 days if one of the conditions of paragraphs (1) or (2) are met. This sampling may be waived by the TCEQ Regional Office.

(1) If the units are unable to operate at the required 90% of the maximum production rates during testing as required by paragraph D, then future production rates will be limited to no more than 10% above the rates established during testing. A production rate that exceeds 10% of that established during testing will require a retest.

(2) If the units can operate at the design maximum production rates during testing, a retest will be required if the hourly production rate exceeds that established during the test period.

F. Copies of the final sampling report shall be forwarded to the offices below within 60 days after sampling is completed. Sampling reports shall comply with the attached provisions entitled "Chapter 14, Contents of Sampling Reports" of the TCEQ Sampling Procedures Manual. The reports shall be distributed as follows:

G. One copy to the appropriate TCEQ Regional Office.

H. One copy to each local air pollution control program.

I. Sampling ports and platform(s) shall be incorporated into the design of the MRT2 Thermal Oxidizer according to the specifications set forth in the TCEQ document titled "Guidelines for Stack Sampling Facilities," Formerly "Chapter 2, Stack Sampling Facilities" of the TCEQ Sampling Procedures Manual. Alternate sampling facility designs must be submitted for approval to the TCEQ Regional Director.

Monitoring and Compliance Methods

84. The permit holder shall monitor equipment, operating parameters, and emissions in accordance with 30 TAC §116.715(c)(5) and 30 TAC §116.715(d), and with the General Conditions, Special Conditions, and the attached Monitoring and Compliance Methods Table.

85. The permit holder shall maintain records in accordance with 30 TAC §116.715(c)(6) and with the General Conditions, Special Conditions, and the attached Monitoring and Compliance Methods Table.

Referenced Permits

86. The following sources and/or activities are authorized under a Permit by Rule (PBR) by Title 30 Texas Administrative Code Chapter 106 (30 TAC Chapter 106). These lists are not intended to be all inclusive and can be altered without modifications to this permit.

Authorization	Source or Activity
87937, 92373, 95583, 101633, 101897, 109351, 112762, 118761, 123232, 131635, 139906, 141096, 142711, 146126, 151230, 156246, 156839, 160669, 161353, 166263, 168547, and 172306	Fugitive component changes from 2008 to 2023 authorized under 30 TAC §106.261 and §106.262.

Date: October 3, 2025

ATTACHMENT 1

Flexible Permit Numbers 2167 and PSDTX985

List of Tanks without VOC Emissions

Tank No. 335TK0069	Tank No. 134TK0642	Tank No. 430TK0870
Tank No. 335TK0070	Tank No. 134TK0643	Tank No. 430TK0871
Tank No. 138TK0094	Tank No. 137TK0645	Tank No. 136TK0901
Tank No. 117TK0144	Tank No. 335TK0647	Tank No. 136TK0902
Tank No. 138TK0252	Tank No. 535TK0648	Tank No. 340TK0904
Tank No. 430TK0317	Tank No. 134TK0676	Tank No. 339TK0905
Tank No. 233TK0430	Tank No. 137TK0678	Tank No. 430TK0906
Tank No. 136TK0438	Tank No. 138TK0713	Tank No. 430TK0907
Tank No. 136TK0439	Tank No. 138TK0714	Tank No. 430TK0908
Tank No. 136TK0440	Tank No. 432TK0724	Tank No. 430TK0909
Tank No. 137TK0468	Tank No. 336TK0744	Tank No. 341TK0910
Tank No. 137TK0501	Tank No. 117TK0758	Tank No. 341TK0838
Tank No. 137TK0509	Tank No. 432TK0820	Tank No. 234TK0001
Tank No. 632TK0585	Tank No. 535TK0824	Tank No. 435D0007
Tank No. 137TK0586	Tank No. 430TK0828	Tank No. 439D2008
Tank No. 136TK0587	Tank No. 430TK0829	Tank No. 732TK0016
Tank No. 632TK0588	Tank No. 134TK0830	Tank No. 732TK0032
Tank No. 136TK0589	Tank No. 134TK0831	Tank No. 732TK0064
Tank No. 136TK0590	Tank No. 134TK0832	Tank No. 732TK0066
Tank No. 136TK0591	Tank No. 134TK0833	Tank No. 736TK1101
Tank No. 134TK0622	Tank No. 138TK0845	Tank No. 736TK0101
Tank No. 134TK0623	Tank No. 138TK0846	Tank No. 737TK0001
Tank No. 134TK0624	Tank No. 138TK0847	Tank No. 37TK0457A
Tank No. 134TK0625	Tank No. 535TK0848	Tank No. 37TK0457B
Tank No. 134TK0626	Tank No. 430TK0858	Tank No. 137TK0458
Tank No. 134TK0627	Tank No. 430TK0859	Tank No. 137TK0459

Date: May 2, 2024

ATTACHMENT 2

Flexible Permit Numbers 2167 and PSDTX985

Heaters/Boilers with Firing Rates ≥ 100 MMBtu/hr

EPN	Source Name
537F0001	Crude Heater No. 1
537F0002	Vacuum Heater No. 1
737F0001	Heater F0001
737F0002	Heater F0002
736F0101A	736 Coker E. Heater H-101A
736F0101B	736 Coker W. Heater H-101B
934F0002	Orthoxylene II Heater
735F0010	735 Reactor Charge Heater
932F0001	Isom II W. Reactor Feed Heater
536F0001A	Atmospheric Tower Heater
536F0001B	Atmospheric Tower Heater
536F0002	Vacuum Tower Heater
733F0005	Heater B5 – 733 LEF Reboiler
637F0001	637 Reactor Feed Heater

Date: May 2, 2024

Flexible Permit 2167 and PSDTX985
Monitoring and Compliance Methods Table

GROUP	SOURCE	POLLUTANT	MONITORING	SHORT-TERM EMISSIONS RATES CALCULATIONS	ANNUAL EMISSIONS RATES CALCULATIONS
TANKS	Storage Tanks	VOC	Monitor and record material stored and throughput. Monitor and record average monthly temperature if available.	Calculate using maximum represented throughput and product records with AP-42 Chapter 7 methods. Assume that up to 85% of the tanks are being filled at the same time.	Emissions calculated using AP-42 Chapter 7 methods from throughput and product records to determine compliance with the cap.
		BZ	Monitor and record material stored and throughput. Monitor and record average monthly temperature if available.	Calculate using maximum represented throughput and product records with AP-42 Chapter 7 methods. Assume that up to 85% of the tanks are being filled at the same time.	Emissions calculated using AP-42 Chapter 7 methods from throughput and product records to determine compliance with the cap.
		H_2S	Monitor and record material stored and throughput. Monitor and record average monthly temperature if available.	Calculate using maximum represented throughput and product records with AP-42 Chapter 7 methods. Assume that up to 85% of the tanks are being filled at the same time.	Emissions calculated using AP-42 Chapter 7 methods from throughput and product records to determine compliance with the cap.
		H_2SO_4	Monitor and record material stored and throughput. Monitor and record average monthly temperature if available.	Calculate using maximum represented throughput and product records with AP-42 Chapter 7 methods. Assume that up to 85% of the tanks are being filled at the same time.	Emissions calculated using AP-42 Chapter 7 methods from throughput and product records to determine compliance with the cap.
HEATERS-1	Heaters With CEMS	NO_X	CEMS. Data collected at least four times per hour and averaged hourly	CEMS. Data collected at least four times per hour and averaged hourly.	CEMS. Data collected at least four times per hour and averaged hourly.
		CO	CEMS. Data collected at least four times per hour and averaged hourly	CEMS. Data collected at least four times per hour and averaged hourly.	CEMS. Data collected at least four times per hour and averaged hourly.
		SO_2	SO2 emissions are monitored using the H2S CEMS output on the fuel gas mixing pot and assuming 100% combustion to SO2.	SO2 emission rates are calculated using the H2S CEMS output on the fuel gas mixing pot and the fuel flow rate for each unit. It is assumed that 100% of H2S is combusted to SO2.	SO2 emission rates are calculated using the H2S CEMS output on the fuel gas mixing pot and the fuel flow rate for each unit. It is assumed that 100% of H2S is combusted to SO2.
		$PM/PM_{10}/PM_{2.5}$	Unit fuel gas flow rate and/or firing rate is continuously monitored for each source	Monitored unit fuel flow or firing rate and AP-42 factor.	Monitored unit fuel flow or firing rate and AP-42 factor.
		VOC	Unit fuel gas flow rate and/or firing rate is continuously monitored for each source	Monitored unit fuel flow or firing rate and AP-42 factor.	Monitored unit fuel flow or firing rate and AP-42 factor.
		BZ	Unit fuel gas flow rate and/or firing rate is continuously monitored for each source	Monitored unit fuel flow or firing rate and stack test data or AP-42 factor.	Monitored unit fuel flow or firing rate and stack test data or AP-42 factor.
		NH_3	After SCR is installed, CEMS Data collected at least four times per hour and averaged hourly.	After SCR is installed, CEMS Data collected at least four times per hour and averaged hourly.	After SCR is installed, CEMS Data collected at least four times per hour and averaged hourly.
HEATERS-2	Heaters Without	NO_X	Unit fuel gas flow rate and/or firing rate is	Unit fuel flow or firing rate and stack test data.	Unit fuel flow or firing rate and stack test data.

			continuously monitored for each source		
		CO	Unit fuel flow rate and/or firing rate is continuously monitored.	Unit fuel flow or firing rate and AP-42, 30 TAC 117 factor, or stack test data	Unit fuel flow or firing rate and AP-42, 30 TAC 117 factor, or stack test data
		SO_2	SO2 emissions are monitored using the H2S CEMS output on the fuel gas mixing pot and assuming 100% combustion to SO2.	SO2 emission rates are calculated using the H2S CEMS output on the fuel gas mixing pot and the fuel flow rate for each unit. It is assumed that 100% of H2S is combusted to SO2.	SO2 emission rates are calculated using the H2S CEMS output on the fuel gas mixing pot and the fuel flow rate for each unit. It is assumed that 100% of H2S is combusted to SO2.
		$PM/PM_{10}/PM_{2.5}$	Unit fuel gas flow rate and/or firing rate is continuously monitored for each source	Monitored unit fuel flow or firing rate and AP-42 factor.	Monitored unit fuel flow or firing rate and AP-42 factor.
		VOC	Unit fuel gas flow rate and/or firing rate is continuously monitored for each source	Monitored unit fuel flow or firing rate and AP-42 factor.	Monitored unit fuel flow or firing rate and AP-42 factor.
		BZ	Unit fuel gas flow rate and/or firing rate is continuously monitored for each source	Monitored unit fuel flow or firing rate and stack test data or AP-42 factor.	Monitored unit fuel flow or firing rate and stack test data or AP-42 factor.
CT-1	Cooling Towers With CEMS	$PM/PM_{10}/PM_{2.5}$	Monitoring of total dissolved solids (TDS) or conductivity in accordance with Special Condition 24.	PM emissions are calculated using monitored or maximum design hourly flow rate, TDS results, represented drift eliminator %	PM emissions are calculated using monitored (annual average) or maximum design flow rate, TDS results, represented drift eliminator %
		VOC	The inlet flow to the cooling water tower will be sampled and analyzed for hydrocarbon each month. In addition, a CEMS is in place for continuous monitoring.	The emission rate of each compound will be calculated with the continuous emission monitoring data and flow rate monitoring required by 30 TAC Chapter 115 and/or using results from the monthly VOC sampling.	The emission rate of each compound will be calculated with the continuous emission monitoring data and flow rate monitoring required by 30 TAC Chapter 115 and/or using results from the monthly VOC sampling.
		BZ	The inlet flow to the cooling water tower will be sampled and analyzed for BZ each month. In addition, a CEMS is in place for continuous monitoring.	The emission rate of BZ will be calculated with the continuous emission monitoring data and flow rate monitoring required by 30 TAC Chapter 115 and/or using results from the monthly VOC sampling.	The emission rate of BZ will be calculated with the continuous emission monitoring data and flow rate monitoring required by 30 TAC Chapter 115 and/or using results from the monthly VOC sampling.

CT-2	Cooling Towers Without CEMS	$PM/PM_{10}/PM_{2.5}$	Monitoring of total dissolved solids (TDS) or conductivity in accordance with Special Condition 24.	PM emissions are calculated using monitored or maximum design hourly flow rate, TDS results, represented drift eliminator %	PM emissions are calculated using monitored (annual average) or maximum design flow rate, TDS results, represented drift eliminator %
		VOC	The inlet flow to the cooling water tower will be sampled and analyzed for hydrocarbon each month.	VOC concentration and monitored hourly circulation rate or design maximum hourly circulation rate	VOC concentration and monitored (annual average) circulation rate or design maximum hourly circulation rate
		BZ	The inlet flow to the cooling water tower will be sampled and analyzed for BZ each month.	BZ concentration and monitored hourly circulation rate or design maximum hourly circulation rate	BZ concentration and monitored (annual average) circulation rate or design maximum hourly circulation rate
MVC	Marine Vapor Combustor	NO_X	CEMS. Data collected at least four times per hour and averaged hourly	CEMS. Data collected at least four times per hour and averaged hourly.	CEMS. Data collected at least four times per hour and averaged hourly.
		CO	CEMS. Data collected at least four times per hour and averaged hourly	CEMS. Data collected at least four times per hour and averaged hourly.	CEMS. Data collected at least four times per hour and averaged hourly.
		SO_2	Unit fuel gas flow rate and/or firing rate is continuously monitored for each source	Monitored unit fuel flow or firing rate and AP-42 factor.	Monitored unit fuel flow or firing rate and AP-42 factor.
		$PM/PM_{10}/PM_{2.5}$	Unit fuel gas flow rate and/or firing rate is continuously monitored for each source	Monitored unit fuel flow or firing rate and AP-42 factor.	Monitored unit fuel flow or firing rate and AP-42 factor.
		VOC	Unit fuel gas flow rate and/or firing rate is continuously monitored for each source	Natural gas combustion emissions based on monitored unit fuel flow or firing rate and AP-42 factor. Post combustion loading losses are included with LOADING monitoring and compliance methods.	Natural gas combustion emissions based on monitored unit fuel flow or firing rate and AP-42 factor. Post combustion loading losses are included with LOADING monitoring and compliance methods.
		BZ	Unit fuel gas flow rate and/or firing rate is continuously monitored for each source	Natural gas combustion emissions based on monitored unit fuel flow or firing rate and AP-42 factor. Post combustion loading losses are included with LOADING monitoring and compliance methods.	Natural gas combustion emissions based on monitored unit fuel flow or firing rate and AP-42 factor. Post combustion loading losses are included with LOADING monitoring and compliance methods.
LOADING	Railcar/Tank Truck Loading Activities	VOC	Record type of product and quantity being loaded.	Material and monthly throughput. Calculate using AP-42 Chapter 5.2 methods.	Material and monthly throughput. Calculate using AP-42 Chapter 5.2 methods.
		BZ	Record type of product and quantity being loaded.	Material and monthly throughput. Calculate using AP-42 Chapter 5.2 methods	Material and monthly throughput. Calculate using AP-42 Chapter 5.2 methods.
LOAD COKE	Coker Loading Activities	$PM/PM_{10}/PM_{2.5}$	Record coke throughput rates.	Maximum PM emissions are calculated assuming maximum operating conditions and control requirements as represented in permit calculations.	PM emissions are calculated assuming annual throughput calculations and control requirements as represented in permit calculations.
LOAD SULF	Sulfur Loading Activities	H_2S	Record type of product and quantity being	Maximum represented throughputs of total sulfur loaded. Engineering basis of 5 ppmw residual	Actual monthly throughputs of total sulfur loaded. Engineering basis of 5 ppmw residual H_2S in sulfur loading

			loaded.		
FLARES	Plant Flares	NO_X	Pilot flame presence monitored continuously. Waste gas flow continuously measured every 15 minutes, with hourly averages recorded.	TCEQ emission factors and hourly btu data.	TCEQ emission factors and btu data.
		CO	Pilot flame presence monitored continuously. Waste gas flow continuously measured every 15 minutes, with hourly averages recorded.	TCEQ emission factors and hourly btu data.	TCEQ emission factors and btu data.
		SO_2	Total Reduced Sulfur (TRS) analyzer required by 40 CFR Part 60 Subpart Ja. Pilot flame presence monitored continuously. Waste gas flow continuously measured every 15 minutes, with hourly averages recorded.	Waste gas flow to flare. TRS analyzer measurement, assumed 100% conversion to SO2.	Waste gas flow to flare. TRS analyzer measurement, assumed 100% conversion to SO2.
		VOC	Flare header line gas chromatograph or mass spectrometer continuous emission monitoring (CEMS) and continuous flow monitor (CFM) required by 30 TAC Chapter 115. The total heat input from each stream is determined based on the mass flow, the stream speciation, and the lower heating value of each stream component. Waste gas flow continuously measured every 15 minutes, with hourly averages recorded.	The emission rate of each compound from the flares will be calculated based on CEMS and CFM from the gas chromatograph or mass spectrometer. VOC emissions are based on a destruction efficiency of 99% for C2's and C3's, and 98% for C4+.	The emission rate of each compound from the flares will be calculated based on CEMS and CFM from the gas chromatograph or mass spectrometer. VOC emissions are based on a destruction efficiency of 99% for C2's and C3's, and 98% for C4+.
		BZ	Flare header line gas chromatograph or mass spectrometer continuous emission monitoring (CEMS) and continuous flow monitor (CFM) required by 30 TAC Chapter 115. The total heat input from each stream is determined based on the mass flow, the stream speciation, and the lower heating value of each stream component. Waste gas flow continuously measured every 15 minutes, with hourly averages recorded.	The emission rate of each compound from the flares will be calculated based on CEMS and CFM from the gas chromatograph or mass spectrometer. VOC emissions are based on a destruction efficiency of 99% for C2's and C3's, and 98% for C4+.	The emission rate of each compound from the flares will be calculated based on CEMS and CFM from the gas chromatograph or mass spectrometer. VOC emissions are based on a destruction efficiency of 99% for C2's and C3's, and 98% for C4+.
		H_2S	H2S monitoring is done using H2S analyzer required by 40 CFR Part 60 Subpart Ja.	H2S CEMS and H2S measurements from analyzers as required by 30 TAC 115 Subchapter H and NSPS Subpart Ja. Waste gas flow to flare and assuming 98% DRE for H_2S	H2S CEMS and H2S measurements from analyzers as required by 30 TAC 115 Subchapter H and NSPS Subpart Ja. Waste gas flow to flare and assuming 98% DRE for H_2S
		NH_3	Flare header line gas chromatograph or mass spectrometer continuous emission monitoring (CEMS) and continuous flow monitor (CFM) required by 30 TAC Chapter 115. Waste gas flow	The emission rate will be calculated based on concentration and flow data available. Ammonia emissions are based on a destruction efficiency of 99%.	The emission rate will be calculated based on concentration and flow data available. Ammonia emissions are based on a destruction efficiency of 99%.

			continuously measured every 15 minutes, with hourly averages recorded. If concentration data for NH_3 is not analyzed, permit represented concentrations can be relied upon.		
COKE PIT	Coke Pit Activities	$PM/PM_{10}/PM_{2.5}$	Coke primary storage pads tested for moisture (required to be at least 8%).	Maximum PM emissions are calculated assuming maximum operating conditions and control requirements as represented in permit calculations.	PM emissions are calculated assuming annual throughput calculations and control requirements as represented in permit calculations.
SRU-TO	Thermal Oxidizer at Sulfur Recovery Unit	NO_X	Unit fuel gas flow rate and/or firing rate is continuously monitored for each source	Monitored unit fuel flow or firing rate and AP-42 factor.	Monitored unit fuel flow or firing rate and AP-42 factor.
		CO	CEMS. Data collected at least four times per hour and averaged hourly	CEMS. Data collected at least four times per hour and averaged hourly.	CEMS. Data collected at least four times per hour and averaged hourly.
		SO_2	CEMS. Data collected at least four times per hour and averaged hourly	CEMS. Data collected at least four times per hour and averaged hourly.	CEMS. Data collected at least four times per hour and averaged hourly.
		$PM/PM_{10}/PM_{2.5}$	Unit fuel gas flow rate and/or firing rate is continuously monitored for each source	Monitored unit fuel flow or firing rate and AP-42 factor.	Monitored unit fuel flow or firing rate and AP-42 factor.
		VOC	Unit fuel gas flow rate and/or firing rate is continuously monitored for each source	Monitored unit fuel flow or firing rate and AP-42 factor.	Monitored unit fuel flow or firing rate and AP-42 factor.
		BZ	Unit fuel gas flow rate and/or firing rate is continuously monitored for each source	Monitored unit fuel flow or firing rate and AP-42 factor.	Monitored unit fuel flow or firing rate and AP-42 factor.
		H_2S	Monitor SRU tail gas incinerator fuel flow and composition continuously with fuel heating value to determine firing rate.	H2S emissions will be calculated assuming a fixed H2S concentration in the stack and then calculating stack flow based on incinerator firing rate.	H2S emissions will be calculated assuming a fixed H2S concentration in the stack and then calculating stack flow based on incinerator firing rate.
FCCU	FCCU	NO_X	CEMS. Data collected at least four times per hour and averaged hourly	CEMS. Data collected at least four times per hour and averaged hourly.	CEMS. Data collected at least four times per hour and averaged hourly.
		CO	CEMS. Data collected at least four times per hour and averaged hourly	CEMS. Data collected at least four times per hour and averaged hourly.	CEMS. Data collected at least four times per hour and averaged hourly.
		SO_2	CEMS. Data collected at least four times per hour and averaged hourly	CEMS. Data collected at least four times per hour and averaged hourly.	CEMS. Data collected at least four times per hour and averaged hourly.
		$PM/PM_{10}/PM_{2.5}$	Unit exhaust gas flow rate is determined for each hour	Monitored unit exhaust flow rate and stack test factor.	Monitored unit exhaust flow rate and stack test factor.
		Antimony	Unit exhaust gas flow rate is determined for each hour	Monitored unit exhaust flow rate and permit represented emission factor.	Monitored unit exhaust flow rate and permit represented emission factor.
		VOC	Unit exhaust gas flow rate is determined for each hour	Monitored unit exhaust flow rate and stack test factor.	Monitored unit exhaust flow rate and stack test factor.

		BZ	Unit exhaust gas flow rate is determined for each hour	Monitored unit exhaust flow rate and permit represented emission factor.	Monitored unit exhaust flow rate and permit represented emission factor.
		NH_3	After SCR is installed, CEMS with data collected at least four times per hour and averaged hourly	After SCR is installed, CEMS with data collected at least four times per hour and averaged hourly.	After SCR is installed, CEMS with data collected at least four times per hour and averaged hourly.
COKERS	Coker Operations	H_2S	Monitor number of coker cycles, unit feed rates, and hours of operation.	Monitored unit feed rate, hours of operation, or number of coke cycles per hour and permit emission factors derived from test data.	Monitored unit feed rate, hours of operation, or number of coke cycles per hour and permit emission factors derived from test data.
		VOC	Monitor number of coker cycles, unit feed rates, and hours of operation.	Monitored unit feed rate, hours of operation, or number of coke cycles per hour and permit emission factors derived from test data.	Monitored unit feed rate, hours of operation, or number of coke cycles per hour and permit emission factors derived from test data.
		BZ	Monitor number of coker cycles, unit feed rates, and hours of operation.	Monitored unit feed rate, hours of operation, or number of coke cycles per hour and permit emission factors derived from test data.	Monitored unit feed rate, hours of operation, or number of coke cycles per hour and permit emission factors derived from test data.
		$PM/PM_{10}/PM_{2.5}$	Monitor number of coker cycles, unit feed rates, and hours of operation.	Monitored unit feed rate, hours of operation, or number of coke cycles per hour and permit emission factors derived from test data.	Monitored unit feed rate, hours of operation, or number of coke cycles per hour and permit emission factors derived from test data.
WW	WW	VOC	Wastewater flow rates and maximum measured or assumed VOC concentrations in wastewater	Calculated based upon worst case scenarios as represented in the permit calculations.	Calculated based upon actual annual wastewater flows and wastewater lab analyses.
		BZ	Wastewater flow rates and maximum measured or assumed BZ concentrations in wastewater	Calculated based upon worst case scenarios as represented in the permit calculations.	Calculated based upon actual annual wastewater flows and wastewater lab analyses.
FUGITIVES	Equipment Leak Fugitives	VOC	Use EPA Method 21 to monitor for leaks from seals on pumps, compressors, agitators, and valves on piping components in light liquid and gas VOC service quarterly. Gas or hydraulic check new and replaced connectors prior to returning to service, or monitor with Method 21 within 15 days of returning to service. LDAR Program 28 VHP has a leak definition where repair action is required at 500 ppmv for valves and connectors and 2000 ppmv for pumps, compressors, and agitators. Check connectors weekly using audio, visual or olfactory (AVO) senses to observe leaks. Record results and corrective action taken. Monitoring will be conducted as required by the permit conditions.	For cap compliance purposes, emissions will be equal to component count and permit representations.	For cap compliance purposes, emissions will be equal to component count and permit representations.

		BZ	Use EPA Method 21 to monitor for leaks from seals on pumps, compressors, agitators, and valves on piping components in light liquid and gas VOC service quarterly. Gas or hydraulic check new and replaced connectors prior to returning to service, or monitor with Method 21 within 15 days of returning to service. LDAR Program 28 VHP has a leak definition where repair action is required at 500 ppmv for valves and connectors and 2000 ppmv for pumps, compressors, and agitators. Check connectors weekly using audio, visual or olfactory (AVO) senses to observe leaks. Record results and corrective action taken. Monitoring will be conducted as required by the permit conditions.	For cap compliance purposes, emissions will be equal to component count and permit representations.	For cap compliance purposes, emissions will be equal to component count and permit representations.
		NH_3	AVO checks every four hours. Corrective action within one hour if leaks detected. Record results and corrective action taken.	For cap compliance purposes, emissions will be equal to component count and permit representations.	For cap compliance purposes, emissions will be equal to component count and permit representations.
		H_2S	AVO checks every four hours. Corrective action within six hours if leaks detected. Record results and corrective action taken.	For cap compliance purposes, emissions will be equal to component count and permit representations.	For cap compliance purposes, emissions will be equal to component count and permit representations.
		COS	AVO checks every four hours. Corrective action within six hours if leaks detected. Record results and corrective action taken.	For cap compliance purposes, emissions will be equal to component count and permit representations.	For cap compliance purposes, emissions will be equal to component count and permit representations.
		CS_2	AVO checks every four hours. Corrective action within six hours if leaks detected. Record results and corrective action taken.	For cap compliance purposes, emissions will be equal to component count and permit representations.	For cap compliance purposes, emissions will be equal to component count and permit representations.