Texas Commission on Environmental Quality
INTEROFFICE MEMORANDUM

TO: Office of Chief Clerk **Date:** September 16, 2025

FROM: Amanda Kraynok
Staff Attorney
Environmental Law Division

SUBJECT: Backup Documents Filed for Consideration of Hearing Requests at Agenda

Applicant:	Formosa Plastics Corporation
Permit No.:	140763, 19871, 91780, 19200, 19168, 107518, 20203, 40157, 19201, PSDTX1500M1, PSDTX1236M1, PSDTX1240M1, PSDTX1237M1, PSDTX1226M1, PSDTX1383M2, PSDTX1224M1, PSDTX1222M1, and PSDTX1232M1
Program:	Air
Docket No.:	2025-1160-AIR

Enclosed please find a copy of the following documents for inclusion in the background material for this permit application:

- The final draft permit, including any special conditions or provisions;
- Maximum Allowable Emission Rate Table (MAERT);
- The summary of the technical review of the permit application;
- The First Air Quality Analysis Audit memoranda;
- The Second Air Quality Analysis Audit memoranda;
- The compliance summary of the Applicant;
- The Executive Director's Preliminary Determination Summary (PDS);
- The Executive Director's Response to Public Comment (RTC) on the Permit Application;
- The Final Decision Letter; and
- The List of Actions from the Commissioner's Integrated Database (CID).

Special Conditions

Permit Numbers 140763, PSDTX1500M1, and GHGPSDTX46M1

Introduction

1. This permit authorizes emissions only from those emission points listed in the attached table entitled "Emission Sources - Maximum Allowable Emission Rates" (MAERT), 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. Also, this permit authorizes the emissions from planned maintenance, startup, and shutdown.

Federal Applicability

2. The permitted sources at these facilities shall comply with all applicable requirements of the following federal regulations:

   A. The U.S. Environmental Protection Agency (EPA) Standards of Performance for New Stationary Sources (NSPS) in Title 40 Code of Federal Regulations (40 CFR) Part 60:

      (a) Subpart A: General Provisions

      (b) Subpart KKKK: Stationary Combustion Turbines

   B. The EPA National Emission Standards for Hazardous Air Pollutants (NESHAPS) for Source Categories in 40 CFR Part 63:

      (a) Subpart A: General Provisions

      (b) Subpart YYYY: Stationary Combustion Turbines

3. If any condition of this permit is more stringent than the regulations so incorporated, then for the purposes of complying with this permit, the permit shall govern and be the standard by which compliance shall be demonstrated.

Emission Standards and Operational Specifications

4. This permit authorizes 2 Siemens SGT6-2000E natural gas fired combustion turbine generators (CTGs) to operate in combined cycle, each rated at nominal 117 megawatts (MW). Each CTG shall have a heat recovery steam generator (HRSG). The HRSG shall not be duct-fired and shall not provide additional heat input. The turbines may fire natural gas, a mixture of natural gas with hydrogen (aka "tailgas"), and up to 100% hydrogen gas as fuel. The pollutant concentrations outlined in Special Condition No. 5 shall not be exceeded when firing hydrogen mixed with natural gas. **(06/23)**

5. Emissions from Emission Point Numbers (EPNs) 3U-7A and 3U-7B while operating in normal operations shall not exceed the following concentrations in parts per million by volume, dry basis (ppmvd) at 15 percent oxygen (O_2) subject to the exclusions and specifications noted in the subparagraphs of this Special Condition:

Pollutant	Concentration (at 15% O_2)	Averaging Time
NO_x	2 ppmvd	4 hour rolling average
CO	4 ppmvd	3 hour rolling average
VOC	2 ppmvd	3 hour rolling average

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A. Each startup period shall not exceed 180 minutes and shall be excluded. Startup of the unit is defined as the period that begins with an initial flame detection signal is recorded in the plant's data acquisition system and ends when the combustion turbine output exceeds 50% load and the SCR and oxidation catalyst come up to normal operating temperatures.

B. Each shutdown period shall not exceed 180 minutes and shall be excluded. Shutdown of the unit is defined as the period that begins when the combustion turbine output drops below 50% load and ends when a flame detection signal is no longer recorded in the plant's data acquisition system.

C. Emissions from maintenance activities (Attachments A and B) shall be excluded. **(3/21)**

D. Emissions from combustion turbine diagnostic load reduction activities as identified in Attachment B shall be subject to the hourly MSS emission rates listed on the MAERT and shall not exceed 200 hours per calendar year for each gas turbine. **(3/21)**

6. Opacity of emissions from EPNs 3U-7A and 3U-7B shall not exceed 5 percent averaged over a six minute period. During periods of startup, shutdown or maintenance, the opacity from the stacks shall not exceed 15 percent over a six minute period.

A. Visible emission observations shall be conducted and recorded at least once during each calendar quarter while the facility is in operation, unless the emission unit is not operating for the entire calendar quarter.

B. Continuous demonstration of compliance with this special condition can be demonstrated by conducting and recording visible emissions observations during normal operations. This determination shall be made by first observing for visible emissions by EPA Reference Method 22 while each facility is in operation. Observations shall be made at least 15 feet and no more than 0.25 mile from the emission point(s). Up to three emissions points may be read concurrently, provided that all three emissions points are within a 70 degree viewing sector or angle in front of the observer such that the proper sun position (at the observer's back) can be maintained for all three emission points.

C. If visible emissions are observed from the stack(s), then opacity shall be determined by EPA Reference Method 9 within 24 hours of observing visible emissions. Contributions from uncombined water shall not be included in determining compliance with this condition.

D. If the opacity limits of this Special Condition are exceeded, corrective action to eliminate the source of visible emissions shall be taken promptly and documented within one week of first observation.

E. Visible emissions or opacity observations for any source authorized by this permit shall be made upon demand of a representative of the TCEQ or any air pollution control program with jurisdiction. When such observations are required, the methods used and the observation period duration shall be as specified in this Special Condition unless otherwise specified by the person requiring the observation to be conducted.

Fuel Specifications

7. Natural gas used as fuel for the gas turbines authorized by this permit shall be limited to pipeline-quality natural gas containing no more than 0.25 grains total sulfur per 100 dry standard cubic feet (dscf). **(06/23)**

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8. Firing of any other fuel other than specified in Special Condition No. 4 or 7 shall require prior authorization from the TCEQ Air Permits Division. **(06/23)**

9. Upon request by the Executive Director of the TCEQ or any local air pollution control program having jurisdiction, the permit holder shall provide a sample and/or an analysis of the fuel fired in the gas turbines or shall allow an air pollution control agency representative to obtain a sample for analysis.

Maintenance

10. Compliance with the emission limits for planned maintenance activities identified in Attachments A and B may be demonstrated as follows: **(3/21)**

    A. For each pollutant emitted during maintenance activities whose emissions are measured using a Continuous Emissions Monitoring System (CEMS) on EPNs 3U-7A and 3U-7B, the permit holder shall for each calendar month compare the pollutant's short term (hourly) emission as measured by the CEMS to the applicable short-term planned maintenance activity emission limit in the MAERT.

    B. For each pollutant emitted during maintenance activities whose emissions occur through a stack but are not measured using a CEMS on EPNs 3U-7A and 3U-7B, the permit holder shall for each calendar month compare the pollutant's short term (hourly) emission to the applicable short-term planned maintenance activity emission limit in the MAERT.

    C. For each pollutant emitted during site maintenance for EPN 3U-MSS, the permit holder shall for each calendar month compare the pollutant's short term (hourly) emission to the applicable short-term planned maintenance activity emission limit in the MAERT.

    D. The permit holder shall sum all emissions from planned maintenance activities on a rolling 12-month basis for each EPN to demonstrate compliance with the MAERT.

Ammonia

11. The concentration of ammonia (NH_3) from EPNs 3U-7A and 3U-7B shall not exceed 10 ppmvd corrected to 15 percent O_2, on a rolling 24 hour average and an annual average during normal operations.

12. The permit holder shall maintain prevention and protection measures for the NH_3 storage system which includes marking and securing the NH_3 storage tank so as to protect the tank from accidents that could cause a rupture.

13. The permit holder shall maintain the piping and valves in contact with NH_3 as follows: **(06/23)**

    A. Stored aqueous NH_3 must have a concentration of less than 30 percent NH_3 by weight. Anhydrous NH_3 is not authorized by this permit.

    B. Audio, olfactory, and visual checks for NH_3 leaks within the operating area shall be made once per shift.

    C. Immediately, but no later than 1 hour upon detection of a leak, plant personnel shall take one or more of the following actions:

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(a) Locate and isolate the leak, if necessary.

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

(c) 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 Texas Commission on Environmental Quality (TCEQ) upon request.

14. Storage tank 3U-TTW12 is subject to the following requirements: **(06/23)**

A. Tank 3U-TTW12 is limited to storing H_2SO_4. The fill rate for tank 3U-TTW12 shall not exceed 3275 gallons per hour and the annual throughput shall not exceed 39,312 gallons on a rolling 12-month period.

B. Uninsulated tank exterior surfaces exposed to the sun shall be stainless steel or aluminum.

C. The permit holder shall maintain a record of tank throughput for the previous month and the past consecutive 12-month period for the tank.

Flares

15. The Olefins 1 Elevated Flare (EPN 1018), Olefins 2 Elevated Flare (EPN 1067), and Olefins 3 Elevated Flare (EPN: OL3-FLRA/B/C) shall be designed and operated in accordance with the following requirements: **(TBD)**

A. The flare systems shall be designed such that the combined assist natural gas and waste gas stream to each flare meets the 40 CFR § 60.18 specifications of minimum heating value and maximum tip velocity under normal and maintenance flow conditions.

The heating value and velocity requirements shall be satisfied during operations authorized by this permit. Flare testing per shall be performed 40 CFR § 60.18(f) if 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 or an infrared monitor. The time, date, and duration of any loss of pilot flame shall be recorded. 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 (EPNs 1018, 1067, and OL3-FLRA/B/C).

D. For each flare, the permit holder shall install a continuous flow monitor that provides a record of the vent stream flow to the flare. The flow monitor sensor sample points shall be installed in the vent stream as near as possible to the flare inlet such that the total vent stream to the flare is measured and analyzed. Readings shall be taken at least once every 15 minutes and the average hourly values of the flow shall be recorded each hour.

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The monitors shall be calibrated on an annual basis to meet the following accuracy specifications: the flow monitor shall be ±5.0%, temperature monitor shall be ±2.0% at absolute temperature, and pressure monitor shall be ±5.0 mm Hg.

The monitors shall operate as required by this section at least 95% of the time when the flare is operational, averaged over a rolling 12-month period. Flared gas actual exit velocity determined in accordance with 40 CFR § 60.18(f)(4) shall be recorded at least once every hour. Hourly mass emission rates shall be determined and recorded using the above readings and the emission factors used in the permit amendment application PI-1 dated December 2, 2021.

E. For each of the Olefins 1, 2 and 3 Elevated Flares (EPNs 1018, 1067 and OL3-FLRA/B/C), the permit holder shall install a composition analyzer or calorimeter that provide a record of the vent stream composition or Btu content to the flares. The analyzer sample points shall be installed in the vent stream as near as possible to the flare inlet such that the total vent stream to the flare is measured and analyzed.

Calibration of the analyzer shall follow the procedures and requirements of Section 10.0 of 40 CFR Part 60, Appendix B, Performance Specification 9, as amended through October 17, 2000 (65 FR 61744), except that the multi-point calibration procedure in Section 10.1 of Performance Specification 9 shall be performed at least once every calendar quarter instead of once every month, and the mid-level calibration check procedure in Section 10.2 of Performance Specification 9 shall be performed at least once every calendar week instead of every 24 hours. The calibration gases used for calibration procedures shall be in accordance with Section 7.1 of Performance Specification 9. Net heating value of the gas combusted in the flare shall be calculated according to the equation given in 40 CFR §60.18(f)(3) as amended through October 17, 2000 (65 FR 61744).

The calorimeters shall be calibrated, installed, operated, and maintained in accordance with manufacturer recommendations, to continuously measure and record the net heating value of the gas sent to the flare, in British thermal units/standard cubic foot of the gas.

F. The composition analyzer systems or calorimeters shall operate as required by this section at least 95% of the time when the flare is operational, averaged over a rolling 12-month period. Flared gas net heating value determined in accordance with 40 CFR §60.18(f)(3) shall be recorded at least once every 15 minutes.

G. After July 6, 2023, the Olefins 1 Elevated Flare (EPN 1018), Olefins 2 Elevated Flare (EPN 1067), and Olefins 3 Elevated Flare (EPN: OL3-FLRA/B/C) shall meet the requirements of Special Condition No. 16 which will replace and supersede the requirements of this Special Condition. If a compliance extension is granted in accordance with NESHAP procedures, then the effective date to meet the requirements of Special Condition No. 16 will be specified in the compliance extension approval.

16. The EGFs (EPNs EGF-1, EGF-2, EGF-3, and EGF-4) shall be designed and operated in accordance with the following requirements: **(TBD)**

A. The flare systems shall be designed such that the combined flare vent gas, assist air, and/or total steam to each flare meets the 40 CFR § 63.670 specifications for minimum combustion zone net heating value and maximum tip velocity at all times that flare vent gas may be directed to the flare for more than 15 minutes. Flared gas actual exit velocity, vent gas net heating value, and flared gas combustion zone net heating value shall be determined in accordance with 40 CFR §63.670(k), §63.670(l), and §63.670(m) on a 15-minute block average and recorded at least once every 15 minutes.

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If the flare actively receives perimeter assist air, it shall be operated to meet the 40 CFR §63.670 specifications for minimum net heating value dilution parameters.

B. The flares shall be operated with pilot flames present at all times flare vent gas may be directed to the flares. The pilot flames shall be continuously monitored by a thermocouple, infrared monitor, or ultraviolet monitor. The time, date, and duration of any loss of pilot flame shall be recorded. Each monitoring device shall be accurate to, and shall be calibrated at a frequency in accordance with, the manufacturer's specifications.

C. Flares shall be operated with no visible emissions except periods not to exceed a total of five minutes during any two consecutive hours, demonstrated and recorded per the requirements of §63.670(h).

D. The permit holder shall install flow monitors that continuously measure, calculate, and record the total volumetric vent stream flow rate (including waste gas, purge gas, supplemental gas, and sweep gas), and shall install a monitoring system capable of determining the concentration of individual components in the flare vent gas or the net heating value of the flare vent gas. The flow monitor sensor and analyzer sample points shall be installed in the vent stream such that the total vent stream to the flare is measured and analyzed.

If one or more gas streams that combine to comprise the total flare vent gas flow are monitored separately for net heating value and flow, the 15-minute block average net heating value shall be determined separately for each measurement location and a flow-weighted average of the gas stream net heating values shall be used to determine the 15-minute block average net heating value of the cumulative flare vent gas.

If assist air or assist steam is used, the owner or operator shall install, operate, calibrate, and maintain a monitoring system capable of continuously measuring, calculating, and recording the total volumetric flow rate of assist air and/or assist steam used with the flare.

If pre-mix assist air and/or perimeter assist air are used, the owner or operator shall install, operate, calibrate, and maintain a monitoring system capable of separately measuring, calculating, and recording the volumetric flow rate of premix assist air and/or perimeter assist air used with the flare. Continuously monitoring fan speed or power and using fan curves is an acceptable method for continuously monitoring assist air flow rates.

Perimeter assist air includes all air assist except premix assist air. Premix assist air includes any air intentionally entrained in center steam.

Assist air includes premix assist air and perimeter assist air, but does not include the surrounding ambient air.

The monitors shall be calibrated or have a calibration check performed as specified in Table 13 of the appendix to 40 CFR 63, Part CC to meet the following accuracy specifications: the vent flow monitor shall be ±20 percent of flow rate at velocities ranging from 0.03 to 0.3 meters per second (0.1 to 1 feet per second) ±5 percent of flow rate at velocities greater than 0.3 meters per second (1 feet per second), all other gas flow monitors shall be ±5 percent over the normal range of flow measured or 280 liters per minute (10 cubic feet per minute) whichever is greater, temperature monitor shall be ±1 percent over the normal range of temperature measured, expressed in degrees Celsius (C), or 2.8 degrees C, whichever is greater, and pressure monitor shall be ±5 percent over the normal operating range or 0.12 kilopascals (0.5 inches of water column), whichever is greater. For purposes of this permit, a calibration check means, at a minimum, using a second device or method to verify that the monitor is accurate as specified in the permit.

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Calorimeters shall have an accuracy of at least ±2% of span and be calibrated, installed, operated, and maintained in accordance with manufacturer recommendations and as specified in Table 13 of the appendix to 40 CFR 63, Part CC, to continuously measure and record the net heating value of the vent gas sent to the flare, in British thermal units/standard cubic foot of the gas.

For determination of net heating value by gas chromatograph, the minimum accuracy shall be as specified in Performance Specification 9 of Part 60, appendix B. Composition monitoring instruments shall be calibrated, installed, operated, and maintained in accordance with manufacturer recommendations and as specified in 40 CFR §63.671(e) and Table 13 of 40 CFR Pt. 63, Subpart CC. Individual component properties specified in Table 12 of Subpart CC shall apply to net heating value calculations.

For determination of net heating value by continuous process mass spectrometer, the minimum accuracy; composition monitoring; calibration; installation; operation and maintenance shall be done in accordance with 40 CFR §63.1103(e)(4)(viii).

E. Quality assured (or valid) data must be generated during periods that flare is operating. 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 flare operated over the previous rolling 12-month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

F. Hourly mass emission rates shall be determined and recorded using the monitoring data collected pursuant to paragraph D of this Special Condition and the emission factors specified in the permit amendment application PI-1 dated December 2, 2021.

G. Pilot and supplemental (fuel) gas combusted in the flares shall be sweet natural gas containing no more than 0.26 grains of total sulfur per 100 dry standard cubic feet.

17. Vent gas streams for the UT3 Plant may be directed to any of the EFGs or to any of the Olefins units elevated flares (EPNs EGF-1, EGF-2, EGF-3, EGF-4, 1018, 1067, and/or OL3-FLRA/B/C). **(TBD)**

18. The following requirements apply to capture systems for each flare designated as EPNs 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4. **(TBD)**

A. If used to control pollutants other than particulate, either:

(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. 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 15 minutes immediately downstream of each valve that if opened would allow a vent

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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 prevent flow out the bypass.

A deviation shall be reported if the monitoring or inspections indicate bypass of the control device.

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

Initial Determination of Compliance

19. Sampling ports and platforms shall be incorporated into the design of the turbines' exhaust stacks, identified as EPNs 3U-7A and 3U-7B, according to the specifications set forth in the attachment entitled "Guidelines for Stack Sampling Facilities." Alternate sampling facility designs may be submitted for approval by the TCEQ Regional Director.

20. At the request of the Executive Director of the TCEQ, the permit holder shall perform stack sampling and other testing, as required, to establish the actual quantities of air contaminants being emitted into the atmosphere from sources authorized by this permit. The permit holder is responsible for providing sampling and testing facilities and conducting the sampling and testing operations at the holder's expense. The TCEQ Executive Director or his designated representative shall be afforded the opportunity to observe all such sampling.

Fuel sampling using the methods and procedures of 40 CFR § 60.4415 may be conducted in lieu of stack sampling for sulfur dioxide (SO_2) or the permit holder may be exempted from fuel monitoring of SO_2 as provided under 40 CFR § 60.4365. If fuel sampling is used, compliance with NSPS Subpart KKKK SO_2 limits shall be based on 100 percent conversion of the sulfur in the fuel to SO_2. Any deviations from those procedures must be approved by the Executive Director of the TCEQ prior to sampling.

A. The Corpus Christi TCEQ Regional Office shall be contacted as soon as testing is scheduled but not less than 45 days prior to sampling to schedule a pretest meeting. The notice shall include:

(a) the date for pretest meeting;

(b) the date sampling will occur;

(c) the name of firm conducting sampling;

(d) the type of sampling equipment to be used;

(e) the method or procedure to be used in sampling; and

(f) procedure to determine turbine load during and after the sampling period.

A written proposed description of any deviation from sampling procedures specified in permit conditions or the TCEQ or EPA sampling procedures shall be made available to the TCEQ prior to the pretest meeting. The appropriate TCEQ Regional Director shall approve or disapprove of any deviation from specified sampling procedures.

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B. Air contaminants and diluents from the turbine to be sampled and analyzed include NO_X, CO, VOC, SO_2, NH_3, opacity, O_2, and particulate matter (filterable and condensible). Fuel sampling using the methods and procedures of the applicable NSPS may be conducted in lieu of stack sampling for SO_2.

C. Each turbine is limited to firing only natural gas during the initial testing. Each turbine shall be tested at a minimum and maximum load of the permitted operating range that is defined in this permit for the atmospheric conditions which exist during testing. The permit holder shall present at the pretest meeting the manner in which stack sampling will be executed in order to demonstrate compliance with emission standards found in 40 CFR Part 60, Subpart KKKK for combustion gas turbines. **(06/23)**

D. Requests to waive testing for any pollutant specified in this condition shall be submitted to the TCEQ Office Air, Air Permits Division. Test waivers and alternate or equivalent procedure proposals which must have EPA approval shall be submitted to the TCEQ Air Permits Division.

E. Sampling as required by this condition shall occur within 90 days after achieving the maximum fuel firing rate at which the facility will be operated, but no later than 180 days after initial startup. Additional sampling shall occur as may be required by the TCEQ or EPA.

F. Copies of the final sampling report shall be forwarded to the TCEQ within 60 days after sampling is completed. Sampling reports, including distribution instructions, shall comply with Chapter 14 of the TCEQ Sampling Procedures Manual.

Continuous Demonstration of Compliance

21. The permit holder shall install, calibrate, and maintain a CEMS to measure and record the in-stack concentration of NO_x, CO, and diluent gases (CO_2 or O_2) from each stack, EPNs 3U-7A and 3U-7B.

A. The NO_x and diluent gas CEMS shall meet the design and performance specifications, pass the field tests, and meet the installation requirements and the data analysis and reporting requirements specified in the applicable Performance Specification Nos. 2 and 3, 40 CFR Part 60, Appendix B. The permit holder shall assure that the CEMS meets the applicable quality-assurance requirements specified in 40 CFR Part 60, Appendix F, Procedure 1.

B. The CO CEMS shall meet the design and performance specifications, pass the field tests, and meet the installation requirements and the data analysis and reporting requirements specified in the applicable performance specifications in 40 CFR Part 60, Performance Specification No. 4.

C. All CEMS shall meet the applicable quality assurance requirements specified in 40 CFR Part 60, Appendix F, except that cylinder gas audits (CGA) conducted in all four quarters may be used in lieu of the annual relative accuracy test audit. Quarterly CGAs shall be conducted at least 60 days apart. Relative accuracy exceedances (as specified in 40 CFR 60, Appendix F), CGA exceedances of ±15percent accuracy, and any CEMS downtime shall be reported to the applicable TCEQ regional office, and necessary corrective action shall be taken. Supplemental stack sampling may be required at the discretion of the applicable TCEQ Regional Director.

D. If any emission monitor fails to meet specified performance, it shall be repaired or replaced immediately. If repair or replacement is not immediately feasible, the monitor shall be repaired or replaced no later than seven days after the failure is first detected by an

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employee at the site, unless written permission is obtained from the TCEQ Regional Office which allows for longer repair/replacement time. The holder of this permit shall develop an operation and maintenance program (including stocking necessary spare parts) to ensure that the continuous monitors are available as required. A monitor with downtime due to breakdown of more than 10percent of the facility operating time for any two consecutive semi-annual CEMS performance reports will be considered as a defective monitor and the monitor must be replaced within two weeks after exceeding the 10percent threshold. Alternatively, if the monitor is successfully repaired, the operator may submit a demonstration to the TCEQ Regional Office that the CEMS has been repaired and does not need to be replaced.

E. The monitoring data shall be reduced to hourly average concentrations at least once every day, using a minimum of four equally-spaced data points from each one-hour period. The individual average concentrations shall be reduced to units of lbs/hr at least once every day.

F. The monitoring data and quality-assurance data shall be maintained by the permit holder at the facility site. The data from the CEMS will be used to determine compliance with the conditions of this permit. During periods where the CEMS data is unavailable or not quality assured, compliance may alternatively be determined by using manufacturer emission factors or valid and representative data previously measured and recorded by the unit's CEMS under similar operating conditions.

G. The Corpus Christi TCEQ Regional Office shall be notified at least 30 days prior to any Relative Accuracy Test Audit (RATA) in order to provide them the opportunity to observe the testing.

22. The permit holder shall calculate hourly mass emissions in lbs/hr using the measured concentrations of NO_x and CO from the CEMS required in this permit.

23. The permit holder shall monitor fuel consumption from EPNs 3U-7A and 3U-7B individually and continuously, using monitoring devices that are accurate to ±2.0 percent of the unit's maximum flow and maintain, calibrate, and operate the devices in accordance with the manufacturer's specifications. The devices shall be calibrated in accordance with the manufacturer's recommendations or at least annually.

24. After the initial demonstration of compliance, ongoing compliance with the VOC and PM tons per year emission rates in the MAERT shall be demonstrated by calculating rolling 12-month annual emissions from emission factors (lb/MMBtu, HHV) obtained from the results of the sampling required by this permit and the monthly total heat input (MMBtu, HHV) from natural gas fuel.

25. The NH_3 concentration in the stack of EPNs 3U-7A and 3U-7B shall be tested or calculated according to one of the methods listed below and shall be monitored according to one of the methods listed below. Monitoring NH_3 slip is only required on days when the Selective Catalytic Reduction (SCR) unit is in operation.

A. The permit holder may install and operate a second NO_x CEMS probe located before the SCR, upstream of the stack NO_x CEMS, which may be used in association with the SCR efficiency and NH_3 injection rate to estimate NH_3 slip. This condition shall not be construed to set a minimum NO_x reduction efficiency on the SCR unit.

B. The permit holder may install and operate a dual stream system of NO_x CEMS at the exit of the SCR. One of the exhaust streams would be routed, in an unconverted state, to one NO_x

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CEMS and the other exhaust stream would be routed through a NH_3 converter to convert NH_3 to NO_x and then to a second NO_x CEMS. The NH_3 slip concentration shall be calculated from the delta between the two NO_x CEMS readings (converted and unconverted).

C. An ammonia monitoring method described in 30 TAC Chapter 117, Subchapter G, §117.8130.

D. Any other method used for measuring NH_3 slip shall require prior approval from the TCEQ Office of Air, Air Permits Division.

Cooling Towers

26. The cooling tower (EPN 3U-W10) shall be operated and monitored in accordance with the following: **(06/23)**

A. The cooling tower shall be equipped with drift eliminators having manufacturer's design assurance of 0.0005% drift or less. Drift eliminators shall be maintained and inspected at least annually. The permit holder shall maintain records of all inspections and repairs.

B. Total dissolved solids (TDS) in the cooling tower water shall not exceed 6,500 parts per million by weight (ppmw) at any time and shall not exceed 4,150 ppmw on a rolling 12-month average. Dissolved solids 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.

C. Cooling tower shall be analyzed for particulate emissions using one of the following methods:

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

(b) TDS sampling may be reduced to weekly if conductivity is monitored daily 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 weekly basis. The permit holder may use the average of two consecutive TDS-to-conductivity ratios to calculate daily TDS; or

(c) TDS sampling may be reduced to quarterly if conductivity is monitored daily and TDS is calculated using a correlation factor established for each cooling tower. The correlation factor shall be the average of four consecutive weekly TDS-to-conductivity ratios determined using the paragraph 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 semi-annually. 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 weekly until a new correlation factor can be established.

E. Cooling water sampling shall be representative of the cooling water returned to the tower and shall be conducted using approved methods.

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(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 D1125-95A (or more recent revision) for field or routine laboratory testing, or ASTM D1125-95B (or more recent revision) for a continuous monitor, or Standard Method 2510-B. 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 the analysis methods outlined in this condition 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.

F. The 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 rates. Alternately, the design maximum circulation rate may be used for all calculations. Emission records shall be updated monthly. Dissolved solids 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.

G. Quality assured (or valid) data must be generated when the cooling tower 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 hours) that the cooling tower operated over the previous rolling 12-month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

Recordkeeping Requirements

27. The following records (written or electronic) shall be kept at the plant for the life of the permit. All records required in this permit shall be made available at the request of personnel from the TCEQ, EPA, or any local air pollution control program having jurisdiction:

A. A copy of this permit.

B. Permit application dated May 18, 2016, and subsequent representations submitted to the TCEQ.

C. A complete copy of the testing reports and records of the initial performance testing completed to demonstrate initial compliance.

D. Stack sampling results or other air emissions testing (other than CEMS data) that may be conducted on units authorized under this permit after the date of issuance of this permit.

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28. The following records shall be maintained by the holder of this permit in a form suitable for inspection for a period of five years after collection and shall be made available upon request to representatives of the TCEQ, EPA, or any local air pollution control program having jurisdiction:

    A. The CEMS data of NO_x, CO, and diluent gas to demonstrate compliance with the emission rates listed in the Special Conditions and the MAERT.

    B. Raw data files of all CEMS data including calibration checks and adjustments and maintenance performed on these systems. Data files may be stored on a computer hard drive or other TCEQ-accepted computer media.

    C. Records for the hourly calculated values required to determine mass flow rates from CEMS data and compliance with the MAERT will be recorded hourly and stored on a computer hard drive or other TCEQ-accepted computer media.

    D. Records of the hours of operation and the quantity and type of fuel fired in the gas turbines. **(06/23)**

    E. Records of dates and times for startups and shutdowns of the CTGs.

    F. Records of fuel sampling conducted pursuant to 40 CFR Part 60, Subpart KKKK.

    G. Record of visible emissions or opacity observations, including corrective actions taken, as required by this permit.

    H. Records of emission-related maintenance, including replacement of control system components, media and sensors, if present.

    I. Records of hourly, monthly and annual maintenance activities.

    J. Records of NH_3 monitoring and daily AVO inspections.

    K. Records of diagnostic load reduction activities of the turbine generators according to Special Condition No. 4.D. **(3/21)**

Greenhouse Gas Emissions

29. Permit holders must keep records sufficient to demonstrate compliance with 30 TX Administrative Code § 116.164. If construction, a physical change or a change in method of operation results in Prevention of Significant Deterioration (PSD) review for criteria pollutants, then records shall be maintained that are sufficient to demonstrate the amount of emissions of GHGs from the source as a result of such construction, physical change or change in method of operation does not require authorization under 30 TAC §116.164(a). If there is construction, a physical change or a change in the method of operation that will result in a net emission increase of 75,000 tpy or more CO_{2e}. greenhouse gas emissions are subject to PSD review. **(TBD)**

30. Monitoring, quality assurance/quality control requirements, emission calculation methodologies, record keeping, and reporting requirements related to Greenhouse Gas (GHG) emissions shall adhere to the applicable requirements in 40 CFR Part 98 and in this permit. **(TBD)**

31. Permittee shall calculate the CO_{2e} emissions on a 12-month rolling basis, based on the procedures and Global Warming Potentials (GWP) contained in Greenhouse Gas Regulations, 40 CFR Part 98, Subpart A, Table A-1. **(TBD)**

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32. Records of emissions of GHG, and how they were determined, in compliance with Special Condition Nos. 29, 30, and 31 must be maintained by the holder of this permit in a form suitable for inspection for a period of five years after collection and must be made available upon request to representatives of the TCEQ, EPA, or any local air pollution control program having jurisdiction. **(TBD)**

Date: TBD

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Attachment A

Permit Numbers 140763, PSDTX1500M1, and GHGPSDTX46M1

INHERENTLY LOW EMITTING ACTIVITIES

Activity	Emissions				
	VOC	NOx	CO	PM	NH_3
Fuel gas venting	x				
CEMS Calibration		x	x		
Particulate filter maintenance				x	
Turbine Washing				x	
Maintenance on ammonia tank & equipment					x

Date: April 17, 2017

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Attachment B

Permit Numbers 140763, PSDTX1500M1, and GHGPSDTX46M1

NON-INHERENTLY LOW EMITTING ACTIVITIES

Activity	Emissions					
	VOC	NOx	CO	PM	SO_2	NH_3
Diagnostic Load Reduction Activities[1,2]	x	x	x	x	x	x

Notes:
1. Includes, but is not limited to combustion turbine load reductions (runbacks) associated with: initiation of steam turbine operation, low load steam turbine operation, variability in water or fuel supply, electric generator protection, and variation in turbine operations (including but not limited to, combustor flashback, primary combustion zone re-ignition, or combustion exhaust path spread).
2. Hourly emissions from these activities will be subject to the hourly emission limit for MSS activities from gas turbines listed on the MAERT.

Date: March 24, 2021

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Special Conditions

Permit Numbers 19871, and PSDTX1236M1, and GHGPSDTX221

Authorized Emissions

1. This permit authorizes emissions only from those points listed in the attached table entitled "Emission Sources - Maximum Allowable Emission Rates," and the facilities covered by this permit are authorized to emit subject to the emission rate limits on that table and other operating requirements specified in the special conditions.

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.

Federal Requirements

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):

   A. Subpart A, General Provisions.

   B. Subpart Kb, Standards of Performance for Volatile Organic Liquid Storage Vessels (including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984.

   C. 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.

   D. Subpart VVa, Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006.

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:

   A. Subpart A, General Provisions.

   B. Subpart J, Standards for Hazardous Air Pollutants for Polyvinyl Chloride and Copolymers Production.

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

   D. Subpart BB, Standards for Hazardous Air Pollutants from Phosphate Fertilizers Production Plants.

5. These facilities shall comply with all applicable requirements of the U.S. Environmental Protection Agency (EPA) regulations on National Emission Standards for Hazardous Air Pollutants for Source Categories in 40 CFR Part 63:

   A. Subpart A, General Provisions.

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

C. Subpart G, 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, Standards for Organic Hazardous Air Pollutants for Equipment Leaks.

E. Subpart Y, Standard for Marine Tank Vessel Loading Operations.

F. Subpart EEEE, Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline)

6. These facilities shall comply with the applicable requirements of Title 30 Texas Administrative Code §§ 113.110 and 113.130 (30 TAC §§ 113.110 and 113.130), including the referenced requirements contained in 40 CFR Part 63, Subparts A, F, G, H and Y.

Operating Conditions

7. The flare systems shall operate in accordance with the requirements stated in the paragraphs shown in the table below: **(TBD)**

Flare EPN	Flare Name	Required to comply with paragraphs during Normal Operations	Required to comply with paragraphs during Maintenance Operations
8F-D01	Chandelier Flare	A through C	A through E
8F-D03	Dock Flare	A through C	No MSS
8F-D05	BTX Tank Flare	A through C	A through F
8F-D06	Tank Farm Flare	A through E	A through F
1018	Olefins 1 Elevated Flare	A through E, and G	A through E, and G
1067	Olefins 2 Elevated Flare	A through E, and G	A through E, and G
OL3-FLRA/B/C	Olefins 3 Elevated Flare	A through E, and G	A through E, and G

A. The flare systems shall be designed such that the combined assist natural gas and waste gas stream to each flare meets the 40 CFR § 60.18 specifications of minimum heating value and maximum tip velocity under normal and maintenance flow conditions.

The heating value and velocity requirements shall be satisfied during operations authorized by this permit. Flare testing per shall be performed 40 CFR § 60.18(f) if 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 or an infrared monitor. The time, date, and duration of any loss of pilot flame shall be recorded.

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 air assist to the Flare (EPN 8F-D03) and steam assist (EPNs 1018, 1067, and OL3-FLRA/B/C).

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D. The permit holder shall install a continuous flow monitor that provides a record of the vent stream flow to the flares. The flow monitor sensor sample points shall be installed in the vent stream as near as possible to the flare inlet such that the total vent stream to the flare is measured. Readings shall be taken at least once every 15 minutes and the average hourly values of the flow shall be recorded each hour.

The monitors shall be calibrated on an annual basis to meet the following accuracy specifications: the flow monitor shall be ±5.0%

The monitors shall operate as required by this section at least 95% of the time when the flare is operational, averaged over a rolling 12-month period. Flared gas net heating value and actual exit velocity determined in accordance with 40 CFR §60.18(f)(4) shall be recorded at least once every 15 minutes.

E. The waste gas stream directed to the flares shall be assumed to contain no BTU content and sufficient assist natural gas shall be added so that each flare meets the 40 CFR § 60.18 specifications of minimum heating value.

F. Tank Farm Flare (EPN 8F-D06) shall not be used to control Maintenance emissions when the BTX Flare (EPN 8F-D05) is controlling waste gas from Maintenance activities.

G. After July 6, 2023, the Olefins 1 Elevated Flare (EPN 1018), Olefins 2 Elevated Flare (EPN 1067), and Olefins 3 Elevated Flare (EPN: OL3-FLRA/B/C) shall meet the requirements of Special Condition No. 9 which will replace and supersede the requirements of this Special Condition. If a compliance extension is granted in accordance with NESHAP procedures, then the effective date to meet the requirements of Special Condition No. 9 will be specified in the compliance extension approval.

8. The requirements of Special Condition 7.A through 7.C shall apply to the indicated flares during the following conditions.

A. Dock Flare (EPN 8F-D03): When loading emissions are routed to the Dock Flare.

B. Chandelier Flare (EPN 8F-D01): When the pressure tank's relief valve open and gases are relieved to the Chandelier Flare.

C. Tank flares (EPNs 8F-D05 and 8F-D06): During tank filling and when the vapor space heats up resulting in breathing losses.

9. The EGFs (EPNs EGF-1, EGF-2, EGF-3, and EGF-4) shall be designed and operated in accordance with the following requirements: **(TBD)**

A. The flare systems shall be designed such that the combined flare vent gas, assist air, and/or total steam to each flare meets the 40 CFR § 63.670 specifications for minimum combustion zone net heating value and maximum tip velocity at all times that flare vent gas may be directed to the flare for more than 15 minutes. Flared gas actual exit velocity, vent gas net heating value, and flared gas combustion zone net heating value shall be determined in accordance with 40 CFR §63.670(k), §63.670(l), and §63.670(m) on a 15-minute block average and recorded at least once every 15 minutes.

If the flare actively receives perimeter assist air, it shall be operated to meet the 40 CFR §63.670 specifications for minimum net heating value dilution parameters.

B. The flares shall be operated with pilot flames present at all times flare vent gas may be directed to the flares. The pilot flames shall be continuously monitored by a thermocouple,

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infrared monitor, or ultraviolet monitor. The time, date, and duration of any loss of pilot flame shall be recorded. Each monitoring device shall be accurate to, and shall be calibrated at a frequency in accordance with, the manufacturer's specifications.

C. Flares shall be operated with no visible emissions except periods not to exceed a total of five minutes during any two consecutive hours, demonstrated and recorded per the requirements of §63.670(h).

D. The permit holder shall install flow monitors that continuously measure, calculate, and record the total volumetric vent stream flow rate (including waste gas, purge gas, supplemental gas, and sweep gas), and shall install a monitoring system capable of determining the concentration of individual components in the flare vent gas or the net heating value of the flare vent gas. The flow monitor sensor and analyzer sample points shall be installed in the vent stream such that the total vent stream to the flare is measured and analyzed.

If one or more gas streams that combine to comprise the total flare vent gas flow are monitored separately for net heating value and flow, the 15-minute block average net heating value shall be determined separately for each measurement location and a flow-weighted average of the gas stream net heating values shall be used to determine the 15-minute block average net heating value of the cumulative flare vent gas.

If assist air or assist steam is used, the owner or operator shall install, operate, calibrate, and maintain a monitoring system capable of continuously measuring, calculating, and recording the total volumetric flow rate of assist air and/or assist steam used with the flare.

If pre-mix assist air and/or perimeter assist air are used, the owner or operator shall install, operate, calibrate, and maintain a monitoring system capable of separately measuring, calculating, and recording the volumetric flow rate of premix assist air and/or perimeter assist air used with the flare. Continuously monitoring fan speed or power and using fan curves is an acceptable method for continuously monitoring assist air flow rates.

Perimeter assist air includes all air assist except premix assist air. Premix assist air includes any air intentionally entrained in center steam.

Assist air includes premix assist air and perimeter assist air, but does not include the surrounding ambient air.

The monitors shall be calibrated or have a calibration check performed as specified in Table 13 of the appendix to 40 CFR 63, Part CC to meet the following accuracy specifications: the vent flow monitor shall be ±20 percent of flow rate at velocities ranging from 0.03 to 0.3 meters per second (0.1 to 1 feet per second) ±5 percent of flow rate at velocities greater than 0.3 meters per second (1 feet per second), all other gas flow monitors shall be ±5 percent over the normal range of flow measured or 280 liters per minute (10 cubic feet per minute) whichever is greater, temperature monitor shall be ±1 percent over the normal range of temperature measured, expressed in degrees Celsius (C), or 2.8 degrees C, whichever is greater, and pressure monitor shall be ±5 percent over the normal operating range or 0.12 kilopascals (0.5 inches of water column), whichever is greater. For purposes of this permit, a calibration check means, at a minimum, using a second device or method to verify that the monitor is accurate as specified in the permit.

Calorimeters shall have an accuracy of at least ±2% of span and be calibrated, installed, operated, and maintained in accordance with manufacturer recommendations and as specified in Table 13 of the appendix to 40 CFR 63, Part CC, to continuously measure and record the net heating value of the vent gas sent to the flare, in British thermal units/standard cubic foot of the gas.

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For determination of net heating value by gas chromatograph, the minimum accuracy shall be as specified in Performance Specification 9 of Part 60, appendix B. Composition monitoring instruments shall be calibrated, installed, operated, and maintained in accordance with manufacturer recommendations and as specified in 40 CFR §63.671(e) and Table 13 of 40 CFR Pt. 63, Subpart CC. Individual component properties specified in Table 12 of Subpart CC shall apply to net heating value calculations.

For determination of net heating value by continuous process mass spectrometer, the minimum accuracy; composition monitoring; calibration; installation; operation and maintenance shall be done in accordance with 40 CFR §63.1103(e)(4)(viii).

E. Quality assured (or valid) data must be generated during periods that flare is operating. 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 flare operated over the previous rolling 12-month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

F. Hourly mass emission rates shall be determined and recorded using the monitoring data collected pursuant to paragraph D of this Special Condition and the emission factors specified in the permit amendment application PI-1 dated December 2, 2021.

G. Pilot and supplemental (fuel) gas combusted in the flares shall be sweet natural gas containing no more than 0.26 grains of total sulfur per 100 dry standard cubic feet.

10. Vent gas streams for the Traffic Facility may be directed to any of the EFGs or to any of the Olefins units elevated flares (EPNs EGF-1, EGF-2, EGF-3, EGF-4, 1018, 1067, and/or OL3-FLRA/B/C). **(TBD)**

11. This permit authorizes the operation of diesel engine-driven Diesel Fire Water Pumps (8FP-20A and 8FP-20B) for no more than 52 hours per year each. The sulfur content of diesel fuel burned in these engines shall be no greater than 0.5 weight percent. Each engine shall be equipped with a non-resettable elapsed run time meter to keep track of annual operational hours. Records of hours of operation and documentation demonstrating compliance with the sulfur content limitation shall be kept.

12. Displaced vapors from marine loading of ethylene dichloride (EDC) shall be routed to the Dock Incinerator/Scrubber (EPN 8F-D02), which shall operate with a destruction/removal efficiency of no less than 99.99 percent for carbon compounds.

13. Displaced vapors from marine loading of Naphtha, BTX, Pygas, Wash Oil and Flux Oil shall be routed to either the Dock Flare (EPN 8F-D03) or the vapor combustor (EPN 8F-D07). Emissions from loading vessels with materials where the volatile organic compounds (VOC) has an aggregate partial pressure of greater than 0.50 pound per square inch, absolute (psia) at the maximum feed temperature or 95°F, whichever is greater, shall be collected and routed to a control device which provides at least 98 percent control.

14. The following additional requirements apply to loading of a volatile organic compound (VOC), which has a vapor pressure equal to or greater than 0.5 pounds per square inch absolute (psia) under actual storage conditions, onto inerted marine vessels (ships).

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A. Before loading, the owner or operator of the marine terminal shall verify that the marine vessel has passed an annual vapor tightness test as specified in 40 CFR §63.565(c) (September 19, 1995) or 40 CFR §61.304(f) (October 17, 2000) within the previous twelve months, and received a recent, completed Standard Tanker Chartering Questionnaire form (Q88) or equivalent.

B. The pressure at the vapor collection connection of an inerted marine vessel must be maintained such that the pressure in a vessel's cargo tanks do not go below 0.2 pounds per square inch gauge (psig) or exceed 80% of the lowest setting of any of the vessel's pressure relief valves. The lowest vessel cargo tank or vent header pressure relief valve setting for the vessel being loaded shall be recorded. Pressure shall be continuously monitored while the vessel is being loaded. Pressure shall be recorded at fifteen-minute intervals.

C. VOC loading rates shall be recorded during loading. The loading rate must not exceed the maximum permitted loading rate.

D. During loading, the owner or operator of the marine terminal or of the marine vessel shall conduct audio, olfactory, and visual checks for leaks within the first hour of loading and once every 8 hours thereafter for on-shore equipment and onboard the ship.

(1) If a liquid leak is detected during loading and cannot be repaired immediately (for example, by tightening a bolt or packing gland), then the loading operation shall cease until the leak is repaired.

(2) If a vapor leak is detected by sight, sound, smell, or hydrocarbon gas analyzer during the loading operation, then a "first attempt" shall be made to repair the leak. Loading operations need not be ceased if the first attempt to repair the leak is not successful provided that the first attempt effort is documented by the owner or operator of the marine vessel and a copy of the repair log is made available to a representative of the marine terminal.

(3) If the attempt to repair the leak is not successful and loading continues, emissions from the loading operation for that ship shall be calculated assuming a collection efficiency of 99%.

(4) The 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 Texas Commission on Environmental Quality (TCEQ) upon request.

15. Displaced EDC vapors from filling EDC storage tanks at the Marine Traffic facility shall be routed to the Incinerator-Scrubber Trains (EPNs 6002A, 6002B, and 6002C) at the main plant which are authorized by Permit Number 19199.

16. The vapor combustor (EPN 8F-D07) shall achieve 99% control of the Naphtha, BTX, Flux Oil, Pygas, and Wash Oil directed to it. This shall be ensured by maintaining the temperature in, or immediately downstream of, the combustion chamber, while waste gas vapors are being routed to the vapor combustor as established by the vapor combustor interlock system design, above 1400 degrees Fahrenheit prior to the initial stack test performed in accordance with Special Condition 38. Following the completion of that stack test, the six-minute average temperature shall be maintained, while waste gas vapors are being routed to the vapor combustor as established by the vapor combustor interlock system design, above the minimum one-hour average temperature maintained during the last satisfactory stack test.

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The temperature measurement device shall reduce the temperature readings to an averaging period of 6 minutes or less and record it at that frequency while waste gas vapors are being routed to the vapor combustor as established by the vapor combustor interlock system design. 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.

Quality assured (or valid) data must be generated when the VCU 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 VCU operated while waste gas vapors are being routed to the vapor combustor as established by the vapor combustor interlock system design over the previous rolling 12-month period. The measurements missed shall be estimated using engineering judgement and the methods used recorded.

Storage and Loading of VOC

17. Storage tanks are subject to the following requirements. The control requirements specified in paragraphs A-D 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. An internal floating deck or “roof” or equivalent control shall be installed in all tanks. 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 internal floating roof: (1) a liquid-mounted seal, (2) two continuous seals mounted one above the other, or (3) a mechanical shoe seal.

    B. An open-top tank containing a floating roof (external floating roof tank) which uses double seal or secondary seal technology shall be an approved control alternative to an internal floating roof tank 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.

    C. For any tank equipped with a floating roof, the permit holder shall perform the visual inspections and seal gap measurements as specified in 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 seals were inspected and seal gap measurements made, results of inspections and measurements made (including raw data), and actions taken to correct any deficiencies noted.

    D. The floating roof design shall incorporate sufficient flotation to conform to the requirements of American Petroleum Institute (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.

    E. Uninsulated tank exterior surfaces exposed to the sun shall be white or aluminum. Storage tanks must be equipped with permanent submerged fill pipes.

    F. The permit holder shall maintain an emissions record which includes calculated emissions of VOC from all storage tanks during the previous calendar month and the past consecutive 12-month period. The record shall include tank identification number, control method used, tank

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capacity in gallons, name of the material stored, VOC molecular weight, VOC monthly average temperature in degrees Fahrenheit, VOC vapor pressure at the monthly average material temperature in psia, VOC throughput for the previous month and year-to-date. Records of VOC monthly average temperature are not required to be kept for unheated tanks which receive liquids that are at or below ambient temperatures.

Emissions for tanks shall be calculated using: the TCEQ publication titled "Technical Guidance Package for Chemical Sources - Storage Tanks."

G. The following tanks are exempt from control requirements as stated in paragraphs A-D of this condition and are authorized to store the following liquids:

Location	Tank EPN	Tank Name	Service
Marine Traffic	8DF-20A	Diesel Storage Tank	Diesel
Marine Traffic	8DF-20B	Diesel Storage Tank	Diesel
Marine Traffic	8FT-D01	Naphtha Tank	Naphtha
Marine Traffic	8FT-D03	Naphtha Tank	Naphtha
Marine Traffic	8FT-D09A	MEG Tank	MEG, DEG, TEG*
Marine Traffic	8FT-D09B	MEG Tank	MEG, DEG, TEG*
Marine Traffic	8FT-D14	DEG Storage Tank	DEG, and TEG
Inland Traffic	8GT-809B	TEG Storage Tank	TEG*
Inland Traffic	8GT-811	DEG Storage Tank	DEG*
* MEG = Monoethylene Glycol, DEG = Diethylene Glycol, TEG = Triethylene Glycol			

H. Vent gases from the following tanks shall be controlled by a control device as required below:

Location	Tank EPN	Tank Name	Service	Control Device
Marine Traffic	8FT-D02	Wash Oil Tank	Wash Oil	Tank Farm Flare (EPN 8F-D06)
Marine Traffic	8FT-D13	Flux Oil Tank	Flux Oil	Tank Farm Flare (EPN 8F-D06)
Marine Traffic	8FT-D18	Pyrolysis Gasoline Tank	Pyrolysis Gasoline	Tank Farm Flare (EPN 8F-D06)
Marine Traffic	8FT-D19	BTX Tank	BTX	Tank Farm Flare (EPN 8F-D05 or EPN 8F-D06)
Marine Traffic	8FT-D28	Pyrolysis Gasoline Tank	Pyrolysis Gasoline	Tank Farm Flare (EPN 8F-D06)

18. The marine loading vapor recovery system shall maintain an operating pressure consistent with the Coast Guard Regulations, Subpart E - Vapor Control Systems. Compliance shall be demonstrated through appropriate testing as directed by the Executive Director of the TCEQ and other agencies having jurisdiction.

19. Diethylene glycol (DEG), monoethylene glycol (MEG), and pyrolysis fuel oil may be loaded into marine vessels without controls.

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20. If the control equipment, represented in the permit application or required by these conditions, is non-operational or operating at efficiencies less than those represented in the permit application, loading operations shall be discontinued immediately until such time as the equipment is repaired.

21. Supplemental fuel for the incinerator and all flares shall be sweet natural gas containing less than 2,600 grains per million standard cubic feet, of total sulfur compounds. Records demonstrating compliance with the sulfur content limitation shall be kept.

22. No more than two barges may be loaded at any one time of compounds requiring control to the dock flare.

23. Products are imported (unloaded from marine vessels at the docks into shore tanks), and the VOC emissions generated by these operations that require control are reflected in the flare and incinerator maximum allowable emission rates. The VOC emissions generated by these operations that do not require control are reflected in the respective tank maximum allowable emission rates. The following products may be imported: naphtha, BTX, pygas, wash oil, flux oil, ethylene glycol, diethylene glycol, EDC, and caustic.

24. The short-term rates at which products and raw materials may be loaded onto marine vessels are limited to the following in gallons per minute:

Material	Ship Load Rate (gpm)	Barge Load Rate (gpm) per Barge
EDC	5,400	2,200
MEG	5,400	2,200
DEG	5,400	2,200
BTX	5,400	2,200
Pyrolysis Fuel Oil	NA - Barge Loading Only	2,200
Pyrolysis Gasoline	NA - Barge Loading Only	2,200
Wash Oil	NA - Barge Loading Only	2,200
Flux Oil	NA - Barge Loading Only	2,200
Naphtha	5,400	2,200
Note: 50 percent caustic may be loaded into ships, ocean-going barges, and barges with no loading rate limits.		

25. 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 detection of any liquid leaking from the lines or connections.

26. If at any time more than one barge is to be loaded with Naphtha, BTX, Pyrolysis Gasoline, Wash Oil, or Flux Oil, the vacuum system must be operated.

27. When loading EDC onto barges, while waste gas vapors are being routed to the incinerator/scrubber system as established by the incinerator/scrubber interlock system design, the EDC marine loading vapor collection system shall be operated such that the vacuum maintained within the collection system during EDC loading is no less than 1.5 inches of water, and that the

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barge being loaded is also under a vacuum. The collection system vacuum shall be continuously monitored and recorded and the records made available to the TCEQ upon request.

28. The holder of this permit shall develop and implement a periodic preventative maintenance and training program for shift supervisors and operators which addresses the need to control, maintain records of, and report excess air emissions. The selected program shall be approved by the TCEQ Regional Office Director prior to implementation. In addition, specific written procedures regarding operation of the marine loading facility shall be posted in appropriate work areas.

29. All storage vessels except for diesel tanks (EPNs 8DF-20A/B) shall be equipped with level indicators and alarm systems to prevent overfilling. The level indicating device shall be set in such a manner so as to allow the operator the necessary time to cease filling operations.

30. The following requirements apply to capture (close vent) systems for Dock Flare (EPN 8F-D03), the flares designated as EPNs 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4, and the Dock Incinerator/Scrubber (EPN 8F-D02). **(TBD)**

    A. If used to control pollutants other than particulate, either:

        (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. 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 15 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 prevent flow out the bypass.

        A deviation shall be reported if the monitoring or inspections indicate bypass of the control device.

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

31. The Dock Incinerator/Scrubber (EPN 8F-D02) shall operate with no less than 99.99 percent efficiency in disposing of the carbon compounds captured by the collection system. The firebox exit temperature of the incinerator/scrubber shall be continuously monitored and recorded while EDC is being loaded into ships or barges. The six-minute average incinerator firebox exit temperature shall be maintained above 1900°F or the temperature maintained during the last satisfactory stack testing, while waste gas is being fed into the incinerator as established by the incinerator/scrubber interlock system design. The minimum temperature shall be at least that maintained during the

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stack testing required in the conditions of this permit. Records shall be kept demonstrating compliance with this condition.

The incinerator/scrubber firebox exit temperature shall be continuously monitored and recorded when waste gas is directed to the incinerator/scrubber system as established by the incinerator/scrubber interlock system design. The temperature measurement device shall reduce the temperature readings to an averaging period of six minutes or less and record it at that frequency.

The temperature measurement device 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 0.75 percent of the temperature being measured expressed in degrees Celsius or 2.5°C or in degrees Fahrenheit or 4.5°F.

Quality-assured (or valid) data must be generated when the incinerator/scrubber 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 incinerator/scrubber operated over the previous rolling 12-month period, while waste gas is being fed into the incinerator as established by the incinerator/scrubber interlock system design. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

32. While waste gas is being fed to the dock incinerator/scrubber system, as established by the incinerator/scrubber interlock system design, the pH of the incinerator scrubbing solutions and the solution flow rates shall be maintained at levels not less than those maintained during the most recent satisfactory stack testing. The solution pH shall be continuously analyzed and recorded at least once every six minutes together with a comparable record of the hours of operation of the incinerator/scrubber. The pH monitoring device shall be cleaned with an automatic cleaning system, or cleaned weekly using hydraulic, chemical, or mechanical cleaning. The pH monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, or at least every two weeks, whichever is more frequent, and shall be accurate to within +0.5 pH unit.

    The liquid flow rate shall be continuously monitored and be maintained at levels greater than in the last satisfactory stack test performed in accordance with Special Condition No. 37, while waste gas is being fed into the incinerator as established by the incinerator/scrubber interlock system design. The 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 design value.

    Quality-assured (or valid) data must be generated when the incinerator/scrubber is operating. 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 incinerator/scrubber operated over the previous rolling 12-month period, while waste gas is being fed into the incinerator as established by the incinerator/scrubber interlock system design. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

Fugitive Emission Monitoring

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33. Piping, Valves, Connectors, Pumps, Agitators, and Compressors - 28VHP

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 Compound (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 readily available upon request.

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

(1) Piping and instrumentation diagram (PID);

(2) A written or electronic database or electronic file;

(3) Color coding;

(4) A form of weatherproof identification; or

(5) Designation of exempted process unit boundaries.

B. Construction of new and reworked piping, valves, pump systems, 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 readily available upon request. The difficult-to-monitor and unsafe-to-monitor valves may be identified by one or more of the methods described in Subparagraph 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

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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 within the 72-hour 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. 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. If a relief valve is equipped with rupture disc, a pressure-sensing device shall be installed between the relief valve and rupture disc to monitor disc integrity.

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. All leaking discs shall be replaced at the earliest opportunity but no later than the next process shutdown.

The 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.

Replacements for leaking components shall be re-monitored within 15 days of being placed back into VOC service.

G. Except as may be provided for in the special conditions of this permit, all pump, compressor, and agitator seals shall be monitored with an approved gas analyzer at least quarterly or be equipped with a shaft sealing system that prevents or detects emissions of VOC from the seal. Seal systems designed and operated to prevent emissions or seals equipped with an automatic seal failure detection and alarm system need not be monitored. These seal systems 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.

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H. Damaged or leaking valves or connectors 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. Damaged or leaking pump, compressor, and agitator seals found to be emitting VOC in excess of 2,000 ppmv or found by visual inspection to be leaking (e.g., dripping process fluids) shall be tagged and replaced or repaired. A first attempt to repair the leak must be made within 5 days and a record of the attempt shall be maintained.

I. 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 within 15 days of the detection of the leak. 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), 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.

J. 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.

K. Alternative monitoring frequency schedules of 30 TAC § 115.352 - 115.359 or National Emission Standards for Organic Hazardous Air Pollutants, 40 CFR Part 63, Subpart H, may be used in lieu of Items F through G of this condition.

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 (NSPS), or an applicable National Emission Standard for Hazardous Air Pollutants (NESHAPS) and does not constitute approval of alternative standards for these regulations.

M. With respect to this Special Condition, new and reworked is meant to apply to major changes in piping. It is not intended to apply to minor activities including but not limited to: installation/replacement of small number of valves and flanges; minor repairs; gasket replacement; repair/replacement of small sections of piping, etc. Also, "process pipelines" does not apply to underground process sewer lines, cooling tower water, fire water, etc. Additionally, the requirement for new and reworked buried connectors to be welded will not apply if compliance would require a process unit shutdown or would create a safety issue including, but not limited to, close proximity of other process pipelines and equipment or unsafe access to the piping.

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34. A leak definition of 250 ppmv shall be used in lieu of the VOC concentration shown in Special Condition 33 subparagraph E.(2), and H.

35. The fugitive components are subject to the following additional requirements:

    A. The flanges in gas/vapor and light liquid services shall be inspected at least annually.

    B. The pumps shall be dual seal pumps with barrier fluid at higher pressure than process pressure or tandem or labyrinth seals vented to a control device.

    C. The compressors shall be equipped with dual seals with barrier fluid at higher pressure than process pressure or tandem or labyrinth seals vented to a control device.

    D. The relief valves shall be equipped with a rupture disc and pressure sensing device between the valve and disc.

    E. The sampling system shall be closed looped.

36. Physical Inspections of Piping, Valves, Pumps, and Compressors in ultra-heavy liquids (vapor pressure <0.0147 psia at ambient temperature) – 28PI

    Except as may be provided for in the special conditions of this permit, the following requirements apply to the above-referenced equipment:

    A. Construction of new and reworked piping, valves, pump systems, 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.

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

    C. 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 in Title 30 Texas Administrative Code (30 TAC) Chapter 115, shall be identified in a list to be made available upon request.

    D. New and reworked piping connections shall be welded or flanged. Screwed connections are permissible only on piping smaller than two-inch diameter.

    E. 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. All piping components shall be inspected by visual, audible, and/or olfactory means at least weekly by operating personnel walk-through.

    G. Damaged or leaking valves, connectors, compressor seals, and pump seals 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, 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.

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H. 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 Texas Commission on Environmental Quality (TCEQ) upon request.

Stack Sampling

37. The holder of this permit may be required to perform additional stack sampling and other testing as required to establish the actual pattern and quantities of air contaminants being emitted into the atmosphere from the Dock Incinerator/Scrubber (EPN 8F-D02). The holder of this permit is responsible for providing sampling and testing facilities and conducting the sampling and testing operations at his expense.

A. The appropriate TCEQ Regional Office in the region where the source is located shall be contacted as soon as testing is scheduled but not less than 45 days prior to sampling to schedule a pretest meeting.

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 during the sampling period.

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 submitting the test reports.

A written proposed description of any deviation from sampling procedures specified in permit conditions or the TCEQ or the EPA Sampling Procedures shall be made available to the TCEQ prior to the pretest meeting. The TCEQ Regional Director shall approve or disapprove of any deviation from specified sampling procedures.

Requests to waive testing for any pollutant specified in B of this condition shall be submitted to the TCEQ Austin Office of Permitting and Registration, Air Permits Division. Test waivers and alternate/equivalent procedure proposals for NSPS testing which must have the EPA approval shall be submitted to the TCEQ Regional Director.

B. Air contaminants emitted from the incinerator scrubber system to be tested for include (but are not limited to) chlorine, hydrogen chloride, EDC, nitrogen dioxide, sulfur dioxide, volatile organic compounds, particulate matter and carbon monoxide.

C. Sampling shall occur at such times as may be required by the Executive Director of the TCEQ. Requests for additional time to perform sampling shall be submitted to the TCEQ Regional Office. Additional time to comply with the applicable requirements of 40 CFR Part

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60 and 40 CFR Part 61 requires the EPA approval, and requests shall be submitted to the TCEQ Regional Director.

D. The marine facility shall operate at maximum loading rates during stack emission testing. Primary operating parameters that enable determination of loading rate shall be monitored and recorded during the stack test. These parameters are to be determined at the pretest meeting. If the marine facility is unable to operate at maximum rates during testing, then future loading rates may be limited to the rates established during testing as provided below.

During subsequent operations, if the barge loading rate (gpm) for an individual barge is greater than 110% of that recorded during the test period or the loading rates in Special Condition 24; stack sampling shall be performed at the new operating conditions within 120 days. This sampling may be waived by the TCEQ Air Section Manager for the region.

E. Three copies of the final sampling report shall be forwarded to the TCEQ within 60 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 Corpus Christi Regional Office.

One copy to each local air pollution control program.

38. 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 EPN 8F-D07, Dock Vapor Combustor/Barge and Ship Loading, to demonstrate compliance with the MAERT and Special Condition 16. 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.

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 during the sampling period.

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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 EPN 8F-D07, Dock Vapor Combustor/Barge and Ship Loading, to be tested for include (but are not limited to) VOC.

C. Sampling shall occur within 60 days after achieving the maximum operating rate from the barge dock, but no later than 180 days after initial start-up of the new barge loading facilities 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 maximum loading rate from the barge dock during stack emission testing. 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.

During subsequent operations, if the barge loading rate (gpm) for an individual barge is greater than 110% of that recorded during the test period or the loading rates in Special Condition 24; stack sampling shall be performed at the new operating conditions within 120 days. This sampling may be waived by the TCEQ Air Section Manager for the region.

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:

One copy to the appropriate TCEQ Regional Office.

One copy to each local air pollution control program.

39. Sampling ports and platform(s) shall be incorporated into the design of EPN 8F-D07, Dock Vapor Combustor/Barge and Ship Loading, according to the specifications set forth in the attachment entitled “Chapter 2, Stack Sampling Facilities” of the Texas Commission on Environmental Quality (TCEQ) Sampling Procedures Manual. Alternate sampling facility designs must be submitted for approval to the TCEQ Regional Director.

Maintenance Practices

40. The concentration of EDC in the equipment vapor space shall be no more than 5 percent of the equipment volume at standard temperature and pressure prior to opening any equipment directly to atmosphere. This condition shall apply to all equipment larger than 1,250 gallons containing at least 10 percent EDC by weight and is effective on August 30, 1997.

Recordkeeping

41. Records of materials loaded onto marine vessels and barges shall be kept and maintained. The records shall include the amount of material loaded per loading operation (in gallons) and duration

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of the loading period (in hours). If two or more barges are loaded with the same material, but in the same loading operation, one record of total volume loaded and total loading time will suffice for the entire loading operation. These records shall be used to demonstrate compliance with the allowable rates and shall be made available to TCEQ representatives upon request.

42. Upon installation of Tank Farm Flare (EPN 8F-D06), the permit holder shall submit an alteration request to update the current marine traffic special conditions and maximum allowable rate table (MAERT) to reflect the current operations. The alteration will include (but is not limited to) removal from the MAERT of the BTX Tank Flare (EPN 8F-D05), when the associated tank vents have been redirected to the new Flare (EPN 8F-D06).

Maintenance, Startup, and Shutdown (MSS)

43. This permit authorizes air emissions from the planned maintenance, startup, and shutdown (MSS) activities identified in the following table performed at the facilities authorized by this permit. **(TBD)**

Facilities	Description/ Emissions Activity	EPN
All facilities*	Depressurize, purge and degas to control per Special Condition 45	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, 8F-D01, MTRAFF-TMP or ITRAFF-TMP
All facilities*	Open facilities to atmosphere after degassing per Special Condition 45.	MTRAFF-MNT, or ITRAFF-MNT
All facilities*	Drain liquid to remove water	MTRAFF-MNT
Vacuum trucks	Load and transport liquid to support MSS on permanent facilities	MTRAFF-TMP, or ITRAFF-TMP
Tanks	Degas per Special Condition 48 & 49. Tank inspection and seal repairs. Refilling tanks after cleaning	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, 8F-D01, 8F-D05, 8F-D06, or MTRAFF-TMP
Frac tanks	Use of frac tanks	MTRAFF-TMP, or ITRAFF-TMP
Tanks (pressure)	Maintenance venting	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, 8F-D01
Flares	Maintenance on flares	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, 8F-D05, 8F-D06, MTRAFF-MNT or ITRAFF-MNT
Air conveying systems	Open to atmosphere	MTRAFF-MNT
All inherently low emitting activities	All inherently low emitting activities	MTRAFF-MNT, or ITRAFF-MNT
* - all facilities include piping		

In addition, planned MSS emissions emitted from routine emission points are authorized provided the emissions are compliant with the respective MAERT allowable emission rates and special conditions. This permit authorizes emissions from the following temporary facilities used to support

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planned MSS activities at permanent site facilities: vacuum trucks and associated control devices meeting the requirements of Special Condition 51. Emissions from temporary facilities are authorized provided the temporary facility (a) does not remain on the plant site for more than 12 consecutive months, (b) is used solely to support planned MSS activities at the permanent facilities authorized by this permit, and (c) does not operate as a replacement for an existing authorized facility.

44. This permit authorizes the emissions from the facilities identified in Special Condition 43 for the planned MSS activities summarized in the MSS Activity Summaries (Attachments A, B and C) attached to this permit.

Attachment A identifies the inherently low emitting MSS activities that may be performed at the site. Emissions from activities identified in Attachment A shall be considered to be equal to the potential to emit represented in the permit application. The estimated emissions from the activities listed in Attachment A must be revalidated annually. This revalidation shall consist of the estimated emissions for each type of activity and the basis for that emission estimate.

Routine maintenance activities, as identified in Attachment B may be tracked through the work orders or equivalent. Emissions from activities identified in Attachment B shall be calculated using the number of work orders or equivalent that month and the emissions associated with that activity identified in the permit application.

The performance of each planned MSS activity identified in Attachment C and the emissions associated with it shall be recorded and include at least the following information:

A. The process unit at which emissions from the MSS activity occurred, including the emission point number and common name of the process unit;

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, PI-1 dated January 3, 2008, and 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.

45. Process units and facilities, with the exception of those identified in Special Conditions 48 and 49 and Attachment A shall be depressurized, emptied, degassed, and placed in service in accordance with the following requirements.

A. The process equipment shall be vented to a control device or a controlled recovery system during depressurization unless otherwise allowed by another special condition.

B. All liquids from process equipment or storage vessels must be removed to the maximum extent practical prior to opening equipment or commencing depressurization, degassing and/or maintenance. Equipment that only contains material with VOC partial pressure less

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than 0.50 psi at the normal process temperature and 95°F may be opened to the atmosphere after liquids are removed as required by this condition. 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.

C. If mixed phase materials must be removed from process equipment during depressurization, liquids removal, or degassing, the cleared material shall be routed to a knockout drum or equivalent to allow for managed initial phase separation. Any vents in the knockout drum or equivalent must be routed to a control device or a controlled recovery system. Control must remain in place while mixed phase material removal is being performed.

D. Facilities shall be degassed using practices that 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. Records shall be maintained of the control device or recovery system utilized with the estimated emissions from controlled and uncontrolled degassing calculated using the methods that were used to determine allowable emissions for the permit application.

E. After degassing in accordance with Paragraphs D of this special condition, the VOC concentration in the facilities being degassed shall be verified to be below 10,000 ppmv or less than 10 percent of the lower explosive limit (LEL) using one of the methods below prior to opening directly to atmosphere.

(1) For MSS activities other than process unit startup, shutdown, hydroblasting, or turnaround, the following option may be used in lieu of (2) 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 percent of the lower explosive limit (LEL) per the site safety procedures.

(2) Documentation shall be maintained of the locations and/or identifiers where the purge gas or steam enters the process equipment or storage vessel and the exit points for the purge gases. If the process equipment is purged with a gas, two system volumes of purge gas must have passed through the control device or controlled recovery system before the vent stream may be sampled to verify acceptable VOC concentration prior to uncontrolled venting. The VOC sampling and analysis shall be performed using an instrument meeting the requirements of Special Condition 46. 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. The facilities shall be degassed to a control device or controlled recovery system until the VOC concentration is less than 10,000 ppmv or less than 10 percent of the lower explosive limit (LEL). Documented plant procedures used to de-inventory 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.

F. Gases and vapors with VOC partial pressure greater than 0.50 psi 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 or incinerator).

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(3) There is no more than 50 lb of air contaminant to be vented to atmosphere during shutdown or startup, as applicable.

(4) Emissions of ethylene dichloride must be included in the records required by this condition.

Except for Attachment A activities, all instances of venting directly to atmosphere per Paragraph F of this special condition must be documented when occurring as part of any MSS activity. The emissions associated with venting without control must be included in the activity record for those planned MSS activities.

46. Air contaminant concentration shall be measured using an instrument/detector meeting one of the following methods:

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 with a calibration gas such that the response factor of the VOC (or mixture of VOCs) to be monitored shall be less than 2.0. The calibration gas and the gas to be measured, and its approximate response factor shall be recorded.

(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, recording VOC concentration each minute. The highest measured VOC concentration shall not exceed the specified VOC concentration limit prior to uncontrolled venting.

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 must be 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 (3), the concentration measured must be 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 in the gas stream that can be detected by the tube.

The mole fraction of the total air contaminants present in the gas stream that can be detected by the tube 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.

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(1) The detector shall be calibrated monthly with a certified propane gas standard at 50% of the lower explosive limit (LEL) for propane. 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 50% of the LEL for propane may be used for calibration and functionality tests provided that the LEL response is within 95% of that for propane.

D. As an alternative to an instrument/detector, the analysis may be conducted in a laboratory. Bag samples of the gas discharged may be drawn and taken to a Formosa laboratory to be analyzed by gas chromatography (GC). A minimum of two bag samples shall be drawn approximately ten minutes apart. A Tedlar bag, or a bag appropriate for the material to be sampled, shall be used and shall have a valve to seal gas in the bag. The samples shall be drawn as follows:

(1) The sample point on the equipment being cleared shall be purged sufficiently to ensure a representative sample at the sample valve.

(2) The sample bag shall be connected directly to the sample valve.

(3) The sample valve and sample bag shall be opened to allow the bag to fill to approximately 80% of capacity. The sample connections shall be fitted such that no air is drawn into the sample bag.

(4) The two valves shall then be closed to seal the sample in the bag.

(5) The sample bag shall then be disconnected and placed in a dark container out of direct sunlight for transport to the analyzer.

(6) This process is repeated to collect additional samples.

(7) The sample shall be analyzed within 12 hours of collection.

The laboratory GC shall meet or exceed the requirements of 40 CFR 60, Appendix A, Method 18 Sections 6 (Equipment and Supplies), 7 (Reagents and Standards), 9 (Quality Control), and 10 (Calibration and Standards). The sample shall be analyzed per Section 8.2.1.1.2 of Method 18, except the analysis does not need to be performed in triplicate. The highest measured VOC concentration shall not exceed the specified VOC concentration limit prior to uncontrolled venting.

47. 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 psi at 95°F 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.

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(1) Prior to initial use, identify any liquid in the truck and the truck identifier (bill of lading or other unique identifier). Record the liquid level and document that the VOC partial pressure is less than 0.50 psi 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 psi 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 pump exhaust is controlled with a control device other than an engine or oxidizer, records shall be maintained of VOC exhaust concentration upon commencing each transfer, at the end of each transfer, and at least every hour during each transfer, measured using an instrument meeting the requirements of Special Condition 46.

(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.

48. This permit authorizes emissions for storage tanks during planned floating roof landings. 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 or a controlled recovery system during this process.

B. If the VOC partial pressure of the liquid previously stored in the tank is greater than 0.50 psi 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 unless the vapor under the floating roof is routed to control or a controlled recovery system during this period. The tank shall not be opened except as necessary to set up for degassing and cleaning, 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:

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(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 percent 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 make-up air introduced into the control device or recovery system. The VOC sampling and analysis shall be performed as specified in Special Condition 46.

(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.

(5) 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 or ventilated without control, except as allowed by (1) or (2) below until one of the criteria in part D of this condition is satisfied.

(1) Minimize air circulation in the tank vapor space.

(a) One manway may be opened to allow access to the tank to remove or de-volatilize the remaining liquid. Other manways or access points may be opened as necessary to remove or de-volatilize the remaining liquid. Wind barriers shall be installed at all open manways and access points to minimize air flow through the tank.

(b) Access points shall be closed when not in use

(2) Minimize time and VOC partial pressure.

(a) The VOC partial pressure of the liquid remaining in the tank shall not exceed 0.044 psi as documented by the method specified in part D.(1) of this condition;

(b) Records shall be maintained of the duration of uncontrolled ventilation, and the date and time all standing liquid was removed from the tank.

D. The tank may be opened without restriction and ventilated without control, after all standing liquid has been removed from the tank or the liquid remaining in the tank has a VOC partial pressure less than 0.02 psia. These criteria shall 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

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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 or enzyme solution 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 46.

(3) No standing liquid verified through visual inspection.

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

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

(1) Only one tank with a landed floating roof can be filled at any time.

(2) The vapor space below the tank roof is directed to a control device when the tank is refilled until the roof is floating on the liquid. The control device used and the method and locations used to connect the control device shall be recorded. All vents from the tank being filled must exit through the control device.

F. 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, time, and other information specified for 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 psi,

(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

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(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 Section 7.1.3.2 of AP-42 "Compilation of Air Pollution Emission Factors, Chapter 7 - Storage of Organic Liquids" dated November 2006 and the permit application.

49. The following requirements apply to fixed roof tanks:

A. The tank shall not be opened or ventilated without control, except as allowed by (1) or (2) below until one of the criteria in part B of this condition is satisfied.

(1) Minimize air circulation in the tank vapor space.

(a) One manway may be opened to allow access to the tank to remove or de-volatilize the remaining liquid. Other manways or access points may be opened as necessary to remove or de-volatilize the remaining liquid. Wind barriers shall be installed at all open manways and access points to minimize air flow through the tank.

(b) Access points shall be closed when not in use

(2) Minimize time and VOC partial pressure.

(a) The VOC partial pressure of the liquid remaining in the tank shall not exceed 0.044 psi as documented by the method specified in part B.(1) of this condition;

(b) Records shall be maintained for the duration of uncontrolled ventilation, and the date and time all standing liquid was removed from the tank.

B. The tank may be opened without restriction and ventilated without control, after all standing liquid has been removed from the tank or the liquid remaining in the tank has a VOC partial pressure less than 0.02 psia. These criteria shall 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 or enzyme solution 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 46.

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(3) No standing liquid verified through visual inspection.

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

C. If the ventilation of the vapor space is controlled, the emission control system shall meet the requirements of the following.

If the VOC partial pressure of the liquid previously stored in the tank is greater than 0.50 psi at 95°F, tank refilling or degassing of the vapor space must begin within 24 hours after the tank has been drained unless the vapor is routed to control or a controlled recovery system during this period. The tank shall not be opened except as necessary to set up for degassing and cleaning, fixed 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 shall be completed as follows:

(1) Any gas or vapor removed from the vapor space 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 percent 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 when degassing to the control device or controlled recovery system.

(2) The vapor space 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 tank 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 make-up air introduced into the control device or recovery system. The VOC sampling and analysis shall be performed as specified in Special Condition 46.

(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.

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

(1) for the purpose of estimating emissions, the date, time, and other information specified for each of the following events:

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

(b) 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 psi,

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

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(2) the estimated quantity of each air contaminant, or mixture of air contaminants, emitted between events a and c with the data and methods used to determine it. The emissions associated with tank degassing activities shall be calculated using the methods described in Section 7.1.3.2 of AP-42 "Compilation of Air Pollution Emission Factors, Chapter 7 - Storage of Organic Liquids" dated November 2006 and the permit application.

50. 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.

51. Control devices required by this permit for emissions from planned 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. **(TBD)**

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

A. Carbon Adsorption 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 downstream of 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) It 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.

(b) 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 the VOC concentration on the initial sample downstream of the first carbon canister following a new polishing canister being put in place is greater than 100 ppmv above background, it shall be assumed that breakthrough occurred while that canister functioned as the final polishing canister and a permit deviation shall be recorded.

(3) The method of VOC sampling and analysis shall be by detector meeting the requirements of Special Condition 46.A, 46.B or 46.D.

(4) Breakthrough is defined as the highest measured VOC concentration at or exceeding 100 ppmv above background. 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 four hours. 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.

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(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 percent 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.

B. The plant flare system (EPNs 8F-D01, 8F-D05, and 8F-D06) shall operate in accordance with Special Condition No. 7.

C. The plant flare system (EPNs 1067, 1018, and/or OL3-FLRA/B/C) shall be operated as specified in Special Condition No. 7

D. The Enclosed Ground Flares (EPNs EGF-1, EGF-2, EGF-3 and/or EFG-4) shall be operated as specified in Special Condition No. 9.

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

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

(2) The method of VOC sampling and analysis shall be by detector meeting the requirements of Special Condition 46.A.

(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 for more than one minute. The date and time of all alarms and the actions taken shall be recorded.

F. 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.

52. The following requirements apply to capture systems for the flares (EPNs 8F-D01, 8F-D05, 8F-D06, 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4). **(TBD)**

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

B. The control device shall not have a bypass.

or

If there is a bypass for the flare, 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. Records shall be maintained documenting the performance and results of the inspections required above.

53. Permits by Rule (PBR) and Standard Permits (SP) that authorize increases in EDC emissions from the facilities authorized by this permit shall be consolidated by incorporation, such that the authorization is transferred from the PBR or SP into the permit and an impacts analysis is conducted. Consolidation by incorporation shall be done at the next amendment or renewal after the PBR is claimed or the SP is issued.

Greenhouse Gas Emissions

54. Permit holders must keep records sufficient to demonstrate compliance with 30 Texas Administrative Code § 116.164. If construction, a physical change or a change in method of operation results in Prevention of Significant Deterioration (PSD) review for criteria pollutants, then records shall be maintained that are sufficient to demonstrate the amount of emissions of GHGs from the source as a result of such construction, physical change or change in method of operation does not require authorization under 30 TAC §116.164(a). If there is construction, a physical change or a change in the method of operation that will result in a net emission increase of 75,000 tpy or more CO_{2e}. greenhouse gas emissions are subject to PSD review. **(TBD)**

55. Monitoring, quality assurance/quality control requirements, emission calculation methodologies, record keeping, and reporting requirements related to Greenhouse Gas (GHG) emissions shall adhere to the applicable requirements in 40 CFR Part 98 and in this permit. **(TBD)**

56. Permittee shall calculate the CO_{2e} emissions on a 12-month rolling basis, based on the procedures and Global Warming Potentials (GWP) contained in Greenhouse Gas Regulations, 40 CFR Part 98, Subpart A, Table A-1. **(TBD)**

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57. Records of emissions of GHG, and how they were determined, in compliance with Special Condition Nos. 54, 55, and 56 must be maintained by the holder of this permit in a form suitable for inspection for a period of five years after collection and must be made available upon request to representatives of the TCEQ, EPA, or any local air pollution control program having jurisdiction. **(TBD)**

Date: TBD

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Permit Numbers 19871, and PSDTX1236M1, and GHGPSDTX221

Attachment A

Inherently Low Emitting Activities

Activity	Emissions			
	VOC	NO_x	CO	PM
Sight glass cleaning	X			
Liquid/Gas Sampling (Closed Container)	X			
Liquid Sampling (Open Container)	X			
Water Draining	X			

Date: December 20, 2019

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Permit Numbers 19871, and PSDTX1236M1, and GHGPSDTX221

Attachment B

Routine Maintenance Activities

Facilities	Description/Emission Activities	EPN
Piping degassing / repair/ replacement in gas service or short runs of liquid service in Inland Traffic	Vent to atmosphere	ITRAFF- MNT
Replacement/repair of small equipment components in gas or liquid service in Inland Traffic	Vent to atmosphere	ITRAFF- MNT
Replacement/repair of small equipment components in liquid or gas service in Marine Traffic	Vent to atmosphere	MTRAFF-MNT
Replacement/repair of small equipment components in pressurized gas service in Marine Traffic	Vent to atmosphere	MTRAFF-MNT
Replacement/repair of small equipment components in evaporating liquid service in Marine Traffic	Vent to atmosphere	MTRAFF-MNT
Vacuum trucks	Vent to atmosphere	MTRAFF-MNT, ITRAFF-MNT.
Opening Air Conveying Systems	Vent to atmosphere	MTRAFF-MNT

Date: December 20, 2019

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Permit Numbers 19871, and PSDTX1236M1, and GHGPSDTX221

Attachment C

Significant MSS Activity Summary

The following activities are subject to the full recordkeeping requirements specified by Special Condition 44.

Piping degassing/repair/replacement of long runs of liquid service piping in Inland Traffic

Piping degassing/repair/replacement of long runs of gas service piping in Marine Traffic

Fixed roof tank cleaning, venting, inspection, and maintenance

Floating roof tank landing, degassing, cleaning, refill, inspection, gasket and seal repairs

Use of frac tanks

Clingage in Marine Traffic

Clingage in Inland Traffic

Pressure tank maintenance venting

Activities not listed on Attachments A and B or not otherwise authorized

Date: December 20, 2019

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Special Conditions

Permit Number 91780, PSDTX1240M1, and GHGPSDTX223

1. This permit covers only those sources of emissions listed in the attached table entitled "Emission Sources - Maximum Allowable Emission Rates" (MAERT), and those sources are limited to the emission limits and other conditions specified in that table.

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 with the exception of Relief Valve PSV-3032.

Train No. 1 and Train No. 2

3. Special Condition Nos. 1 through 33, 62 through 66, and Appendices A, B, and C shall apply to Train No. 1 and Train No. 2. **(TBD)**

Federal Applicability

4. 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):

   A. Subpart A, General Provisions.

   B. Subpart Kb, Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984.

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

   D. Subpart DDD, Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry.

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:

   A. Subpart A, General Provisions.

   B. Subpart FFFF, National Emission Standard for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing.

Operational Specifications

6. The facilities in Train No. 1 and Train No. 2 covered by this permit shall not operate unless all associated air pollution abatement equipment is maintained in good working order and operating during normal facility operations. The following steps shall be performed, at a minimum, to ensure the proper operation of the baghouses, fabric filters, and cyclones:

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A. Baghouse and fabric filter pressure drops shall be recorded continuously during operation of the facility. All pressure drop records shall be dated for each day the facility is operated, and these records shall be maintained on-site for a rolling 60-month period and made available for inspection by the Executive Director of the TCEQ or a designated representative upon request.

B. When there are visible emissions from a baghouse, fabric filter, or cyclone, the operation associated with the event shall be shut down as soon as practicable and the entire baghouse, fabric filter system or cyclone shall be tested/inspected, and the failed or damaged parts shall be repaired or replaced.

C. A spare parts inventory with an adequate number of replacement bags for each baghouse and an adequate number of replacement filters for each fabric filter shall be maintained on site at all times. All baghouses, fabric filters, and cyclones shall undergo a preventative maintenance inspection on an annual basis.

D. The TCEQ Regional Director shall be notified as soon as possible of any baghouse, fabric filter, or cyclone system malfunction that results in visible emissions or necessitates repair.

7. Each flare (EPNs 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4) shall operate with no less than 98 percent efficiency in disposing of the carbon compounds captured by the collection system from the Polypropylene II Unit. **(TBD)**

8. The Olefins 1 Elevated Flare (EPN 1018), Olefins 2 Elevated Flare (EPN 1067), and Olefins 3 Elevated Flare (EPN: OL3-FLRA/B/C) shall be designed and operated in accordance with the following requirements: **(TBD)**

A. The flare systems shall be designed such that the combined assist natural gas and waste stream to each flare meets the 40 CFR § 60.18 specifications of minimum heating value and maximum tip velocity at all times when emissions may be vented to them.

The heating value and velocity requirements shall be satisfied during operations authorized by this permit. Flare testing shall be performed 40 CFR § 60.18(f) if requested by the appropriate regional office to demonstrate compliance with these requirements.

B. The flare 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, infrared monitor, or ultraviolet monitor. The time, date, and duration of any loss of pilot flame shall be recorded. 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.

D. The permit holder shall install a continuous flow monitor and calorimeter that provides a record of the vent stream flow and Btu content to the flare. The flow monitor sensor and analyzer sample points shall be installed in the vent stream as near as possible to the flare inlet such that the total vent stream to the flare is measured and analyzed. Readings shall be taken at least once every 15 minutes and the average hourly values of the flow and Btu content shall be recorded each hour.

The monitors shall be calibrated or have a calibration check performed on an annual basis to meet the following accuracy specifications: the flow monitor shall be ±5.0%, and, within 12

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months of start of operation of PPII Train 3 temperature monitor shall be ±2.0% at absolute temperature, and pressure monitor shall be ±5.0 mm Hg.

The calorimeter shall be calibrated, installed, operated, and maintained, in accordance with manufacturer recommendations, to continuously measure and record the net heating value of the gas sent to the flare, in British thermal units/standard cubic foot of the gas.

The monitors and analyzers shall operate as required by this section at least 95% of the time when the flare is operational, averaged over a rolling 12 month period. Flared gas net heating value and actual exit velocity determined in accordance with 40 CFR §§60.18(f)(3) and 60.18(f)(4) shall be recorded at least once every hour.

E. After July 6, 2023, the Olefins 1 Elevated Flare (EPN 1018), Olefins 2 Elevated Flare (EPN 1067), and Olefins 3 Elevated Flare (EPN: OL3-FLRA/B/C) shall meet the requirements of Special Condition No. 9 which will replace and supersede the requirements of this Special Condition. If a compliance extension is granted in accordance with NESHAP procedures, then the effective date to meet the requirements of Special Condition No. 9 will be specified in the compliance extension approval.

9. The EGFs (EPNs EGF-1, EGF-2, EGF-3, and EGF-4) shall be designed and operated in accordance with the following requirements: **(TBD)**

A. The flare systems shall be designed such that the combined flare vent gas, assist air, and/or total steam to each flare meets the 40 CFR § 63.670 specifications for minimum combustion zone net heating value and maximum tip velocity at all times that flare vent gas may be directed to the flare for more than 15 minutes. Flared gas actual exit velocity, vent gas net heating value, and flared gas combustion zone net heating value shall be determined in accordance with 40 CFR §63.670(k), §63.670(l), and §63.670(m) on a 15-minute block average and recorded at least once every 15 minutes.

If the flare actively receives perimeter assist air, it shall be operated to meet the 40 CFR §63.670 specifications for minimum net heating value dilution parameters.

B. The flares shall be operated with pilot flames present at all times flare vent gas may be directed to the flares. The pilot flames shall be continuously monitored by a thermocouple, infrared monitor, or ultraviolet monitor. The time, date, and duration of any loss of pilot flame shall be recorded. Each monitoring device shall be accurate to, and shall be calibrated at a frequency in accordance with, the manufacturer's specifications.

C. Flares shall be operated with no visible emissions except periods not to exceed a total of five minutes during any two consecutive hours, demonstrated and recorded per the requirements of §63.670(h).

D. The permit holder shall install flow monitors that continuously measure, calculate, and record the total volumetric vent stream flow rate (including waste gas, purge gas, supplemental gas, and sweep gas), and shall install a monitoring system capable of determining the concentration of individual components in the flare vent gas or the net heating value of the flare vent gas. The flow monitor sensor and analyzer sample points shall be installed in the vent stream such that the total vent stream to the flare is measured and analyzed.

If one or more gas streams that combine to comprise the total flare vent gas flow are monitored separately for net heating value and flow, the 15-minute block average net heating value shall be determined separately for each measurement location and a flow-weighted average of the gas stream net heating values shall be used to determine the 15-minute block average net heating value of the cumulative flare vent gas.

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If assist air or assist steam is used, the owner or operator shall install, operate, calibrate, and maintain a monitoring system capable of continuously measuring, calculating, and recording the total volumetric flow rate of assist air and/or assist steam used with the flare.

If pre-mix assist air and/or perimeter assist air are used, the owner or operator shall install, operate, calibrate, and maintain a monitoring system capable of separately measuring, calculating, and recording the volumetric flow rate of premix assist air and/or perimeter assist air used with the flare. Continuously monitoring fan speed or power and using fan curves is an acceptable method for continuously monitoring assist air flow rates.

Perimeter assist air includes all air assist except premix assist air. Premix assist air includes any air intentionally entrained in center steam.

Assist air includes premix assist air and perimeter assist air, but does not include the surrounding ambient air.

The monitors shall be calibrated or have a calibration check performed as specified in Table 13 of the appendix to 40 CFR 63, Part CC to meet the following accuracy specifications: the vent flow monitor shall be ±20 percent of flow rate at velocities ranging from 0.03 to 0.3 meters per second (0.1 to 1 feet per second) ±5 percent of flow rate at velocities greater than 0.3 meters per second (1 feet per second), all other gas flow monitors shall be ±5 percent over the normal range of flow measured or 280 liters per minute (10 cubic feet per minute) whichever is greater, temperature monitor shall be ±1 percent over the normal range of temperature measured, expressed in degrees Celsius (C), or 2.8 degrees C, whichever is greater, and pressure monitor shall be ±5 percent over the normal operating range or 0.12 kilopascals (0.5 inches of water column), whichever is greater. For purposes of this permit, a calibration check means, at a minimum, using a second device or method to verify that the monitor is accurate as specified in the permit.

Calorimeters shall have an accuracy of at least ±2% of span and be calibrated, installed, operated, and maintained in accordance with manufacturer recommendations and as specified in Table 13 of the appendix to 40 CFR 63, Part CC, to continuously measure and record the net heating value of the vent gas sent to the flare, in British thermal units/standard cubic foot of the gas.

For determination of net heating value by gas chromatograph, the minimum accuracy shall be as specified in Performance Specification 9 of Part 60, appendix B. Composition monitoring instruments shall be calibrated, installed, operated, and maintained in accordance with manufacturer recommendations and as specified in 40 CFR §63.671(e) and Table 13 of 40 CFR Pt. 63, Subpart CC. Individual component properties specified in Table 12 of Subpart CC shall apply to net heating value calculations.

For determination of net heating value by continuous process mass spectrometer, the minimum accuracy; composition monitoring; calibration; installation; operation and maintenance shall be done in accordance with 40 CFR §63.1103(e)(4)(viii).

E. Quality assured (or valid) data must be generated during periods that flare is operating. 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 flare operated over the previous rolling 12-month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

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F. Hourly mass emission rates shall be determined and recorded using the monitoring data collected pursuant to paragraph D of this Special Condition and the emission factors specified in the permit amendment application PI-1 dated December 2, 2021.

G. Pilot and supplemental (fuel) gas combusted in the flares shall be sweet natural gas containing no more than 0.26 grains of total sulfur per 100 dry standard cubic feet.

10. Vent gas streams for the PPII Plant may be directed to any of the EFGs or to any of the Olefins units elevated flares (EPNs EGF-1, EGF-2, EGF-3, EGF-4, 1018, 1067, and/or OL3-FLRA/B/C). **(TBD)**

11. Fuel gas combusted at this facility shall be sweet natural gas containing no more than 5 grains of total sulfur per 100 dry standard cubic feet.

12. This permit authorizes product grade transition emissions from the flares (EPNs 1018, 1067 and OL3-FLRA/B/C) and EGFs (EPNs EGF-1, EGF-2, EGF-3, and EGF-4). These emissions are subject to the maximum allowable emission rates indicated on the MAERT. The performance of each product grade transition activity and the emissions associated with it shall be recorded and the rolling 12 month emissions shall be updated on a monthly basis. These records shall include at least the following information: **(TBD)**

A. The physical location at which emissions from the product grade transition activity occurred, including the emission point number, common name, and any other identifier for the point at which the emissions were released into the atmosphere;

B. The type of planned product grade transition activity and the reason for the planned activity;

C. The common name and the facility identification number of the facilities at which the product grade transition activity and emissions occurred;

D. The date and time of the product grade transition 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.

13. Total VOC emitted to the atmosphere between the extruder and the point of final product loading shall not exceed 90 pounds per million pounds of polypropylene product on a rolling 12 month average.

14. Hexane shall be used as the solvent carrier in the Polypropylene II process.

15. The total annual production of product for Train No. 1 and Train No. 2 is limited to 482,000 tons per 12 consecutive months. Records of production totals shall be maintained on a rolling 12 month basis.

Piping, Valves, Connectors, Pumps, Agitators, and Compressors — 28VHP

16. 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 VOC has an aggregate partial pressure or vapor pressure of less than 0.044 pounds per square inch,

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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 readily available upon request.

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

(1) Piping and instrumentation diagram (PID);

(2) A written or electronic database or electronic file;

(3) Color coding;

(4) A form of weatherproof identification; or

(5) Designation of exempted process unit boundaries.

B. Construction of new and reworked piping, valves, pump systems, 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 readily available upon request. The difficult-to-monitor and unsafe-to-monitor valves may be identified by one or more of the methods described in subparagraph 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

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monitored once within the 72 hour 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. 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. If a relief valve is equipped with rupture disc, a pressure-sensing device shall be installed between the relief valve and rupture disc to monitor disc integrity.

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. All leaking discs shall be replaced at the earliest opportunity but no later than the next process shutdown.

The 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.

Replacements for leaking components shall be re-monitored within 15 days of being placed back into VOC service.

G. Except as may be provided for in the special conditions of this permit, all pump, compressor, and agitator seals shall be monitored with an approved gas analyzer at least quarterly or be equipped with a shaft sealing system that prevents or detects emissions of VOC from the seal. Seal systems designed and operated to prevent emissions or seals equipped with an automatic seal failure detection and alarm system need not be monitored. These seal systems 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.

H. Damaged or leaking valves or connectors 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. Damaged or leaking pump, compressor, and agitator seals found to be emitting VOC in excess of 2,000 ppmv or found by visual inspection to be leaking (e.g., dripping process fluids) shall be tagged and replaced or repaired. A first attempt to repair the leak must be made within 5 days and a record of the attempt shall be maintained.

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I. 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 within 15 days of the detection of the leak. 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), 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.

J. 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.

K. Alternative monitoring frequency schedules of 30 TAC §§ 115.352 - 115.359 or National Emission Standards for Organic Hazardous Air Pollutants, 40 CFR Part 63, Subpart H, may be used in lieu of Items F through G of this condition.

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 (NSPS), or an applicable National Emission Standard for Hazardous Air Pollutants (NESHAPS) and does not constitute approval of alternative standards for these regulations.

M. With respect to this Special Condition, new and reworked is meant to apply to major changes in piping. It is not intended to apply to minor activities including but not limited to: installation/replacement of small number of valves and flanges; minor repairs; gasket replacement; repair/replacement of small sections of piping, etc. Also, "process pipelines" does not apply to underground process sewer lines, cooling tower water, fire water, etc. Additionally, the requirement for new and reworked buried connectors to be welded will not apply if compliance would require a process unit shutdown or would create a safety issue including, but not limited to, close proximity of other process pipelines and equipment or unsafe access to the piping.

17. In lieu of the 2000 ppmv VOC limit in Paragraph H of Special Condition 16, damaged or leaking pump, compressor, and agitator 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. A first attempt to repair the leak must be made within 5 days. Records of the first attempt to repair shall be maintained.

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Cooling Tower (EPN PP2-CT)

18. The cooling tower (EPN PP2-CT) shall be subject to the following conditions:

    A. The holder of this permit shall execute weekly cooling tower water monitoring using the El Paso Products Company Method of Analysis. This method is described in the TCEQ guidance document entitled "Air Quality Permit Technical Guidance for Chemical Sources - Cooling Towers," dated May, 1997.

    B. Instead of the monitoring method required in A of this condition, the holder of this permit may use an air stripping system equivalent to the El Paso Products Company Method of Analysis, provided that he previously obtains written approval from the TCEQ Office of Air, Air Permits Division.

    C. The holder of this permit shall perform sampling and other testing as necessary to establish the lbs per hour of VOC being emitted into the atmosphere from the cooling towers associated with this permit. All sampling and testing methods shall be subject to approval of the TCEQ Executive Director prior to their implementation. The VOC concentration (ppmv) in the exhaust from the air stripping testing system or equivalent testing system and the corresponding pounds of strippable VOC/gallon of cooling water shall be reported. These will be used to determine the level (either ppmv or lb/VOC/gal) at which a leak into cooling water will be assumed in the ongoing monitoring program. Within 30 days after completion of sampling, copies of the test report shall be submitted to the TCEQ Office of Air, Air Permits Division and the TCEQ Corpus Christi Regional Office.

    D. The VOC associated with cooling tower water shall be monitored weekly with an approved air stripping system or equivalent. The appropriate equipment shall be maintained so as to minimize fugitive VOC emissions from the cooling tower. Faulty equipment shall be repaired at the earliest opportunity but no later than the next scheduled shutdown of the process unit in which the leak occurs. The results of the monitoring and maintenance efforts shall be recorded and such records shall be maintained for a period of two years. The records shall be made available to the TCEQ Executive Director or his designated representative upon request.

    E. Instead of the weekly monitoring frequency specified in paragraphs A and D of this special condition, the cooling water can be monitored monthly if 12 consecutive months of data are provided to TCEQ showing no leaks into the cooling water as defined in paragraph C of this special condition. If, after the monthly monitoring frequency has been implemented, two leaks in 12 consecutive months are detected as defined in paragraph C of this special condition, the monitoring frequency will return to a weekly basis until such time that 12 consecutive months of data are provided to again show no leaks.

19. The cooling tower (EPN PP2-CT) shall be operated and monitored in accordance with the following:

    A. 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.

    B. Total dissolved solids (TDS) shall not exceed 4,150 parts per million by weight (ppmw). Dissolved solids 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.

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C. The cooling tower shall be analyzed for particulate emissions using one of the following methods:

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

(2) TDS monitoring may be reduced to weekly if conductivity is monitored daily 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 weekly basis. The permit holder may use the average of two consecutive TDS-to-conductivity ratios to calculate daily TDS; or

(3) TDS monitoring may be reduced to quarterly if conductivity is monitored daily and TDS is calculated using a correlation factor established for the cooling towers. The correlation factor shall be the average of nine consecutive weekly TDS-to-conductivity ratios determined using C.(2) above provided the highest ratio is not more than 10% larger than the smallest ratio.

(4) 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 weekly until a new correlation factor can be established.

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

(1) 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.

(2) The analysis method for conductivity shall be either ASTM D1125-95A (field or routine laboratory testing) or ASTM D1125-95B (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.

(3) Alternate sampling and analysis methods may be used to comply with D(1) and D(2) with written approval from the TCEQ Regional Director.

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

E. 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.

Storage Tank (FIN D-910)

20. Hexane storage tank (FIN D-910) service is limited to storing hexane. The maximum fill rate is 19,527 gallons/hour and the rolling 12 month throughput is 3,200,000 pounds.

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21. Except for labels, logos, etc. not to exceed 15 percent of the tank total surface area, uninsulated tank exterior surfaces exposed to the sun shall be white or unpainted aluminum. The storage tank must be equipped with permanent submerged fill pipes.

Ongoing Demonstration of Compliance

22. Ongoing compliance with Special Condition No. 13 and with the MAERT shall be determined for each line by calculation using weekly production rates and weekly sampling and testing of the polymer immediately downstream of the extruder (A) and immediately before the point of final product loading (B). The beverage can test or an equivalent method approved by the TCEQ Austin Regional Office shall be used to determine VOC.

    Polymer production rates and product degassing monitoring records shall be maintained at the plant site for at least five years from the date they are made and made available upon request to TCEQ personnel. These records shall include (but are not limited to):

    A. Date and time of sampling.

    B. Actual plant production rate at the time of sampling and the weekly average production rate.

    C. Product number and melt index.

    D. Measured pounds of total VOC per million lbs of polymer after the extruder (A) and immediately prior to final product loading (B).

    E. Total VOC emitted to the atmosphere between points A and B during the operating week shall be calculated by (A minus B) multiplied by the weekly production rate. Calculations shall take into account any changes in product type during the week.

23. The following requirements apply to capture systems for each flare designated as EPNs 1018, 1067 and OL3-FLRA/B/C) and EGFs (EPNs EGF-1, EGF-2, EGF-3, and EGF-4. **(TBD)**

    A. Either (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. 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 prevent flow out the bypass.

    A bypass does not include authorized PSV 3032, analyzer vents, highpoint bleeder vents, low point drains, or rupture discs upstream of pressure relief valves (that do not relieve to a control device) if the pressure between the disc and relief valve is

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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.

Maintenance, Startup, and Shutdown

24. This permit authorizes air emissions from the planned maintenance, startup, and shutdown (MSS) activities identified in the following table performed at the facilities authorized by this permit. **(TBD)**

Facilities	Description/ Emissions Activity	EPN
All facilities*	Depressurize and purge to control per Special Condition 25	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, PP2-TEMP
All facilities*	Degas facilities to atmosphere after control per Special Condition 25	PP2-MAINT
All facilities*	Fill and/or vent to control during startup and shutdown	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, PP2-TEMP
Vessels	Vent waste gas to control during maintenance	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, PP2-TEMP
Propylene Recovery Unit	Vent waste gas to flare during maintenance	1018, 1067 OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4,
All	Attachment A activities	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, PP2-MAINT, PP2-TEMP
Vacuum trucks	Load and transport liquid to support MSS on permanent facilities	PP2-MAINT

* - all facilities include piping

In addition, planned MSS emissions emitted from routine emission points are authorized provided the emissions are compliant with the respective MAERT allowable emission rates and special conditions. This permit authorizes emissions from the following temporary facilities used to support planned MSS activities at permanent site facilities: vacuum trucks and control devices meeting the requirements of Special Condition 31. Emissions from temporary facilities are authorized provided the temporary facility (a) does not remain on the plant site for more than 12 consecutive months, (b) is used solely to support planned MSS activities at the permanent facilities authorized by this permit, and (c) does not operate as a replacement for an existing authorized facility.

Emissions from activities listed on Attachment A may be considered to be equal to the potential to emit represented in the permit amendment application, PI-1 dated January 3, 2008, and updated in subsequent application submittals. The estimated emissions from these activities must be

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revalidated annually. This revalidation shall consist of verifying the estimated emissions for each type of activity and the basis for that emission estimate.

Routine maintenance activities, as identified in Attachment B may be tracked through the work orders or equivalent. Emissions from activities identified in Attachment B shall be calculated using the number of work orders or equivalent that month and the emissions associated with that activity identified in the permit application.

The performance of each planned MSS activity identified in Attachment C and the emissions associated with it shall be recorded and include at least the following information:

A. the process unit at which emissions from the MSS activity occurred, including the emission point number and common name of the process unit;

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.

25. Except for instrumentation/analyzer maintenance and vacuum trucks, process units and facilities shall be depressurized, degassed, and placed back into service in accordance with the following requirements.

A. The process equipment shall be vented to a control device or a controlled recovery system during depressurization.

B. All liquids from process equipment or storage vessels must be removed to the maximum extent practical prior to opening equipment or commencing depressurization, degassing and/or maintenance. Equipment that only contains material with VOC partial pressure less than 0.50 psi at the normal process temperature and 95°F may be opened to the atmosphere after liquids are removed as required by this condition. 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.

C. If mixed phase materials must be removed from process equipment during depressurization, liquids removal, or degassing, the cleared material shall be routed to a knockout drum or equivalent to allow for managed initial phase separation. Any vents in the knockout drum or equivalent must be routed to a control device or a controlled recovery system. Control must remain in place while mixed phase material removal is being performed.

D. Facilities shall be degassed using practices that 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. Records shall be maintained of the control device or recovery system utilized with the estimated emissions from controlled and

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uncontrolled degassing calculated using the methods that were used to determine allowable emissions for the permit application.

E. After degassing in accordance with Special Condition 25.D, the VOC concentration in the facilities being degassed shall be verified to be below 10,000 ppmv or less than 10 percent of the lower explosive limit (LEL) using one of the methods below prior to opening directly to atmosphere.

(1) For MSS activities other than process unit startup, shutdown, hydroblasting, or turnaround, the following option may be used in lieu of (2) 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 percent of the lower explosive limit (LEL) per the site safety procedures.

(2) Documentation shall be maintained of the locations and/or identifiers where the purge gas or steam enters the process equipment or storage vessel and the exit points for the purge gases. If the process equipment is purged with a gas, two system volumes of purge gas must have passed through the control device or controlled recovery system before the vent stream may be sampled to verify acceptable VOC concentration prior to uncontrolled venting. The VOC sampling and analysis shall be performed using an instrument meeting the requirements of Special Condition 26. 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. The facilities shall be degassed to a control device or controlled recovery system until the VOC concentration is less than 10,000 ppmv or less than 10 percent of the lower explosive limit (LEL). Documented plant procedures used to de-inventory 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.

F. Gases and vapors with VOC partial pressure greater than 0.50 psi 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 is no more than 50 lb of air contaminant to be vented to atmosphere during shutdown or startup, as applicable.

Except as noted in Attachment A, all instances of venting directly to atmosphere per Special Condition 25.F must be documented when occurring as part of any MSS activity. The emissions associated with venting without control must be included in the activity record for those planned MSS activities.

26. Air contaminant concentration shall be measured using an instrument/detector meeting one of the following methods:

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:

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(1) The instrument shall be calibrated within 24 hours of use with a calibration gas such that the response factor of the VOC (or mixture of VOCs) to be monitored shall be less than 2.0. The calibration gas and the gas to be measured, and its approximate response factor shall be recorded.

(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, recording VOC concentration each minute. The highest measured VOC concentration shall not exceed the specified VOC concentration limit prior to uncontrolled venting.

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 (3), 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 propane gas standard at 50% of the lower explosive limit (LEL) for propane. 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 50% of the LEL for propane may be used for calibration and functionality tests provided that the LEL response is within 95% of that for propane.

D. As an alternative to an instrument/detector, the analysis may be conducted in a laboratory. Bag samples of the gas discharged may be drawn and taken to a Formosa laboratory to be analyzed by gas chromatography (GC). A minimum of two bag samples shall be drawn approximately ten minutes apart. A Tedlar bag, or a bag appropriate for the material to be

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sampled, shall be used and shall have a valve to seal gas in the bag. The samples shall be drawn as follows:

(1) The sample point on the equipment being cleared shall be purged sufficiently to ensure a representative sample at the sample valve.

(2) The sample bag shall be connected directly to the sample valve.

(3) The sample valve and sample bag shall be opened to allow the bag to fill to approximately 80% of capacity. The sample connections shall be fitted such that no air is drawn into the sample bag.

(4) The two valves shall then be closed to seal the sample in the bag.

(5) The sample bag shall then be disconnected and placed in a dark container out of direct sunlight for transport to the analyzer.

(6) This process is repeated to collect additional samples.

(7) The sample shall be analyzed within 12 hours of collection.

The laboratory GC shall meet or exceed the requirements of 40 CFR 60, Appendix A, Method 18 Sections 6 (Equipment and Supplies), 7 (Reagents and Standards), 9 (Quality Control), and 10 (Calibration and Standards). The sample shall be analyzed per Section 8.2.1.1.2 of Method 18, except the analysis does not need to be performed in triplicate. The highest measured VOC concentration shall not exceed the specified VOC concentration limit prior to uncontrolled venting.

27. 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 psi at 95°F 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 and the truck identifier (bill of lading or other unique identifier). Record the liquid level and document that the VOC partial pressure is less than 0.50 psi 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 psi 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 pump exhaust is controlled with a control device other than an engine or oxidizer, records shall be maintained of VOC exhaust concentration upon commencing each transfer, at the end of each transfer, and at least every hour during

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each transfer, measured using an instrument meeting the requirements of Special Condition 26.A or B.

(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.

28. Vents must be directed to a flare operating in accordance with Special Condition 31 during maintenance on the Propylene Recovery Unit (MTR).

29. Bag filter maintenance shall be performed in a manner to minimize particulate matter emissions and minimize down time.

30. 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.

31. Control devices required by this permit for emissions from planned MSS activities are limited to those types identified and authorized in this condition. The use of any other types of devices to control emissions from MSS activities must be authorized in accordance with 30 TAC Chapter 116. **(TBD)**

A. Carbon Adsorption 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 downstream of 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) It 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.

(b) 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 the VOC concentration on the initial sample downstream of the first carbon canister following a new polishing canister being put in place is greater than 100 ppmv above background, it shall be assumed that breakthrough occurred while that canister functioned as the final polishing canister and a permit deviation shall be recorded.

(3) The method of VOC sampling and analysis shall be by detector meeting the requirements of Special Condition 26.A or B.

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(4) Breakthrough is defined as the highest measured VOC concentration at or exceeding 100 ppmv above background. 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 four hours. 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.

B. 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.

C. 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 or propane to confirm the required destruction efficiency within the period specified in part (3) below. 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 following each occurrence of engine maintenance that may reasonably be expected to increase emissions including oxygen sensor replacement and catalyst cleaning or replacement. 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. 26.A are also acceptable for this documentation.

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(3) The engine shall be operated and monitored as specified below.

(a) If the engine is 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. The engine must have been stack tested within the past 12 months in accordance with part (2) of this condition.

The test period may be extended to 24 months if the engine exhaust is sampled once an hour when waste gas is directed to the engine using a detector meeting the requirements of Special Condition No. 26.A. 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 engine. The concentrations shall be recorded and the MSS activity shall be stopped as soon as possible if the VOC concentration exceeds 100 ppmv above background.

(b) If an oxygen sensor-based AFR controller is not used, the engine exhaust to atmosphere shall be monitored continuously and the VOC concentration recorded at least once every 15 minutes when waste gas is directed to the engine. 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 engine. The method of VOC sampling and analysis shall be by detector meeting the requirements of Special Condition No. 26.A. 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 if the VOC concentration exceeds 100 ppmv above background for more than one minute. The date and time of all alarms and the actions taken shall be recorded. The engine must have been stack tested within the past 24 months in accordance with part (2) of this condition.

D. The plant flare system (EPNs 1067, 1018, and OL3-FLRA/B/C) and temporary flare (EPN PP2-TEMP) shall be operating in accordance with the Special Condition No. 8.

E. The Enclosed Ground Flares (EPNs EGF-1, EGF-2, EGF-3 and/or EFG-4) shall be operated as specified in Special Condition No. 9.

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

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

(2) The method of VOC sampling and analysis shall be by detector meeting the requirements of Special Condition 26.A or B.

(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

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background for more than one minute. The date and time of all alarms and the actions taken shall be recorded.

32. The capture systems for the flares shall not have a bypass unless:

A. A flow indicator that records and verifies zero flow at least once every fifteen vent stream to bypass the control device and be emitted, either directly or indirectly, to the atmosphere; or

B. Inspect the valves that prevent flow out the bypass once a month, verifying the position of the valves and the condition of the car seals 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. If any of the above inspections is not satisfactory, the permit holder shall promptly take necessary corrective action. Records shall be maintained documenting the performance and results of the inspections required above.

Permit by Rule

33. 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
30 TAC § 106.393	Pulse clean in-line filter for the undersize pellet recycle system

Train No. 3

34. Special Condition Nos. 1 through 2, 35 through 66, and Appendices D through F shall apply to Train No. 3.

Federal Applicability

35. These facilities shall comply with all applicable requirements of the EPA regulations on Standards of Performance for New Stationary Sources promulgated in Title 40 Code of Federal Regulations Part 60 (40 CFR Part 60):

A. Subpart A, General Provisions.

B. Subpart Kb, Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984.

C. Subpart VVa, Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for which Construction, Reconstruction, or Modification Commenced After November 7, 2006.

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D. Subpart DDD, Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry.

36. 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:

A. Subpart A, General Provisions.

B. Subpart FFFF, National Emission Standard for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing.

Operational Specifications

37. The facilities covered by this permit shall not operate unless all associated air pollution abatement equipment is maintained in good working order and operating during normal facility operations. The following steps shall be performed, at a minimum, to ensure the proper operation of the baghouses, fabric filters, and cyclones:

A. Particulate matter outlet grain loading shall not exceed 0.004 grain per dscf of air from the following vents located in Train 3: EPN PP2-3F402, EPN PP2-3F400, EPN PP2-3F403, EPN PP2-3F405, EPN PP2-3F406B, EPN PP2-3F501, EPN PP2-3F985, and EPN PP2-3F987. Particulate matter outlet grain loading shall not exceed 0.008 grain per dscf from EPN PP2-3F982, located in Train No. 3. Particulate matter grain loading shall not exceed 0.01 grain per dscf of air from all other vents in Train No. 3. There shall be no visible emissions exceeding 30 seconds in any six-minute period as determined using EPA Test Method 22.

B. The vents covered by this permit 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 baghouse in Train 3 of the Polypropylene II Unit shall be continuously monitored and be recorded at least once an hour. The pressure drop shall be at least the minimum pressure drop and shall not exceed the maximum pressure drop for the following baghouses in the table below:

EPN	Minimum pressure drop (inches of H2O)	Maximum pressure drop (inches of H2O)
PP2-3F405	8	17
PP2-3F406B	8	17
PP2-3F982	7.5	17
PP2-3F985	7.5	17
PP2-3F987	15	25
PP2-3F501	7.5	17
PP2-3F400	4	17
PP2-3F402	6.5	17
PP2-3F403	19	40

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Each monitoring device in Train No. 3 of the Polypropylene II Unit 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 0.5 inches water gauge pressure or 0.5 percent of span.

Quality assured (or valid) data must be generated when each baghouse is 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 baghouse operated over the previous rolling 12 month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

38. Vapors from the hexane storage tank (FIN D-910) shall be vented to the flares (EPN 1018, EPN 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4) during routine operations.

39. The flares (EPNs 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4) shall be subject to Special Condition Nos. 7-9.

40. Product grade transition emissions from the flares (EPNs 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4) shall be subject to Special Condition No. 12.

41. Total VOC emitted to the atmosphere between the extruder and the point of final product loading shall not exceed 25 pounds per million pounds of polypropylene product on a rolling 12 month average.

42. Hexane shall be used as the solvent carrier in the Polypropylene II process.

43. Annual production from Train No. 3 is limited to 276,000 tons per 12 consecutive months. Records of production totals shall be maintained on a rolling 12 month basis.

44. Records of total VOC emitted to the atmosphere from the peroxide dip pot (EPN PP2-3D407) on a rolling 12 month average shall be maintained. Emissions from the peroxide dip pot shall be calculated using the methods that were used to determine the MAERT limits in the amendment application, form PI-1 dated October 2015. Sample calculations from the application shall be attached to a copy of this permit at the plant site.

Piping, Valves, Connectors, Pumps, Agitators, and Compressors — 28VHP

45. Special Condition Nos. 16 and 17 shall apply to Train No. 3.

Piping, Valves, Pumps, and Compressors in Chlorine Service – 28AVO

46. 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 once per shift.

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

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(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.

Cooling Tower (EPN PP2-CT3)

47. The VOC associated with cooling tower (EPN PP2-CT3) water shall be monitored monthly with an air stripping system meeting the requirements of the TCEQ Sampling Procedures Manual, Appendix P (dated January 2003 or a later edition) or an approved equivalent sampling method. The results of the monitoring, cooling water flow rate and maintenance activities on the cooling water system shall be recorded. The monitoring results and cooling water hourly mass flow rate shall be used to determine cooling towers hourly VOC emissions. The rolling 12 month cooling water emission rate shall be recorded on a monthly basis and be determined by summing the VOC emissions between VOC monitoring periods over the rolling 12 month period. The emissions between VOC monitoring periods shall be obtained by multiplying the total cooling water mass flow between cooling water monitoring periods by the higher of the 2 VOC monitored results.

48. The cooling tower (EPN PP2-CT3) shall be operated and monitored in accordance with the following:

A. 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.

B. Total dissolved solids (TDS) shall not exceed 4,150 parts per million by weight (ppmw). Dissolved solids 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.

C. The Train No. 3 cooling tower shall be analyzed for particulate emissions using one of the following methods:

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

(2) TDS monitoring may be reduced to weekly if conductivity is monitored daily 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 weekly basis. The permit holder may use the average of two consecutive TDS-to-conductivity ratios to calculate daily TDS; or

(3) TDS monitoring may be reduced to quarterly if conductivity is monitored daily and TDS is calculated using a correlation factor established for the cooling towers. The correlation factor shall be the average of nine consecutive weekly TDS-to-conductivity ratios determined using C(2) above provided the highest ratio is not more than 10% larger than the smallest ratio.

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(4) 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 weekly until a new correlation factor can be established.

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

(1) 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.

(2) The analysis method for conductivity shall be either ASTM D1125-95A (field or routine laboratory testing) or ASTM D1125-95B (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.

(3) Alternate sampling and analysis methods may be used to comply with D(1) and D(2) with written approval from the TCEQ Regional Director.

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

E. 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.

Storage Tank (FIN D-910)

49. Hexane storage tank FIN D-910 shall be subject to Special Conditions Nos. 20 and 21.

Initial Determination of Compliance – Train No. 3

50. 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 to demonstrate compliance with the MAERT and the maximum outlet grain loading concentrations specified for the vents (EPN PP2-3F402, EPN PP2-3F400, EPN PP2-3F403, EPN PP2-3F405, EPN PP2-3F406B, EPN PP2-3F501, EPN PP2-3F982, EPN PP2-3F985, EPN PP2-3F987) in Special Condition 37. 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 TCEQ Sampling Procedures Manual and the 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.

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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 during the sampling period.

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 vents (EPN PP2-3F402, EPN PP2-3F400, EPN PP2-3F403, EPN PP2-3F405, EPN PP2-3F406B, EPN PP2-3F501, EPN PP2-3F982, EPN PP2-3F985, and EPN PP2-3F987) to be tested for include (but are not limited to) PM, PM_{10}, and $PM_{2.5}$.

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 Train No. 3 production line 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 the maximum polypropylene production rate and maximum airflow rate during stack emission testing. 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.

During subsequent operations, if the maximum polypropylene production rate is greater than that recorded during the test period, stack sampling shall be performed at the new operating conditions within 120 days. This sampling may be waived by the TCEQ Air Section Manager for the region.

E. 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:

One copy to the appropriate TCEQ Regional Office.

One copy to each local air pollution control program.

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F. Sampling ports and platform(s) shall be incorporated into the design of the vents according to the specifications set forth in the attachment entitled “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.

G. The permit holder may submit a request to substitute vendor specification data in lieu of the testing required in this condition for the vents listed in Special Condition No. 50.B. The vendor specification data shall guarantee the maximum outlet grain loading specified in Special Condition No. 37 at each particle size (PM, PM_{10} and $PM_{2.5}$), and the removal efficiency for each particle size (PM, PM_{10} and $PM_{2.5}$) to demonstrate compliance with the emission rates specified in the MAERT. The vendor specification data shall provide this information at the maximum airflow rate through the specific control device represented in the amendment application dated October 2015. The vendor specification data shall also include all documentation and test methods that were used to derive the specification data and support the statements in the guarantee.

The request for approval of the vendor specification data and all supporting documentation shall be submitted through a permit alteration or amendment application. This request shall be made no later than 180 days prior to the start of operations of Train No. 3. If authorized, the permit shall be updated with the alteration or amendment application date of the vendor guarantee submittal, and shall specify the EPN for which the vendor guarantee was approved. If the substitution of the vendor specification data in lieu of the testing is not authorized through a permit alteration or amendment, then the testing delineated in this condition shall apply.

If any of the EPNs listed in Special Condition No. 50.B that have had vendor specification data approved are modified after the approval, or if the manufacturer or model has changed, then a new vendor specification shall be submitted in accordance with this condition. Testing of any vent where vendor specification data has been approved may be required by the TCEQ Executive Director and shall be performed in accordance with this condition.

Ongoing Demonstration of Compliance

51. Ongoing compliance with VOC emission limits for the polypropylene pellet handling systems between each extruder and product loadout (inclusive) will be determined by calculation using weekly production rates and weekly average sampling and testing of the polypropylene for residual VOC at the following two locations: (A) immediately after the pellet extruder and (B) at final product loading. The VOC head space test attached to these conditions shall be used to determine the residual VOC. Weekly average sampling will be based on a minimum of three samples. Separate samples are required for each product type produced during the month.

Polymer production rates and monitoring records will be maintained at the plant site and will include (but are not limited to):

A. Date and time of sampling.

B. Actual plant production rate at the time of sampling and the weekly average production rate.

C. Product number and melt index.

D. Polymer handling emissions will be calculated by multiplying the average of the residual VOC (ppmw) for the samples (“A” minus “B”) by (weekly production).

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Compliance Assurance Monitoring

52. Special Condition No. 23 shall apply to capture systems for each flare designated as EPNs 1018, 1067, and OL3-FLRA/B/C) and EGFs (EPNs EGF-1, EGF-2, EGF-3, and EGF-4. **(TBD)**

Maintenance, Startup, and Shutdown

53. This permit authorizes the emissions from the facilities identified for the planned maintenance, startup, and shutdown (MSS) activities summarized in the MSS Activity Summary (Attachment F) attached to this permit.

Attachment D identifies the inherently low emitting MSS activities that may be performed at the plant. Emissions from activities identified in Attachment D shall be considered to be equal to the potential to emit represented in the permit application, PI-1 dated October 2015, and updated in subsequent application submittals. The estimated emissions from the activities listed in Attachment D must be revalidated annually. This revalidation shall consist of the estimated emissions for each type of activity and the basis for that emission estimate.

In addition, planned MSS emissions emitted from routine emission points are authorized provided the emissions are compliant with the respective MAERT allowable emission rates and special conditions. This permit authorizes emissions from the following temporary facilities used to support planned MSS activities at permanent site facilities: vacuum trucks and control devices meeting the requirements of Special Condition 61. Emissions from temporary facilities are authorized provided the temporary facility (a) does not remain on the plant site for more than 12 consecutive months, (b) is used solely to support planned MSS activities at the permanent facilities authorized by this permit, and (c) does not operate as a replacement for an existing authorized facility.

Routine maintenance activities, as identified in Attachment E may be tracked through the work orders or equivalent. Emissions from activities identified in Attachment E shall be calculated using the number of work orders or equivalent that month and the emissions associated with that activity identified in the permit application.

The performance of each planned MSS activity identified in Attachment F and the emissions associated with it shall be recorded and include at least the following information:

A. the process unit at which emissions from the MSS activity occurred, including the emission point number and common name of the process unit;

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.

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54. Process units and facilities, with the exception of those identified in Special Condition No. 56 and Attachment D shall be depressurized, emptied, degassed, and placed in service 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 psi at the normal process temperature and 95°F may be opened to atmosphere and drained in accordance with paragraph C of this special condition. 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 psi 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 or closed liquid recovery system 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 psi 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 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. The facilities to be degassed shall not be vented directly to atmosphere, except as necessary to establish isolation of the work area or to monitor VOC concentration following controlled depressurization. The venting shall be minimized to the maximum extent practicable and actions taken recorded. The control device or recovery system utilized shall be recorded with the estimated emissions from controlled and uncontrolled degassing calculated using the methods that were used to determine allowable emissions for the permit application.

(1) For MSS activities identified in Attachment E, the following option may be used in lieu of (2) below. The facilities being prepared for maintenance shall not be vented directly to atmosphere until the VOC concentration has been verified to be less than 10 percent of the lower explosive limit (LEL) per the site safety procedures.

(2) The locations and/or identifiers where the purge gas or steam enters the process equipment or storage vessel and the exit points for the exhaust gases shall be recorded (process flow diagrams [PFDs] or piping and instrumentation diagrams [P&IDs] may be used to demonstrate compliance with the requirement). If the process equipment is purged with a gas, two system volumes of purge gas must have passed through the control device or controlled recovery system before the vent stream may be sampled to verify acceptable VOC concentration prior to uncontrolled venting. The

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VOC sampling and analysis shall be performed using an instrument meeting the requirements of Special Condition No. 55. 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. If there is not a connection (such as a sample, vent, or drain valve) available from which a representative sample may be obtained, a sample may be taken upon entry into the system after degassing has been completed. The sample shall be taken from inside the vessel so as to minimize any air or dilution from the entry point. The facilities shall be degassed to a control device or controlled recovery system until the VOC concentration is less than 10,000 ppmv or 10 percent of the LEL. Documented site procedures used to de-inventory 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.

E. Gases and vapors with VOC partial pressure greater than 0.50 psi 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 is no more than 50 lb of air contaminant to be vented to atmosphere during shutdown or startup, as applicable.

All instances of venting directly to atmosphere per Special Condition 54.E 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 Attachment E.

55. 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 with a calibration gas such that the response factor (RF) of the VOC (or mixture of VOCs) to be monitored shall be less than 2.0. The calibration gas and the gas to be measured, and its approximate (RF) shall be recorded.

(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, recording VOC concentration each minute. As an alternative the VOC concentration may be monitored over a five-minute period with an instrument designed to continuously measure concentration and record the highest concentration read. The highest measured VOC concentration shall be recorded and shall not exceed the specified VOC concentration limit prior to uncontrolled venting.

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

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(1) The air contaminant concentration measured as defined in (3) is less than 80 percent of the range of the tube and 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 within 30 days of use with a certified propane gas standard at 50% of the lower explosive limit (LEL) for propane. Records of the calibration date/time and calibration result (pass/fail) shall be maintained.

(2) A functionality test shall be performed on each detector within 24 hours of use with a certified gas standard at 50% of the LEL for propane. 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 50% of the LEL for propane may be used for calibration and functionality tests provided that the LEL response is within 95% of that for propane.

D. As an alternative to an instrument/detector, the analysis may be conducted in a laboratory. Bag samples of the gas discharged may be drawn and taken to a Formosa laboratory to be analyzed by gas chromatography (GC). A minimum of two bag samples shall be drawn approximately ten minutes apart. A Tedlar bag, or a bag appropriate for the material to be sampled, shall be used and shall have a valve to seal gas in the bag. The samples shall be drawn as follows:

(1) The sample point on the equipment being cleared shall be purged sufficiently to ensure a representative sample at the sample valve.

(2) The sample bag shall be connected directly to the sample valve.

(3) The sample valve and sample bag shall be opened to allow the bag to fill to approximately 80% of capacity. The sample connections shall be fitted such that no air is drawn into the sample bag.

(4) The two valves shall then be closed to seal the sample in the bag.

(5) The sample bag shall then be disconnected and placed in a dark container out of direct sunlight for transport to the analyzer.

(6) This process is repeated to collect additional samples.

(7) The sample shall be analyzed within 12 hours of collection.

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The laboratory GC shall meet or exceed the requirements of 40 CFR 60, Appendix A, Method 18 Sections 6 (Equipment and Supplies), 7 (Reagents and Standards), 9 (Quality Control), and 10 (Calibration and Standards). The sample shall be analyzed per Section 8.2.1.1.2 of Method 18, except the analysis does not need to be performed in triplicate. The highest measured VOC concentration shall not exceed the specified VOC concentration limit prior to uncontrolled venting.

56. Fixed roof storage tanks are subject to the following requirements:

A. The tank shall not be opened or ventilated without control, unless the air circulation in the tank vapor space is minimized and meets the requirements of (1) and (2) below, until one of the criteria in part B of this condition is satisfied.

(1) One manway may be opened to allow access to the tank to remove or de-volatilize the remaining liquid. Other manways or access points may be opened as necessary to remove or de-volatilize the remaining liquid. Wind barriers shall be installed at all open manways and access points to minimize air flow through the tank.

(2) Access points shall be closed when not in use.

B. The tank may be opened without restriction and ventilated without control, after all standing liquid has been removed from the tank or the liquid remaining in the tank has a VOC partial pressure less than 0.02 psia. These criteria shall 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 55.

(3) No standing liquid verified through visual inspection.

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

C. If the ventilation of the vapor space is controlled, the emission control system shall meet the following requirements.

(1) Any gas or vapor removed from the vapor space under the 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 percent of the

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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 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 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 make-up air introduced into the control device or recovery system. The VOC sampling and analysis shall be performed as specified in Special Condition 55.

(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.

D. The following records shall be maintained:

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

(2) 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 psi,

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

(4) the estimated quantity of each air contaminant, or mixture of air contaminants, emitted between events (1) and (3) with the data and methods used to determine it. The emissions associated with roof landing activities shall be calculated using the methods described in Section 7.1.3.2 of AP-42 "Compilation of Air Pollution Emission Factors, Chapter 7 - Storage of Organic Liquids" dated November 2006 and the permit application.

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

A. Prior to initial use, identify any liquid in the truck. Record the liquid level and document the VOC partial pressure. After each liquid transfer, identify the liquid, the volume transferred, and its VOC partial pressure.

B. If vacuum pumps or blowers are operated when liquid is in or being transferred to the truck, the following requirements apply:

(1) If the VOC partial pressure of the liquid in or being transferred to the truck is greater than 0.50 psi at 95°F, the vacuum/blower exhaust shall be routed to a control device or a controlled recovery system.

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

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

(a) 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.

(b) 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 at least every hour during each transfer shall be recorded, measured using an instrument meeting the requirements of Special Condition No. 55.A or B.

C. Record 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 psi, 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. 53.A through 53.D do not apply.

58. Vents must be directed to a flare operating in accordance with Special Condition No. 61 during maintenance on the Propylene Recovery Unit.

59. Bag filter maintenance shall be performed in a manner to minimize particulate matter emissions and minimize down time.

60. Additional occurrences of MSS activities authorized by this permit (see Attachment D, E, and F) may be authorized under permit by rule only if conducted in compliance with this permit's procedures, emission controls, monitoring, and recordkeeping requirements applicable to the activity.

61. Control devices required by this permit for emissions from planned 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 process or to a collection system that is vented through a control device meeting the requirements of this permit condition. **(TBD)**

The plant flare system (EPNs 1067, 1018, and OL3-FLRA/B/C) operated as specified in Special Condition No. 8.

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A. The heating value and velocity requirements in 40 CFR 60.18 shall be satisfied during operations authorized by this permit.

B. The flare 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 or an infrared monitor. The time, date, and duration of any loss of pilot flame shall be recorded. Each monitoring device shall be accurate to, and shall be calibrated at a frequency in accordance with, the manufacturer's specifications.

C. Waste gas flow and assist gas shall be monitored by flow monitor and calorimeter when degassing process units to ensure adequate Btu/scf at the flare tip for unit shutdowns/startups.

The Enclosed Ground Flares (EPNs EGF-1, EGF-2, EGF-3, and/or EFG-4) shall be operated as specified in Special Condition No. 9.

Greenhouse Gas Emissions

62. Permit holders must keep records sufficient to demonstrate compliance with 30 Texas Administrative Code § 116.164. If construction, a physical change or a change in method of operation results in Prevention of Significant Deterioration (PSD) review for criteria pollutants, then records shall be maintained that are sufficient to demonstrate the amount of emissions of GHGs from the source as a result of such construction, physical change or change in method of operation does not require authorization under 30 TAC §116.164(a). If there is construction, a physical change or a change in the method of operation that will result in a net emission increase of 75,000 tpy or more $CO_{2e.}$ greenhouse gas emissions are subject to PSD review. **(TBD)**

63. Monitoring, quality assurance/quality control requirements, emission calculation methodologies, record keeping, and reporting requirements related to Greenhouse Gas (GHG) emissions shall adhere to the applicable requirements in 40 CFR Part 98 and in this permit. **(TBD)**

64. Permittee shall calculate the CO_{2e} emissions on a 12-month rolling basis, based on the procedures and Global Warming Potentials (GWP) contained in Greenhouse Gas Regulations, 40 CFR Part 98, Subpart A, Table A-1. **(TBD)**

65. Records of emissions of GHG, and how they were determined, in compliance with Special Condition Nos. 62, 63, and 64 must be maintained by the holder of this permit in a form suitable for inspection for a period of five years after collection and must be made available upon request to representatives of the TCEQ, EPA, or any local air pollution control program having jurisdiction. **(TBD)**

Alternative Means of Compliance

66. The permit holder shall comply with the requirements of Alternative Method of Compliance (AMOC) No. 213. **(TBD)**

Date: TBD

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Permit Numbers 91780, PSDTX1240M1, and GHGPSDTX223

Attachment A

Inherently Low Emitting Activities (Train Nos. 1 and 2)

Activity	Emissions			
	VOC	NO_x	CO	PM
Blowers	X	X	X	
Repair/replace baghouses/bag filters	X			X
Catalyst charging	X			
Instrument/analyzer calibration/repair, sight glass cleaning/repair	X	X	X	
Water draining*	X			
Material conveying*	X			X
Open container,* routine quality,* and closed system sampling	X	X	X	X
Activities documented as having emissions <0.1 lb*	X			

* These activities are not subject to the requirements of Special Condition 24.

Date: September 23, 2019

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Permit Numbers 91780, PSDTX1240M1, and GHGPSDTX223

Attachment B

Routine Maintenance Activities (Train Nos. 1 and 2)

Dryer vents

Heat exchangers, relief valves, filters/strainers, pumps, and compressors

Piping, tubing, and component degassing

Repair/replacement that may be isolated so that the process volume to be emptied and degassed is less than 200 cubic feet.

Date: September 23, 2019

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Permit Numbers 91780, PSDTX1240M1, and GHGPSDTX223

Attachment C

Significant MSS Activity Summary (Train Nos. 1 and 2)

The following activities are subject to the full recordkeeping requirements specified by Special Condition 24.

Vessel and reactor repair and maintenance

Plant startup, shutdown, and turnaround

Maintenance on the Propylene Recovery Unit systems and vessels during plant operation

Activities not listed on Attachments A or B

Date: September 23, 2019

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Permit Numbers 91780, PSDTX1240M1, and GHGPSDTX223

Attachment D

Inherently Low Emitting Activities (Train No. 3)

Activity	Emissions				
	VOC	NO_x	CO	PM	SO_2
Catalyst charging	X				
Instrument/analyzer calibration/repair, sight glass cleaning/repair	X	X	X		

Date: September 23, 2019

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Permit Numbers 91780, PSDTX1240M1, and GHGPSDTX223

Attachment E

Routine Maintenance Activities (Train No. 3)

Filters/strainer maintenance and replacement

Heat exchangers, relief valves, filters/strainers, pumps, and compressors

Pumps

Drums and separators

Blower maintenance

Vacuum trucks

Piping, tubing, and component degassing

Date: September 23, 2019

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Permit Numbers 91780, PSDTX1240M1, and GHGPSDTX223

Attachment F

MSS Activity Summary (Train No. 3)

Facilities	Description	Emissions Activity	EPN
all process units	process unit shutdown/depressurize/drain	vent to flare	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4
all process units	process unit purge/degas/drain	vent to atmosphere	PP2-MAINT
all process units	process unit startup	vent to flare	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4
all baghouses	Baghouse repair and replacement	vent to atmosphere	PP2-MAINT
propylene recovery unit	maintenance bypass	vent to flare	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4
see Attachment D	miscellaneous low emitting activities	see Attachment D	PP2-MAINT

Date: TBD

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Special Conditions

Permit Numbers 19200, PSDTX1237M1, and GHGPSDTX218

1. This permit authorizes emissions only from those points listed in the attached table entitled "Emission Sources - Maximum Allowable Emission Rates," 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 maximum allowable emission rates table (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 with the exception of those listed below:

   Relief Valves Y3220, Y3221, Y3222, Y3223, Y4220, Y4221, Y4222, Y4223, Y5220, Y5221, Y5222, Y7220, Y7221, and Y7222. **(5/10)**

Federal Applicability

3. These facilities shall comply with all applicable requirements of the U.S. Environmental Protection Agency (EPA) regulations on: **(6/20)**

   A. Standards of Performance for New Stationary Sources promulgated in Title 40 Code of Federal Regulations Part 60 (40 CFR Part 60):

      (1) Subpart A, General Provisions.

      (2) 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.

      (3) Subpart DDD, Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry.

   B. National Emission Standards for Hazardous Air Pollutants for Source Categories in 40 CFR Part 63:

      (1) Subpart A, General Provisions.

      (2) Subpart FFFF, National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing.

Emission Standards and Operational Specifications

4. The facilities covered by this permit shall not operate unless all associated air pollution abatement equipment is maintained in good working order and operating during normal facility operations. The following steps shall be performed, at a minimum, to ensure the proper operation of the baghouses, fabric filters, and cyclones:

   A. Particulate matter outlet grain loading shall not exceed 0.01 grain per dscf of air from any vent. There shall be no visible emissions exceeding 30 seconds in any six-minute period as determined using U.S. EPA Test Method 22. All particulate matter vents authorized in the

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permit shall be inspected for visible emissions in accordance with Method 22 quarterly. **(6/20)**

B. The vents covered by this permit 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. Records shall be maintained of all inspections and maintenance performed. **(6/20)**

C. When there are visible emissions from a baghouse, fabric filter, or cyclone, the operation associated with the event shall be shut down as soon as practicable and the entire baghouse, fabric filter system or cyclone shall be tested/inspected, and the failed or damaged parts shall be repaired or replaced.

D. Baghouse and fabric filter pressure drops shall be recorded continuously during operation of the facility. All pressure drop records shall be dated for each day the facility is operated, and these records shall be maintained on-site for a rolling 60-month period and made available for inspection by the Executive Director of the TCEQ or a designated representative upon request.

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 5% of the minimum pressure drop necessary to ensure compliance with outlet grain loading of the minimum waste flow or in accordance with the manufacturer's specifications. **(6/20)**

Quality assured (or valid) data must be generated during periods that flow is occurring 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 each bag filter or cyclone separator operated over the previous rolling 12-month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded. **(6/20)**

E. A spare parts inventory with an adequate number of replacement bags for each baghouse and an adequate number of replacement filters for each fabric filter shall be maintained on site at all times. All baghouses, fabric filters, and cyclones shall undergo a preventative maintenance inspection on an annual basis.

F. The following requirements apply to capture systems for the baghouses, fabric filters, and cyclones authorized in this permit at least annually: **(6/20)**

(1) Inspect any fan and verify proper operation and inspect the capture system to verify there are no cracks, holes, tears, and other defects; or

(2) Verify there are no fugitive emissions escaping from the capture system by performing a visible emissions observation for a period of at least six minutes in accordance with 40 CFR Part 60, Appendix A, Test Method 22.

G. The TCEQ Regional Director shall be notified as soon as possible of any baghouse, fabric filter, or cyclone system malfunction that results in visible emissions or necessitates repair.

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Flares

5. Each flare shall operate with no less than 98 percent efficiency in the removal of organic compounds with over three carbons and 99 percent efficiency for the compounds with three or less carbons. **(6/20)**

6. The Olefins 1 Elevated Flare (EPN 1018), Olefins 2 Elevated Flare (EPN 1067), and Olefins 3 Elevated Flare (EPN: OL3-FLRA/B/C) shall be designed and operated in accordance with the following requirements: **(TBD)**

   A. The flare systems shall be designed such that the combined assist natural gas and waste gas stream to each flare meets the 40 CFR § 60.18 specifications of minimum heating value and maximum tip velocity under normal and maintenance flow conditions.

      The heating value and velocity requirements shall be satisfied during operations authorized by this permit. Flare testing per shall be performed 40 CFR § 60.18(f) if 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 or an infrared monitor. The time, date, and duration of any loss of pilot flame shall be recorded. 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 (EPNs 1018, 1067, and OL3-FLRA/B/C).

   D. For each flare, the permit holder shall install a continuous flow monitor that provides a record of the vent stream flow to the flare. The flow monitor sensor sample points shall be installed in the vent stream as near as possible to the flare inlet such that the total vent stream to the flare is measured and analyzed. Readings shall be taken at least once every 15 minutes and the average hourly values of the flow shall be recorded each hour.

      The monitors shall be calibrated on an annual basis to meet the following accuracy specifications: the flow monitor shall be ±5.0%, temperature monitor shall be ±2.0% at absolute temperature, and pressure monitor shall be ±5.0 mm Hg.

      The monitors shall operate as required by this section at least 95% of the time when the flare is operational, averaged over a rolling 12-month period. Flared gas actual exit velocity determined in accordance with 40 CFR § 60.18(f)(4) shall be recorded at least once every hour. Hourly mass emission rates shall be determined and recorded using the above readings and the emission factors used in the permit amendment application PI-1 dated December 2, 2021.

   E. For each of the Olefins 1, 2 and 3 Elevated Flares (EPNs 1018, 1067 and OL3-FLRA/B/C), the permit holder shall install a composition analyzer or calorimeter that provide a record of the vent stream composition or Btu content to the flares. The analyzer sample points shall be installed in the vent stream as near as possible to the flare inlet such that the total vent stream to the flare is measured and analyzed.

      Calibration of the analyzer shall follow the procedures and requirements of Section 10.0 of 40 CFR Part 60, Appendix B, Performance Specification 9, as amended through October 17,

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2000 (65 FR 61744), except that the multi-point calibration procedure in Section 10.1 of Performance Specification 9 shall be performed at least once every calendar quarter instead of once every month, and the mid-level calibration check procedure in Section 10.2 of Performance Specification 9 shall be performed at least once every calendar week instead of e every 24 hours. The calibration gases used for calibration procedures shall be in accordance with Section 7.1 of Performance Specification 9. Net heating value of the gas combusted in the flare shall be calculated according to the equation given in 40 CFR §60.18(f)(3) as amended through October 17, 2000 (65 FR 61744).

The calorimeters shall be calibrated, installed, operated, and maintained in accordance with manufacturer recommendations, to continuously measure and record the net heating value of the gas sent to the flare, in British thermal units/standard cubic foot of the gas.

F. The composition analyzer systems or calorimeters shall operate as required by this section at least 95% of the time when the flare is operational, averaged over a rolling 12-month period. Flared gas net heating value determined in accordance with 40 CFR §60.18(f)(3) shall be recorded at least once every 15 minutes.

G. After July 6, 2023, the Olefins 1 Elevated Flare (EPN 1018), Olefins 2 Elevated Flare (EPN 1067), and Olefins 3 Elevated Flare (EPN: OL3-FLRA/B/C) shall meet the requirements of Special Condition No. 7 which will replace and supersede the requirements of this Special Condition. If a compliance extension is granted in accordance with NESHAP procedures, then the effective date to meet the requirements of Special Condition No. 7 will be specified in the compliance extension approval.

7. The EGFs (EPNs EGF-1, EGF-2, EGF-3, and EGF-4) shall be designed and operated in accordance with the following requirements: **(TBD)**

A. The flare systems shall be designed such that the combined flare vent gas, assist air, and/or total steam to each flare meets the 40 CFR § 63.670 specifications for minimum combustion zone net heating value and maximum tip velocity at all times that flare vent gas may be directed to the flare for more than 15 minutes. Flared gas actual exit velocity, vent gas net heating value, and flared gas combustion zone net heating value shall be determined in accordance with 40 CFR §63.670(k), §63.670(l), and §63.670(m) on a 15-minute block average and recorded at least once every 15 minutes.

If the flare actively receives perimeter assist air, it shall be operated to meet the 40 CFR §63.670 specifications for minimum net heating value dilution parameters.

B. The flares shall be operated with pilot flames present at all times flare vent gas may be directed to the flares. The pilot flames shall be continuously monitored by a thermocouple, infrared monitor, or ultraviolet monitor. The time, date, and duration of any loss of pilot flame shall be recorded. Each monitoring device shall be accurate to, and shall be calibrated at a frequency in accordance with, the manufacturer's specifications.

C. Flares shall be operated with no visible emissions except periods not to exceed a total of five minutes during any two consecutive hours, demonstrated and recorded per the requirements of §63.670(h).

D. The permit holder shall install flow monitors that continuously measure, calculate, and record the total volumetric vent stream flow rate (including waste gas, purge gas, supplemental gas, and sweep gas), and shall install a monitoring system capable of determining the concentration of individual components in the flare vent gas or the net heating value of the

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flare vent gas. The flow monitor sensor and analyzer sample points shall be installed in the vent stream such that the total vent stream to the flare is measured and analyzed.

If one or more gas streams that combine to comprise the total flare vent gas flow are monitored separately for net heating value and flow, the 15-minute block average net heating value shall be determined separately for each measurement location and a flow-weighted average of the gas stream net heating values shall be used to determine the 15-minute block average net heating value of the cumulative flare vent gas.

If assist air or assist steam is used, the owner or operator shall install, operate, calibrate, and maintain a monitoring system capable of continuously measuring, calculating, and recording the total volumetric flow rate of assist air and/or assist steam used with the flare.

If pre-mix assist air and/or perimeter assist air are used, the owner or operator shall install, operate, calibrate, and maintain a monitoring system capable of separately measuring, calculating, and recording the volumetric flow rate of premix assist air and/or perimeter assist air used with the flare. Continuously monitoring fan speed or power and using fan curves is an acceptable method for continuously monitoring assist air flow rates.

Perimeter assist air includes all air assist except premix assist air. Premix assist air includes any air intentionally entrained in center steam.

Assist air includes premix assist air and perimeter assist air, but does not include the surrounding ambient air.

The monitors shall be calibrated or have a calibration check performed as specified in Table 13 of the appendix to 40 CFR 63, Part CC to meet the following accuracy specifications: the vent flow monitor shall be ±20 percent of flow rate at velocities ranging from 0.03 to 0.3 meters per second (0.1 to 1 feet per second) ±5 percent of flow rate at velocities greater than 0.3 meters per second (1 feet per second), all other gas flow monitors shall be ±5 percent over the normal range of flow measured or 280 liters per minute (10 cubic feet per minute) whichever is greater, temperature monitor shall be ±1 percent over the normal range of temperature measured, expressed in degrees Celsius (C), or 2.8 degrees C, whichever is greater, and pressure monitor shall be ±5 percent over the normal operating range or 0.12 kilopascals (0.5 inches of water column), whichever is greater. For purposes of this permit, a calibration check means, at a minimum, using a second device or method to verify that the monitor is accurate as specified in the permit.

Calorimeters shall have an accuracy of at least ±2% of span and be calibrated, installed, operated, and maintained in accordance with manufacturer recommendations and as specified in Table 13 of the appendix to 40 CFR 63, Part CC, to continuously measure and record the net heating value of the vent gas sent to the flare, in British thermal units/standard cubic foot of the gas.

For determination of net heating value by gas chromatograph, the minimum accuracy shall be as specified in Performance Specification 9 of Part 60, appendix B. Composition monitoring instruments shall be calibrated, installed, operated, and maintained in accordance with manufacturer recommendations and as specified in 40 CFR §63.671(e) and Table 13 of 40 CFR Pt. 63, Subpart CC. Individual component properties specified in Table 12 of Subpart CC shall apply to net heating value calculations.

For determination of net heating value by continuous process mass spectrometer, the minimum accuracy; composition monitoring; calibration; installation; operation and maintenance shall be done in accordance with 40 CFR §63.1103(e)(4)(viii).

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E. Quality assured (or valid) data must be generated during periods that flare is operating. 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 flare operated over the previous rolling 12-month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

F. Hourly mass emission rates shall be determined and recorded using the monitoring data collected pursuant to paragraph D of this Special Condition and the emission factors specified in the permit amendment application PI-1 dated December 2, 2021.

G. Pilot and supplemental (fuel) gas combusted in the flares shall be sweet natural gas containing no more than 0.26 grains of total sulfur per 100 dry standard cubic feet.

8. Vent gas streams for the PPI Plant may be directed to any of the EFGs or to any of the Olefins units elevated flares (EPNs EGF-1, EGF-2, EGF-3, EGF-4, 1018, 1067, and/or OL3-FLRA/B/C). **(TBD)**

9. Total volatile organic compounds (VOC) emitted to the atmosphere between the extruder and the point of final product loading from all four trains or production lines shall not exceed 80 pounds of VOC per million (MM) pounds of polypropylene (PP). **(04/21)**

10. Heptane or mineral oil shall be used as the solvent carrier in the Polypropylene I Unit process. **(5/10)**

11. PPI total annual production of product is limited to 700,800 tons of polypropylene per 12 consecutive months. Records of production totals shall be maintained on a rolling 12-month basis and be made available to TCEQ personnel upon request. **(04/21)**

Fugitive Emissions Monitoring

12. Piping, Valves, Connectors, Pumps, Agitators, and Compressors – 28VHP **(11/12)**

The following requirements apply to piping, valves, connectors, pumps, agitators, and compressors containing or in contact with fluids that could reasonably be expected to contain greater than or equal to 10 weight percent volatile organic compounds (VOC) at any time. **(6/20)**

A. The requirements of paragraphs F and G shall not apply (1) where the 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 readily 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

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- designation of exempted process unit boundaries.

B. Construction of new and reworked piping, valves, pump systems, 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 readily 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 within the 72-hour 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. 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. If a relief valve is equipped with rupture disc, a pressure-sensing device shall be installed between the relief valve and rupture disc to monitor disc integrity.

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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. All leaking discs shall be replaced at the earliest opportunity but no later than the next process shutdown.

The 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.

Replacements for leaking components shall be re-monitored within 15 days of being placed back into VOC service.

G. Except as may be provided for in the special conditions of this permit, all pump, compressor, and agitator seals shall be monitored with an approved gas analyzer at least quarterly or be equipped with a shaft sealing system that prevents or detects emissions of VOC from the seal. Seal systems designed and operated to prevent emissions or seals equipped with automatic seal failure detection and alarm system need not be monitored. These seal systems 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.

H. Damaged or leaking valves or connectors 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. Damaged or leaking pump, compressor, and agitator seals found to be emitting VOC in excess of 2,000 ppmv or found by visual inspection to be leaking (e.g., dripping process fluids) shall be tagged and replaced or repaired. A first attempt to repair the leak must be made within 5 days and a record of the attempt shall be maintained.

I. 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 within 15 days of the detection of the leak. 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

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equal to or exceeds the total emissions from a unit shut down 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 the TCEQ Executive Director may require early unit shut down 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. **(6/20)**

J. 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.

K. Alternative monitoring frequency schedules of 30 TAC 115.352 - 115.359 or National Emission Standards for Organic Hazardous Air Pollutants, 40 CFR Part 63, Subpart H, may be used in lieu of Items F and G of this condition.

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 (NSPS), or an applicable National Emission Standard for Hazardous Air Pollutants (NESHAPS) and does not constitute approval of alternative standards for these regulations.

M. With respect to this Special Condition, new and reworked is meant to apply to major changes in piping. It is not intended to apply to minor activities including but not limited to: installation/replacement of small number of valves and flanges; minor repairs; gasket replacement; repair/replacement of small sections of piping, etc. Also, "process pipelines" does not apply to underground process sewer lines, cooling tower water, fire water, etc. Additionally, the requirement for new and reworked buried connectors to be welded will not apply if compliance would require a process unit shutdown or would create a safety issue including, but not limited to, close proximity of other process pipelines and equipment or unsafe access to the piping.

13. Additional Fugitive Emissions Monitoring Requirements:

A. In lieu of the 2000 ppmv VOC limit in Paragraph H of Special Condition 12, damaged or leaking pump, compressor, and agitator 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. A first attempt to repair the leak must be made within 5 days. Records of the first attempt to repair shall be maintained. **(11/12)**

B. Connectors Inspected Annually – 28CNTA **(6/20)**

In addition to the weekly physical inspection required by Item E of Special Condition No. 12, all connectors in gas\vapor and light liquid service shall be monitored annually with an approved gas analyzer in accordance with Items F thru J of Special Condition No. 12. Alternative monitoring frequency schedules ("skip options") of Title 40 Code of Federal Regulations Part 63, Subpart H, National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks, may be used in lieu of the monitoring frequency required by this permit condition. Compliance with this condition does not assure compliance with requirements of applicable state or federal regulation and does not constitute approval of alternative standards for these regulations.

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C. Piping, Valves, Pumps, and Compressors in contact with Chlorine (Cl_2) – 28AVO **(6/20)**

Except as may be provided for in the special conditions of this permit, the following requirements apply to the above-referenced equipment:

(1) Audio, olfactory, and visual checks for leaks within the operating area shall be made once per shift.

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

(a) Isolate the leak.

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

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

(3) 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 Texas Commission on Environmental Quality (TCEQ) upon request.

Cooling Towers (EPNs PO-CT and PP1-CT)

14. The cooling towers (EPNs PO-CT and PP1-CT) shall be operated and monitored in accordance with the following: **(6/20)**

A. The cooling tower water shall be monitored 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. The results of the monitoring, cooling water flow rate and maintenance activities on the cooling water system shall be recorded. The monitoring results and cooling water hourly mass flow rate shall be used to determine cooling tower hourly VOC emissions. The rolling 12-month cooling water emission rate shall be recorded on a monthly basis and be determined by summing the VOC emissions between VOC monitoring periods over the rolling 12-month period. The emissions between VOC monitoring periods shall be obtained by multiplying the total cooling water mass flow between cooling water monitoring periods by the higher of the two VOC monitored results.

B. Cooling tower water VOC concentrations above 0.05 ppmw potentially indicate faulty equipment. Equipment shall be maintained so as to minimize VOC emissions into the cooling water. Faulty equipment shall be repaired at the earliest opportunity but no later than the next scheduled shutdown of the process unit in which the leak occurs.

Emissions from the cooling tower are not authorized if the VOC concentration of the water returning to the cooling tower exceeds 0.5 ppmw. VOC concentrations above 0.5 ppmw are not subject to extensions for delay of repair under this permit condition. The results of the monitoring and maintenance efforts shall be recorded.

C. The cooling towers (EPNs PO-CT and PP1-CT) shall be operated and monitored in accordance with the following:

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(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) shall not exceed 6,500 parts per million by weight (ppmw) on an hourly average and 4,150 ppmw on a rolling 12-month period. Dissolved solids 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. **(04/21)**

(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 day for total dissolved solids (TDS); or

(b) TDS monitoring may be reduced to weekly if conductivity is monitored daily 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 weekly basis. The permit holder may use the average of two consecutive TDS-to-conductivity ratios to calculate daily TDS; or

(c) TDS monitoring may be reduced to quarterly if conductivity is monitored daily and TDS is calculated using a correlation factor established for each cooling tower. The correlation factor shall be the average of nine consecutive weekly 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 weekly 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.

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(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.

Ongoing Demonstration of Compliance

15. Ongoing compliance with Special Condition No. 9 and with the MAERT shall be determined for each line by calculation using weekly production rates and weekly sampling and testing of the polymer immediately downstream of the extruder (A) and immediately before the point of final product loading (B). The beverage can test or an equivalent method approved by the TCEQ Austin Compliance Support Division shall be used to determine VOC.

Polymer production rates and product degassing monitoring records shall be maintained at the plant site for at least five years from the date they are made and made available upon request to TCEQ personnel. These records shall include (but are not limited to):

A. Date and time of sampling.

B. Actual plant production rate at the time of sampling and the weekly average production rate.

C. Product number and melt index.

D. Measured pounds of total VOC per million lbs of polymer after the extruder (A) and immediately prior to final product loading (B).

E. Total VOC emitted to the atmosphere between points A and B during the operating week shall be calculated by (A - B) multiplied by the weekly production rate. Calculations shall take into account emissions which are collected and routed to a control device and any changes in product type during the week.

Planned Maintenance, Startup, and Shutdown (MSS)

16. This permit authorizes air emissions from the planned MSS activities identified in the following table performed at the facilities authorized by this permit. **(TBD)**

Facilities	Description/ Emissions Activity	EPN
All facilities*	Depressurize and purge to control per Special Condition No. 17	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, or PP1-TEMP
All facilities*	Degas facilities to atmosphere after flare per Special Condition No. 17	PP1-MAINT
All facilities*	Fill and/or vent to control during startup	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, or PP1-TEMP
Vessels (MTR)	Vent to flare during MTR system maintenance	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, or EGF-4

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Facilities	Description/ Emissions Activity	EPN
Carrier Gas System	Vent waste gas to flare during carrier gas system maintenance	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, or EGF-4
All	Attachment A activities	1018,1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, PP1-TEMP, or PP1-MAINT
Vacuum trucks	Load and transport liquid to support MSS on permanent facilities	PP1-MAINT
* all facilities include piping		

In addition, planned MSS emissions emitted from routine emission points are authorized provided the emissions are compliant with the respective MAERT allowable emission rates and special conditions. This permit authorizes emissions from the following temporary facilities used to support planned MSS activities at permanent site facilities: vacuum trucks and control devices meeting the requirements of Special Condition No. 24. Emissions from temporary facilities are authorized provided the temporary facility (a) does not remain on the plant site for more than 12 consecutive months, (b) is used solely to support planned MSS activities at the permanent facilities authorized by this permit, and (c) does not operate as a replacement for an existing authorized facility

Emissions from activities listed on Attachment A may be considered to be equal to the potential to emit represented in the permit amendment application, PI-1 dated January 3, 2008, and updated in subsequent application submittals. The estimated emissions from these activities must be revalidated annually. This revalidation shall consist of verifying the estimated emissions for each type of activity and the basis for that emission estimate.

Routine maintenance activities, as identified in Attachment B may be tracked through the work orders or equivalent. Emissions from activities identified in Attachment B shall be calculated using the number of work orders or equivalent that month and the emissions associated with that activity identified in the permit application.

A. The performance of each planned MSS activity identified in Attachment C and the emissions associated with it shall be recorded and include at least the following information:

B. The process unit at which emissions from the MSS activity occurred, including the emission point number and common name of the process unit;

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

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

E. The date and time of the MSS activity and its duration;

F. 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.

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17. Except for instrumentation/analyzer maintenance and vacuum trucks, process units and facilities shall be depressurized, degassed, and placed back into service in accordance with the following requirements. **(11/12)**

    A. The process equipment shall be vented to a control device or a controlled recovery system during depressurization.

    B. All liquids from process equipment or storage vessels must be removed to the maximum extent practical prior to opening equipment or commencing depressurization, degassing and/or maintenance. Equipment that only contains material with VOC partial pressure less than 0.50 psi at the normal process temperature and 95°F may be opened to the atmosphere after liquids are removed as required by this condition. 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.

    C. If mixed phase materials must be removed from process equipment during depressurization, liquids removal, or degassing, the cleared material shall be routed to a knockout drum or equivalent to allow for managed initial phase separation. Any vents in the knockout drum or equivalent must be routed to a control device or a controlled recovery system. Control must remain in place while mixed phase material removal is being performed.

    D. Facilities shall be degassed using practices that 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. Records shall be maintained of the control device or recovery system utilized with the estimated emissions from controlled and uncontrolled degassing calculated using the methods that were used to determine allowable emissions for the permit application.

    E. After degassing in accordance with Special Condition No. 17.D, the VOC concentration in the facilities being degassed shall be verified to be below 10,000 ppmv or less than 10 percent of the lower explosive limit (LEL) using one of the methods below prior to opening directly to atmosphere.

        (1) For MSS activities other than process unit startup, shutdown, hydroblasting, or turnaround, the following option may be used in lieu of (2) 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 percent of the lower explosive limit (LEL) per the site safety procedures.

        (2) Documentation shall be maintained of the locations and/or identifiers where the purge gas or steam enters the process equipment or storage vessel and the exit points for the purge gases. If the process equipment is purged with a gas, two system volumes of purge gas must have passed through the control device or controlled recovery system before the vent stream may be sampled to verify acceptable VOC concentration prior to uncontrolled venting. The VOC sampling and analysis shall be performed using an instrument meeting the requirements of Special Condition No. 18. 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. The facilities shall be degassed to a control device or controlled recovery system until the VOC concentration is less than 10,000 ppmv or less than 10 percent of the lower explosive

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limit (LEL). Documented plant procedures used to de-inventory 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.

F. Gases and vapors with VOC partial pressure greater than 0.50 psi 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 is no more than 50 lb of air contaminant to be vented to atmosphere during shutdown or startup, as applicable.

Except as noted in Attachment A, all instances of venting directly to atmosphere per Special Condition No. 17.F must be documented when occurring as part of any MSS activity. The emissions associated with venting without control must be included in the activity record for those planned MSS activities.

18. Air contaminant concentration shall be measured using an instrument/detector meeting one of the following methods: **(11/12)**

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 with a calibration gas such that the response factor of the VOC (or mixture of VOCs) to be monitored shall be less than 2.0. The calibration gas and the gas to be measured, and its approximate response factor shall be recorded.

(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, recording VOC concentration each minute. The highest measured VOC concentration shall not exceed the specified VOC concentration limit prior to uncontrolled venting.

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 (3), 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.

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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. **(5/13)**

(1) The detector shall be calibrated monthly with a certified propane gas standard at 50% of the lower explosive limit (LEL) for propane. 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 50% of the LEL for propane may be used for calibration and functionality tests provided that the LEL response is within 95% of that for propane.

D. As an alternative to an instrument/detector, the analysis may be conducted in a laboratory. Bag samples of the gas discharged may be drawn and taken to a Formosa laboratory to be analyzed by gas chromatography (GC). A minimum of two bag samples shall be drawn approximately ten minutes apart. A Tedlar bag, or a bag appropriate for the material to be sampled, shall be used and shall have a valve to seal gas in the bag. The samples shall be drawn as follows:

(1) The sample point on the equipment being cleared shall be purged sufficiently to ensure a representative sample at the sample valve.

(2) The sample bag shall be connected directly to the sample valve.

(3) The sample valve and sample bag shall be opened to allow the bag to fill to approximately 80% of capacity. The sample connections shall be fitted such that no air is drawn into the sample bag.

(4) The two valves shall then be closed to seal the sample in the bag.

(5) The sample bag shall then be disconnected and placed in a dark container out of direct sunlight for transport to the analyzer.

(6) This process is repeated to collect additional samples.

(7) The sample shall be analyzed within 12 hours of collection.

The laboratory GC shall meet or exceed the requirements of 40 CFR 60, Appendix A, Method 18 Sections 6 (Equipment and Supplies), 7 (Reagents and Standards), 9 (Quality Control), and 10 (Calibration and Standards). The sample shall be analyzed per Section 8.2.1.1.2 of Method 18, except the analysis does not need to be performed in triplicate. The highest measured VOC concentration shall not exceed the specified VOC concentration limit prior to uncontrolled venting.

Compliance Assurance Monitoring (CAM)

19. The following requirements apply to capture systems for each flare designated as EPNs 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4. **(TBD)**

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A. Either 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 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. 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 15 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 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. **(6/20)**

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. **(6/20)**

20. The following requirements apply to vacuum and air mover truck operations to support planned MSS at this site: **(11/12)**

A. Vacuum pumps and blowers shall not be operated on trucks containing or vacuuming liquids with VOC partial pressure greater than 0.50 psi at 95°F 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 and the truck identifier (bill of lading or other unique identifier). Record the liquid level and document that the VOC partial pressure is less than 0.50 psi 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 psi 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.

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(3) If the vacuum truck pump exhaust is controlled with a control device other than an engine or oxidizer, records shall be maintained of VOC exhaust concentration upon commencing each transfer, at the end of each transfer, and at least every hour during each transfer, measured using an instrument meeting the requirements of Special Condition No. 18.

(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.

21. Vents must be directed to a flare operating in accordance with Special Condition No. 24 during maintenance on the membrane transfer reactor (MTR) or carrier gas systems. **(11/12)**

22. Bag filter maintenance shall be performed in a manner to minimize particulate matter emissions and minimize down time. **(11/12)**

23. 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. **(11/12)**

24. Control devices required by this permit for emissions from planned MSS activities are limited to those types identified and authorized in this condition. The use of any other types of devices to control emissions from MSS activities must be authorized in accordance with 30 TAC Chapter 116.

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 process or to a collection system that is vented through a control device meeting the requirements of this permit condition.

A. Carbon Adsorption 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 downstream of 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) It 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.

(b) 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

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experience must be with the same VOC, type of facility, and MSS activity. The basis for the sampling frequency shall be recorded. If the VOC concentration on the initial sample downstream of the first carbon canister following a new polishing canister being put in place is greater than 100 ppmv above background, it shall be assumed that breakthrough occurred while that canister functioned as the final polishing canister and 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. 18.A or B.

(4) Breakthrough is defined as the highest measured VOC concentration at or exceeding 100 ppmv above background. 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 four hours. 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.

B. Thermal Oxidizer. **(6/20)**

(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.

C. Internal Combustion Engine. **(6/20)**

(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 United States Environmental Protection Agency (EPA) Reference Method during the stack test and the exhaust flow rate may be determined

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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 following each occurrence of engine maintenance which may reasonably be expected to increase emissions including oxygen sensor replacement and catalyst cleaning or replacement. 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. 18 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.

D. The plant flare system (EPNs 1067, 1018, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and/or EGF-4) shall be operated as specified in Special Condition No. 6.

E. The Enclosed Ground Flares (EPNs EGF-1, EGF-2, EGF-3 and/or EFG-4) shall be operated as specified in Special Condition No. 7.

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

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

(2) The method of VOC sampling and analysis shall be by detector meeting the requirements of Special Condition No. 18.A or B.

(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 for more than one minute. The date and time of all alarms and the actions taken shall be recorded.

25. The capture systems for the flares shall not have a bypass unless: **(11/12)**

A. A flow indicator that records and verifies zero flow at least once every fifteen minutes is installed 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

B. Inspect the valves that prevent flow out the bypass once a month, verifying the position of the valves and the condition of the car seals 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. If any of the above inspections is not satisfactory, the permit holder shall promptly take necessary corrective action. Records shall be

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maintained documenting the performance and results of the inspections required above. **(11/12)**

Greenhouse Gas Emissions

26. Permit holders must keep records sufficient to demonstrate compliance with 30 Texas Administrative Code § 116.164. If construction, a physical change or a change in method of operation results in Prevention of Significant Deterioration (PSD) review for criteria pollutants, then records shall be maintained that are sufficient to demonstrate the amount of emissions of GHGs from the source as a result of such construction, physical change or change in method of operation does not require authorization under 30 TAC §116.164(a). If there is construction, a physical change or a change in the method of operation that will result in a net emission increase of 75,000 tpy or more CO_{2e}. greenhouse gas emissions are subject to PSD review. **(TBD)**

27. Monitoring, quality assurance/quality control requirements, emission calculation methodologies, record keeping, and reporting requirements related to Greenhouse Gas (GHG) emissions shall adhere to the applicable requirements in 40 CFR Part 98 and in this permit. **(TBD)**

28. Permittee shall calculate the CO_{2e} emissions on a 12-month rolling basis, based on the procedures and Global Warming Potentials (GWP) contained in Greenhouse Gas Regulations, 40 CFR Part 98, Subpart A, Table A-1. **(TBD)**

29. Records of emissions of GHG, and how they were determined, in compliance with Special Condition Nos. 26, 27, and 28 must be maintained by the holder of this permit in a form suitable for inspection for a period of five years after collection and must be made available upon request to representatives of the TCEQ, EPA, or any local air pollution control program having jurisdiction. **(TBD)**

Alternative Means of Compliance

30. The permit holder shall comply with the requirements of Alternative Method of Compliance (AMOC) No. 213. **(TBD)**

Date: TBD

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Attachment A

Permit Numbers 19200, PSDTX1237M1, and GHGPSDTX218

Inherently Low Emitting Activities

Activity	Emissions			
	VOC	NO_x	CO	PM
Vent loading arms*	X			
Liquid tanks	X	X	X	
Repair/replace filters/strainers	X	X	X	X
Repair/replace baghouses/bag filters	X	X	X	X
Catalyst charging*	X		X	
Instrument/analyzer calibration/repair, transmitter repair	X	X	X	X
Blower, pump, and valve maintenance	X	X	X	
Activities documented as having emissions <0.1 lb*	X			
Site glass cleaning*	X			
Additive filters*				X
Drain and degas liquid tanks	X	X	X	
Oil drums* and grease pots	X	X	X	

* These activities are not subject to the requirements of Special Condition No. 16.

Date: November 30, 2012

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Attachment B

Permit Numbers 19200, PSDTX1237M1, and GHGPSDTX218

Routine Maintenance Activities

Heat exchanger, relief valve, and column repair and maintenance

Piping and piping component degassing

Compressor and cyclone MSS

Loading

Repair/replacement that may be isolated so that the process volume to be emptied and degassed is less than 200 cubic feet.

Date: November 30, 2012

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Attachment C

Permit Numbers 19200, PSDTX1237M1, and GHGPSDTX218

Significant MSS Activity Summary

The following activities are subject to the full recordkeeping requirements specified by Special Condition No. 16.

Pressure tank repair and maintenance

Plant turnaround and reactor startup and shutdown

Maintenance on the MTR or carrier gas systems during plant operation

Reactor repair and maintenance

Activities not listed on Attachment A or B or not otherwise authorized

Date: November 30, 2012

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Special Conditions

Permit Numbers 19168, PSDTX1226M1, and GHGPSDTX224

Emissions Standards

1. This permit authorizes emissions only from those points listed in the attached table entitled "Emission Sources - Maximum Allowable Emission Rates," 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 VOC at a concentration of greater than 1 percent are not authorized by this permit unless authorized on the maximum available emission rates table (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.

Federal Applicability

3. This facility shall comply with all applicable requirements of the EPA regulations on Standards of Performance for New Stationary Sources in 40 CFR Part 60, promulgated for the following: **(02/21)**

   A. Subpart A, General Provisions

   B. Subpart Kb: Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984.

   C. 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.

   D. Subpart VVa, Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006.

   E. Subpart NNN, Standards of Performance for Volatile Organic Compound (VOC) Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations.

   F. Subpart RRR, Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes.

   G. Subpart OOOO: Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced After August 23, 2011 and on or before September 18, 2015.

4. This facility shall comply with all applicable requirements of EPA regulations on NESHAPS in 40 CFR Part 61 promulgated for the following:

   A. Subpart A, General Provisions

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

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

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

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5. This facility shall comply with all applicable requirements of 30 TAC § 113. (110, 120, 130, 550, and 560), including the referenced requirements contained in the EPA regulations in 40 CFR Part 63: **(02/21)**

   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 Process Vents, Storage Vessels, Transfer Operations, and Wastewater.

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

   E. Subpart YY, National Emission Standards for Hazardous Air Pollutants for Source Categories: Generic Maximum Achievable Control Technology Standards.

6. The nitrogen oxides (NO_x) emissions from the Pyrolysis Furnaces shall not exceed the following rates during normal operation: (**PSD) (10/15)**

   A. For Emission Point Nos. (EPNs) 1001 through 1008 and 1009B,

   Under normal operating conditions:

   Pounds (lbs) of NO_x per MMBtu of heat input averaged daily = 0.13, on a 12-month rolling average basis **(02/21)**

   Under startup/shutdown and/or maintenance decoking conditions*:

   EPNs 1001-1002: 31.02 lb NO_x/hr, hourly average

   EPNs 1003-1008, 1009B: 30.29 lb NO_x/hr, hourly average

   B. For EPNs 1010B, N1011, and N1012,

   Under normal operating conditions:

   0.075 lb NO_x/MMBtu, hourly average, and

   0.06 lb NO_x/MMBtu, rolling 12-month average

   Under startup/shutdown and/or maintenance decoking conditions*:

   18.75 lb NO_x/hr, hourly average

   C. For EPNs 1054 - 1062 and 1091,

   Under normal operating conditions:

   The total fired heat duty of EPNs 1054 through 1062 and 1091 is limited to 2081 MMBtu/hr on an annual average basis in the Olefins II Unit. The instrumentation that monitors furnace fired duty, fuel consumption and other parameters for each of the ten furnaces shall provide a real time demonstration of compliance.

   Under startup/shutdown and/or maintenance decoking conditions*:

   EPNs 1054-1056: 20.02 lb NO_x/hr, hourly average

   EPNs 1057-1062, 1091: 19.29 lb NO_x/hr, hourly average

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D. For EPN 1011B: **(03/16)**

Under normal operating conditions:

0.075 lb NO_x/MMBtu, hourly average, and

0.055 lb NO_x/MMBtu, rolling 12-month average

Under startup/shutdown and/or maintenance decoking conditions*:

18.75 lb NO_x/hr, hourly average

* Any two furnaces listed in Special Condition 6 of this permit may emit an additional 3 lb/hr NO_x (each) during these periods.

7. The NO_x emissions from the Regeneration Heater and the Second Stage Feed Heater (EPNs 8001B and 8002B) shall not exceed 0.06 lb NO_x/MMBtu fired during normal operation.

8. The carbon monoxide (CO) emissions from the Pyrolysis Furnaces shall not exceed these values during normal operation:

A. For EPNs 1001 through 1008 and 1009B, 0.035 lb/MMBtu of heat input averaged daily, on a 12-month rolling average basis **(02/21)**; and

Under startup/shutdown and/or maintenance decoking conditions*:

EPNs 1001-1002: 12.18 lb/hr CO, hourly average

EPNs 1003-1008, 1009B: 8.16 lb/hr CO, hourly average

B. For EPNs 1010B, N1011, and N1012 **(02/21)**,

Under normal operating conditions:

0.026 lb CO/MMBtu of heat input averaged daily, and

Under startup/shutdown and/or maintenance decoking conditions*:

8.75 lb CO/hr, hourly average

C. For EPNs 1054-1056

Under startup/shutdown and/or maintenance decoking conditions*:

12.57 b CO/hr, hourly average

D. For EPNs 1057-1062, 1091

Under startup/shutdown and/or maintenance decoking conditions*:

8.54 b CO/hr, hourly average

E. For EPN 1011B: **(03/16)**

Under normal operating conditions:

0.035 lb CO/MMBtu of heat input averaged daily, and

0.035 lb CO/MMBtu, rolling 12-month average

Under startup/shutdown and/or maintenance decoking conditions*:

8.75 lb CO/hr, hourly average

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* Any two furnaces listed in Special Condition 8 of this permit may emit an additional 35 lb/hr CO (each) during these periods.

9. There shall be no visible emissions for periods exceeding five minutes from the Pyrolysis Furnace Stacks (EPNs 1001 through 1008, 1009B, 1010B, 1011B, and EPNs 1054 through 1062, 1091, N1011, and N1012) during normal operation. Any violation of this condition shall also be considered a violation of the allowable limit for particulate matter (PM) during normal operation. **(03/16)**

10. Opacity of emissions from the Decoking Drums (EPN 1009 and 1063) must not exceed 10 percent averaged over a six-minute period during normal operation. Startup, shutdown and maintenance emissions are not authorized by this special condition.

11. The Catalyst Regeneration Heater (EPN 8001B) is limited to 1,000 hours per year of operation on a rolling 12-month average. Records of the catalyst regeneration operation, including hours vented to the elevated flare shall be made and maintained for a period of five years. This data shall be readily provided to representatives of the TCEQ upon request. **(02/08)**

Flares

12. The following flare systems shall operate in accordance with the requirements stated in the paragraphs shown in the table below: **(TBD)**

Flare EPN	Flare Name	Required to comply with paragraphs during Normal Operations	Required to comply with paragraphs during Maintenance Operations
1018	Olefins 1 Elevated Flare	A through E	A through F
1067	Olefins 2 Elevated Flare	A through E	A through F
OL3-FLRA/B/C	Olefins 3 Elevated Flare	A through E	A through F
1087	Olefins 2 Tank Flare	A through E	A through E

A. The flare systems shall be designed such that the combined assist natural gas and waste gas stream to each flare meets the 40 CFR § 60.18 specifications of minimum heating value and maximum tip velocity under normal and maintenance flow conditions.

The heating value and velocity requirements shall be satisfied during operations authorized by this permit. Flare testing per shall be performed 40 CFR § 60.18(f) if 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 or an infrared monitor. The time, date, and duration of any loss of pilot flame shall be recorded. Each monitoring device shall be accurate to, and shall be calibrated at a frequency in accordance with, the manufacturer's specifications.

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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 (EPNs 1018, 1067, and OL3-FLRA/B/C) or air assist (EPN 1087).

D. For each flare, the permit holder shall install a continuous flow monitor that provides a record of the vent stream flow to the flare. The flow monitor sensor sample points shall be installed in the vent stream as near as possible to the flare inlet such that the total vent stream to the flare is measured and analyzed. Readings shall be taken at least once every 15 minutes and the average hourly values of the flow shall be recorded each hour.

The monitors shall be calibrated on an annual basis to meet the following accuracy specifications: the flow monitor shall be ±5.0%, temperature monitor shall be ±2.0% at absolute temperature, and pressure monitor shall be ±5.0 mm Hg.

The monitors shall operate as required by this section at least 95% of the time when the flare is operational, averaged over a rolling 12-month period. Flared gas actual exit velocity determined in accordance with 40 CFR § 60.18(f)(4) shall be recorded at least once every hour. Hourly mass emission rates shall be determined and recorded using the above readings and the emission factors used in the permit amendment applications dated August 11, 2016, and December 2, 2021.

E. For each of the Olefins 1, 2 and 3 Elevated Flares (EPNs 1018, 1067 and OL3-FLRA/B/C), the permit holder shall install a composition analyzer or calorimeter that provide a record of the vent stream composition or Btu content to the flares. The analyzer sample points shall be installed in the vent stream as near as possible to the flare inlet such that the total vent stream to the flare is measured and analyzed.

For the Olefins 2 Tank Flare (EPN 1087), the permit holder shall install a composition analyzer system or calorimeter that provides a record of the vent stream composition or BTU content to the flare, or the waste gas stream directed to the flare shall be assumed to contain no BTU content and sufficient assist natural gas / fuel gas shall be added so that the flare meets the 40 CFR § 60.18 specifications of minimum heating value. If a composition analyzer system or calorimeter is installed, the sample points shall be installed in the vent stream as near as possible to the flare inlet such that the total vent stream to the flare is analyzed.

Calibration of the analyzer shall follow the procedures and requirements of Section 10.0 of 40 CFR Part 60, Appendix B, Performance Specification 9, as amended through October 17, 2000 (65 FR 61744), except that the multi-point calibration procedure in Section 10.1 of Performance Specification 9 shall be performed at least once every calendar quarter instead of once every month, and the mid-level calibration check procedure in Section 10.2 of Performance Specification 9 shall be performed at least once every calendar week instead of e every 24 hours. The calibration gases used for calibration procedures shall be in accordance with Section 7.1 of Performance Specification 9. Net heating value of the gas combusted in the flare shall be calculated according to the equation given in 40 CFR §60.18(f)(3) as amended through October 17, 2000 (65 FR 61744).

The calorimeters shall be calibrated, installed, operated, and maintained in accordance with manufacturer recommendations, to continuously measure and record the net heating value of the gas sent to the flare, in British thermal units/standard cubic foot of the gas.

F. The composition analyzer systems or calorimeters shall operate as required by this section at least 95% of the time when the flare is operational, averaged over a rolling 12-month period. Flared gas net heating value determined in accordance with 40 CFR §60.18(f)(3) shall be recorded at least once every 15 minutes.

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G. Only one Olefins Unit's shutdown emissions may be routed to either Olefins 1 Elevated Flare (EPN 1018), Olefins 2 Elevated Flare (EPN 1067), or Olefins 3 Elevated Flare (OL3-FLRA/B/C) at any one time.

H. After July 6, 2023, the Olefins 1 Elevated Flare (EPN 1018), Olefins 2 Elevated Flare (EPN 1067), and Olefins 3 Elevated Flare (EPN: OL3-FLRA/B/C) shall meet the requirements of Special Condition No. 13 which will replace and supersede the requirements of this Special Condition. If a compliance extension is granted in accordance with NESHAP procedures, then the effective date to meet the requirements of Special Condition No. 13 will be specified in the compliance extension approval.

13. The EGFs (EPNs EGF-1, EGF-2, EGF-3, and EGF-4) shall be designed and operated in accordance with the following requirements: **(TBD)**

A. The flare systems shall be designed such that the combined flare vent gas, assist air, and/or total steam to each flare meets the 40 CFR § 63.670 specifications for minimum combustion zone net heating value and maximum tip velocity at all times that flare vent gas may be directed to the flare for more than 15 minutes. Flared gas actual exit velocity, vent gas net heating value, and flared gas combustion zone net heating value shall be determined in accordance with 40 CFR §63.670(k), §63.670(l), and §63.670(m) on a 15-minute block average and recorded at least once every 15 minutes.

If the flare actively receives perimeter assist air, it shall be operated to meet the 40 CFR §63.670 specifications for minimum net heating value dilution parameters.

B. The flares shall be operated with pilot flames present at all times flare vent gas may be directed to the flares. The pilot flames shall be continuously monitored by a thermocouple, infrared monitor, or ultraviolet monitor. The time, date, and duration of any loss of pilot flame shall be recorded. Each monitoring device shall be accurate to, and shall be calibrated at a frequency in accordance with, the manufacturer's specifications.

C. Flares shall be operated with no visible emissions except periods not to exceed a total of five minutes during any two consecutive hours, demonstrated and recorded per the requirements of §63.670(h).

D. The permit holder shall install flow monitors that continuously measure, calculate, and record the total volumetric vent stream flow rate (including waste gas, purge gas, supplemental gas, and sweep gas), and shall install a monitoring system capable of determining the concentration of individual components in the flare vent gas or the net heating value of the flare vent gas. The flow monitor sensor and analyzer sample points shall be installed in the vent stream such that the total vent stream to the flare is measured and analyzed.

If one or more gas streams that combine to comprise the total flare vent gas flow are monitored separately for net heating value and flow, the 15-minute block average net heating value shall be determined separately for each measurement location and a flow-weighted average of the gas stream net heating values shall be used to determine the 15-minute block average net heating value of the cumulative flare vent gas.

If assist air or assist steam is used, the owner or operator shall install, operate, calibrate, and maintain a monitoring system capable of continuously measuring, calculating, and recording the total volumetric flow rate of assist air and/or assist steam used with the flare.

If pre-mix assist air and/or perimeter assist air are used, the owner or operator shall install, operate, calibrate, and maintain a monitoring system capable of separately measuring, calculating, and recording the volumetric flow rate of premix assist air and/or perimeter assist

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air used with the flare. Continuously monitoring fan speed or power and using fan curves is an acceptable method for continuously monitoring assist air flow rates.

Perimeter assist air includes all air assist except premix assist air. Premix assist air includes any air intentionally entrained in center steam.

Assist air includes premix assist air and perimeter assist air, but does not include the surrounding ambient air.

The monitors shall be calibrated or have a calibration check performed as specified in Table 13 of the appendix to 40 CFR 63, Part CC to meet the following accuracy specifications: the vent flow monitor shall be ±20 percent of flow rate at velocities ranging from 0.03 to 0.3 meters per second (0.1 to 1 feet per second) ±5 percent of flow rate at velocities greater than 0.3 meters per second (1 feet per second), all other gas flow monitors shall be ±5 percent over the normal range of flow measured or 280 liters per minute (10 cubic feet per minute) whichever is greater, temperature monitor shall be ±1 percent over the normal range of temperature measured, expressed in degrees Celsius (C), or 2.8 degrees C, whichever is greater, and pressure monitor shall be ±5 percent over the normal operating range or 0.12 kilopascals (0.5 inches of water column), whichever is greater. For purposes of this permit, a calibration check means, at a minimum, using a second device or method to verify that the monitor is accurate as specified in the permit.

Calorimeters shall have an accuracy of at least ±2% of span and be calibrated, installed, operated, and maintained in accordance with manufacturer recommendations and as specified in Table 13 of the appendix to 40 CFR 63, Part CC, to continuously measure and record the net heating value of the vent gas sent to the flare, in British thermal units/standard cubic foot of the gas.

For determination of net heating value by gas chromatograph, the minimum accuracy shall be as specified in Performance Specification 9 of Part 60, appendix B. Composition monitoring instruments shall be calibrated, installed, operated, and maintained in accordance with manufacturer recommendations and as specified in 40 CFR §63.671(e) and Table 13 of 40 CFR Pt. 63, Subpart CC. Individual component properties specified in Table 12 of Subpart CC shall apply to net heating value calculations.

For determination of net heating value by continuous process mass spectrometer, the minimum accuracy; composition monitoring; calibration; installation; operation and maintenance shall be done in accordance with 40 CFR §63.1103(e)(4)(viii).

E. Quality assured (or valid) data must be generated during periods that flare is operating. 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 flare operated over the previous rolling 12-month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

F. Hourly mass emission rates shall be determined and recorded using the monitoring data collected pursuant to paragraph D of this Special Condition and the emission factors specified in the permit application PI-1 dated December 2, 2021.

G. Pilot and supplemental (fuel) gas combusted in the flares shall be sweet natural gas containing no more than 0.26 grains of total sulfur per 100 dry standard cubic feet.

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14. Vent gas streams for the OLI (which includes the PPU and GHU units), OLII and FRACII units may be directed to any of the EFGs or to any of the Olefins units elevated flares (EPNs EGF-1, EGF-2, EGF-3, EGF-4, 1018, 1067, and/or OL3-FLRA/B/C). **(TBD)**

Vapor Combustion Units

15. Vapor Combustors (VCU; EPNs 1051 and 8003B) shall be designed and operated in accordance with the following requirements:

    A. The VCU shall achieve 99 wt.% control of the VOC in the waste gas directed to them (or an in-stack concentration of less than 10 ppmv VOC, dry). This performance shall be ensured by maintaining the temperature in, or immediately downstream of, the combustion chamber above 1400º F prior to the initial stack test performed in accordance with Special Condition 34. Following the completion of that stack test, the six-minute average temperature shall be maintained above the minimum one hour average temperature maintained during the last satisfactory stack test.

    B. 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 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 ±2.5ºC.

    C. Quality assured or valid data must be generated when the VCU 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 (i.e., 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 and have a constant pilot flame during all times waste gas could be directed to it. The pilot flame shall be continuously monitored by a thermocouple or an infrared monitor. The time, date, and duration of any loss of pilot flame shall be recorded. Each monitoring device shall be accurate to, and shall be calibrated or have a calibration check performed at a frequency in accordance with, the manufacturer's specifications. **(02/21)**

16. Not more than 6 pyrolysis furnaces shall be decoked as described at any one time: two furnaces to decoke drum EPN 1009 (Olefins I), two furnaces to decoke drum EPN 1063 (Olefins II), and two furnaces to either decoke drum EPN 1009 (Olefins I) or to decoke drum EPN 1063 (Olefins II). The operator shall record decoking of each pyrolysis furnace, recording the furnaces affected, the time decoking is carried out, and the related decoke drum. Records shall be updated monthly to ensure compliance with this special condition and these records be made readily available at the request of EPA or TCEQ personnel. **(10/15)**

17. Ethylene production is limited to 4.0 billion pounds per year calculated on a rolling 12-month basis from the ethylene furnaces authorized in this permit. Records shall be updated monthly to ensure compliance with this special condition and these records be made readily available at the request of EPA and TCEQ personnel. **(02/08)**

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18. Volatile organic compounds (VOC) from the catalyst regeneration in the gasoline hydrotreater unit shall be vented to the Elevated Flare (EPN 1018) or the fireboxes of any of the Pyrolysis Furnaces. The VOC emissions from the acetylene converter unit (ACU) in the Olefins One Unit shall only be vented to the ethylene furnace fireboxes of EPNs 1001 and/or 1002 for abatement up to three ACU regenerations in any rolling 12-month period. The VOC emissions from the ACU in the Olefins II Unit shall only be vented to the ethylene furnace fireboxes of EPNs 1054, 1055, and/or 1056 for abatement up to three ACU regenerations in any rolling 12-month period. The MAPD converter regeneration process that vents to EPNs 1012 and 1066 is limited to four regenerations every rolling12 months of operation. The MAPD converter regeneration process that vents to Pyrolysis Furnaces EPNs 1001 and 1002 is limited to four regenerations every rolling 12-months of operation. It is not permissible to vent each VOC containing stream to the atmosphere. **(02/08)**

19. Testing of the Diesel Emergency Generators (EPNs 7900LJD and N7900LJD) for maintenance purposes shall not exceed 52 hours per year for each generator. **(07/13)**

20. The fuel for the emergency generator (EPNs 7900LJD and N7900LJD) shall be limited to diesel fuel containing no more than 15 ppm sulfur by weight. **(02/21)**

21. Records of the number of non-emergency hours of operation for the emergency generator (EPNs 7900LJD and N7900LJD) shall be maintained at the plant site for at least five years and be made available to representatives of the TCEQ upon request. **(02/21)**

22. The Olefins I caustic and the Olefins II Spent Caustic sump shall vent through a carbon adsorption system (EPNs 2412FCC and N5704LF3CC) consisting of at least two activated carbon canisters connected in series, or as authorized in Special Condition No. 49. **(06/22)**

23. For EPNs 2412FCC and N5704LF3CC, the carbon canisters shall be changed out at least once every 21 days when there is flow to the canisters. During periods when there is no flow to the canisters, the permit holder shall document the lack of flow. After an extended period of no flow to canisters (i.e., for more than 3 months) the canisters shall be replaced prior to resuming flow to the canisters. During change out, if both canisters are not replaced, the initial carbon canister shall be replaced by the final carbon canister and a new carbon canister will be put in the spot of the final carbon canister. Records shall be kept showing the date of each change out. **(06/22)**

Fugitive Monitoring

24. Piping, Valves, Connectors, Pumps, Agitators, and Compressors - 28VHP **(02/21)**

    The following requirements apply to piping, valves, connectors, pumps, agitators, and compressors containing or in contact with fluids that could reasonably be expected to contain greater than or equal to 10 weight percent volatile organic compounds (VOC) at any time.

    A. The requirements of paragraphs F and G shall not apply (1) where the Volatile Organic Compound (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 readily available upon request.

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

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- 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, 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 readily available upon request. The difficult-to-monitor and unsafe-to-monitor valves may be identified by one or more of the methods described in subparagraph 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 within the 72-hour 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.

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F. Accessible valves shall be monitored by leak-checking for fugitive emissions at least quarterly using an approved gas analyzer. 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. If a relief valve is equipped with rupture disc, a pressure-sensing device shall be installed between the relief valve and rupture disc to monitor disc integrity.

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. All leaking discs shall be replaced at the earliest opportunity but no later than the next process shutdown.

The 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.

Replacements for leaking components shall be re-monitored within 15 days of being placed back into VOC service.

G. Except as may be provided for in the special conditions of this permit, all pump, compressor, and agitator seals shall be monitored with an approved gas analyzer at least quarterly or be equipped with a shaft sealing system that prevents or detects emissions of VOC from the seal. Seal systems designed and operated to prevent emissions or seals equipped with an automatic seal failure detection and alarm system need not be monitored. These seal systems 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.

H. Damaged or leaking valves or connectors 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. Damaged or leaking pump, compressor, and agitator seals found to be emitting VOC in excess of 2,000 ppmv or found by visual inspection to be leaking (e.g., dripping process fluids) shall be tagged and replaced or repaired. A first attempt to repair the leak must be made within 5 days and a record of the attempt shall be maintained.

I. 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 within 15 days of the detection of the leak. 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

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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 the TCEQ Executive Director 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.

J. 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.

K. Alternative monitoring frequency schedules of 30 TAC §§ 115.352 - 115.359 or National Emission Standards for Organic Hazardous Air Pollutants, 40 CFR Part 63, Subpart H, may be used in lieu of Items F and G of this condition.

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 (NSPS), or an applicable National Emission Standard for Hazardous Air Pollutants (NESHAPS) and does not constitute approval of alternative standards for these regulations.

M. With respect to this Special Condition, new and reworked is meant to apply to major changes in piping. It is not intended to apply to minor activities including but not limited to: installation/replacement of small number of valves and flanges; minor repairs; gasket replacement; repair/replacement of small sections of piping, etc. Also, "process pipelines" does not apply to underground process sewer lines, cooling tower water, fire water, etc. Additionally, the requirement for new and reworked buried connectors to be welded will not apply if compliance would require a process unit shutdown or would create a safety issue including, but not limited to, close proximity of other process pipelines and equipment or unsafe access to the piping.

25. In lieu of the 2000 ppmv VOC limit in Paragraph H of Special Condition 24, damaged or leaking pump, compressor, and agitator 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. A first attempt to repair the leak must be made within 5 days. Records of the first attempt to repair shall be maintained. **(02/11)**

26. **28 CNTA (Connectors Inspected Annually) (02/21)**

In addition to the weekly physical inspection required by Item E of Special Condition No. 24, all designated flanges and connectors in gas/vapor and light liquid service shall be monitored annually with an approved gas analyzer in accordance with Items F through J of Special Condition No. 24. Alternative monitoring frequency schedules "skip options" of 40 CFR Part 63, Subpart H, National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks, may be used in lieu of the monitoring frequency required by this permit condition. Compliance with this condition does

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not assure compliance with requirements of applicable state or federal regulation and does not constitute approval of alternative standards for these regulations.

Piping, Valves, Pumps, and Compressors in contact with Chorine compounds – 28 Audio, Visual, and Olfactory (AVO) (02/21)

27. 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 once per shift.

    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 Texas Commission on Environmental Quality (TCEQ) upon request.

Cooling Tower Monitoring Requirements

28. VOC Monitoring - The cooling tower water shall be monitored 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. Cooling towers designated as EPNs 1010, 1064, 8801U and FRACII-CT shall be monitored. A potential VOC leak is defined as 50 parts per billion, by weight (ppbw) in the cooling water for EPNs 1064, 8801U, and FRACII-CT and 84 ppbw for EPN 1010, and this VOC leak rate from these EPNs will be used to demonstrate compliance with this special condition. The VOC concentrations above 0.5 ppmw for EPNs 1064, 8801U, and FRACII-CT and 0.84 ppmw for EPN 1010 are not subject to extensions for delay of repair under this permit condition. Results of the monitoring and maintenance efforts shall be recorded, and such records shall be maintained for a period of five years. The records shall be made readily available to representatives of the EPA or TCEQ personnel upon request. **(02/21)**

29. The cooling towers (EPNs 1010, 1064, 8801U, and FRACII-CT) shall be operated and monitored in accordance with the following: **(02/21)**

    A. 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.

    B. Total dissolved solids (TDS) shall not exceed 6500 parts per million by weight (ppmw) on an hourly basis and 4150 ppmw on an annual average. Dissolved solids in the cooling water drift

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are considered to be emitted as PM, PM_{10}, and $PM_{2.5}$ as represented in the permit application calculations.

C. Cooling towers shall be analyzed for particulate emissions using one of the following methods:

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

(2) TDS monitoring may be reduced to weekly if conductivity is monitored daily 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 weekly basis. The permit holder may use the average of two consecutive TDS-to-conductivity ratios to calculate daily TDS; or

(3) TDS monitoring may be reduced to quarterly if conductivity is monitored daily and TDS is calculated using a correlation factor established for each cooling tower. The correlation factor shall be the average of nine consecutive weekly TDS-to-conductivity ratios determined using C(2) above provided the highest ratio is not more than 10% larger than the smallest ratio.

(4) 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 weekly until a new correlation factor can be established.

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

(1) 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.

(2) 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.

(3) Alternate sampling and analysis methods may be used to comply with D(1) and D(2) with written approval from the TCEQ Regional Director.

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

E. 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.

Storage and Loading of VOC - 31M

30. Storage tank throughput and service shall be limited to the following: **(TBD)**

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Tank ID	Type*	Service	Fill/Withdrawal rate (gallons/hour)	Rolling 12-month Throughput (gallons)
7498F, N7498F	VFR	98% H2SO4	29,400	403,200
7900LJDF	HFR	Diesel	1,200	1,042
C29600	HFR	Polymerization Inhibitor	1,000	4,067
N920766	VFR	Polymerization Inhibitor	2,000	4,067
C29601, N920425	HFR	Polymerization Inhibitor	1,000	2,109
N79134	HFR	Polymerization Inhibitor	1,300	8,348
N83070	VFR	Corrosion Inhibitor	1,700	1,400
N83071	VFR	Corrosion Inhibitor	2,000	2,440
N6499FA/FB	VFR	Pyrolysis Fuel Oil	2,250	7,846,146
N2413F	VFR	Antifoulant	6,610	252,000
N2410F	VFR	Wash Oil	8,280	6,455,400
N1705L2F, N1705L5F	HFR	Corrosion Inhibitor	3,000	2,000
PPULUBE	VFR	Diesel	0.067	39
PGCLUBE, NPGCLUBE	VFR	Diesel	0.278	1,907
PRCERLUBE, NPRCERCLUB	VFR	Diesel	0.278	1,473
3602J1/J2LUBE, N3602JLUBE, PGCSEAL, PRCERCSEAL, NPGCSEAL	HFR	Diesel	0.278	1,907
*HFR refers to horizontal fixed roof tanks and VFR refers to vertical fixed roof tanks				

31. The true vapor pressure of any liquid stored at this facility in an atmospheric tank shall not exceed 11.0 psia. **(02/21)**

32. Storage tanks are subject to the following requirements. The control requirements specified in paragraphs A-D 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. **(02/21)**

    A. An internal floating deck roof or equivalent control shall be installed in all tanks. 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 internal floating roof: (1) a liquid-mounted seal, (2) two continuous seals mounted one above the other, or (3) a mechanical shoe seal.

    B. An open-top tank containing a floating roof (external floating roof tank) which uses double seal or secondary seal technology shall be an approved control alternative to an internal floating roof tank provided the primary seal consists of either a mechanical shoe seal or a liquid-mounted seal and the secondary seal is rim-mounted. A weather shield is not approvable as a secondary seal unless specifically reviewed and determined to be vapor-tight.

    C. For any tank equipped with a floating roof, the permit holder shall perform the visual inspections and seal gap measurements as specified in 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 seals were inspected and seal gap measurements

made, results of inspections and measurements made (including raw data), and actions taken to correct any deficiencies noted.

D. 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.

Floating roof tanks shall be constructed or equipped with a connection to a vapor recovery system that routes vapors from the vapor space under the landed roof to a control device.

E. Uninsulated tank exterior surfaces exposed to the sun shall be white or unpainted aluminum. Storage tanks must be equipped with permanent submerged fill pipes.

F. The permit holder shall maintain a record of tank throughput for the previous month and the past consecutive 12-month period for each tank.

33. Settlement Agreement Condition - The holder of this permit shall maintain a nitrogen blanket on each fixed-roof VOC storage tank and internal floating roof VOC storage tank unless the tank emissions are routed to a control device or containment system.

Initial Determination of Compliance

34. 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 vapor combustors (EPNs 1051 and 8003B) and Pyrolysis Furnace 11 (EPN 1011B) to demonstrate compliance with the MAERT, the vapor combustors' minimum temperature in Special Condition 15, and the requirements of Special Condition Nos. 6, 8, and 9 applicable to the Pyrolysis Furnace. 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. **(03/16)**

A. The appropriate TCEQ Regional Office in the region where the source is located shall be contacted as soon as testing is scheduled but not less than 45 days prior to sampling to schedule a pretest meeting. The notice shall include:

(1) 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.

A written proposed description of any deviation from sampling procedures specified in permit conditions or TCEQ or EPA sampling procedures shall be made available to the TCEQ prior to the pretest meeting. The TCEQ Regional Director shall approve or disapprove of any deviation from specified sampling procedures.

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

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proposals must have EPA and TCEQ approval, and requests shall be submitted to the TCEQ Regional Office.

B. Air contaminants emitted from the vapor combustors (EPNs 1051 and 8003B) to be tested for include (but are not limited to) VOC. Air contaminants emitted from the pyrolysis furnace (EPNs 1011B) to be tested for include (but are not limited to) VOC, NO_x, and CO.

For furnace 11 (EPN 1011B), sampling shall occur within 60 days after achieving the maximum operating rate, but no later than 180 days after issuance of these altered permit conditions 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. For vapor combustors (EPNs 1051 and 8003B), sampling shall occur no later than 180 days after issuance of these altered permit conditions and at such other times (identify the need for any periodic sampling here) as may be required by the TCEQ Executive Director. Requests for additional time to perform sampling shall be submitted to the appropriate regional office.

C. The facilities being sampled shall operate at the maximum possible waste gas flow rates during stack emission testing. 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.

D. Copies of the final sampling report shall be forwarded to the TCEQ within 60 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 Corpus Christi Regional Office.

One copy to the EPA, Air Enforcement Branch, Dallas.

E. Sampling ports and platform(s) shall be incorporated into the design of (source stack and EPN) according to the specifications set forth in the attachment entitled “Chapter 2, Stack Sampling Facilities” of the Texas Commission on Environmental Quality (TCEQ) Sampling Procedures Manual. Alternate sampling facility designs must be submitted for approval to the TCEQ Regional Director.

Continuous Demonstration of Compliance

35. The holder of this permit shall install, calibrate, maintain and operate a continuous emission monitoring system (CEMS) to measure and record the in-stack concentration of NO_x, CO, and oxygen from the Pyrolysis Furnace Stacks (EPNs 1001 through 1008, 1009B, 1054 through 1062, 1091, 1010B, 1011B, N1011 and N1012). **(02/21)**

A. Each CEMS shall meet the design and performance specifications, pass the field tests, and meet the installation requirements and the data analysis and reporting requirements specified in the applicable Performance Specification Nos. 1 through 9, Title 40 Code of Federal Regulation Part 60 (40 CFR Part 60), Appendix B. If there are no applicable performance

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specifications in 40 CFR Part 60, Appendix B, contact the TCEQ Office of Air, Air Permits Division for requirements to be met.

Field performance testing of each CEMS shall be initiated within 60 days after initial start-up. The date of commencement of monitor certification testing shall be provided to the TCEQ Regional Office at least 30 days prior to the start of the monitor testing. The certification test report shall be forwarded to the TCEQ and EPA within 30 days after completion of the monitor certification tests.

B. Section 1 below applies to sources subject to the quality-assurance requirements of 40 CFR Part 60, Appendix F; Section 2 applies to all other sources:

(1) The permit holder shall assure that each CEMS meets the applicable quality-assurance requirements specified in 40 CFR Part 60, Appendix F, Procedure 1. Relative accuracy exceedances, as specified in 40 CFR Part 60, Appendix F, § 5.2.3 and each CEMS downtime shall be reported to the appropriate TCEQ Regional Manager, and necessary corrective action shall be taken. Supplemental stack concentration measurements may be required at the discretion of the appropriate TCEQ Regional Manager.

(2) Each system shall be zeroed and spanned daily, and corrective action taken when the 24-hour span drift exceeds two times the amounts specified in the applicable Performance Specification Nos. 1 through 9, 40 CFR Part 60, Appendix B, or as specified by the TCEQ if not specified in Appendix B. Zero and span is not required on weekends and plant holidays if instrument technicians are not normally scheduled on those days.

Each monitor shall be quality-assured at least quarterly using Cylinder Gas Audits (CGA) in accordance with 40 CFR Part 60, Appendix F, Procedure 1, Section 5.1.2, with the following exception: a relative accuracy test audit (RATA) is not required once every four quarters (i.e., four successive quarterly CGA may be conducted). An equivalent quality-assurance method approved by the TCEQ may also be used. Successive quarterly audits shall occur no closer than two months.

All CGA exceedances of +15 percent accuracy indicate that each CEMS is out of control.

C. The monitoring data shall be reduced to hourly average concentrations at least once every day, using a minimum of four equally-spaced data points from each one-hour period. The individual average concentrations shall be reduced to units of the permit allowable emission rate in lbs per hour and lbs/MMBtu (daily average) at least once every week as follows:

Emissions calculations based on measured concentrations and exhaust flow rate shall be used to convert the 1-hour average concentration from the CEMS to lb/MMBtu and lb/hr to demonstrate compliance with the NOx and CO emission limits in Special Conditions 6 and 8 and the MAERT. Exhaust flow rate may be monitored directly or calculated by monitoring fuel flow and using EPA Test Method 19.

D. All monitoring data and quality-assurance data shall be maintained by the source. The data from each CEMS may, at the discretion of the TCEQ, be used to determine compliance with the conditions of this permit.

E. Quarterly reports of all excessive emissions and each CEMS downtime shall be submitted to the appropriate TCEQ Regional Director. These reports shall include the information described in 40 CFR § 60.7 and the hours of operation of the source during the reporting period.

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F. The appropriate TCEQ Regional Office shall be notified at least 30 days prior to any required RATA in order to provide them the opportunity to observe the testing.

G. Quality-assured (or valid) data must be generated when the Olefins I and II facilities are 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 operations (producing inaccurate data), repair, maintenance or calibration may be exempted provided it does not exceed 5 percent of the time (in minutes) that the Olefins I and II facilities operated over the previous rolling 12-month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded. Options to increase system reliability to an acceptable value, including a redundant CEMS, may be required by the TCEQ Regional Manager.

Recordkeeping

36. Records of the hours of operation and mode of each furnace or heater during startup, shutdown, decoking or standby mode of operation shall be maintained for a rolling five-year period and be made readily available to TCEQ personnel upon request.

Records of the monthly production and total annual production of ethylene for the 12 preceding months shall be made in a similar manner. Production data shall be reduced to monthly and annual totals at least once each month.

These records shall compare the operational modes of all furnaces and total the number of furnaces being used to crack feedstock on an hourly basis. The number of furnaces being decoked shall also be totaled.

This data and any necessary supporting information shall be used to determine compliance with the operational limits set forth in Special Condition No. 16 and the production rates set forth in Special Condition No. 17. All records shall be made readily available to TCEQ personnel upon request.

37. The holder of this permit shall keep records of the heat content of the plant fuel gas or any other fuel firing the pyrolysis furnaces on a Btu basis. The records shall be maintained for a rolling five-year period and be made readily available to TCEQ personnel upon request.

This data and any necessary supporting information shall be used to determine compliance with the annual emission rates set forth in Special Condition Nos. 1, 6, and 8. All records shall be made readily available to TCEQ personnel upon request.

38. The holder of this permit shall submit at the request of the TCEQ Corpus Christi Regional Office documentation which demonstrates that the holder is achieving compliance with all the conditions of the permit. This documentation shall consist of a statement explaining how each requirement in a condition is being met. It will include a sample of each record sheet required to be maintained by any condition and a listing of all testing required with test dates.

Compliance Assurance Monitoring

39. The following requirements apply to capture systems for each flare designated as EPNs 1018, 1067, 1087, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4, and VCUs (EPNs 1051 and 8003B) authorized in this permit. **(TBD)**

A. If used for particulate control, complete either of the following once a year

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(1) Inspect any fan and verify proper operation and inspect the capture system to verify there are no cracks, holes, tears, and other defects; or

(2) Verify there are no fugitive emissions escaping from the capture system by performing a visible emissions observation for a period of at least six minutes in accordance with 40 CFR Part 60, Appendix A, Test Method 22.

B. If used to control pollutants other than particulate, either:

(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.

C. Each control device shall not have a bypass,

or

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

(1) Install a flow indicator that records and verifies zero flow at least once every 15 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 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.

The date and results of each inspection performed shall be recorded. If the results of any of the above inspections are not satisfactory, the deficiencies shall be recorded and the permit holder shall promptly take necessary corrective action, recording each action with the date completed.

Maintenance, Startup, and Shutdown (MSS)

40. This permit authorizes air emissions from the planned maintenance, startup, and shutdown (MSS) activities identified in the following table performed at the facilities authorized by this permit. **(TBD)**

Olefins I		
Facilities	**Description/ Emissions Activity**	**EPN****
All facilities*	Depressurize and purge to flare or vapor combustor per Special Condition 41	1018, 1051, 8003B, 1067, 1087, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4 or OL1-TEMP
All facilities*	Degas facilities to atmosphere after flare per Special Condition 41	1028

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Olefins I		
Facilities	**Description/ Emissions Activity**	**EPN****
All facilities*	Fill and/or vent to flare or vapor combustor during startup and shutdown	1018, 1051, 8003B, 1067, 1087, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4 or OL1-TEMP
All facilities*	Drain liquid to remove water	1018, 1051, 8003B, 1067, 1087, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4 or OL1-TEMP
Tanks (fix, float, pressure)	Refilling tanks after cleaning	1018, 1051, 8003B, 1067, 1087, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4 or OL1-TEMP
Frac tanks	Temporary storage of process liquids	1028
Heat Exchangers, Filters and Other Equipment	Hydroblasting following depressurization and purge to flare	1028
Loading Arms	Emissions from fill line after filling tank	1028
Vacuum trucks	Load and transport liquid to support MSS on permanent facilities	1028
Flares and vapor combustors	Maintenance on flares and vapor combustors	1018, 1051, 8003B, 1067, 1087, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4
Comb. Unit	Cracking furnace maintenance	1001 - 1008, 1009B, 1010B, 1011B
Instruments	Maintenance and calibration	1028
Analyzers	Maintenance and calibration	1028
Sight glasses	Sampling and sight glass cleaning	1028
Transmitters	Maintenance and calibration	1028
Carbon canister	Canister replacements	1028
* All facilities include piping		
** The Olefins 1 and Olefins 2 elevated flare systems serve as backup for each other for MSS control as needed.		

Olefins II		
Facilities	**Description/ Emissions Activity**	**EPN****
All facilities*	Depressurize and purge to flare or vapor combustors per Special Condition 41	1018, 1051, 8003B, 1067, 1087, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, OL1-TEMP or OL2-TEMP
All facilities*	Degas facilities to atmosphere after flare per Special Condition 41	1068
All facilities*	Fill and/or vent to flare or vapor combustors during startup and shutdown	1018, 1051, 8003B, 1067, 1087, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, OL1-TEMP or OL2-TEMP
All facilities*	Drain liquid to remove water	1018, 1051, 8003B, 1067, 1087, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, OL1-TEMP or OL2-TEMP

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Olefins II		
Facilities	**Description/ Emissions Activity**	**EPN****
Tanks (fix, float, pressure)	Refilling tanks after cleaning	1018, 1051, 8003B, 1067, 1087, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, OL1-TEMP or OL2-TEMP
Frac tanks	Temporary storage of process liquids	1068
Heat Exchangers, Filters and Other Equipment	Hydroblasting following depressurization and purge to flare	1068
Loading Arms	Emissions from fill line after filling tank	1068
Vacuum trucks	Load and transport liquid to support MSS on permanent facilities	1068
Flares or vapor combustors	Maintenance on flares or vapor combustors	1018, 1051, 8003B, 1067, 1087, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4
Relief valves	Maintenance and calibrations	1068
Comb. Unit	Cracking furnace maintenance	1054-62, 1091, N1011, N1012
Instruments	Maintenance and calibration	1068
Analyzers	Maintenance and calibration	1068
Sight glasses	Sampling and sight glass cleaning	1068
Transmitters	Maintenance and calibration	1068
Carbon canister	Canister replacements	1068
* All facilities include piping		
** The Olefins 1 and Olefins 2 elevated and EGF flare systems serve as backup for each other for MSS control as needed.		

In addition, planned MSS emissions emitted from routine emission points are authorized provided the emissions are compliant with the respective MAERT allowable emission rates and special conditions.

This permit authorizes emissions from the following temporary facilities used to support planned MSS activities at permanent site facilities: vacuum trucks, frac tanks and control devices for MSS activities (EPNs OL1-TEMP and OL2-TEMP).

Emissions from temporary facilities are authorized provided the temporary facility (a) does not remain on the plant site for more than 12 consecutive months, (b) is used solely to support planned MSS activities at the permanent facilities authorized by this permit, and (c) does not operate as a replacement for an existing authorized facility.

Attachment A identifies the inherently low emitting MSS activities that may be performed at the plant. Emissions from activities identified in Attachment A shall be considered to be equal to the potential to emit represented in the permit application. The estimated emissions from the activities listed in Attachment A must be revalidated annually. This revalidation shall consist of the estimated emissions for each type of activity and the basis for that emission estimate.

Routine maintenance activities, as identified in Attachment B may be tracked through the work orders or equivalent. Emissions from activities identified in Attachment B shall be calculated using the number of work orders or equivalent that month and the emissions associated with that activity identified in the permit application.

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The performance of each planned MSS activity identified in Attachment C and the emissions associated with it shall be recorded and include at least the following information:

A. The process unit at which emissions from the MSS activity occurred, including the emission point number and common name of the process unit;

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.

41. Except for instrumentation/analyzer maintenance and vacuum trucks, process units and facilities shall be depressurized, degassed, and placed back into service in accordance with the following requirements. **(02/21)**

A. The process equipment shall be vented to a control device or a controlled recovery system during depressurization. Equipment that only contains material with VOC partial pressure less than 0.50 psi at the normal process temperature and 95°F may be opened to the atmosphere after liquids are removed as required by this condition. 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. All liquids from process equipment or storage vessels must be removed to the maximum extent practical prior to opening equipment to commence depressurization, 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.

C. If mixed phase materials must be removed from process equipment during depressurization, liquids removal, or degassing, 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 psi 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.

D. If the VOC partial pressure is greater than 0.50 psi at the normal process temperature or 95°F, facilities shall be degassed using practices that 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 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. The facilities to be degassed shall not be vented directly to atmosphere, except as necessary to establish isolation of the work area or to monitor VOC concentration following controlled depressurization. The venting shall be minimized to the

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maximum extent practicable and actions taken recorded. The control device or recovery system utilized shall be recorded with the estimated emissions from controlled and uncontrolled degassing calculated using the methods that were used to determine allowable emissions for the permit application.

E. After degassing in accordance with Special Condition 41.D, the VOC concentration in the facilities being degassed shall be verified to be below 10,000 ppmv or less than 10 percent of the lower explosive limit (LEL) using one of the methods below prior to opening directly to atmosphere.

(1) For MSS activities other than process unit startup, shutdown, hydroblasting, or turnaround, the following option may be used in lieu of (2) 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 percent of the lower explosive limit (LEL) per the site safety procedures.

(2) Documentation shall be maintained of the locations and/or identifiers where the purge gas or steam enters the process equipment or storage vessel and the exit points for the purge gases. If the process equipment is purged with a gas, two system volumes of purge gas must have passed through the control device or controlled recovery system before the vent stream may be sampled to verify acceptable VOC concentration prior to uncontrolled venting. The VOC sampling and analysis shall be performed using an instrument meeting the requirements of Special Condition 42. 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. If there is not a connection (such as a sample, vent, or drain valve) available from which a representative sample may be obtained, a sample may be taken upon entry into the system after degassing has been completed. The sample shall be taken from inside the vessel so as to minimize any air or dilution from the entry point. The facilities shall be degassed to a control device or controlled recovery system until the VOC concentration is less than 10,000 ppmv or less than 10 percent of the lower explosive limit (LEL). Documented plant procedures used to de-inventory 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.

F. Gases and vapors with VOC partial pressure greater than 0.50 psi 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 is no more than 50 lb of air contaminant to be vented to atmosphere during shutdown or startup, as applicable.

Except for Attachment A activities, all instances of venting directly to atmosphere per Special Condition 41.F must be documented when occurring as part of any MSS activity. The emissions associated with venting without control must be included in the activity record for those planned MSS activities identified in Attachment B.

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42. Air contaminant concentration shall be measured using an instrument/detector meeting one of the following methods: **(11/12)**

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 with a calibration gas such that the response factor of the VOC (or mixture of VOCs) to be monitored shall be less than 2.0. The calibration gas and the gas to be measured, and its approximate response factor shall be recorded.

(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, recording VOC concentration each minute. The highest measured VOC concentration shall not exceed the specified VOC concentration limit prior to uncontrolled venting.

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 (3), 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:

(a) Measured contaminant concentration (ppmv) < release concentration.

(b) Where the release concentration is:

(c) 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 propane gas standard at 50% of the lower explosive limit (LEL) for propane. Records of the calibration date/time and calibration result (pass/fail) shall be maintained. **(05/13)**

(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.

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D. As an alternative to an instrument/detector, the analysis may be conducted in a laboratory. Bag samples of the gas discharged may be drawn and taken to a Formosa laboratory to be analyzed by gas chromatography (GC). A minimum of two bag samples shall be drawn approximately ten minutes apart. A Tedlar bag, or a bag appropriate for the material to be sampled, shall be used and shall have a valve to seal gas in the bag. The samples shall be drawn as follows:

(1) The sample point on the equipment being cleared shall be purged sufficiently to ensure a representative sample at the sample valve.

(2) The sample bag shall be connected directly to the sample valve.

(3) The sample valve and sample bag shall be opened to allow the bag to fill to approximately 80% of capacity. The sample connections shall be fitted such that no air is drawn into the sample bag.

(4) The two valves shall then be closed to seal the sample in the bag.

(5) The sample bag shall then be disconnected and placed in a dark container out of direct sunlight for transport to the analyzer.

(6) This process is repeated to collect additional samples.

(7) The sample shall be analyzed within 12 hours of collection.

The laboratory GC shall meet or exceed the requirements of 40 CFR 60, Appendix A, Method 18 Sections 6 (Equipment and Supplies), 7 (Reagents and Standards), 9 (Quality Control), and 10 (Calibration and Standards). The sample shall be analyzed per Section 8.2.1.1.2 of Method 18, except the analysis does not need to be performed in triplicate. The highest measured VOC concentration shall not exceed the specified VOC concentration limit prior to uncontrolled venting.

43. The following requirements apply to vacuum and air mover truck operations to support planned MSS at this site: **(02/21)**

A. Vacuum pumps and blowers shall not be operated on trucks containing or vacuuming liquids with VOC partial pressure greater than 0.50 psi at 95°F 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 and the truck identifier (bill of lading or other unique identifier). Record the liquid level and document that the VOC partial pressure is less than 0.50 psi 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 psi 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

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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 pump exhaust is controlled with a control device other than an engine or oxidizer, records shall be maintained of VOC exhaust concentration upon commencing each transfer, at the end of each transfer, and at least every hour during each transfer, measured using an instrument meeting the requirements of Special Condition 42.

(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 psi, 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 this Condition A through D do not apply.

44. The following requirements apply to frac, or temporary, tanks and vessels used in support of MSS activities. **(02/21)**

A. These requirements do not apply to vessels that do not vent to the atmosphere which store less than 100 gallons of liquid.

B. The exterior surfaces of these tanks/vessels that are exposed to the sun shall be white or unpainted aluminum effective May 1, 2013. This requirement does not apply to tanks/vessels that only vent to atmosphere when being filled.

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

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 tank identification number, dates put into and removed from service, control method used, tank capacity and volume of liquid stored in gallons, name of the material stored, VOC molecular weight, and VOC partial pressure at the estimated monthly average material temperature in psia. 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 psi at 95°F, 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.

45. Equipment shall be depressurized, liquids removed, and degassed per Special Condition 41. A, B, C, and D prior to opening the facility for hydroblasting. Trapped vapor that cannot be degassed

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because of the presence of polymer plugs may be vented directly to atmosphere during hydroblasting. **(11/12)**

46. MSS activities represented in the Special Condition 40 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. **(11/12)**

47. Control devices required by this permit for emissions from planned 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. **(TBD)**

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

    A. Thermal Oxidizer. (EPNs OL1-TEMP or OL2-TEMP)

        (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.

        As an alternative to Special Condition No. 47.A (1), the thermal oxidizer may be tested to confirm a minimum 99 weight percent 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 United States Environmental Protection Agency (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.

    B. Only one portable thermal oxidizer EPN OL1-TEMP for Olefins 1 Plant and one portable thermal oxidizer EPN OL2-TEMP for Olefins 2 Plant will operate simultaneously.

    C. The plant flare and vapor combustor systems (EPN 1018, EPN 1051, EPN 1067, EPN 1087, OL3-FLRA/B/C and/or EPN 8003B) shall be operated as specified in Special Condition 12.

    D. The Enclosed Ground Flares (EPNs EGF-1, EGF-2, EGF-3 and/or EFG-4) shall be operated as specified in Special Condition No. 13.

48. Planned maintenance activities must be conducted in a manner consistent with good practices for minimizing emissions, including the use of air pollution control equipment, practices and processes. All reasonable and practical efforts to comply with Special Conditions 40.E through 47 must be used when conducting the planned maintenance activity, until the commission determines that the

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efforts are unreasonable or impractical, or that the activity is an unplanned maintenance activity. **(02/21)**

Permit by Rule and Standard Permits

49. 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) or under a Standard Permit. These lists are not intended to be all inclusive and can be altered without modifications to this permit. **(06/22)**

Authorization	Source or Activity
PBR No. 145753	Olefins 2 Fugitives, 1068; Process Area Fugitives, FRACII-FUG
PBR No. 145953	Process Area Fugitives, FRACII-FUG; NGL Sphere
PBR No. 152521	Process Area Fugitives, FRACII-FUG
SP No. 159515	Alternate OL3 low-pressure flares to control waste gas from select sources at the Olefins 2 Plant
SP No. 161950	Replacement of the OL1 Elevated Flare Tip
SP No. 162757	Replacement of the OL2 Elevated Flare Tip
Pollution Control Project Standard Permit Registration No. 167459	Olefins I Caustic Sump vented to vapor combustor unit (EPN: 8003B)
Pollution Control Project Standard Permit Registration No. 168165	Olefins II spent caustic (Zimpro) sump vented to flare (EPNs: 1087)
PBR 106.476	Olefins II Caustic Collection Header Tank N2408F to Flare (EPNs: 1018, 1067)

Greenhouse Gas Emissions

50. Permit holders must keep records sufficient to demonstrate compliance with 30 Texas Administrative Code § 116.164. If construction, a physical change or a change in method of operation results in Prevention of Significant Deterioration (PSD) review for criteria pollutants, then records shall be maintained that are sufficient to demonstrate the amount of emissions of GHGs from the source as a result of such construction, physical change or change in method of operation does not require authorization under 30 TAC §116.164(a). If there is construction, a physical change or a change in the method of operation that will result in a net emission increase of 75,000 tpy or more CO_{2e}. greenhouse gas emissions are subject to PSD review. **(TBD)**

51. Monitoring, quality assurance/quality control requirements, emission calculation methodologies, record keeping, and reporting requirements related to Greenhouse Gas (GHG) emissions shall adhere to the applicable requirements in 40 CFR Part 98 and in this permit. **(TBD)**

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52. Permittee shall calculate the CO_{2e} emissions on a 12-month rolling basis, based on the procedures and Global Warming Potentials (GWP) contained in Greenhouse Gas Regulations, 40 CFR Part 98, Subpart A, Table A-1. **(TBD)**

53. Records of emissions of GHG, and how they were determined, in compliance with Special Condition Nos. 50, 51, and 52 must be maintained by the holder of this permit in a form suitable for inspection for a period of five years after collection and must be made available upon request to representatives of the TCEQ, EPA, or any local air pollution control program having jurisdiction. **(TBD)**

Alternative Means of Compliance

54. The permit holder shall comply with the requirements of Alternative Method of Compliance (AMOC) No. 213. **(TBD)**

Date: TBD

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Attachment A

Permit Numbers 19168, PSDTX1226M1, and GHGPSDTX224

Inherently Low Emitting Activities

Olefins I

Activity	Emissions		
	VOC	NO_x	CO
Maintenance of filters/strainers	X	X	X
Maintenance of loading arms	X	X	X
Maintenance of instruments	X		
Maintenance of analyzers	X		
Maintenance of sight glasses	X		
Maintenance of transmitters	X		
Carbon canister replacements	X		

Olefins II

Activity	Emissions		
	VOC	NO_x	CO
Maintenance of filters/strainers	X	X	X
Maintenance of instruments	X		
Maintenance of analyzers	X		
Maintenance of sight glasses	X		
Maintenance of transmitters	X		
Carbon canister replacements	X		
Maintenance of Loading Arms	X		

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Date: February 26, 2021

Attachment B

Permit Numbers 19168, PSDTX1226M1, and GHGPSDTX224

Routine Maintenance Activities

The following activities are subject to the full recordkeeping requirements specified by Special Condition 40.

Olefins I

Piping degassing

Maintenance on pumps

Maintenance on heat exchangers

Maintenance on compressors

Use of vacuum trucks

Olefins II

Piping degassing

Maintenance on pumps

Maintenance on heat exchangers

Maintenance on compressors

Use of vacuum trucks

Date: February 26, 2021

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Attachment C

Permit Numbers 19168, PSDTX1226M1, and GHGPSDTX224

Significant MSS Activity Summary

The following activities are subject to the full recordkeeping requirements specified by Special Condition 40.

Olefins I

Plant startup, shutdown, and turnaround/maintenance

Maintenance on storage tanks, including fixed roof tanks, pressure storage vessels, floating roof Tank landings, and the use of frac tanks

Maintenance on reactors, columns and other vessels

Maintenance emissions associated with flares and vapor combustors

Hydroblasting of heat exchangers, filters and other small equipment

Activities not listed on Attachments A and B or not otherwise authorized

Olefins II

Plant startup, shutdown, and turnaround/maintenance

Maintenance on storage tanks, including fixed roof tanks, pressure storage vessels, floating roof Tank landings, and the use of frac tanks

Maintenance on reactors, columns and other vessels

Maintenance emissions associated with flares and vapor combustors

Hydroblasting of heat exchangers, filters and other small equipment

Activities not listed on Attachments A and B or not otherwise authorized

Date: February 26, 2021

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Attachment D

Permit Numbers 19168, PSDTX1226M1, and GHGPSDTX224

Authorization Incorporation

The following sources and/or activities are incorporated in this permit.

Authorization	Date Authorized	Source or Activity
AMOC No. 133	September 6, 2019	To use an exemption from flow monitoring requirements in NSPS, Subpart RRR, which does not require flow meters or records when diverted flow is prevented by a car-seal or lock-and-key system, as an equivalent to comply with NSPS, Subpart NNN, for 23 Pyrolysis Furnaces in the Gasoline Hydrotreater and Olefins Units: OLFF1001-1008 (EPNs 1001-1008); OLFF1009B-1011B (EPNs 1009B-1011B); NFURNACE1-12 (EPNs 1054-1062, 1091, N1011 and N1012); and 2 Process Heaters 8001B-8002B (EPNs 8001B, 8002B).

Date: February 26, 2021

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Special Conditions

Permit Numbers 107518, PSDTX1383M2, and GHGPSDTX48M1

1. This permit covers only those sources of emissions listed in the attached table entitled "Emission Sources - Maximum Allowable Emission Rates" (MAERT), and those sources are limited to the emission limits and other conditions specified in that table.

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. **(12/20)**

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):

   A. Subpart A, General Provisions.

   B. Subpart VVa, Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006.

   C. Subpart NNN, Standards of Performance for Volatile Organic Compound (VOC) Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations.

   D. Subpart RRR, Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes.

   E. Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines.

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

   A. Subpart A, General Provisions.

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

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

   D. 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:

   A. Subpart A, General Provisions.

   B. Subpart XX, Ethylene Manufacturing Process Units: Heat Exchange Systems and Waste Operations.

   C. Subpart YY, National Emission Standards for Hazardous Air Pollutants for Source Categories: Generic Maximum Achievable Control Technology Standards.

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D. Subpart FFFF, Miscellaneous Organic Manufacturing Maximum Achievable Control Technology Standards.

E. Subpart DDDDD, Industrial, Commercial and Institutional Boilers and Process Heaters Maximum Achievable Control Technology Standards.

Pyrolysis Furnaces

6. The furnaces EPNs OL3-FUR1 through OL3-FUR14 shall be designed and operated in accordance with the following requirements: **(12/20)**

A. The permit holder shall install and operate a fuel flow meter to measure the gas fuel usage for each furnace. The monitored data shall be reduced to an hourly average flow rate at least once every day, using a minimum of four equally-spaced data points from each one-hour period. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, or equivalent, or at least annually, whichever is more frequent, and shall be accurate to within 5 percent. In lieu of monitoring fuel flow, the permit holder may monitor stack exhaust flow using the flow monitoring specifications of Title 40 of the Code of Federal Regulations Part 60 (40 CFR Part 60), Appendix B, Performance Specification 6 or 40 CFR Part 75, Appendix A.

B. Except during maintenance startup and shutdown (MSS), emissions from EPNs OL3-FUR1 through OL3-FUR14 shall not exceed the following:

(1) 0.025 pounds nitrogen oxides (NO_x) per million Btu (lb NO_x/MMBtu) at lower heating value (LHV) on a 24-hour rolling average;

(2) 0.0124 lb NO_x/MMBtu LHV on a 12-month rolling average;

(3) 0.035 pounds carbon monoxide (CO) per million Btu LHV on a 12-month rolling average; and

(4) 15 ppmvd and 10 ppmvd ammonia (NH_3) corrected to 3 percent oxygen on a one-hour average and annual average basis, respectively.

C. Compliance with the limits in Section B of this Special Condition shall be demonstrated for the average of all operating furnaces, EPN OL3-FUR1 through OL3-FUR14 except as specified in Special Condition No. 35.

D. The requirements in this condition and the initial demonstration of compliance requirements in Special Condition No. 33 shall apply to the furnaces once all furnaces are operational and after a shakedown period not to exceed 180 days.

Reactor Charge Heater

7. The following requirements shall apply to the PDH Reactor Charge Heater (EPN PDH-RXNHTR). **(12/20)**

A. Except where provided otherwise in paragraph D of this Special Condition, emissions of NO_X CO, and NH_3 from the reactor charge heater shall not exceed the following values.

(1) Short-term average limits:

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Pollutant	Emission Limit	Averaging Period
NO_X	0.015 lb/MMBtu	1-hr
CO	50 ppmvd	1-hr
NH_3	10 ppmvd	1-hr

(2) Long-term average limits:

Pollutant	Emission Limit	Averaging Period
NO_X	0.01 lb/MMBtu	Annual

Concentration of a pollutant in the exhaust of the reactor charge heater shall be evaluated on a dry basis, corrected to 3% oxygen.

B. Compliance with the NO_X and CO emission limits of paragraph A shall be demonstrated through use of CEMS in accordance with Special Condition No. 31.

C. The NH_3 concentration in the exhaust stack shall be tested or calculated according to one of the methods listed below and shall be tested or calculated according to frequency listed below. Testing for NH_3 slip is only required on days when the SCR unit is in operation.

(1) Install, calibrate, maintain, and operate, as specified under Special Condition No. 31, a CEMS to measure and record the concentration of NH_3. The NH_3 concentration shall be corrected and reported in accordance with Special Condition No. 31.

(2) Use a sorbent or stain tube device specific for NH_3 measurement in the 5 to 10 parts per million (ppm) range. The frequency of sorbent/stain tube testing shall be performed daily for the first 60 days of operation, after which the frequency may be reduced to weekly testing if operating procedures have been developed to prevent excess amounts of NH_3 from being introduced in the SCR units and when operation of the SCR units have been proven successful with regard to controlling NH_3 slip. Daily sorbent or stain tube testing shall resume when the catalyst is within 30 days of its useful life expectancy. These results shall be recorded and used to determine compliance with this Special Condition.

If sorbent or stain tube testing indicates an NH_3 slip concentration which exceed 5 ppm at any time, the permit holder shall begin NH_3 testing by either the Phenol-Nitroprusside Method, the Indophenol Method, or the EPA Conditional Test Method (CTM) 27 on a quarterly basis, in addition to the weekly sorbent or stain tube testing. The quarterly testing shall continue until such time as the SCR unit catalyst is replaced; or if the quarterly testing indicates NH_3 slip is 4 ppm or less, the Nitroprusside/Indophenol/CTM 27 tests may be suspended until sorbent or stain tube testing again indicate 5 ppm NH_3 slip or greater. These results shall be recorded and used to determine compliance with paragraph A of this Special Condition.

(3) Install, calibrate, maintain, and operate, as specified under Special Condition No. 31, a second NO_x CEMS upstream of the control device (in addition to the NO_x CEMS required under this Special Condition). Perform the measurements and calculations associated with the mass balance method specified in 30 TAC § 117.8130(1), using NO_x CEMS data to determine the NO_x concentration differential across the control device.

(4) Install and operate a dual stream system of NO_x CEMS at the exit of the SCR. One of the exhaust streams would be routed, in an unconverted state, to one NO_x CEMS and the other exhaust stream would be routed through a NH_3 converter to convert NH_3 to NO_x and then to a second NO_x CEMS. The NH_3 slip concentration shall be calculated

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according to the method specified in 30 TAC § 117.8130(2). These results shall be recorded and used to determine compliance with paragraph A of this Special Condition.

(5) Any other method used for measuring NH_3 slip shall require prior approval from the TCEQ Regional Director.

D. During non-routine operations for the reactor charge heater, and during the shakedown period, the requirements of subparagraph A(1) shall not apply.

Records of heater startup, shutdown, and low firing events shall specify the time and duration of the event.

Waste Heat Boiler

8. The following requirements shall apply to the PDH Waste Heat Boiler (EPN PDH-WHBLR). **(12/20)**

A. Except where provided otherwise in paragraph D of this Special Condition, emissions of NO_X and NH_3 from the waste heat boiler shall not exceed the following values.

(1) Short-term average limits:

Pollutant	Emission Limit	Averaging Period
NO_X	9 ppmvd	3-hr
NH_3	10 ppmvd	1-hr

(2) Long-term average limits:

Pollutant	Emission Limit	Averaging Period
NO_X	5 ppmvd	Annual

Concentration of a pollutant in the exhaust of a boiler shall be evaluated on a dry basis, corrected to 15% oxygen.

B. Compliance with the NO_X emission limits of paragraph A shall be demonstrated through use of CEMS in accordance with Special Condition No. 31.

C. The NH_3 concentration in the exhaust stack shall be tested or calculated according to one of the methods listed below and shall be tested or calculated according to frequency listed below. Testing for NH_3 slip is only required on days when the SCR unit is in operation.

(1) Install, calibrate, maintain, and operate, as specified under Special Condition No. 31, a CEMS to measure and record the concentration of NH_3. The NH_3 concentration shall be corrected and reported in accordance with Special Condition No. 31.

(2) Use a sorbent or stain tube device specific for NH_3 measurement in the 5 to 10 parts per million (ppm) range. The frequency of sorbent/stain tube testing shall be performed daily for the first 60 days of operation, after which the frequency may be reduced to weekly testing if operating procedures have been developed to prevent excess amounts of NH_3 from being introduced in the SCR units and when operation of the SCR units have been proven successful with regard to controlling NH_3 slip. Daily sorbent or stain tube testing shall resume when the catalyst is within 30 days of its useful life expectancy. These results shall be recorded and used to determine compliance with this Special Condition.

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If sorbent or stain tube testing indicates an NH_3 slip concentration which exceed 5 ppm at any time, the permit holder shall begin NH_3 testing by either the Phenol-Nitroprusside Method, the Indophenol Method, or the EPA Conditional Test Method (CTM) 27 on a quarterly basis, in addition to the weekly sorbent or stain tube testing. The quarterly testing shall continue until such time as the SCR unit catalyst is replaced; or if the quarterly testing indicates NH_3 slip is 4 ppm or less, the Nitroprusside/Indophenol/CTM 27 tests may be suspended until sorbent or stain tube testing again indicate 5 ppm NH_3 slip or greater. These results shall be recorded and used to determine compliance with paragraph A of this Special Condition.

(3) Install, calibrate, maintain, and operate, as specified under Special Condition No. 31, a second NO_x CEMS upstream of the control device (in addition to the NO_x CEMS required under this Special Condition). Perform the measurements and calculations associated with the mass balance method specified in 30 TAC § 117.8130(1), using NO_x CEMS data to determine the NO_x concentration differential across the control device.

(4) Install and operate a dual stream system of NO_x CEMS at the exit of the SCR. One of the exhaust streams would be routed, in an unconverted state, to one NO_x CEMS and the other exhaust stream would be routed through a NH_3 converter to convert NH_3 to NO_x and then to a second NO_x CEMS. The NH_3 slip concentration shall be calculated according to the method specified in 30 TAC § 117.8130(2). These results shall be recorded and used to determine compliance with paragraph A of this Special Condition.

(5) Any other method used for measuring NH_3 slip shall require prior approval from the TCEQ Regional Director.

D. During non-routine operations for a boiler, and during the shakedown period, the requirements of subparagraph A(1) shall not apply.

Boilers

9. The Steam Boilers (EPNs OL3-BOIL1 through OL3-BOIL4) shall be designed and operated in accordance with the following requirements:

A. The permit holder shall install and operate a fuel flow meter to measure the gas fuel usage for each boiler. The monitored data shall be reduced to an hourly average flow rate at least once every day, using a minimum of four equally-spaced data points from each one-hour period. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, or equivalent, or at least annually, whichever is more frequent, and shall be accurate to within 5 percent. In lieu of monitoring fuel flow, the permit holder may monitor stack exhaust flow using the flow monitoring specifications of Title 40 of the Code of Federal Regulations Part 60 (40 CFR Part 60), Appendix B, Performance Specification 6 or 40 CFR Part 75, Appendix A.

B. Except during MSS, emissions from the boilers (EPNs OL3-BOIL1 through OL3-BOIL4) shall not exceed the following:

(1) 0.015 lb NO_x/MMBtu at lower heating value (LHV) on a 24-hour rolling average;

(2) 0.01 lb NO_x/MMBtu LHV on a 12-month rolling average;

(3) 0.037 lb CO/MMBtu LHV on a 12-month rolling average; and

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(4) 15 ppmvd and 10 ppmvd NH_3 corrected to 3 percent oxygen on a one-hour average and annual average basis, respectively.

C. Compliance with the limits in Section B of this Special Condition shall be demonstrated for the average of all operating Boilers, EPNs OL3-BOIL1 through OL3-BOIL4 except as specified in Special Condition No. 35.

D. The requirements in this condition and the initial demonstration of compliance requirements in Special Condition No. 32 shall apply once all boilers are operational and after a shakedown period not to exceed 180 days.

Flares

10. The Olefins 1 Elevated Flare (EPN 1018), Olefins 2 Elevated Flare (EPN 1067), and Olefins 3 Elevated Flare (EPN: OL3-FLRA/B/C) shall be designed and operated in accordance with the following requirements: **(TBD)**

A. The flare system shall be designed such that the combined assist gas and waste stream to each flare meets the 40 CFR § 60.18 specifications of minimum heating value and maximum tip velocity under normal, and maintenance flow conditions.

Flare testing per 40 CFR § 60.18(f) may be requested by the appropriate 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 or an infrared monitor. The time, date, and duration of any loss of pilot flame shall be recorded. The flame monitoring devices shall be accurate to, and shall be calibrated at a frequency in accordance with, the manufacturer's specifications or equivalent.

C. The flare system 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 flares, as appropriate.

D. The permit holder shall install a continuous flow monitor and either a composition analyzer system or a calorimeter that provides a record of the vent stream flow and composition to the elevated flare system.

The flow monitor sensor and analyzer sample points shall be installed in the vent stream as near as possible to the flare inlet such that the total vent stream to the flare system is measured and analyzed. Readings shall be taken at least once every 15 minutes and the average hourly values of the flow and composition shall be recorded each hour.

The monitors shall be calibrated on an annual basis to meet the following accuracy specifications: the flow monitor shall be ±5.0%, temperature monitor shall be ±2.0% at absolute temperature, and pressure monitor shall be ±5.0 mm Hg. The initial calibration of the flow monitor shall demonstrate the flow monitor accuracy specification of ±5.0%, at flow rates equivalent to 30%, 60%, and 90% of monitor full scale or as demonstrated by compliance with API 14.10. Annual calibrations of the flow monitor thereafter shall be per manufacturer specification, or equivalent.

Calibration of the analyzer shall follow the procedures and requirements of Section 10.0 of 40 CFR Part 60, Appendix B, Performance Specification 9, as amended through October 17, 2000 (65 FR 61744), except that the multi-point calibration procedure in Section 10.1 of

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Performance Specification 9 shall be performed at least once every calendar quarter instead of once every month, and the mid-level calibration check procedure in Section 10.2 of Performance Specification 9 shall be performed at least once every calendar week instead of once every 24 hours. The calibration gases used for calibration procedures shall be in accordance with Section 7.1 of Performance Specification 9. Net heating value of the gas combusted in the flare shall be calculated according to the equation given in 40 CFR §60.18(f)(3) as amended through October 17, 2000 (65 FR 61744).

The calorimeter shall be calibrated, installed, operated, and maintained, in accordance with manufacturer recommendations, to continuously measure and record the net heating value of the gas sent to the flare, in British thermal units/standard cubic foot of the gas.

The monitors and analyzers shall operate as required by this section at least 95% of the time when waste gas is routed to the flare, averaged over a rolling 12-month period.

Flared gas net heating value and actual exit velocity determined in accordance with 40 CFR §60.18(f)(3) and 60.18(f)(4) shall be recorded at least once every 15 minutes when waste gas is routed to the flare. Hourly mass emission rates shall be determined and recorded using the above readings and the emission factors used in the permit application, PI-1 dated December 2, 2021, when waste gas is routed to the flare.

E. After July 6, 2023, the Olefins 1 Elevated Flare (EPN 1018), Olefins 2 Elevated Flare (EPN 1067), and Olefins 3 Elevated Flare (EPN: OL3-FLRA/B/C) shall meet the requirements of Special Condition No. 11 which will replace and supersede the requirements of this Special Condition. If a compliance extension is granted in accordance with NESHAP procedures, then the effective date to meet the requirements of Special Condition No. 11 will be specified in the compliance extension approval.

11. The EGFs (EPNs EGF-1, EGF-2, EGF-3, and EGF-4) shall be designed and operated in accordance with the following requirements: **(TBD)**

A. The flare systems shall be designed such that the combined flare vent gas, assist air, and/or total steam to each flare meets the 40 CFR § 63.670 specifications for minimum combustion zone net heating value and maximum tip velocity at all times that flare vent gas may be directed to the flare for more than 15 minutes. Flared gas actual exit velocity, vent gas net heating value, and flared gas combustion zone net heating value shall be determined in accordance with 40 CFR §63.670(k), §63.670(l), and §63.670(m) on a 15-minute block average and recorded at least once every 15 minutes.

If the flare actively receives perimeter assist air, it shall be operated to meet the 40 CFR §63.670 specifications for minimum net heating value dilution parameters.

B. The flares shall be operated with pilot flames present at all times flare vent gas may be directed to the flares. The pilot flames shall be continuously monitored by a thermocouple, infrared monitor, or ultraviolet monitor. The time, date, and duration of any loss of pilot flame shall be recorded. Each monitoring device shall be accurate to, and shall be calibrated at a frequency in accordance with, the manufacturer's specifications.

C. Flares shall be operated with no visible emissions except periods not to exceed a total of five minutes during any two consecutive hours, demonstrated and recorded per the requirements of §63.670(h).

D. The permit holder shall install flow monitors that continuously measure, calculate, and record the total volumetric vent stream flow rate (including waste gas, purge gas, supplemental gas, and sweep gas), and shall install a monitoring system capable of determining the

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concentration of individual components in the flare vent gas or the net heating value of the flare vent gas. The flow monitor sensor and analyzer sample points shall be installed in the vent stream such that the total vent stream to the flare is measured and analyzed.

If one or more gas streams that combine to comprise the total flare vent gas flow are monitored separately for net heating value and flow, the 15-minute block average net heating value shall be determined separately for each measurement location and a flow-weighted average of the gas stream net heating values shall be used to determine the 15-minute block average net heating value of the cumulative flare vent gas.

If assist air or assist steam is used, the owner or operator shall install, operate, calibrate, and maintain a monitoring system capable of continuously measuring, calculating, and recording the total volumetric flow rate of assist air and/or assist steam used with the flare.

If pre-mix assist air and/or perimeter assist air are used, the owner or operator shall install, operate, calibrate, and maintain a monitoring system capable of separately measuring, calculating, and recording the volumetric flow rate of premix assist air and/or perimeter assist air used with the flare. Continuously monitoring fan speed or power and using fan curves is an acceptable method for continuously monitoring assist air flow rates.

Perimeter assist air includes all air assist except premix assist air. Premix assist air includes any air intentionally entrained in center steam.

Assist air includes premix assist air and perimeter assist air, but does not include the surrounding ambient air.

The monitors shall be calibrated or have a calibration check performed as specified in Table 13 of the appendix to 40 CFR 63, Part CC to meet the following accuracy specifications: the vent flow monitor shall be ±20 percent of flow rate at velocities ranging from 0.03 to 0.3 meters per second (0.1 to 1 feet per second) ±5 percent of flow rate at velocities greater than 0.3 meters per second (1 feet per second), all other gas flow monitors shall be ±5 percent over the normal range of flow measured or 280 liters per minute (10 cubic feet per minute) whichever is greater, temperature monitor shall be ±1 percent over the normal range of temperature measured, expressed in degrees Celsius (C), or 2.8 degrees C, whichever is greater, and pressure monitor shall be ±5 percent over the normal operating range or 0.12 kilopascals (0.5 inches of water column), whichever is greater. For purposes of this permit, a calibration check means, at a minimum, using a second device or method to verify that the monitor is accurate as specified in the permit.

Calorimeters shall have an accuracy of at least ±2% of span and be calibrated, installed, operated, and maintained in accordance with manufacturer recommendations and as specified in Table 13 of the appendix to 40 CFR 63, Part CC, to continuously measure and record the net heating value of the vent gas sent to the flare, in British thermal units/standard cubic foot of the gas.

For determination of net heating value by gas chromatograph, the minimum accuracy shall be as specified in Performance Specification 9 of Part 60, appendix B. Composition monitoring instruments shall be calibrated, installed, operated, and maintained in accordance with manufacturer recommendations and as specified in 40 CFR §63.671(e) and Table 13 of 40 CFR Pt. 63, Subpart CC. Individual component properties specified in Table 12 of Subpart CC shall apply to net heating value calculations.

For determination of net heating value by continuous process mass spectrometer, the minimum accuracy; composition monitoring; calibration; installation; operation and maintenance shall be done in accordance with 40 CFR §63.1103(e)(4)(viii).

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E. Quality assured (or valid) data must be generated during periods that flare is operating. 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 flare operated over the previous rolling 12-month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

F. Hourly mass emission rates shall be determined and recorded using the monitoring data collected pursuant to paragraph D of this Special Condition and the emission factors specified in the permit amendment application PI-1 dated December 2, 2021.

G. Pilot and supplemental (fuel) gas combusted in the flares shall be sweet natural gas containing no more than 0.26 grains of total sulfur per 100 dry standard cubic feet.

12. Vent gas streams for the OL3 Plant may be directed to any of the EFGs or to any of the Olefins units elevated flares (EPNs EGF-1, EGF-2, EGF-3, EGF-4, 1018, 1067, and/or OL3-FLRA/B/C). **(TBD)**

Vapor Combustor Units

13. The vapor combustors units (EPNs OL3-VCU1 and OL3-VCU2) shall be designed and operated in accordance with the following requirements: **(12/20)**

A. The vapor combustor unit (VCU) shall maintain the VOC concentration in the exhaust gas less than 10 ppmv on a dry basis, corrected to 3 percent oxygen, or achieve 99% 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 1,200°F prior to the initial stack test performed in accordance with Special Condition No. 33. Following the completion of that stack test, the six minute average temperature shall be maintained above the minimum one hour average temperature maintained during the last satisfactory stack test

B. 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 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 ±2.5ºC.

C. Quality assured (or valid) data must be generated when the VCU 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 VCU operated over the previous rolling 12 month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

The vapor combustor shall be operated with no visible emissions and have a constant pilot flame during all times waste gas could be directed to it. The pilot flame shall be continuously monitored by a thermocouple or an infrared monitor. The time, date, and duration of any loss of pilot flame shall be recorded. Each monitoring device shall be accurate to, and shall be calibrated or have a calibration check performed at a frequency in accordance with, the manufacturer’s specifications.

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Fuel Gas

14. Fuel gas combusted at this facility is subject to the following requirements for fuel sulfur: **(12/20)**

    A. The steam boilers (EPNs OL3-BOIL1 through OL3-BOIL4) shall be fired with natural gas, PDH fuel gas, OL3 tail gas, or any combination thereof.

    B. The reactor charge heater (EPN PDH-RXNHTR) shall be fired with natural gas, PDH fuel gas, OL3 tail gas, or any combination thereof.

    C. The air heater upstream of the waste heat boiler (EPN PDH-WHBLR) shall be fired with natural gas, PDH fuel gas, OL3 tail gas, or any combination thereof.

    D. The flare pilots shall be fired with natural gas. Assist gas for the flare shall be natural gas.

    E. The VCUs shall be fired with natural gas.

    F. Natural gas and OL3 tail gas shall have a total sulfur content not to exceed 5 grains of total sulfur per 100 dry standard cubic feet. PDH fuel gas shall have a total sulfur content not to exceed 26 grains of total sulfur per 100 dry standard cubic feet.

    G. Compliance with the requirements of paragraph F of this Special Condition shall be verified through sampling of fuel gas at least semi-annually. Fuel gas streams identified in paragraph E may be sampled individually, or a representative sample of blended fuel gas may be taken from the fuel gas header.

       For natural gas, tariff sheets documenting the sulfur content of the fuel may be retained in lieu of performing sampling.

Visible Emissions

15. Opacity of emissions from the PDH Reactor Charge Heater (EPN PDH-RXNHTR), and PDH Waste Heat Boiler (EPN PDH-WHBLR), each boiler (EPNs OL3-BOIL1 through OL3-BOIL4) and emergency engine authorized by this permit shall not exceed 5 percent averaged over any six minute period.

    Opacity shall be determined by EPA Test Method 9 during the initial compliance testing and at least once per year thereafter. In lieu of performing a required opacity test, the permit holder may verify that there are no visible emissions as determined by EPA Test Method 22.

Compliance Assurance Monitoring

16. The following requirements apply to capture systems for each flare designated as EPNs 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4: **(TBD)**

    A. If the control device is equipped with a bypass, the permit holder shall 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

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(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.

B. 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.

Storage Tanks

17. Storage tank throughput and service shall be limited to the following: **(12/21)**

Tank Identifier	Service	Fill Rate (gallons/hour)	Rolling 12 Month Throughput (gallons)	Control
FIN PDH-SWOT	Spent wash oil	200	31,836	EPN OL3-VCU1 EPN OL3-VCU2
EPN OL3-ACID	Sulfuric acid	4,494	1,340,052	Atmosphere
EPN OL3-ACID2	Sulfuric acid	15,228	548,226	Atmosphere
EPN OL3-PLO	Lube oil	6,468	1,084	Atmosphere
EPN OL3-PRLO	Lube oil	2,604	436	Atmosphere
EPN OL3-BRLO	Lube oil	3,360	563	Atmosphere
EPN OL3-Chem1	Amine	4,494	42,833	Atmosphere
EPN OL3-Chem2	Amine	4,494	42,833	Atmosphere
EPN OL3-Chem3	Anti-Foulant	4,494	54,771	Atmosphere
EPN OL3-Chem4	Anti-Foulant	4,494	54,771	Atmosphere
EPN OL3-Chem5	Amine	4,494	30,194	Atmosphere
EPN OL3-Chem6	BFW Amine	4,494	53,928	Atmosphere
EPN OL3-Chem7	Package Boilers BFW Amine	1,544	18,528	Atmosphere
FIN OL3-Chem8	Wash Oil	64,890	6,748,560	EPN OL3-VCU1 EPN OL3-VCU2
FIN OL3-Chem9	Spent Caustic	240,618	12,512,136	EPN OL3-VCU1 EPN OL3-VCU2
FIN OL3-Chem10	Spent Caustic	240,618	12,512,136	EPN OL3-VCU1 EPN OL3-VCU2
EPN OL3-DIES	Diesel	1,008	2,408	Atmosphere
EPN PDH-PLO	Lube oil	110	1,008	Atmosphere
EPN PDH-PRLO	Lube oil	110	1,008	Atmosphere
EPN PDH-ACID	Sulfuric acid	3,600	13,518	Atmosphere
EPN PDH-ERLO	Lube oil	110	672	Atmosphere
EPN PDH-Chem1	Amine	2,722	44,184	Atmosphere
EPN PDH-Chem2	Anti-foulant	2,722	44,184	Atmosphere
EPN PDH-Chem3	Anti-Foulant	2,722	44,184	Atmosphere

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Tank Identifier	Service	Fill Rate (gallons/hour)	Rolling 12 Month Throughput (gallons)	Control
EPN PDH-Chem4	Inhibitor	2,722	44,184	Atmosphere
EPN PDH-Chem5	Product Inhibitor	2,722	44,184	Atmosphere
EPN PDH-DIES	Diesel	2,016	5,880	Atmosphere
EPN PDH-RALO1	Lube oil	110	1,008	Atmosphere
EPN PDH-RALO2	Lube oil	110	1,008	Atmosphere

18. Storage tanks are subject to the following requirements: **(12/20)**

    A. All vents from the spent wash oil tank (FIN PDH-SWOT) shall be routed to the control device identified in Special Condition No. 17.

    B. Except for labels, logos, etc. not to exceed 15 percent of the tank total surface area, uninsulated tank exterior surfaces exposed to the sun shall be white. The acid and additive tank FINs: OL3-ACID and OL3-ACID2, OL3-Chem1 through OL3-Chem7, PDH-ACID, and PDH-Chem1 through PDH-Chem5 may be constructed with uncoated stainless-steel to prevent corrosion. Storage tanks must be equipped with permanent submerged fill pipes. **(12/21)**

    C. The permit holder shall maintain a record of tank throughput for the previous month and the past consecutive 12 month period for each tank.

Tank Truck Loading Operations

19. Loading operations are limited to truck loading of spent wash oil at a maximum of 8,000 gallons per hour and 31,800 gallons per rolling 12 month period. All loading shall be submerged and rolling 12 month rack throughput records shall be updated on a monthly basis. **(12/20)**

20. 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 detection of any liquid leaking from the lines or connections. **(12/20)**

21. Loading emissions shall be vented to the Olefins 3 Vapor Combustors (EPN OL3-VCU1 and EPN OL3- VCU 2). **(12/20)**

22. Each tank truck shall pass vapor-tight testing every 12 months using the methods described in Title 40 Code of Federal Regulations Part 60 (40 CFR 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. **(12/20)**

Cooling Towers

23. The VOC associated with cooling tower (EPN OL3-CTWR and EPN PDH-CTWR) water shall be monitored monthly with an air stripping system meeting the requirements of the TCEQ Sampling Procedures Manual, Appendix P (dated January 2003 or a later edition) or an approved equivalent sampling method. The results of the monitoring, cooling water flow rate, and maintenance activities

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on the cooling water system shall be recorded. The monitoring results and cooling water hourly mass flow rate shall be used to determine cooling tower hourly VOC emissions. The rolling 12 month cooling water emission rate shall be recorded on a monthly basis and be determined by summing the VOC emissions between VOC monitoring periods over the rolling 12 month period. The emissions between VOC monitoring periods shall be obtained by multiplying the total cooling water mass flow between cooling water monitoring periods by the higher of the two VOC monitored results.

24. The cooling tower (EPN OL3-CTWR) shall be operated and monitored in accordance with the following: **(12/20)**

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

B. Total dissolved solids (TDS) shall not exceed 6,500 parts per million by weight (ppmw) in any sample and 4,150 ppmw averaged over a rolling 12-month period. Dissolved solids 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.

C. Cooling towers shall be analyzed for particulate emissions using one of the following methods:

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

(2) TDS monitoring may be reduced to weekly if conductivity is monitored daily 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 weekly basis. The permit holder may use the average of two consecutive TDS-to-conductivity ratios to calculate daily TDS; or

(3) TDS sampling may be reduced to quarterly if conductivity is monitored daily and TDS is calculated using a correlation factor established for each cooling tower. The correlation factor shall be the average of four consecutive weekly TDS-to-conductivity ratios determined using the paragraph C(2) above provided the highest ratio is not more than 10% larger than the smallest ratio.

(4) 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 weekly until a new correlation factor can be established.

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

(1) 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. **(12/21)**

(2) The analysis method for conductivity shall be either ASTM D1125-14 Test Method A (or a later version) for field or routine laboratory testing, ASTM D1125-14 Test Method B (or a later version) for continuous monitor, or Standard Method 2510-B. The analysis may be conducted at the sample site or with a calibrated process conductivity meter. If

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a conductivity meter is used, it shall be calibrated at least annually. Documentation of the method and any associated calibration records shall be maintained. **(12/21)**

(3) Alternate sampling and analysis methods may be used to comply with the analysis methods outlined in this condition) with written approval from the TCEQ Regional Director. **(12/21)**

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

E. 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.

F. Quality assured (or valid) data must be generated when the cooling tower 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 hours) that the cooling tower operated over the previous rolling 12 month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded. **(12/21)**

25. The cooling tower (EPN PDH-CTWR) shall be operated and monitored in accordance with the following: **(12/20)**

A. 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.

B. Total dissolved solids (TDS) shall not exceed 6,500 parts per million by weight (ppmw) in any sample and 4,150 ppmw averaged over a rolling 12-month period. Dissolved solids 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.

C. Cooling towers shall be analyzed for particulate emissions using one of the following methods:

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

(2) TDS monitoring may be reduced to weekly if conductivity is monitored daily 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 weekly basis. The permit holder may use the average of two consecutive TDS-to-conductivity ratios to calculate daily TDS; or

(3) TDS monitoring may be reduced to quarterly if conductivity is monitored daily and TDS is calculated using a correlation factor established for each cooling tower. The correlation factor shall be the average of nine consecutive weekly TDS-to-conductivity ratios determined using the paragraph C(2) above provided the highest ratio is not more than 10% larger than the smallest ratio.

(4) 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

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than 10% higher or lower than the established factor, the permit holder shall increase TDS monitoring to weekly until a new correlation factor can be established.

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

(1) 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.

(2) The analysis method for conductivity shall be either ASTM D1125-14 Test Method A (or a later version) for field or routine laboratory testing, ASTM D1125-14 Test Method B (or a later version) for continuous monitor, or Standard Method 2510-B. 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. **(12/21)**

(3) Alternate sampling and analysis methods may be used to comply with the analysis methods outlined in this condition with written approval from the TCEQ Regional Director. **(12/21)**

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

E. 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.

F. Quality assured (or valid) data must be generated when the cooling tower 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 hours) that the cooling tower operated over the previous rolling 12 month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded. **(12/21)**

Emergency Engines

26. The OL3 emergency generator engine (EPN OL3-GEN) is authorized to fire diesel fuel containing not more than 0.0015 weight percent sulfur and each is limited to a maximum of 100 hours of engine testing annually.

27. The following requirements apply to the emergency generator (EPN PDH-GEN): **(12/20)**

A. Fuel for each engine shall be limited to ultra-low sulfur diesel (ULSD) containing no more than 15 ppmw total sulfur.

B. The engine shall be limited to 100 hours per year during non-emergency situations, as defined at 40 CFR § 63.6640(f).

C. The engine shall be equipped with a non-resettable hour meter.

D. The emergency generator shall satisfy the Tier 4 exhaust emission standards specified at 40 CFR § 1039.101 for model years 2015 and later.

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E. Compliance with the emission limits of paragraph D and E of this Special Condition shall be demonstrated by retaining a copy of the manufacturers' certificate of conformity.

Equipment Leaks

Piping, Valves, Connectors, Pumps, Agitators, and Compressors – 28VHP

28. The following requirements apply to piping, valves, connectors, pumps, agitators, and compressors containing or in contact with fluids that could reasonably be expected to contain greater than or equal to 10 weight percent volatile organic compounds (VOC) at any time. **(12/21)**

A. The requirements of paragraphs F and G shall not apply (1) where the Volatile Organic Compound (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 readily available upon request.

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

(1) piping and instrumentation diagram (PID);

(2) a written or electronic database or electronic file;

(3) color coding;

(4) a form of weatherproof identification; or

(5) designation of exempted process unit boundaries.

B. Construction of new and reworked piping, valves, pump systems, 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 readily available upon request. The difficult-to-monitor and unsafe-to-monitor valves may be identified by one or more of the methods described in subparagraph 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

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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 within the 72 hour 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. 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. If a relief valve is equipped with rupture disc, a pressure-sensing device shall be installed between the relief valve and rupture disc to monitor disc integrity.

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. All leaking discs shall be replaced at the earliest opportunity but no later than the next process shutdown.

The 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.

Replacements for leaking components shall be re-monitored within 15 days of being placed back into VOC service.

G. Except as may be provided for in the special conditions of this permit, all pump, compressor, and agitator seals shall be monitored with an approved gas analyzer at least quarterly or be equipped with a shaft sealing system that prevents or detects emissions of VOC from the seal. Seal systems designed and operated to prevent emissions or seals equipped with an automatic seal failure detection and alarm system need not be monitored. These seal systems may include (but are not limited to) dual pump seals with barrier fluid at higher

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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.

H. Damaged or leaking valves or connectors 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. Damaged or leaking pump, compressor, and agitator seals found to be emitting VOC in excess of 2,000 ppmv or found by visual inspection to be leaking (e.g., dripping process fluids) shall be tagged and replaced or repaired. A first attempt to repair the leak must be made within 5 days and a record of the attempt shall be maintained.

I. 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 within 15 days of the detection of the leak. 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), 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.

J. 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.

K. Alternative monitoring frequency schedules of 30 TAC § 115.352 - 115.359 or National Emission Standards for Organic Hazardous Air Pollutants, 40 CFR Part 63, Subpart H, may be used in lieu of Items F through G of this condition.

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 (NSPS), or an applicable National Emission Standard for Hazardous Air Pollutants (NESHAPS) and does not constitute approval of alternative standards for these regulations.

29. Alternative requirements for specifications in Special Condition No. 28:

A. In addition to the methods identified in Special Condition No. 28.A, exempted components may be identified by process flow diagrams that exhibit sufficient detail to identify major

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pieces of equipment, including major process flows to, from, and within a process unit. Major equipment includes, but is not limited to, columns, reactors, pumps, compressors, drums, tanks, and exchangers.

B. In lieu of the requirements specified in Special Condition No. 28.E, new and reworked piping connections may be monitored for leaks using an approved gas analyzer within 30 days of the components being returned to service.

C. As an alternative to comparing the daily emission rate of the components on the delay of repair (DOR) list to the total emissions from a unit shutdown per the requirements of Special Condition No. 28, Subparagraph I, the cumulative hourly emission rate of all components on the DOR list may be compared to ten percent of the fugitive short term allowable on the Maximum Allowable Emission Rate Table in order to determine if the TCEQ Regional Director and any local program is to be notified. In addition, the hourly emission rates of each specific compound on the DOR list must be less than ten percent of the speciated hourly fugitive emission rate of the same compound.

D. New and reworked is meant to apply to major changes in piping. It is not intended to apply to minor activities including but not limited to: installation/replacement of small number of valves and flanges; minor repairs; gasket replacement; repair/replacement of small sections of piping, etc. Also, “process pipelines” does not apply to underground process sewer lines, cooling tower water, fire water, etc. Additionally, the requirement for new and reworked buried connectors to be welded will not apply if compliance would require a process unit shutdown or would create a safety issue including, but not limited to, close proximity of other process pipelines and equipment or unsafe access to the piping.

E. In lieu of the 2,000 ppmv VOC limit in Paragraph H of Special Condition 28, damaged or leaking pump, compressor, and agitator 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. A first attempt to repair the leak must be made within 5 days. Records of the first attempt to repair shall be maintained. **(12/21)**

Piping, Valves, Pumps, and Compressors in contact with Ammonia (NH_3) and Chlorine (Cl_2) – 28AVO

30. The permit holder shall maintain the piping and valves in NH_3 and Cl_2 service as follows: **(12/20)**

A. Audio, olfactory, and visual checks for NH_3 and Cl_2 leaks within the operating area shall be made once per shift.

B. As soon as practicable, following the detection of a leak, plant personnel shall take one or more of the following actions:

(1) Locate and isolate the leak, if necessary.

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

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

C. 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 Texas Commission on Environmental Quality (TCEQ) upon request. **(12/21)**

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Continuous Demonstration of Compliance

31. The permit holder shall install, calibrate, and maintain a continuous emission monitoring system (CEMS) to measure and record the in-stack concentration of NO_x and CO from the furnaces (EPNs OL3-FUR1 through OL3-FUR14), boilers (EPNs OL3-BOIL1 through OL3-BOIL4), PDH Reactor Charge Heater (EPN PDH-RXNHTR), and PDH Waste Heat Boiler (EPN PDH-WHBLR). **(12/20)**

    A. The CEMS shall meet the design and performance specifications, pass the field tests, and meet the installation requirements and the data analysis and reporting requirements specified in the applicable Performance Specification Nos. 1 through 9, Title 40 Code of Federal Regulation Part 60 (40 CFR Part 60), Appendix B. If there are no applicable performance specifications in 40 CFR Part 60, Appendix B, contact the TCEQ Office of Air, Air Permits Division for requirements to be met.

    B. Section (1) below applies to sources subject to the quality-assurance requirements of 40 CFR Part 60, Appendix F; section (2) applies to all other sources:

        (1) The permit holder shall assure that the CEMS meets the applicable quality-assurance requirements specified in 40 CFR Part 60, Appendix F, Procedure 1. Relative accuracy exceedances, as specified in 40 CFR Part 60, Appendix F, Subpart 5.2.3 and any CEMS downtime shall be reported to the appropriate TCEQ Regional Manager, and necessary corrective action shall be taken. Supplemental stack concentration measurements may be required at the discretion of the appropriate TCEQ Regional Manager.

        (2) The system shall be zeroed and spanned daily, and corrective action taken when the 24-hour span drift exceeds two times the amounts specified in the applicable Performance Specification Nos. 1 through 9, 40 CFR Part 60, Appendix B, or as specified by the TCEQ if not specified in Appendix B. Zero and span is not required on weekends and plant holidays if instrument technicians are not normally scheduled on those days.

        Each monitor shall be quality-assured at least quarterly using Cylinder Gas Audits (CGA) in accordance with 40 CFR Part 60, Appendix F, Procedure 1, Section 5.1.2, with the following exception: a relative accuracy test audit (RATA) is not required once every four quarters (i.e., four successive quarterly CGA may be conducted). An equivalent quality-assurance method approved by the TCEQ may also be used. Successive quarterly audits shall occur no closer than two months.

        All CGA exceedances of $\pm$15 percent accuracy or 5 ppm, whichever is greater, indicate that the CEMS is out of control.

    C. The monitoring data shall be reduced to 1-hour average concentrations at least once every day, using a minimum of four equally-spaced data points from each one-hour period. The individual average concentrations shall be reduced to units of the permit allowable emission rate in the MAERT and Special Condition Nos. 6 & 7 at least once every week as follows:

        Emissions calculations based on measured concentrations and exhaust flow rate shall be used to convert the 1-hour average concentration from the CEMS to lb/MMBtu, and lb/hr to demonstrate compliance with the NO_x and CO emission limits in these Special Conditions and the MAERT. Exhaust flow rate may be monitored directly or calculated by monitoring fuel flow and using EPA Test Method 19.

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(1) All monitoring data and quality-assurance data shall be maintained by the source. The data from the CEMS may, at the discretion of the TCEQ, be used to determine compliance with the conditions of this permit.

(2) The appropriate TCEQ Regional Office shall be notified at least 15 days prior to any required RATA in order to provide them the opportunity to observe the testing.

(3) Quality-assured (or valid) data must be generated when the furnace 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 hours) that the furnace operated over the previous calendar year. The measurements missed shall be estimated using engineering judgment and the methods used recorded. Options to increase system reliability to an acceptable value, including a redundant CEMS, may be required by the TCEQ Regional Manager.

32. The NH_3 concentration in each exhaust stack for the furnaces (EPNs OL3-FUR1 through OL3-FUR14), boilers (EPNs OL3-BOIL1 through OL3-BOIL4), PDH Reactor Charge Heater (EPN PDH-RXNHTR), and PDH Waste Heat Boiler (EPN PDH-WHBLR) shall be tested or calculated according to one of the methods listed below and shall be tested or calculated according to frequency listed below. Testing for NH_3 slip is only required on days when the SCR unit is in operation.

A. The holder of this permit may install, calibrate, maintain, and operate a CEMS to measure and record the concentrations of NH_3. The NH_3 concentrations shall be corrected in accordance with Special Condition Nos. 6, 7, 8, and 9.

B. As an approved alternative, the NH_3 slip may be measured using a sorbent or stain tube device specific for NH_3 measurement in the 5 to 20 ppm range. The frequency of sorbent or stain tube testing shall be daily for the first 60 days of operation, after which, the frequency may be reduced to weekly testing if operating procedures have been developed to prevent excess amounts of NH_3 from being introduced in the SCR unit and when operation of the SCR unit has been proven successful with regard to controlling NH_3 slip. Daily sorbent or stain tube testing shall resume when the catalyst is within 30 days of its useful life expectancy. These results shall be recorded and used to determine compliance with Special Condition Nos. 6, 7, 8, and 9.

C. As an approved alternative to sorbent or stain tube testing or an NH_3 CEMS, the permit holder may install and operate a second NO_x CEMS probe located between the firebox and the SCR, upstream of the stack NO_x CEMS, which may be used in association with the SCR efficiency and NH_3 injection rate to estimate NH_3 slip. This condition shall not be construed to set a minimum NO_x reduction efficiency on the SCR unit. These results shall be recorded and used to determine compliance with Special Condition No. Nos. 6, 7, 8, and 9.

D. If the sorbent or stain tube testing indicates an ammonia slip concentration which exceeds 5 parts per million (ppm) at any time, the permit holder shall begin NH_3 testing by either the Phenol-Nitroprusside Method, the Indophenol Method, or EPA Conditional Test Method (CTM) 27 on a quarterly basis in addition to the weekly sorbent or stain tube testing. The quarterly testing shall continue until such time as the SCR unit catalyst is replaced; or if the quarterly testing indicates NH_3 slip is 4 ppm or less, the Phenol-Nitroprusside/Indophenol/CTM 27 tests may be suspended until sorbent or stain tube testing again indicate 5 ppm NH_3 slip or greater. These results shall be recorded and used to determine compliance with Special Condition Nos. 6, 7, 8, and 9.

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E. As an approved alternative to sorbent or stain tube testing, NH_3 CEMS, or a second NO_x CEMS, the permit holder may install and operate a dual stream system of NO_x CEMS at the exit of the SCR. One of the exhaust streams would be routed, in an unconverted state, to one NO_x CEMS, and the other exhaust stream would be routed through a NH_3 converter to convert NH_3 to NO_x and then to a second NO_x CEMS. The NH_3 slip concentration shall be calculated from the delta between the two NO_x CEMS readings (converted and unconverted). These results shall be recorded and used to determine compliance with Special Condition Nos. 6, 7, 8, and 9.

F. Any other method used for measuring NH_3 slip shall require prior approval from the TCEQ Regional Director.

Initial Demonstration of Compliance

33. The permit holder shall perform stack sampling and other testing for two furnaces and one boiler (for initial testing, prior to firing PDH fuel gas) as required to establish the actual pattern and quantities of air contaminants being emitted into the atmosphere from the furnaces 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 EPA Reference Methods. **(12/20)**

    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.

    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 during the sampling period.

        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 furnaces to be tested include (but are not limited to) NO_x, CO, PM_{10}, $PM_{2.5}$, VOC and NH_3.

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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 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 a minimum of 80 percent of the design firing rate during stack emission testing. 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, if the firing rate is more than 10 percent higher than the firing rate during the previous stack test, stack sampling shall be performed at the new operating conditions within 120 days. This sampling may be waived by the TCEQ Air Section Manager for the region. 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 to the appropriate TCEQ Regional Office and each local air pollution control program, as required.

34. 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 boilers after initial firing of PDH fuel gas (EPNs OL3-BOIL1, OL3-BOIL2, OL3-BOIL3, and OL3-BOIL4), the PDH Reactor Charge Heater (EPN PDH-RXNHTR), the PDH Waste Heat Boiler (EPN PDH-WHBLR), and the VCUs (EPNs OL3-VCU1 and OL3-VCU2) to demonstrate compliance with Special Condition No. 1, 7, 8, 9, and 13. 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 TCEQ Sampling Procedures Manual 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. **(12/20)**

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.

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(7) Procedure/parameters to be used to determine worst case emissions during the sampling period.

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 sources identified in this special condition to be tested for include (but are not limited to):

(1) for the PDH reactor charge heater (EPN PDH-RXNHTR) and PDH waste heat boiler (EPN PDH-WHBLR) CO, NO_X, NH_3, and SO_2.

(2) For the VCUs (EPNs OL3-VCU1 and OL3-VCU2) NO_X, CO and VOC.

(3) for the boilers firing after initial firing of PDH fuel gas (EPNs OL3-BOIL1, OL3-BOIL2, OL3-BOIL3, and OL3-BOIL4) VOC and SO_2

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 the maximum design firing rate that can be reasonably achieved during stack emission testing. 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.

During subsequent operations, if the firing rate is greater than that recorded during the previous stack test, stack sampling shall be performed at the new operating conditions within 120 days. This sampling may be waived by the TCEQ Air Section Manager for the region.

E. 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:

One copy to the appropriate TCEQ Regional Office.
One copy to each local air pollution control program.

F. Sampling ports and platform(s) shall be incorporated into the design of (source stack and EPN) according to the specifications set forth in the attachment entitled “Chapter 2, Guidelines for Stack Sampling Facilities” of the TCEQ Sampling Procedures Manual. Alternate sampling facility designs must be submitted for approval to the TCEQ Regional Director.

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Maintenance, Startup and Shutdown

35. The emissions limits that are identified in Special Conditions No. 6.B(1) through 6.B(4), Special Condition No. 7.A(1), Special Condition No. 8.A(1), and Special Conditions No. 9.B(1) through 9.B(4) do not apply during the following planned MSS activities for furnaces (EPN OL3-FUR1 through OL3-FUR14), Boilers (EPN OL3-BOIL1 through OL3-BOIL4), Charge Heater (EPN PDH-RXNHTR) and waste heat boiler (EPN: PDH-WHBLR):

    A. Hot Steam Standby Mode, defined as the period when the furnace is firing at 50% or less of the maximum allowable firing rate and no hydrocarbon feed is being charged to the furnace.

    B. Decoking Mode, defined as the period starts when air is introduced to the furnace for the purpose of decoking and ends when air is removed from the furnace.

    C. Start-up Mode, defined as the period beginning when fuel is introduced to the furnace and ending when the SCR catalyst bed reaches its stable operating temperature. A planned startup for each furnace is limited to 72 hours.

    D. Shutdown Mode, defined as the period beginning when the SCR catalyst bed first drops below its stable operating temperature and ending when the fuel is removed from the furnace.

    E. Feed in Mode, defined as the period beginning when hydrocarbon feed is introduced to the furnace and ending when the furnace reaches 70% of the maximum allowable firing rate.

    F. Feed out Mode, defined as the period beginning when a furnace drops below 70% of the maximum allowable firing rate and ending when hydrocarbon feed is isolated from the furnace.

36. This permit authorizes air emissions from the planned MSS activities identified in the MSS Activity Summary (Attachment C) attached to this permit. **(12/20)**

    Additionally, this permit authorizes emissions from the following temporary facilities used to support planned MSS activities at permanent site facilities: frac tanks, containers, vacuum trucks, facilities used for painting or abrasive blasting, portable control devices identified in Special Condition No. 42. Emissions from temporary facilities are authorized provided the temporary facility (a) does not remain on the plant site for more than 12 consecutive months, (b) is used solely to support planned MSS activities at the permanent facilities authorized by this permit, and (c) does not operate as a replacement for an existing authorized facility.

    Attachment A identifies the inherently low emitting MSS activities that may be performed at the plant. Emissions from activities identified in Attachment A shall be considered to be equal to the potential to emit represented in the permit application. The estimated emissions from the activities listed in Attachment A must be revalidated annually. This revalidation shall consist of the estimated emissions for each type of activity and the basis for that emission estimate.

    Routine maintenance activities, as identified in Attachment B may be tracked through the work orders or equivalent. Emissions from activities identified in Attachment B shall be calculated using the number of work orders or equivalent that month and the emissions associated with that activity identified in the permit application.

    The performance of each planned MSS activity not identified in Attachments A or B and the emissions associated with it shall be recorded and include at least the following information:

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A. the process unit at which emissions from the MSS activity occurred, including the emission point number and common name of the process unit;

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.

37. Except for instrumentation/analyzer maintenance and vacuum trucks, process units and facilities shall be depressurized, degassed, and placed back into service in accordance with the following requirements.

A. The process equipment shall be vented to a control device or a controlled recovery system during depressurization.

B. All liquids from process equipment or storage vessels must be removed to the maximum extent practical prior to opening equipment or commencing depressurization, degassing and/or maintenance. Equipment that only contains material with VOC partial pressure less than 0.50 psi at the normal process temperature and 95°F may be opened to the atmosphere after liquids are removed as required by this condition. 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.

C. If mixed phase materials must be removed from process equipment during depressurization, liquids removal, or degassing, the cleared material shall be routed to a knockout drum or equivalent to allow for managed initial phase separation. Any vents in the knockout drum or equivalent must be routed to a control device or a controlled recovery system. Control must remain in place while mixed phase material removal is being performed.

D. Facilities shall be degassed using practices that 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. Records shall be maintained of the control device or recovery system utilized with the estimated emissions from controlled and uncontrolled degassing calculated using the methods that were used to determine allowable emissions for the permit application.

E. After degassing in accordance with Subsection D of this Special Condition, the VOC concentration in the facilities being degassed shall be verified to be below 10,000 ppmv or less than 10 percent of the lower explosive limit (LEL) using one of the methods below prior to opening directly to atmosphere.

(1) For MSS activities other than process unit startup, shutdown, hydroblasting, or turnaround, the following option may be used in lieu of (2) 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

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work area, until the VOC concentration has been verified to be less than 10 percent of the lower explosive limit (LEL) per the site safety procedures.

(2) Documentation shall be maintained of the locations and/or identifiers where the purge gas or steam enters the process equipment or storage vessel and the exit points for the purge gases. If the process equipment is purged with a gas, two system volumes of purge gas must have passed through the control device or controlled recovery system before the vent stream may be sampled to verify acceptable VOC concentration prior to uncontrolled venting. The VOC sampling and analysis shall be performed using an instrument meeting the requirements of Special Condition 38. 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. The facilities shall be degassed to a control device or controlled recovery system until the VOC concentration is less than 10,000 ppmv or less than 10 percent of the lower explosive limit (LEL). Documented plant procedures used to de-inventory 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.

F. Gases and vapors with VOC partial pressure greater than 0.50 psi 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 is no more than 50 lb of air contaminant to be vented to atmosphere during shutdown or startup, as applicable.

Except for Attachment A activities, all instances of venting directly to atmosphere per Subsection F of this Special Condition must be documented when occurring as part of any MSS activity. The emissions associated with venting without control must be included in the activity record for those planned MSS activities.

38. Air contaminant concentration shall be measured using an instrument/detector meeting one of the following methods: **(12/20)**

A. VOC concentration shall be measured using an instrument meeting all 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 with a calibration gas such that the response factor (RF) of the VOC (or mixture of VOCs) to be monitored shall be less than 2.0. 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

In no case should a calibration gas be used such that the RF of the VOC (or mixture of VOCs) to be monitored is greater than 5.0.

(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

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response time. The date and time shall be recorded, and VOC concentration shall be monitored for at least 5 minutes, recording VOC concentration each minute. As an alternative the VOC concentration may be monitored over a five-minute period with an instrument designed to continuously measure concentration and record the highest concentration read. The highest measured VOC concentration shall be recorded and shall not exceed the specified VOC concentration limit prior to uncontrolled venting.

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 as defined in (3) is less than 80 percent of the range of the tube and 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 propane gas standard at 50% of the lower explosive limit (LEL) for propane. 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 50% of the LEL for propane may be used for calibration and functionality tests provided that the LEL response is within 95% of that for propane

D. As an alternative to an instrument/detector, the analysis may be conducted in a laboratory. Bag samples of the gas discharged may be drawn and taken to a Formosa laboratory to be analyzed by gas chromatography (GC). A minimum of two bag samples shall be drawn approximately ten minutes apart. A Tedlar bag, or a bag appropriate for the material to be sampled, shall be used and shall have a valve to seal gas in the bag. The samples shall be drawn as follows:

(1) The sample point on the equipment being cleared shall be purged sufficiently to ensure a representative sample at the sample valve.

(2) The sample bag shall be connected directly to the sample valve.

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(3) The sample valve and sample bag shall be opened to allow the bag to fill to approximately 80% of capacity. The sample connections shall be fitted such that no air is drawn into the sample bag.

(4) The two valves shall then be closed to seal the sample in the bag.

(5) The sample bag shall then be disconnected and placed in a dark container out of direct sunlight for transport to the analyzer.

(6) This process is repeated to collect additional samples.

(7) The sample shall be analyzed within 12 hours of collection.

The laboratory GC shall meet or exceed the requirements of 40 CFR 60, Appendix A, Method 18 Sections 6 (Equipment and Supplies), 7 (Reagents and Standards), 9 (Quality Control), and 10 (Calibration and Standards). The sample shall be analyzed per Section 8.2.1.1.2 of Method 18, except the analysis does not need to be performed in triplicate. The highest measured VOC concentration shall not exceed the specified VOC concentration limit prior to uncontrolled venting.

39. The following requirements apply to vacuum and air mover truck operations to support planned MSS at this site: **(12/20)**

A. Prior to initial use, identify any liquid in the truck. Record the liquid level and document the VOC partial pressure. After each liquid transfer, identify the liquid, the volume transferred, and its VOC partial pressure.

B. If vacuum pumps or blowers are operated when liquid is in or being transferred to the truck, the following requirements apply:

(1) If the VOC partial pressure of the liquid in or being transferred to the truck is greater than 0.50 psi at 95°F, the vacuum/blower exhaust shall be routed to a control device or a controlled recovery system.

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

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

(a) 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.

(b) 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 at least every hour during each transfer shall be recorded, measured using an instrument meeting the requirements of Special Condition No. 38.A or 38.B.

C. Record 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

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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 psi, 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 Paragraphs A through C of this special condition do not apply.

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

A. These requirements do not apply to vessels that do not vent to the atmosphere which store less than 100 gallons of liquid.

B. 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.

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

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 tank identification number, dates put into and removed from service, control method used, tank capacity and volume of liquid stored in gallons, name of the material stored, VOC molecular weight, and VOC partial pressure at the estimated monthly average material temperature in psia. 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 psi at 95°F, 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.

41. 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.

42. Control devices required by this permit for emissions from planned 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 process or to a collection system that is vented through a control device meeting the requirements of this permit condition. **(TBD)**

A. Carbon Adsorption System (CAS).

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(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 downstream of 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) It 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.

(b) 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 the VOC concentration on the initial sample downstream of the first carbon canister following a new polishing canister being put in place is greater than 100 ppmv above background, it shall be assumed that breakthrough occurred while that canister functioned as the final polishing canister and 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. 38.A or 38.B.

(4) Breakthrough is defined as the highest measured VOC concentration at or exceeding 100 ppmv above background. 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 four hours. 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.

B. Thermal Oxidizer. (EPNs OL3-TEMP or PDH-TEMP)

(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.

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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.

As an alternative to Subsection B(1) of this Special Condition the thermal oxidizer may be tested to confirm a minimum 99 weight percent 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.

C. Internal Combustion Engine. (EPNs OL3-TEMP or PDH-TEMP)

(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 following each occurrence of engine maintenance which may reasonably be expected to increase emissions including oxygen sensor replacement and catalyst cleaning or replacement. 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. 38.A 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.

D. The plant flare system (EPNs 1067, 1018, OL3-FLRA/B/C) shall be operated as specified in Special Condition No. 10.

E. The Enclosed Ground Flares (EPNs EGF-1, EGF-2, EGF-3 and/or EFG-4) shall be operated as specified in Special Condition No. 11.

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

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

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(2) The method of VOC sampling and analysis shall be by detector meeting the requirements of Special Condition No. 38.A.

(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 for more than one minute. The date and time of all alarms and the actions taken shall be recorded.

Disaster Prevention and Mitigation

43. The holder of this permit shall comply with EPA regulations on Chemical Accident Prevention Provisions promulgated in 40 CFR Part 68. The Risk Management Plan (RMP) shall be submitted to the TCEQ Office of Air, Air Permits Division prior to the date this site first exceeds a threshold quantity of chlorine. **(12/20)**

Recordkeeping

44. The records required by these special conditions shall be maintained in either hard copy or electronic format and shall be maintained for at least five years rather than the two-year period specified in General Condition No. 7. These records shall be made immediately available at the request of personnel from the TCEQ or any air pollution control agency with jurisdiction. **(12/20)**

Greenhouse Gas Emissions

45. Permit holders must keep records sufficient to demonstrate compliance with 30 Texas Administrative Code § 116.164. If construction, a physical change or a change in method of operation results in Prevention of Significant Deterioration (PSD) review for criteria pollutants, then records shall be maintained that are sufficient to demonstrate the amount of emissions of GHGs from the source as a result of such construction, physical change or change in method of operation does not require authorization under 30 TAC §116.164(a). If there is construction, a physical change or a change in the method of operation that will result in a net emission increase of 75,000 tpy or more CO_{2e}. greenhouse gas emissions are subject to PSD review. **(TBD)**

46. Monitoring, quality assurance/quality control requirements, emission calculation methodologies, record keeping, and reporting requirements related to Greenhouse Gas (GHG) emissions shall adhere to the applicable requirements in 40 CFR Part 98 and in this permit. **(TBD)**

47. Permittee shall calculate the CO_{2e} emissions on a 12-month rolling basis, based on the procedures and Global Warming Potentials (GWP) contained in Greenhouse Gas Regulations, 40 CFR Part 98, Subpart A, Table A-1. **(TBD)**

48. Records of emissions of GHG, and how they were determined, in compliance with Special Condition Nos. 45, 46, and 47 must be maintained by the holder of this permit in a form suitable for inspection for a period of five years after collection and must be made available upon request to representatives of the TCEQ, EPA, or any local air pollution control program having jurisdiction. **(TBD)**

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Alternative Means of Compliance

49. The permit holder shall comply with the requirements of Alternative Method of Compliance (AMOC) No. 213. **(TBD)**

Date: TBD

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Permit Numbers 107518, PSDTX1383M2, and GHGPSDTX48M1

Attachment A

Inherently Low Emitting Activities

Olefins 3 Plant

Activity	Emissions			
	VOC	NO_x	CO	Inorganic Compounds
Cold Box	X	X	X	
Fans and Compressors	X	X	X	
Gas Dryers	X	X	X	
Hydroblasting	X			
Filling Hoses	X			
Miscellaneous	X	X	X	
Inline Mixers	X	X	X	
Pumps	X	X	X	X
Miscellaneous ILE	X			X
Inorganic Tanks				X

PDH Plant

Activity	Emissions			
	VOC	NO_x	CO	Inorganic Compounds
Fans and Compressors	X	X	X	
Gas Dryers	X	X	X	
Miscellaneous	X	X	X	
Pumps	X	X	X	X
Miscellaneous ILE	X			X
Inorganic Tanks				X
Inorganic Pumps				X
Inorganic Columns and Towers				X
Inorganic Heat Exchanger Equipment				X
Inorganic Dumps and Separators				X
Vessels (Other)	X	X	X	
Filters/Strainers	X			

Date: August 8, 2014

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Permit Numbers 107518, PSDTX1383M2, and GHGPSDTX48M1

Attachment B

Routine Maintenance Activities

Olefins 3 Plant:

Piping Maintenance, Repair and Replacement (including fugitive components)
Filter and Strainer Maintenance and Replacement
Heat exchanger Maintenance, Repair and Replacement
Vacuum Truck Emissions
Tank Maintenance
Pressure Tank Maintenance
Column and Tower Maintenance
Pyrolysis Furnace Maintenance
Reactor Maintenance
Drum and Separator Maintenance

PDH Plant:

Piping Maintenance, Repair and Replacement
Cold Box Maintenance
Heat exchanger Maintenance, Repair and Replacement
Vacuum Truck Emissions
Tank Maintenance
Pressure Tank Maintenance
Column and Tower Maintenance
Drum and Separator Maintenance

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Date: December 15, 2020

Permit Numbers 107518, PSDTX1383M2, and GHGPSDTX48M1

Attachment C

MSS Activity Summary

Facilities	Description	Emissions Activity	EPN
all process units and tanks	process unit and tank shutdown/depressurize/ purge/drain	vent to flare or temporary control device	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, OL3-TEMP, PDH-TEMP
all process units	process unit open to atmosphere	vent to atmosphere	OL3-MSSVO, PDH-MSSVO
all process units	process unit startup	vent to flare or temporary control device	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, OL3-TEMP, PDH-TEMP
all facilities	preparation for facility/component repair/replacement/maintenance	vent to flare or temporary control device	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, OL3-TEMP, PDH-TEMP
all facilities including tanks	open to atmosphere for facility/component repair/replacement/maintenance	vent to atmosphere	OL3-MSSVO, PDH-MSSVO
all facilities	return to service after facility/component repair/replacement/maintenance	vent to flare or temporary control device	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, OL3-TEMP, PDH-TEMP
all tanks	tank cleaning	cleaning activity	OL3-MSSVO, PDH-MSSVO
vacuum trucks	load and transport liquid to support MSS on permanent facilities	vent to atmosphere	OL3-MSSVO, PDH-MSSVO
see Attachment A	miscellaneous low emitting activities	see Attachment A	OL3-MSSVO, PDH-MSSVO
see Attachment B	routine maintenance activities	see Attachment B	OL3-MSSVO, PDH-MSSVO

Date: TBD

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Special Conditions

Permit Numbers 20203, PSDTX1224M1, and GHGPSDTX222

Emissions Standards

1. This permit authorizes LLDPE production operations for a facility located at 201 Formosa Drive, Point Comfort, Calhoun County, Texas.

   This permit authorizes emissions only from those points listed in the attached table entitled "Emission Sources — Maximum Allowable Emission Rates," 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 maximum allowable emission rates table. 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.

3. Production of polyethylene at this facility is limited to 1,000 million pounds per year calculated on a rolling 12-month basis. The holder of this permit shall keep records of monthly and cumulative annual production rates on a rolling 12-month basis. The records shall be maintained for a rolling two year period and be made available to representatives of the TCEQ upon request. **(11/14)**

Federal Applicability

4. Modifications evaluated under the actuals-to-projected actuals (ATPA) applicability test. **(11/14)**

   A. The permit holder shall comply with the monitoring, recordkeeping and reporting requirements of 30 TAC §116.127 with respect to the facilities identified in the following paragraphs.

   B. The modification authorized by permit amendment (application received October 2, 2014), which included an increase in maximum permitted LLDPE production.

   The projected actual emissions for facilities where the ATPA applicability test has been employed are as follows:

FIN	EPN	Facility Name	Projected actual emission rate (tons per year [tpy])
S1-446	LL-001	Final Degasser	17.80 tpy VOC
F1-840	LL-003	Pelletizer #1	0.95 tpy VOC
F2-840	LL-004	Pelletizer #2	0.93 tpy VOC
S2-898	LL-017	Truck Silo #1	0.012 tpy $PM_{2.5}$

   Total actual emissions from the referenced facilities shall be monitored and recorded in accordance with Title 30 of the Texas Administrative Code (30 TAC) §116.127(b).

   If any projected actual emission rate is exceeded during any rolling 12-month period during the 60 months following the completion of the above referenced modification, and if total

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emissions from the referenced facilities exceed 30.75 tpy VOC or 0.40 tpy $PM_{2.5}$, the permit holder shall submit a report to the Division Director, TCEQ Air Permits Division, in accordance with 30 TAC §116.127(d).

5. 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):

   A. Subpart A, General Provisions.

   B. Subpart Kb, Volatile Organic Liquid Storage Vessels.

   C. Subpart VV, Equipment Leaks of VOC in the Synthetic Organic Chemical Manufacturing Industry for which Construction, Reconstruction, or Modification Commenced after January 5, 1981, and on or before November 7, 2006.

   D. Subpart DDD, VOC Emissions from the Polymer Manufacturing Industry.

6. These facilities shall comply with all applicable requirements of the U.S. Environmental Protection Agency (EPA) regulations on National Emission Standards for Hazardous Air Pollutants for Source Categories in 40 CFR Part 63:

   A. Subpart A, General Provisions.

   B. Subpart FFFF, Miscellaneous Organic Chemical Manufacturing.

7. If any condition of this permit is more stringent than the applicable regulations in Special Condition Nos. 5 and 6, then for the purposes of complying with this permit, the permit shall govern and be the standard by which compliance shall be demonstrated.

Operational Standards

8. Particulate matter grain loading shall not exceed 0.01 grain per dry standard cubic foot of air from any baghouse or cyclone authorized under this permit. 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.

   The vents covered by this permit shall not operate unless control devices and associated equipment are maintained in good working order and operating. Records shall be maintained of all inspections and maintenance performed.

   The following steps shall be performed, at a minimum, to ensure the proper operation of the baghouses and cyclones:

   A. The differential pressure across each baghouse shall be continuously monitored and be recorded at least daily. Differential pressures shall be maintained within manufacturer's specifications for each baghouse and each cyclone. Manufacturer's specifications for the minimum and maximum differential pressures for each baghouse and each cyclone shall be conspicuously displayed near such baghouse or cyclone.

      Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications. Each monitoring device shall be inspected annually to verify

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good working order. All records of baghouse and cyclone pressure drop shall be dated for each day the baghouse or cyclone is operated, and the records shall be maintained on-site for a rolling 12-month period and made available for inspection to the Executive Director of the Texas Commission on Environmental Quality (TCEQ) or a designated representative upon request.

B. When there are visible emissions from a baghouse or cyclone, the operation associated with the event shall be shut down as soon as practicable, the entire baghouse or cyclone shall be inspected, and the failed or damaged parts shall be repaired or replaced.

C. A spare parts inventory with an adequate number of replacement bags for each baghouse and each cyclone shall be maintained on-site at all times. All baghouses and cyclones shall undergo a preventative maintenance inspection on an annual basis.

D. The TCEQ Regional Director shall be notified as soon as possible of any baghouse or cyclone system malfunction that results in visible emissions.

Flares

9. The Olefins 1 Elevated Flare (EPN 1018), Olefins 2 Elevated Flare (EPN 1067), and Olefins 3 Elevated Flare (EPN: OL3-FLRA/B/C) shall be designed and operated in accordance with the following requirements: **(TBD)**

A. The flare systems shall be designed such that the combined assist natural gas and waste gas stream to each flare meets the 40 CFR § 60.18 specifications of minimum heating value and maximum tip velocity under normal and maintenance flow conditions.

The heating value and velocity requirements shall be satisfied during operations authorized by this permit. Flare testing per shall be performed 40 CFR § 60.18(f) if 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 or an infrared monitor. The time, date, and duration of any loss of pilot flame shall be recorded. 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 (EPNs 1018, 1067, and OL3-FLRA/B/C).

D. For each flare, the permit holder shall install a continuous flow monitor that provides a record of the vent stream flow to the flare. The flow monitor sensor sample points shall be installed in the vent stream as near as possible to the flare inlet such that the total vent stream to the flare is measured and analyzed. Readings shall be taken at least once every 15 minutes and the average hourly values of the flow shall be recorded each hour.

The monitors shall be calibrated on an annual basis to meet the following accuracy specifications: the flow monitor shall be ±5.0%, temperature monitor shall be ±2.0% at absolute temperature, and pressure monitor shall be ±5.0 mm Hg.

The monitors shall operate as required by this section at least 95% of the time when the flare is operational, averaged over a rolling 12-month period. Flared gas actual exit velocity

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determined in accordance with 40 CFR § 60.18(f)(4) shall be recorded at least once every hour. Hourly mass emission rates shall be determined and recorded using the above readings and the emission factors used in the permit amendment application PI-1 dated December 2, 2021.

E. For each of the Olefins 1, 2 and 3 Elevated Flares (EPNs 1018, 1067 and OL3-FLRA/B/C), the permit holder shall install a composition analyzer or calorimeter that provide a record of the vent stream composition or Btu content to the flares. The analyzer sample points shall be installed in the vent stream as near as possible to the flare inlet such that the total vent stream to the flare is measured and analyzed.

Calibration of the analyzer shall follow the procedures and requirements of Section 10.0 of 40 CFR Part 60, Appendix B, Performance Specification 9, as amended through October 17, 2000 (65 FR 61744), except that the multi-point calibration procedure in Section 10.1 of Performance Specification 9 shall be performed at least once every calendar quarter instead of once every month, and the mid-level calibration check procedure in Section 10.2 of Performance Specification 9 shall be performed at least once every calendar week instead of e every 24 hours. The calibration gases used for calibration procedures shall be in accordance with Section 7.1 of Performance Specification 9. Net heating value of the gas combusted in the flare shall be calculated according to the equation given in 40 CFR §60.18(f)(3) as amended through October 17, 2000 (65 FR 61744).

The calorimeters shall be calibrated, installed, operated, and maintained in accordance with manufacturer recommendations, to continuously measure and record the net heating value of the gas sent to the flare, in British thermal units/standard cubic foot of the gas.

F. The composition analyzer systems or calorimeters shall operate as required by this section at least 95% of the time when the flare is operational, averaged over a rolling 12-month period. Flared gas net heating value determined in accordance with 40 CFR §60.18(f)(3) shall be recorded at least once every 15 minutes.

G. After July 6, 2023, the Olefins 1 Elevated Flare (EPN 1018), Olefins 2 Elevated Flare (EPN 1067), and Olefins 3 Elevated Flare (EPN: OL3-FLRA/B/C) shall meet the requirements of Special Condition No. 10 which will replace and supersede the requirements of this Special Condition. If a compliance extension is granted in accordance with NESHAP procedures, then the effective date to meet the requirements of Special Condition No. 10 will be specified in the compliance extension approval.

10. The EGFs (EPNs EGF-1, EGF-2, EGF-3, and EGF-4) shall be designed and operated in accordance with the following requirements: **(TBD)**

A. The flare systems shall be designed such that the combined flare vent gas, assist air, and/or total steam to each flare meets the 40 CFR § 63.670 specifications for minimum combustion zone net heating value and maximum tip velocity at all times that flare vent gas may be directed to the flare for more than 15 minutes. Flared gas actual exit velocity, vent gas net heating value, and flared gas combustion zone net heating value shall be determined in accordance with 40 CFR §63.670(k), §63.670(l), and §63.670(m) on a 15-minute block average and recorded at least once every 15 minutes.

If the flare actively receives perimeter assist air, it shall be operated to meet the 40 CFR §63.670 specifications for minimum net heating value dilution parameters.

B. The flares shall be operated with pilot flames present at all times flare vent gas may be directed to the flares. The pilot flames shall be continuously monitored by a thermocouple,

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infrared monitor, or ultraviolet monitor. The time, date, and duration of any loss of pilot flame shall be recorded. Each monitoring device shall be accurate to, and shall be calibrated at a frequency in accordance with, the manufacturer's specifications.

C. Flares shall be operated with no visible emissions except periods not to exceed a total of five minutes during any two consecutive hours, demonstrated and recorded per the requirements of §63.670(h).

D. The permit holder shall install flow monitors that continuously measure, calculate, and record the total volumetric vent stream flow rate (including waste gas, purge gas, supplemental gas, and sweep gas), and shall install a monitoring system capable of determining the concentration of individual components in the flare vent gas or the net heating value of the flare vent gas. The flow monitor sensor and analyzer sample points shall be installed in the vent stream such that the total vent stream to the flare is measured and analyzed.

If one or more gas streams that combine to comprise the total flare vent gas flow are monitored separately for net heating value and flow, the 15-minute block average net heating value shall be determined separately for each measurement location and a flow-weighted average of the gas stream net heating values shall be used to determine the 15-minute block average net heating value of the cumulative flare vent gas.

If assist air or assist steam is used, the owner or operator shall install, operate, calibrate, and maintain a monitoring system capable of continuously measuring, calculating, and recording the total volumetric flow rate of assist air and/or assist steam used with the flare.

If pre-mix assist air and/or perimeter assist air are used, the owner or operator shall install, operate, calibrate, and maintain a monitoring system capable of separately measuring, calculating, and recording the volumetric flow rate of premix assist air and/or perimeter assist air used with the flare. Continuously monitoring fan speed or power and using fan curves is an acceptable method for continuously monitoring assist air flow rates.

Perimeter assist air includes all air assist except premix assist air. Premix assist air includes any air intentionally entrained in center steam.

Assist air includes premix assist air and perimeter assist air, but does not include the surrounding ambient air.

The monitors shall be calibrated or have a calibration check performed as specified in Table 13 of the appendix to 40 CFR 63, Part CC to meet the following accuracy specifications: the vent flow monitor shall be ±20 percent of flow rate at velocities ranging from 0.03 to 0.3 meters per second (0.1 to 1 feet per second) ±5 percent of flow rate at velocities greater than 0.3 meters per second (1 feet per second), all other gas flow monitors shall be ±5 percent over the normal range of flow measured or 280 liters per minute (10 cubic feet per minute) whichever is greater, temperature monitor shall be ±1 percent over the normal range of temperature measured, expressed in degrees Celsius (C), or 2.8 degrees C, whichever is greater, and pressure monitor shall be ±5 percent over the normal operating range or 0.12 kilopascals (0.5 inches of water column), whichever is greater. For purposes of this permit, a calibration check means, at a minimum, using a second device or method to verify that the monitor is accurate as specified in the permit.

Calorimeters shall have an accuracy of at least ±2% of span and be calibrated, installed, operated, and maintained in accordance with manufacturer recommendations and as specified in Table 13 of the appendix to 40 CFR 63, Part CC, to continuously measure and record the net heating value of the vent gas sent to the flare, in British thermal units/standard cubic foot of the gas.

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For determination of net heating value by gas chromatograph, the minimum accuracy shall be as specified in Performance Specification 9 of Part 60, appendix B. Composition monitoring instruments shall be calibrated, installed, operated, and maintained in accordance with manufacturer recommendations and as specified in 40 CFR §63.671(e) and Table 13 of 40 CFR Pt. 63, Subpart CC. Individual component properties specified in Table 12 of Subpart CC shall apply to net heating value calculations.

For determination of net heating value by continuous process mass spectrometer, the minimum accuracy; composition monitoring; calibration; installation; operation and maintenance shall be done in accordance with 40 CFR §63.1103(e)(4)(viii).

E. Quality assured (or valid) data must be generated during periods that flare is operating. 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 flare operated over the previous rolling 12-month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

F. Hourly mass emission rates shall be determined and recorded using the monitoring data collected pursuant to paragraph D of this Special Condition and the emission factors specified in the permit amendment application PI-1 dated December 2, 2021.

G. Pilot and supplemental (fuel) gas combusted in the flares shall be sweet natural gas containing no more than 0.26 grains of total sulfur per 100 dry standard cubic feet.

11. Vent gas streams for the LLDPE Plant may be directed to any of the EFGs or to any of the Olefins units elevated flares (EPNs EGF-1, EGF-2, EGF-3, EGF-4, 1018, 1067, and/or OL3-FLRA/B/C). **(TBD)**

12. This permit authorizes emissions from Olefins 1, 2 and 3 Elevated Flares (EPNs 1018, 1067 and OL3-FLRA/B/C) and EGFs (EPNs EGF-1, EGF-2, EGF-3, and EGF-4) for normal process degassing procedures including, but not limited to the following activities: **(TBD)**

    Product grade transitions, normal processing material regeneration, loading/unloading, and other intermittent operations which cause temperature or pressure variations to the incinerator. The permit holder shall document each of these activities and estimate actual emissions associated with each.

13. The incinerators (EPN LI-01A/B) shall comply with the following requirements. **(8/22)**

    A. The thermal oxidizer (EPN LI-01A/B) 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 greater than 99.9 percent.

    B. 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 has been completed, the six minute average temperature shall be equal to, or greater than the respective hourly average maintained during the most recent satisfactory stack testing required by Special Condition No. 21.

    C. The thermal oxidizer exhaust temperature shall be continuously monitored and recorded when waste gas is directed to the oxidizer. The temperature measurement device shall

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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 (degrees Fahrenheit or ±4.5ºF).

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 thermal oxidizer operated over the previous rolling 12 month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

D. The oxygen analyzer used to satisfy paragraph A of this special condition 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.

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.

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 thermal oxidizer operated over the previous rolling 12 month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

E. Fuel gas combusted in the thermal oxidizers shall be sweet natural gas containing no more than 0.26 grains of total sulfur per 100 dry standard cubic feet.

14. The following requirements apply to capture systems for each flare designated as EPNs 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4, and each incinerator system designated as EPNs LI-01A/B. **(TBD)**

A. If used to control pollutants other than particulate, either:

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(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. 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 15 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 prevent flow out the bypass.

A deviation shall be reported if the monitoring or inspections indicate bypass of the control device.

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

Cooling Tower

15. The VOC associated with cooling tower water shall be monitored monthly with an air stripping system meeting the requirements of the TCEQ Sampling Procedures Manual, Appendix P (dated January 2003 or a later edition) or an approved equivalent sampling method. The results of the VOC monitoring, cooling water flow rate, and maintenance activities on the cooling water system shall be recorded. The VOC monitoring results and cooling water hourly mass flow rate shall be used to determine cooling tower hourly VOC emissions. The rolling 12-month cooling water emission rate shall be recorded on a monthly basis and be determined by summing the VOC emissions between VOC monitoring periods over the rolling 12 month period. The emissions between VOC monitoring periods shall be obtained by multiplying the total cooling water mass flow between cooling water monitoring periods by the higher of the two VOC monitored results.

Piping, Valves, Connectors, Pumps, Agitators, and Compressors – 28VHP

16. The following requirements apply to piping, valves, connectors, pumps, agitators, and compressors containing or in contact with fluids that could reasonably be expected to contain greater than or equal to 10 weight percent volatile organic compounds (VOC) at any time. **(09/21)**

A. The requirements of paragraphs F and G shall not apply (1) where the Volatile Organic Compound (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 readily available upon request.

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

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(1) Piping and instrumentation diagram (PID);

(2) A written or electronic database or electronic file;

(3) Color coding;

(4) A form of weatherproof identification; or

(5) Designation of exempted process unit boundaries.

B. Construction of new and reworked piping, valves, pump systems, 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 readily available upon request. The difficult-to-monitor and unsafe-to-monitor valves may be identified by one or more of the methods described in subparagraph 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 within the 72-hour 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.

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F. Accessible valves shall be monitored by leak-checking for fugitive emissions at least quarterly using an approved gas analyzer. 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. If a relief valve is equipped with rupture disc, a pressure-sensing device shall be installed between the relief valve and rupture disc to monitor disc integrity.

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. All leaking discs shall be replaced at the earliest opportunity but no later than the next process shutdown.

The 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.

Replacements for leaking components shall be re-monitored within 15 days of being placed back into VOC service.

G. Except as may be provided for in the special conditions of this permit, all pump, compressor, and agitator seals shall be monitored with an approved gas analyzer at least quarterly or be equipped with a shaft sealing system that prevents or detects emissions of VOC from the seal. Seal systems designed and operated to prevent emissions or seals equipped with an automatic seal failure detection and alarm system need not be monitored. These seal systems 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.

H. Damaged or leaking valves or connectors 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. Damaged or leaking pump, compressor, and agitator seals found to be emitting VOC in excess of 2,000 ppmv or found by visual inspection to be leaking (e.g., dripping process fluids) shall be tagged and replaced or repaired. A first attempt to repair the leak must be made within 5 days and a record of the attempt shall be maintained.

I. 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 within 15 days of the detection of the leak. 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

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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 shut down 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 the TCEQ Executive Director may require early unit shut down 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.

J. 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.

K. Alternative monitoring frequency schedules of 30 TAC §§ 115.352 – 115.359 or National Emission Standards for Organic Hazardous Air Pollutants, 40 CFR Part 63, Subpart H, may be used in lieu of Items F through G of this condition.

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 (NSPS), or an applicable National Emission Standard for Hazardous Air Pollutants (NESHAPS) and does not constitute approval of alternative standards for these regulations.

M. Requirements in paragraphs B–E pertaining to new and reworked connections are meant apply to major significant changes in piping. Insignificant activities exempt from requirements B–E pertaining to new and reworked connections include, but are not limited to: installation/replacement of small number of valves and flanges; minor repairs; gasket replacement; and repair/replacement of small sections of piping. Additionally, the requirement for new and reworked buried connectors to be welded does not apply if compliance would require a process unit shutdown or would create a safety issue including, but not limited to, close proximity of other process pipelines and equipment or unsafe access to the piping.

This paragraph M shall not be construed to authorize the replacement or modification of any component in compliance with requirements of paragraphs B–E with a component which is not in compliance with paragraphs B–E.

17. In lieu of the 2000 ppmv VOC limit in Paragraph H of Special Condition 16, damaged or leaking pump, compressor, and agitator 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. A first attempt to repair the leak must be made within 5 days. Records of the first attempt to repair shall be maintained.

18. In addition to the weekly physical inspection required by Item E of Special Condition 16, all connectors in gas\vapor and light liquid service shall be monitored annually with an approved gas analyzer in accordance with Items F thru J of Special Condition 16. Alternative monitoring frequency schedules ("skip options") of Title 40 Code of Federal Regulations Part 63, Subpart H,

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National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks, may be used in lieu of the monitoring frequency required by this permit condition. Compliance with this condition does not assure compliance with requirements of applicable state or federal regulation and does not constitute approval of alternative standards for these regulations. (28CNTA)

Continuing Determination of Compliance

19. 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 Catalyst Filling Vent No. 1 (EPN LL-005), the Powder Bin Vent No. 1 (EPN LL-008), and the Incinerator (EPN LI-01) during the production limit of 830MMlbs/year as specified in Special Condition No. 3 of this permit (version dated November 20, 2009). Testing shall be conducted within 120 days of issuance of the amended permit proposed in the application dated September 29, 2009. Requests for additional time to perform sampling shall be submitted to the TCEQ Corpus Christi Regional Office. 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 TCEQ Sampling Procedures Manual and the EPA Reference Methods. **(11/14)**

    Required testing was conducted February 26–27, 2010 in accordance with Special Condition 19, and the required report was submitted April 6, 2010, in accordance with Special Condition 20.D. **(11/14)**

    EPN LI-01 was removed from the permit on August 11, 2022 and was replaced by EPN LI-01A/B. Stack sampling requirements for EPN LI-01A/B are located in Condition No. 21.

20. 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 40 CFR Part 60 testing which must have EPA approval shall be submitted to the TCEQ Regional Director.

    A. The TCEQ Corpus Christi 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 during the sampling period

        The TCEQ Corpus Christi Regional Office may request additional information.

        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

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format procedures for submitting the test reports. The TCEQ Regional Director must approve any deviation from specified sampling procedures.

B. Air contaminants emitted from the Catalyst Filling Vent No. 1 (EPN LL-005) to be tested for include (but are not limited to) VOC. Air contaminants emitted from the Powder Bin Vent No. 1 (EPN LL-008) to be tested for includes (but are not limited to) VOC. Air contaminants emitted from the Incinerator Stack (EPN LI-01) to be tested for include (but are not limited to) VOC, nitrogen oxides, and carbon monoxide.

C. Catalyst Filling Vent No. 1 shall be tested during the batch process of preparing TEA. The plant shall operate at maximum production rates during stack emission testing of the Powder Bin Vent No. 1 (EPN LL-008) and the Incinerator (EPN LI-01). Primary operating parameters that enable determination of production rate shall be monitored and recorded during the stack tests. These parameters are to be determined at the pretest meeting. Any additional parameters shall be determined at the pretest meeting and shall be stated in the sampling report. If the plant is unable to operate at maximum rates during testing, then future production rates may be limited to the rates established during testing. Additional stack testing may be required when higher production rates are achieved. 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.

D. 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:

One copy to the TCEQ Corpus Christi Regional Office.

One copy to each local air pollution control program.

E. The permit holder shall provide sampling facilities conducive to EPA Method 5 testing for particulate matter on the Incinerator (EPN LI-01) during the next planned unit shutdown.

Initial Determination of Compliance

21. 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 incinerators (EPN LI-01A/B) to demonstrate compliance with the MAERT and Special Condition No. 13. 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. **(8/22)**

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

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(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 during the sampling period.

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 each incinerator (EPN LI-01A/B) to be tested for include (but are not limited to) NO_X, CO, O_2, and 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 the maximum production rate during stack emission testing. 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.

During subsequent operations, if the production rate is greater than that recorded during the test period, stack sampling shall be performed at the new operating conditions within 120 days. This sampling may be waived by the TCEQ Air Section Manager for the region.

E. 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:

One copy to the appropriate TCEQ Regional Office.
One copy to each local air pollution control program.

F. Sampling ports and platform(s) shall be incorporated into the design of (source stack and EPN) according to the specifications set forth in the attachment entitled “Chapter 2, Guidelines for Stack Sampling Facilities” of the Texas Commission on Environmental Quality (TCEQ) Sampling Procedures Manual. Alternate sampling facility designs must be submitted for approval to the TCEQ Regional Director.

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Maintenance, Startup, and Shutdown (MSS)

22. This permit authorizes air emissions from the planned maintenance, startup, and shutdown (MSS) activities identified in the following table performed at the facilities authorized by this permit. **(TBD)**

Facilities	Description/ Emissions Activity	EPN
All facilities*	Depressurize and purge to control per Special Condition 23	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, LI-01A/B, or LLDPE-TMP
All facilities*	Degas facilities to atmosphere after control per Special Condition 23	LLDPE-MNT
All facilities*	Fill and/or vent to control during startup	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, LI-01A/B, or LLDPE-TMP
All facilities*	Drain liquid to remove water	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, LI-01A/B, or LLDPE-TMP
Floating roof tanks	Degas to control, then atmosphere per Special Condition 26	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, LI-01A/B, LLDPE-TMP, or LLDPE-MNT
Floating roof tanks	Fill clean tank with landed roof	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, LI-01A/B, LLDPE-TMP, or LLDPE-MNT
Baghouses/bag filters, Cyclones	Repair, replace, maintain	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, LI-01A/B, LLDPE-TMP or LLDPE-MNT
Incinerator	Maintenance on incinerator	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, LI-01A/B, LLDPE-TMP, or LLDPE-MNT
All facilities	Uncontrolled hydroblasting following depressurization and purge to control	LLDPE-MNT
Vacuum trucks	Load and transport liquid to support MSS on permanent facilities	LLDPE-MNT
Treaters/converters using catalyst	Depressurize and degas catalyst facilities to control for regeneration	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2,

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Facilities	Description/ Emissions Activity	EPN
		EGF-3, EGF-4, LI-01A/B, or LLDPE-TMP
Catalyst waste bins	Depressurize and purge catalyst facilities to control to remove waste	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, or EGF-4
Catalyst waste bins	Open to atmosphere to remove waste	LLDPE-MNT
Instruments/analyzers	Maintenance and calibrations	LLDPE-MNT
All facilities	Sampling and sight glass cleaning	LLDPE-MNT
Carbon canisters	Maintenance on carbon canisters	LLDPE-MNT

* - all facilities include piping

In addition, planned MSS emissions emitted from routine emission points are authorized provided the emissions are compliant with the respective MAERT allowable emission rates and special conditions. This permit authorizes emissions from the following temporary facilities used to support planned MSS activities at permanent site facilities: vacuum trucks and control devices meeting the requirements of Special Condition 25 and 29. Emissions from temporary facilities are authorized provided the temporary facility (a) does not remain on the plant site for more than 12 consecutive months, (b) is used solely to support planned MSS activities at the permanent facilities authorized by this permit, and (c) does not operate as a replacement for an existing authorized facility

Emissions from activities listed on Attachment A may be considered to be equal to the potential to emit represented in the permit amendment application, PI-1 dated January 3, 2008, and updated in subsequent application submittals. The estimated emissions from these activities must be revalidated annually. This revalidation shall consist verifying the estimated emissions for each type of activity and the basis for that emission estimate.

Routine maintenance activities, as identified in Attachment B may be tracked through the work orders or equivalent. Emissions from activities identified in Attachment B shall be calculated using the number of work orders or equivalent that month and the emissions associated with that activity identified in the permit application.

A. The performance of each planned MSS activity identified in Attachment C and the emissions associated with it shall be recorded and include at least the following information:

B. the process unit at which emissions from the MSS activity occurred, including the emission point number and common name of the process unit;

C. the type of planned MSS activity and the reason for the planned activity;

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

E. the date and time of the MSS activity and its duration;

F. 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.

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

23. Except for instrumentation/analyzer maintenance and vacuum trucks, process units and facilities shall be depressurized, degassed, and placed back into service in accordance with the following requirements.

A. The process equipment shall be vented to a control device or a controlled recovery system during depressurization.

B. All liquids from process equipment or storage vessels must be removed to the maximum extent practical prior to opening equipment or commencing depressurization, degassing and/or maintenance. Equipment that only contains material with VOC partial pressure less than 0.50 psi at the normal process temperature and 95°F may be opened to the atmosphere after liquids are removed as required by this condition. 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.

C. If mixed phase materials must be removed from process equipment during depressurization, liquids removal, or degassing, the cleared material shall be routed to a knockout drum or equivalent to allow for managed initial phase separation. Any vents in the knockout drum or equivalent must be routed to a control device or a controlled recovery system. Control must remain in place while mixed phase material removal is being performed.

D. Facilities shall be degassed using practices that 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. Records shall be maintained of the control device or recovery system utilized with the estimated emissions from controlled and uncontrolled degassing calculated using the methods that were used to determine allowable emissions for the permit application.

E. After degassing in accordance with Paragraph D, the VOC concentration in the facilities being degassed shall be verified to be below 10,000 ppmv or less than 10 percent of the lower explosive limit (LEL) using one of the methods below prior to opening directly to atmosphere.

(1) For MSS activities other than process unit startup, shutdown, hydroblasting, or turnaround, the following option may be used in lieu of (2) 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 percent of the lower explosive limit (LEL) per the site safety procedures.

(2) Documentation shall be maintained of the locations and/or identifiers where the purge gas or steam enters the process equipment or storage vessel and the exit points for the purge gases. If the process equipment is purged with a gas, two system volumes of purge gas must have passed through the control device or controlled recovery system before the vent stream may be sampled to verify acceptable VOC concentration prior to uncontrolled venting. The VOC sampling and analysis shall be performed using an instrument meeting the requirements of Special Condition 24. 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

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system downstream of the process equipment or vessel being purged. The facilities shall be degassed to a control device or controlled recovery system until the VOC concentration is less than 10,000 ppmv or less than 10 percent of the lower explosive limit (LEL). Documented plant procedures used to de-inventory 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.

F. Gases and vapors with VOC partial pressure greater than 0.50 psi 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 or incinerator).

(3) There is no more than 50 lb of air contaminant to be vented to atmosphere during shutdown or startup, as applicable.

Except as noted in Attachment A, all instances of venting directly to atmosphere per Paragraph F must be documented when occurring as part of any MSS activity. The emissions associated with venting without control must be included in the activity record for those planned MSS activities.

24. Air contaminant concentration shall be measured using an instrument/detector meeting one of the following methods:

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 with a calibration gas such that the response factor of the VOC (or mixture of VOCs) to be monitored shall be less than 2.0. The calibration gas and the gas to be measured, and its approximate response factor shall be recorded.

(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, recording VOC concentration each minute. The highest measured VOC concentration shall not exceed the specified VOC concentration limit prior to uncontrolled venting.

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 must be 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 (3), the concentration measured must be 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:

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

The mole fraction of the total air contaminants present in the gas stream that can be detected by the tube 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 propane gas standard at 50% of the lower explosive limit (LEL) for propane. 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 50% of the LEL for propane may be used for calibration and functionality tests provided that the LEL response is within 95% of that for propane.

D. As an alternative to an instrument/detector, the analysis may be conducted in a laboratory. Bag samples of the gas discharged may be drawn and taken to a Formosa laboratory to be analyzed by gas chromatography (GC). A minimum of two bag samples shall be drawn approximately ten minutes apart. A Tedlar bag, or a bag appropriate for the material to be sampled, shall be used and shall have a valve to seal gas in the bag. The samples shall be drawn as follows:

(1) The sample point on the equipment being cleared shall be purged sufficiently to ensure a representative sample at the sample valve.

(2) The sample bag shall be connected directly to the sample valve.

(3) The sample valve and sample bag shall be opened to allow the bag to fill to approximately 80% of capacity. The sample connections shall be fitted such that no air is drawn into the sample bag.

(4) The two valves shall then be closed to seal the sample in the bag.

(5) The sample bag shall then be disconnected and placed in a dark container out of direct sunlight for transport to the analyzer.

(6) This process is repeated to collect additional samples.

(7) The sample shall be analyzed within 12 hours of collection.

The laboratory GC shall meet or exceed the requirements of 40 CFR 60, Appendix A, Method 18 Sections 6 (Equipment and Supplies), 7 (Reagents and Standards), 9 (Quality Control), and 10 (Calibration and Standards). The sample shall be analyzed per Section 8.2.1.1.2 of Method 18, except the analysis does not need to be performed in triplicate. The highest measured VOC concentration shall not exceed the specified VOC concentration limit prior to uncontrolled venting.

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25. 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 psi at 95°F 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 and the truck identifier (bill of lading or other unique identifier). Record the liquid level and document that the VOC partial pressure is less than 0.50 psi 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 psi 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 pump exhaust is controlled with a control device other than an engine or oxidizer, records shall be maintained of VOC exhaust concentration upon commencing each transfer, at the end of each transfer, and at least every hour during each transfer, measured using an instrument meeting the requirements of Special Condition 24.

        (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.

26. This permit authorizes emissions for floating roof storage tanks during planned floating roof landings. Tank roofs may only be landed for tank inspection/maintenance. Tank roof landings include all operations when the tank floating roof is on its supporting legs. 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 or a controlled recovery system during this process.

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B. Tank refilling or degassing of the vapor space under the landed floating roof must begin within 24 hours after the tank has been drained unless the vapor under the floating roof is routed to control or a controlled recovery system during this period. The tank shall not be opened except as necessary to set up for degassing and cleaning. 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 percent 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 make-up air introduced into the control device or recovery system. The VOC sampling and analysis shall be performed as specified in Special Condition 24.

(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.

(5) 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 or ventilated without control, except as allowed below until one of the criteria in part D of this condition is satisfied.

(1) One manway may be opened to allow access to the tank to remove or de-volatilize the remaining liquid. Other manways or access points may be opened as necessary to remove or de-volatilize the remaining liquid. Wind barriers shall be installed at all open manways and access points to minimize air flow through the tank.

(2) Access points shall be closed when not in use

D. The tank may be opened without restriction and ventilated without control, after all standing liquid has been removed from the tank or the liquid remaining in the tank has a VOC partial pressure less than 0.02 psia. These criteria shall 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.

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(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 24.

(3) No standing liquid verified through visual inspection.

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

E. Tanks shall be refilled as rapidly as practicable until the roof is off its legs.

F. 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, time, and other information specified for 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 psi,

(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 Section 7.1.3.2 of AP-42 “Compilation of Air Pollution Emission Factors, Chapter 7 — Storage of Organic Liquids” dated November 2006 and the permit application.

27. Bag filter maintenance and cyclone maintenance shall be performed in a manner to minimize particulate matter emissions and minimize down time.

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28. 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.

29. Control devices required by this permit for emissions from planned 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. **(TBD)**

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

    A. Carbon Adsorption 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 downstream of 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) It 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.

            (b) 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 the VOC concentration on the initial sample downstream of the first carbon canister following a new polishing canister being put in place is greater than 100 ppmv above background, it shall be assumed that breakthrough occurred while that canister functioned as the final polishing canister and 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. 24.

        (4) Breakthrough is defined as the highest measured VOC concentration at or exceeding 100 ppmv above background. 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 four hours. 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.

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(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.

B. 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.

C. 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 United States Environmental Protection Agency (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 following each occurrence of engine maintenance which may reasonably be expected to increase emissions including oxygen sensor replacement and catalyst cleaning or replacement. 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 24 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.

D. The plant flare system (EPNs 1067, 1018, OL3-FLRA/B/C) shall be operated as specified in Special Condition No. 9.

E. The Enclosed Ground Flares (EPNs EGF-1, EGF-2, EGF-3 and/or EFG-4) shall be operated as specified in Special Condition No. 10.

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

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

(2) The method of VOC sampling and analysis shall be by detector meeting the requirements of Special Condition 24.

(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 for more than one minute. The date and time of all alarms and the actions taken shall be recorded.

Greenhouse Gas Emissions

30. Permit holders must keep records sufficient to demonstrate compliance with 30 Texas Administrative Code § 116.164. If construction, a physical change or a change in method of operation results in Prevention of Significant Deterioration (PSD) review for criteria pollutants, then records shall be maintained that are sufficient to demonstrate the amount of emissions of GHGs from the source as a result of such construction, physical change or change in method of operation does not require authorization under 30 TAC §116.164(a). If there is construction, a physical change or a change in the method of operation that will result in a net emission increase of 75,000 tpy or more $CO_{2e.}$ greenhouse gas emissions are subject to PSD review. **(TBD)**

31. Monitoring, quality assurance/quality control requirements, emission calculation methodologies, record keeping, and reporting requirements related to Greenhouse Gas (GHG) emissions shall adhere to the applicable requirements in 40 CFR Part 98 and in this permit. **(TBD)**

32. Permittee shall calculate the CO_{2e} emissions on a 12-month rolling basis, based on the procedures and Global Warming Potentials (GWP) contained in Greenhouse Gas Regulations, 40 CFR Part 98, Subpart A, Table A-1. **(TBD)**

33. Records of emissions of GHG, and how they were determined, in compliance with Special Condition Nos. 30, 31, and 32 must be maintained by the holder of this permit in a form suitable for inspection for a period of five years after collection and must be made available upon request to representatives of the TCEQ, EPA, or any local air pollution control program having jurisdiction. **(TBD)**

Alternative Means of Compliance

34. The permit holder shall comply with the requirements of Alternative Method of Compliance (AMOC) No. 213. **(TBD)**

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Date: TBD

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Permit Numbers 20203, PSDTX1224M1, and GHGPSDTX222

Attachment A

Inherently Low Emitting Activities

Activity	Emissions			
	VOC	NO_x	CO	PM
Hydroblasting*	X			
Repair/replace filters/strainers	X	X	X	X
Repair/replace baghouses/bag filters	X	X	X	X
Repair of cyclones				X
Catalyst waste removal	X	X	X	
Instrument/analyzer calibration/repair, sight glass cleaning/repair, transmitter repair	X	X	X	X
Carbon can replacement*	X			
Sampling*	X			
Other Attachment A activities, as identified in the permit application, with emission rates less than 0.1 pound VOC*	X			

* - These activities are not subject to the requirements of Special Condition 23.

Date: September 29, 2014

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Permit Numbers 20203, PSDTX1224M1, and GHGPSDTX222

Attachment B

Routine Maintenance Activities

Repair/replacement that may be isolated so that the process volume to be emptied and degassed is less than 200 cubic feet such as:

Small equipment component repair/replacement

Column, reactor, or vessel repair/replacement

Piping degassing

Date: September 29, 2014

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Permit Numbers 20203, PSDTX1224M1, and GHGPSDTX222

Attachment C

Significant MSS Activity Summary

The following activities are subject to the full recordkeeping requirements specified by Special Condition 22.

Floating roof tank landing and refill

Plant startup, shutdown, and turnaround

Incinerator degassing/repair/replacement

Activities not listed on Attachments A and B or not otherwise authorized

Date: September 29, 2014

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Special Conditions

Permit Numbers 40157, PSDTX1222M1, and GHGPSDTX225

Emission Standards

1. This permit covers only those sources of emissions listed in the attached table entitled “Emission Sources - Maximum Allowable Emission Rates” (MAERT), and those sources are limited to the emission limits and other conditions specified in that table.

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 if applicable, with the exemption of those listed below.

   Relief Valves (PSV-2006, PSV-2007, PSV-2008, and PSV-2009)

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):

   A. Subpart A, General Provisions.

   B. Subpart Kb, Volatile Organic Liquid Storage Vessels.

   C. Subpart DDD, Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry

   D. Subpart VV, Synthetic Organic Chemical Manufacturing Industry (SOCMI) Volatile Organic Compound (VOC) Equipment Leaks.

4. These facilities shall comply with all applicable requirements of the U.S. Environmental Protection Agency (EPA) regulations on National Emission Standards for Hazardous Air Pollutants for Source Categories in 40 CFR Part 63:

   A. Subpart A, General Provisions.

   B. Subpart FFFF, Miscellaneous Organic Chemical Manufacturing.

Operational Standards

5. The polymer production shall be recorded daily during operation of this facility. The records shall include the production rate for the day, the polymer type or grade, and the quantities of any comonomers used. All records shall be dated for each day this facility is operated, and this record shall be made available to the Executive Director of the Texas Commission on Environmental Quality (TCEQ) or his designated representative upon request.

6. Total volatile organic compounds (VOC) content of the polymer emitted to the atmosphere after the Pellet Dryer (Emission Point No. [EPN] 003) shall not exceed 40 pounds of VOC per million pounds (MM/lbs) of polymer.

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7. The facility covered by this permit shall not operate unless all associated air pollution abatement equipment is maintained in good working order and operating during normal facility operations. The following steps shall be performed, at a minimum, to ensure the proper operation of the baghouses:

   A. The baghouse pressure drop shall be recorded continuously for each baghouse during operation of this facility. All records of baghouse pressure drops shall be dated for each day this facility is operated, and this record shall be made available to the Executive Director of the TCEQ or his designated representative upon request.

   B. When there are visible stack emissions from a baghouse, the process shall be shut down, and the entire baghouse shall be tested and inspected, and failed or damaged parts shall be repaired or replaced.

   C. A spare parts inventory for each baghouse shall be maintained at the site of this facility.

   D. The TCEQ Regional Director shall be notified as soon as possible of any baghouse system malfunction that results in visible emissions

Flares and Fuel Gas

8. The Olefins 1 Elevated Flare (EPN 1018), Olefins 2 Elevated Flare (EPN 1067), and Olefins 3 Elevated Flare (EPN: OL3-FLRA/B/C) shall be designed and operated in accordance with the following requirements: **(TBD)**:

   A. The flare systems shall be designed such that the combined assist natural gas and waste gas stream to each flare meets the 40 CFR § 60.18 specifications of minimum heating value and maximum tip velocity under normal and maintenance flow conditions.

      The heating value and velocity requirements shall be satisfied during operations authorized by this permit. Flare testing shall be performed per 40 CFR § 60.18(f) if 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, infrared monitor, or ultraviolet monitor. The time, date, and duration of any loss of pilot flame shall be recorded. 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 flares.

   D. For each flare, the permit holder shall install a continuous flow monitor that provides a record of the vent stream flow to the flare. The flow monitor sensors shall be installed in the vent stream as near as possible to the flare inlet such that the total vent stream to the flare is measured.

      The monitors shall be calibrated on an annual basis to meet the following accuracy specifications: the flow monitor shall be ±5.0%, temperature monitor shall be ±2.0% at absolute temperature, and pressure monitor shall be ±5.0 mm Hg.

      The monitors shall operate as required by this section at least 95% of the time when the flare is operational, averaged over a rolling 12 month period. Flared gas actual exit velocity

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determined in accordance with 40 CFR §60.18(f)(4) shall be recorded at least once every 15 minutes.

E. For each of the Olefins 1 & 2 Elevated Flares (EPNs 1018 and 1067), the permit holder shall install a calorimeter that provides a record of the BTU content of the vent stream to the flare. The calorimeter sample points shall be installed in the vent stream as near as possible to the flare inlet such that the total vent stream to the flare in analyzed.

The calorimeters shall be calibrated, installed, operated, and maintained in accordance with manufacturer recommendations, to continuously measure and record the net heating value of the gas sent to the flare, in British thermal units/standard cubic foot of the gas.

The calorimeters shall operate as required by this section at least 95% of the time when the flare is operational, averaged over a rolling 12 month period. Flared gas net heating value determined in accordance with 40 CFR §60.18(f)(3) shall be recorded at least once every 15 minutes.

F. The vents from the HDPE II unit to the Olefins I Elevated Flare (EPN 1018) and the Olefins II Elevated Flare (EPN 1067) are limited to the following scenarios:

(1) All vents from the HDPE II unit may vent to EPN 1018 provided no vents from the HDPE II unit are venting at the same time to EPN 1067.

(2) All vents from the HDPE II unit may vent to EPN 1067 provided no vents from the HDPE II unit are venting at the same time to EPN 1018.

G. After July 6, 2023, the Olefins 1 Elevated Flare (EPN 1018), Olefins 2 Elevated Flare (EPN 1067), and Olefins 3 Elevated Flare (EPN: OL3-FLRA/B/C) shall meet the requirements of Special Condition No. 9 which will replace and supersede the requirements of this Special Condition. If a compliance extension is granted in accordance with NESHAP procedures, then the effective date to meet the requirements of Special Condition No. 9 will be specified in the compliance extension approval.

9. The EGFs (EPNs EGF-1, EGF-2, EGF-3, and EGF-4) shall be designed and operated in accordance with the following requirements: **(TBD)**

A. The flare systems shall be designed such that the combined flare vent gas, assist air, and/or total steam to each flare meets the 40 CFR § 63.670 specifications for minimum combustion zone net heating value and maximum tip velocity at all times that flare vent gas may be directed to the flare for more than 15 minutes. Flared gas actual exit velocity, vent gas net heating value, and flared gas combustion zone net heating value shall be determined in accordance with 40 CFR §63.670(k), §63.670(l), and §63.670(m) on a 15-minute block average and recorded at least once every 15 minutes.

If the flare actively receives perimeter assist air, it shall be operated to meet the 40 CFR §63.670 specifications for minimum net heating value dilution parameters.

B. The flares shall be operated with pilot flames present at all times flare vent gas may be directed to the flares. The pilot flames shall be continuously monitored by a thermocouple, infrared monitor, or ultraviolet monitor. The time, date, and duration of any loss of pilot flame shall be recorded. Each monitoring device shall be accurate to, and shall be calibrated at a frequency in accordance with, the manufacturer's specifications.

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C. Flares shall be operated with no visible emissions except periods not to exceed a total of five minutes during any two consecutive hours, demonstrated and recorded per the requirements of §63.670(h).

D. The permit holder shall install flow monitors that continuously measure, calculate, and record the total volumetric vent stream flow rate (including waste gas, purge gas, supplemental gas, and sweep gas), and shall install a monitoring system capable of determining the concentration of individual components in the flare vent gas or the net heating value of the flare vent gas. The flow monitor sensor and analyzer sample points shall be installed in the vent stream such that the total vent stream to the flare is measured and analyzed.

If one or more gas streams that combine to comprise the total flare vent gas flow are monitored separately for net heating value and flow, the 15-minute block average net heating value shall be determined separately for each measurement location and a flow-weighted average of the gas stream net heating values shall be used to determine the 15-minute block average net heating value of the cumulative flare vent gas.

If assist air or assist steam is used, the owner or operator shall install, operate, calibrate, and maintain a monitoring system capable of continuously measuring, calculating, and recording the total volumetric flow rate of assist air and/or assist steam used with the flare.

If pre-mix assist air and/or perimeter assist air are used, the owner or operator shall install, operate, calibrate, and maintain a monitoring system capable of separately measuring, calculating, and recording the volumetric flow rate of premix assist air and/or perimeter assist air used with the flare. Continuously monitoring fan speed or power and using fan curves is an acceptable method for continuously monitoring assist air flow rates.

Perimeter assist air includes all air assist except premix assist air. Premix assist air includes any air intentionally entrained in center steam.

Assist air includes premix assist air and perimeter assist air, but does not include the surrounding ambient air.

The monitors shall be calibrated or have a calibration check performed as specified in Table 13 of the appendix to 40 CFR 63, Part CC to meet the following accuracy specifications: the vent flow monitor shall be ±20 percent of flow rate at velocities ranging from 0.03 to 0.3 meters per second (0.1 to 1 feet per second) ±5 percent of flow rate at velocities greater than 0.3 meters per second (1 feet per second), all other gas flow monitors shall be ±5 percent over the normal range of flow measured or 280 liters per minute (10 cubic feet per minute) whichever is greater, temperature monitor shall be ±1 percent over the normal range of temperature measured, expressed in degrees Celsius (C), or 2.8 degrees C, whichever is greater, and pressure monitor shall be ±5 percent over the normal operating range or 0.12 kilopascals (0.5 inches of water column), whichever is greater. For purposes of this permit, a calibration check means, at a minimum, using a second device or method to verify that the monitor is accurate as specified in the permit.

Calorimeters shall have an accuracy of at least ±2% of span and be calibrated, installed, operated, and maintained in accordance with manufacturer recommendations and as specified in Table 13 of the appendix to 40 CFR 63, Part CC, to continuously measure and record the net heating value of the vent gas sent to the flare, in British thermal units/standard cubic foot of the gas.

For determination of net heating value by gas chromatograph, the minimum accuracy shall be as specified in Performance Specification 9 of Part 60, appendix B. Composition monitoring instruments shall be calibrated, installed, operated, and maintained in accordance

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with manufacturer recommendations and as specified in 40 CFR §63.671(e) and Table 13 of 40 CFR Pt. 63, Subpart CC. Individual component properties specified in Table 12 of Subpart CC shall apply to net heating value calculations.

For determination of net heating value by continuous process mass spectrometer, the minimum accuracy; composition monitoring; calibration; installation; operation and maintenance shall be done in accordance with 40 CFR §63.1103(e)(4)(viii).

E. Quality assured (or valid) data must be generated during periods that flare is operating. 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 flare operated over the previous rolling 12-month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

F. Hourly mass emission rates shall be determined and recorded using the monitoring data collected pursuant to paragraph D of this Special Condition and the emission factors specified in the permit amendment application PI-1 dated December 2, 2021.

G. Pilot and supplemental (fuel) gas combusted in the flares shall be sweet natural gas containing no more than 0.26 grains of total sulfur per 100 dry standard cubic feet.

10. Vent gas streams for the HDPEII Plant may be directed to any of the EFGs or to any of the Olefins units elevated flares (EPNs EGF-1, EGF-2, EGF-3, EGF-4, 1018, 1067, and/or OL3-FLRA/B/C). **(TBD)**

11. The following requirements apply to capture systems for each flare designated as EPNs 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4. **(TBD)**

A. If used to control pollutants other than particulate, either:

(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. 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 15 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 prevent flow out the bypass.

A deviation shall be reported if the monitoring or inspections indicate bypass of the control device.

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

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12. Fuel gas combusted at the Catalyst Activator Direct Heater (EPN H-601) and the Olefins I and II Elevated Flares (EPNs 1018 and 1067) shall be sweet natural gas containing less than 3.4 ppmv hydrogen sulfide (H_2S). The gas shall be sampled annually for H_2S. This requirement may also be met through information provided by the natural gas supplier.

Cooling Tower

13. A leak in the cooling tower water shall be defined as 50 ppb or greater. The VOC associated with cooling tower water shall be monitored monthly using the El Paso Products Company method of analysis. This method is described in the TCEQ guidance document entitled "Air Quality Permit Technical Guidance for Chemical Sources - Cooling Towers," dated May 1997. The holder of this permit may use an air stripping system equivalent to the El Paso Products Company method of analysis, provided that he previously obtains written approval from the TCEQ Office of Air, Air Permits Division.

    The appropriate equipment shall be maintained so as to minimize fugitive VOC emissions from the cooling tower. Faulty equipment shall be repaired at the earliest opportunity but no later than the next scheduled shutdown of the process unit in which the leak occurs. The results of the monitoring and maintenance efforts shall be recorded and such records shall be maintained for a period of two years. The records shall be made available to the TCEQ Executive Director or his designated representative upon request.

14. The cooling tower (EPN PP2-CT) shall be operated and monitored in accordance with the following:

    A. 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.

    B. Total dissolved solids (TDS) shall not exceed 6,500 parts per million by weight (ppmw) on an hourly basis and 4,150 ppmw on an annual average. Dissolved solids 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.

    C. Cooling towers shall be analyzed for particulate emissions using one of the following methods:

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

        (2) TDS monitoring may be reduced to weekly if conductivity is monitored daily 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 weekly basis. The permit holder may use the average of two consecutive TDS-to-conductivity ratios to calculate daily TDS; or

        (3) TDS monitoring may be reduced to quarterly if conductivity is monitored daily and TDS is calculated using a correlation factor established for each cooling tower. The correlation factor shall be the average of nine consecutive weekly TDS-to-conductivity ratios determined using C(2) above provided the highest ratio is not more than 10% larger than the smallest ratio.

        (4) 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

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than 10% higher or lower than the established factor, the permit holder shall increase TDS monitoring to weekly until a new correlation factor can be established.

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

(1) 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.

(2) 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.

(3) Alternate sampling and analysis methods may be used to comply with D(1) and D(2) with written approval from the TCEQ Regional Director.

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

E. 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.

Piping, Valves, Connectors, Pumps, Agitators, and Compressors — 28VHP

15. The following requirements apply to piping, valves, connectors, pumps, agitators, and compressors containing or in contact with fluids that could reasonably be expected to contain greater than or equal to 10 weight percent volatile organic compounds (VOC) at any time.

A. The requirements of paragraphs F and G shall not apply (1) where the 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 readily available upon request.

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

(1) piping and instrumentation diagram (PID);

(2) a written or electronic database or electronic file;

(3) color coding;

(4) a form of weatherproof identification; or

(5) designation of exempted process unit boundaries.

B. Construction of new and reworked piping, valves, pump systems, and compressor systems shall conform to applicable American National Standards Institute (ANSI), American

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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 readily available upon request. The difficult-to-monitor and unsafe-to-monitor valves may be identified by one or more of the methods described in subparagraph 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 within the 72 hour 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. 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. If a relief valve is equipped with rupture disc, a pressure-sensing device shall be installed between the relief valve and rupture disc to monitor disc integrity.

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

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requirements specified in this paragraph. All leaking discs shall be replaced at the earliest opportunity but no later than the next process shutdown.

The 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.

Replacements for leaking components shall be re-monitored within 15 days of being placed back into VOC service.

G. Except as may be provided for in the special conditions of this permit, all pump, compressor, and agitator seals shall be monitored with an approved gas analyzer at least quarterly or be equipped with a shaft sealing system that prevents or detects emissions of VOC from the seal. Seal systems designed and operated to prevent emissions or seals equipped with an automatic seal failure detection and alarm system need not be monitored. These seal systems 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.

H. Damaged or leaking valves or connectors 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. Damaged or leaking pump, compressor, and agitator seals found to be emitting VOC in excess of 2,000 ppmv or found by visual inspection to be leaking (e.g., dripping process fluids) shall be tagged and replaced or repaired. A first attempt to repair the leak must be made within 5 days and a record of the attempt shall be maintained.

I. 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 within 15 days of the detection of the leak. 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 the TCEQ Executive Director may

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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.

J. 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.

K. Alternative monitoring frequency schedules of 30 TAC §§ 115.352 - 115.359 or National Emission Standards for Organic Hazardous Air Pollutants, 40 CFR Part 63, Subpart H, may be used in lieu of Items F through G of this condition.

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 (NSPS), or an applicable National Emission Standard for Hazardous Air Pollutants (NESHAPS) and does not constitute approval of alternative standards for these regulations.

M. With respect to this Special Condition, new and reworked is meant to apply to major changes in piping. It is not intended to apply to minor activities including but not limited to: installation/replacement of small number of valves and flanges; minor repairs; gasket replacement; repair/replacement of small sections of piping, etc. Also, "process pipelines" does not apply to underground process sewer lines, cooling tower water, fire water, etc. Additionally, the requirement for new and reworked buried connectors to be welded will not apply if compliance would require a process unit shutdown or would create a safety issue including, but not limited to, close proximity of other process pipelines and equipment or unsafe access to the piping.

16. In lieu of the 2000 ppmv VOC limit in Paragraph H of Special Condition 15, damaged or leaking pump, compressor, and agitator 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. A first attempt to repair the leak must be made within 5 days. Records of the first attempt to repair shall be maintained.

Polymer Residual VOC Emission Control

17. Ongoing compliance with the emission limits for downstream of the dryer handling shall be determined for each line by calculation using weekly production rates and weekly sampling and testing of the polymer immediately downstream of the dryer (D) and at final product loading (P). Polymer production rates and monitoring records to be maintained at the plant site for two years and made available upon request shall include (but are not limited to):

A. Date and time of sample;

B. Actual plant production rate at the time of sample and weekly average production rate;

C. Product number and melt index;

D. Measured pounds of VOC per MMlbs of polymer after the dryer and just before the final product is shipped; and

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E. Downstream handling emissions shall be calculated by (D-P) x (weekly production). Calculations shall take into account any changes in product type during the week.

In the event that results from the weekly sample required by this condition are unavailable, the average results from the previous week and subsequent week may be used to satisfy this condition for no more than two calculations in a 12-month period.

Sampling and testing shall be performed with methods approved by the TCEQ Regional Office.

18. The holder of this permit shall perform stack sampling and other testing upon request by the TCEQ to establish the actual pattern and quantities of air contaminants being emitted into the atmosphere from the following emission points: Pellet Dryer (EPN 003), Pellet Blending and Storage (EPN 004), Pellet Loadout Filter (EPN 005), and Extruder Feed Tank Vent (EPN 013).

The holder of this permit is responsible for providing sampling and testing facilities and conducting the sampling and testing operations at his expense.

A. The appropriate TCEQ Regional Office in the region where the source is located shall be contacted as soon as testing is scheduled, but not less than 45 days prior to sampling to schedule a pretest meeting.

The notice shall include:

(1) 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.

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 submitting the test reports.

A written proposed description of any deviation from sampling procedures specified in permit conditions or TCEQ or EPA sampling procedures shall be made available to the TCEQ prior to the pretest meeting. The TCEQ Regional Director or the TCEQ Compliance Support Division shall approve or disapprove of any deviation from specified sampling procedures.

Requests to waive testing for any pollutant specified in B of this condition shall be submitted to the TCEQ Office of Air, Air Permits Division. Test waivers and alternate/equivalent procedure proposals that must have EPA and TCEQ approval shall be submitted to the TCEQ Compliance Support Division.

B. Air contaminants emitted from the stacks to be tested include (but are not limited to) VOC and hexane.

C. Polymer pellet sampling per Special Condition No. 17 shall also take place when performing the stack samples. These results shall be included in the test report and compared to those from the two stacks downstream of the dryer.

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D. The plant shall operate at maximum production rates 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 plant is unable to operate at maximum rates during testing, then future production rates may be limited to the rates established during testing. Additional stack testing may be required when higher production rates are achieved.

E. Two copies of the final sampling report shall be forwarded to each of the agencies below within 60 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 Corpus Christi Regional Office; and

One copy to EPA, Region 6, Dallas Office.

F. Stack sampling of all Vents (EPNs 003, 004, 005, and 013) shall be performed within 120 days if two consecutive polymer pellet samples analyzed per Special Condition No. 17 exceed the maximum pellet VOC concentration, that was obtained by sampling in accordance with Special Condition No. 17, while performing any stack sampling under Special Condition No. 18, by more than 20 percent. This sampling is not required if stack sampling under this section (Special Condition No. 18.F) has been satisfactorily performed within the last 12 months.

Maintenance, Startup, and Shutdown (MSS)

19. This permit authorizes air emissions from the planned maintenance, startup, and shutdown (MSS) activities identified in the following table performed at the facilities authorized by this permit. **(TBD)**

Facilities	Description/ Emissions Activity	EPN
All facilities*	Depressurize and purge to flare per Special Condition 20	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, or EGF-4
All facilities*	Degas facilities to atmosphere after flare per Special Condition 20	006MSS
All facilities*	Fill and/or vent to flare during startup	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, or EGF-4
All facilities*	Drain liquid to remove water	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, or EGF-4
Baghouses/bag filters	Repair, replace, maintain	006MSS
Reactors	Uncontrolled hydroblasting following depressurization and purge to flare	006MSS
Vacuum trucks	Load and transport liquid to support MSS on permanent facilities	006MSS

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Facilities	Description/ Emissions Activity	EPN
Treaters/converters using catalyst	Depressurize and degas catalyst facilities to flare for regeneration	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, or EGF-4
Catalyst waste bins	Depressurize and purge catalyst facilities to flare to remove waste	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, or EGF-4
Catalyst waste bins	Open to atmosphere to remove waste	006MSS
Instruments/analyzers	Maintenance and calibrations	006MSS

* - all facilities include piping

In addition, planned MSS emissions emitted from routine emission points are authorized provided the emissions are compliant with the respective MAERT allowable emission rates and special conditions. This permit authorizes emissions from the following temporary facilities used to support planned MSS activities at permanent site facilities: vacuum trucks and associated control devices. Emissions from temporary facilities are authorized provided the temporary facility (a) does not remain on the plant site for more than 12 consecutive months, (b) is used solely to support planned MSS activities at the permanent facilities authorized by this permit, and (c) does not operate as a replacement for an existing authorized facility

Emissions from activities listed on Attachment A may be considered to be equal to the potential to emit represented in the permit amendment application, PI-1 dated January 3, 2008, and updated in subsequent application submittals. The estimated emissions from these activities must be revalidated annually. This revalidation shall consist verifying the estimated emissions for each type of activity and the basis for that emission estimate.

Routine maintenance activities, as identified in Attachment B may be tracked through the work orders or equivalent. Emissions from activities identified in Attachment B shall be calculated using the number of work orders or equivalent that month and the emissions associated with that activity identified in the permit application.

The performance of each planned MSS activity identified in Attachment C and the emissions associated with it shall be recorded and include at least the following information:

A. the process unit at which emissions from the MSS activity occurred, including the emission point number and common name of the process unit;

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.

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

20. Except for instrumentation/analyzer maintenance and vacuum trucks, process units and facilities shall be depressurized, degassed, and placed back into service in accordance with the following requirements. Plugged reactors will be degassed and hydroblasted in accordance with Special Condition 23.

A. The process equipment shall be vented to a control device or a controlled recovery system during depressurization.

B. All liquids from process equipment or storage vessels must be removed to the maximum extent practical prior to opening equipment or commencing depressurization, degassing and/or maintenance. Equipment that only contains material with VOC partial pressure less than 0.50 psi at the normal process temperature and 95°F may be opened to the atmosphere after liquids are removed as required by this condition. 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.

C. If mixed phase materials must be removed from process equipment during depressurization, liquids removal, or degassing, the cleared material shall be routed to a knockout drum or equivalent to allow for managed initial phase separation. Any vents in the knockout drum or equivalent must be routed to a control device or a controlled recovery system. Control must remain in place while mixed phase material removal is being performed.

D. Facilities shall be degassed using practices that 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. Records shall be maintained of the control device or recovery system utilized with the estimated emissions from controlled and uncontrolled degassing calculated using the methods that were used to determine allowable emissions for the permit application.

E. After degassing in accordance with Special Condition 20.D, the VOC concentration in the facilities being degassed shall be verified to be below 10,000 ppmv or less than 10 percent of the lower explosive limit (LEL) using one of the methods below prior to opening directly to atmosphere.

(1) For MSS activities other than process unit startup, shutdown, hydroblasting, or turnaround, 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 percent of the lower explosive limit (LEL) per the site safety procedures.

(2) Documentation shall be maintained of the locations and/or identifiers where the purge gas or steam enters the process equipment or storage vessel and the exit points for the purge gases. If the process equipment is purged with a gas, two system volumes of purge gas must have passed through the control device or controlled recovery system before the vent stream may be sampled to verify acceptable VOC concentration prior to uncontrolled venting. The VOC sampling and analysis shall be performed using an instrument meeting the requirements of Special Condition 21. 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

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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. The facilities shall be degassed to a control device or controlled recovery system until the VOC concentration is less than 10,000 ppmv or less than 10 percent of the lower explosive limit (LEL). Documented plant procedures used to de-inventory 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.

F. Gases and vapors with VOC partial pressure greater than 0.50 psi 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 is no more than 50 lb of air contaminant to be vented to atmosphere during shutdown or startup, as applicable.

Except for Attachment A activities, all instances of venting directly to atmosphere per Special Condition 20.F must be documented when occurring as part of any MSS activity. The emissions associated with venting without control must be included in the activity record for those planned MSS activities.

21. Air contaminant concentration shall be measured using an instrument/detector meeting one of the following methods:

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 with a calibration gas such that the response factor of the VOC (or mixture of VOCs) to be monitored shall be less than 2.0. The calibration gas and the gas to be measured, and its approximate response factor shall be recorded.

(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, recording VOC concentration each minute. The highest measured VOC concentration shall not exceed the specified VOC concentration limit prior to uncontrolled venting.

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 (3), 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.

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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 propane gas standard at 50% of the lower explosive limit (LEL) for propane. 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 50% of the LEL for propane may be used for calibration and functionality tests provided that the LEL response is within 95% of that for propane.

D. As an alternative to an instrument/detector, the analysis may be conducted in a laboratory. Bag samples of the gas discharged may be drawn and taken to a Formosa laboratory to be analyzed by gas chromatography (GC). A minimum of two bag samples shall be drawn approximately ten minutes apart. A Tedlar bag, or a bag appropriate for the material to be sampled, shall be used and shall have a valve to seal gas in the bag. The samples shall be drawn as follows:

(1) The sample point on the equipment being cleared shall be purged sufficiently to ensure a representative sample at the sample valve.

(2) The sample bag shall be connected directly to the sample valve.

(3) The sample valve and sample bag shall be opened to allow the bag to fill to approximately 80% of capacity. The sample connections shall be fitted such that no air is drawn into the sample bag.

(4) The two valves shall then be closed to seal the sample in the bag.

(5) The sample bag shall then be disconnected and placed in a dark container out of direct sunlight for transport to the analyzer.

(6) This process is repeated to collect additional samples.

(7) The sample shall be analyzed within 12 hours of collection.

The laboratory GC shall meet or exceed the requirements of 40 CFR 60, Appendix A, Method 18 Sections 6 (Equipment and Supplies), 7 (Reagents and Standards), 9 (Quality Control), and 10 (Calibration and Standards). The sample shall be analyzed per Section 8.2.1.1.2 of Method 18, except the analysis does not need to be performed in triplicate. The highest measured VOC concentration shall not exceed the specified VOC concentration limit prior to uncontrolled venting.

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22. 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 psi at 95°F 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 and the truck identifier (bill of lading or other unique identifier). Record the liquid level and document that the VOC partial pressure is less than 0.50 psi 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 psi 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 pump exhaust is controlled with a control device other than an engine or oxidizer, records shall be maintained of VOC exhaust concentration upon commencing each transfer, at the end of each transfer, and at least every hour during each transfer, measured using an instrument meeting the requirements of Special Condition 21.

        (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.

23. The reactor system shall be depressurized, liquids removed, and degassed per Special Condition 20.A, B, C, and D prior to opening the facility for hydroblasting. The reactor legs and vents shall be opened sequentially over a period of time as identified in the confidential portion of a letter dated January 26, 2009 submitted in response to a notice of deficiency. Trapped vapor that cannot be degassed because of the presence of polymer plugs may be vented directly to atmosphere during hydroblasting.

24. Bag filter maintenance shall be performed in a manner to minimize particulate matter emissions and minimize down time.

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25. 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.

26. Control devices required by this permit for emissions from planned 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 process or to a collection system that is vented through a control device meeting the requirements of this permit condition. **(TBD)**

    A. Carbon Adsorption 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 downstream of 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) It 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.

            (b) 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 the VOC concentration on the initial sample downstream of the first carbon canister following a new polishing canister being put in place is greater than 100 ppmv above background, it shall be assumed that breakthrough occurred while that canister functioned as the final polishing canister and a permit deviation shall be recorded.

        (3) The method of VOC sampling and analysis shall be by detector meeting the requirements of Special Condition 21.

        (4) Breakthrough is defined as the highest measured VOC concentration at or exceeding 100 ppmv above background. 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 four hours. 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.

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(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.

B. 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.

C. 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 United States Environmental Protection Agency (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 following each occurrence of engine maintenance which may reasonably be expected to increase emissions including oxygen sensor replacement and catalyst cleaning or replacement. 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 21 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.

D. The plant flare system (EPNs 1067, 1018, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and/or EGF-4) shall be operated as specified in Special Condition No. 8.

E. The Enclosed Ground Flares (EPNs EGF-1, EGF-2, EGF-3 and/or EFG-4) shall be operated as specified in Special Condition No. 9.

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

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

(2) The method of VOC sampling and analysis shall be by detector meeting the requirements of Special Condition 21.

(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 for more than one minute. The date and time of all alarms and the actions taken shall be recorded.

27. The following requirements apply to capture systems for each flare designated as EPNs 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4. **(TBD)**

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

B. The flare shall not have a bypass.

or

If there is a bypass for the flare, 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. Records shall be maintained documenting the performance and results of the inspections required above.

Greenhouse Gas Emissions

28. Permit holders must keep records sufficient to demonstrate compliance with 30 Texas Administrative Code § 116.164. If construction, a physical change or a change in method of operation results in Prevention of Significant Deterioration (PSD) review for criteria pollutants, then records shall be maintained that are sufficient to demonstrate the amount of emissions of GHGs from the source as a result of such construction, physical change or change in method of operation

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does not require authorization under 30 TAC §116.164(a). If there is construction, a physical change or a change in the method of operation that will result in a net emission increase of 75,000 tpy or more $CO_{2e.}$ greenhouse gas emissions are subject to PSD review. **(TBD)**

29. Monitoring, quality assurance/quality control requirements, emission calculation methodologies, record keeping, and reporting requirements related to Greenhouse Gas (GHG) emissions shall adhere to the applicable requirements in 40 CFR Part 98 and in this permit. **(TBD)**

30. Permittee shall calculate the CO_{2e} emissions on a 12-month rolling basis, based on the procedures and Global Warming Potentials (GWP) contained in Greenhouse Gas Regulations, 40 CFR Part 98, Subpart A, Table A-1. **(TBD)**

31. Records of emissions of GHG, and how they were determined, in compliance with Special Condition Nos. 28, 29, and 30 must be maintained by the holder of this permit in a form suitable for inspection for a period of five years after collection and must be made available upon request to representatives of the TCEQ, EPA, or any local air pollution control program having jurisdiction. **(TBD)**

Alternative Means of Compliance

32. The permit holder shall comply with the requirements of Alternative Method of Compliance (AMOC) No. 213. **(TBD)**

Date: TBD

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Permits 40157, PSDTX1222M1, and GHGPSDTX225

Attachment A

Inherently Low Emitting Activities

Activity	Emissions			
	VOC	NO_x	CO	PM
Repair water boots	X	X	X	
Repair/replace filters/strainers	X	X	X	X
Repair/replace baghouses/bag filters	X	X	X	X
Catalyst waste removal	X	X	X	
Instrument/analyzer calibration/repair, sight glass cleaning/repair, transmitter repair	X	X	X	X
Attachment B activities with emission rates less than 0.1 pound VOC	X	X	X	X
Other Attachment A activities with emission rates less than 0.1 pound VOC	X	X	X	X

Date: February 7, 2020

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Permits 40157, PSDTX1222M1, and GHGPSDTX225

Attachment B

Routine Maintenance Activities

Vessel, compressor, pump repair/replacement

Fugitive component (valve, pipe, flange) degas/repair/replacement

Pressure storage vessel repair/replacement

Column, reactor, relief valve, and heat exchanger repair/replacement

Catalyst treatment

Date: February 7, 2020

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Permits 40157, PSDTX1222M1, and GHGPSDTX225

Attachment C

Significant MSS Activity Summary

The following activities are subject to the full recordkeeping requirements specified by Special Condition 19.

Reactor hydroblasting

Plant startup shutdown, and turnaround

Activities not listed on Attachments A and B or not otherwise authorized

Date: February 7, 2020

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Special Conditions

Permit Numbers 19201, PSDTX1232M1, and GHGPSDTX219

Emissions Standards

1. This permit covers only those sources of emissions listed in the attached table entitled "Emission Sources - Maximum Allowable Emission Rates" (MAERT), and those sources are limited to the emission limits and other conditions specified in that table.

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.

3. Annual production from the permitted unit will not exceed 1752 million (MM) pounds per year. The facility will produce copolymers and homopolymers to the hourly throughput constraints contained in the Table 2 submitted with application form PI-1 dated July 13, 2016. Production records shall be updated monthly with the pounds of each type of polymer produced during the previous month and rolling 12 months to date.

4. Total volatile organic compounds (VOC) content of the polymer after the Dryers (EPNs D-301, 2D-301 and 3D-301) shall not exceed 90 pounds (lbs) of VOC per million (MM) pounds of polymer on a maximum hourly basis. Total VOC emitted to the atmosphere downstream from the dryers shall not exceed 75 lbs of VOC per MM/lbs of product on an annual average basis.

Federal Applicability

5. 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):

   A. Subpart A, General Provisions.

   B. Subpart Kb, Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984

   C. Subpart DDD, Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry

6. These facilities shall comply with all applicable requirements of the U.S. Environmental Protection Agency (EPA) regulations on National Emission Standards for Hazardous Air Pollutants for Source Categories in 40 CFR Part 63:

   A. Subpart A, General Provisions.

   B. Subpart FFFF, Miscellaneous Organic Chemical Manufacturing.

Operational Standards

7. Propylene and butene may not be jointly used as process copolymers. The copolymer usage shall be recorded daily during operation of this facility. All records of copolymer usage shall be dated for each day this facility is operated and this record shall be made readily available to the Executive

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Director of the Texas Commission on Environmental Quality (TCEQ) or his designated representative upon request.

8. Except as allowed by Special Condition 30, Dryer Vents (D-301, 2D-301, and 3D-301) shall be routed to a thermal incinerator designated as Emission Point Numbers (EPNs) H923A or H923B. Otherwise, Dryer Vents (D-301, 2D-301, and 3D-301) shall only be vented directly to the atmosphere when the VOC concentration of the vent streams reaches 25 percent of the lower explosive level.

9. The following steps shall be performed, at a minimum, to ensure the proper operation of each baghouse:

   A. The baghouse pressure drop shall be recorded continuously for each baghouse during operation of this facility. All records of baghouse pressure drop shall be dated for each day this facility is operated and this record shall be made readily available to the Executive Director of the TCEQ or his designated representative upon request.

   B. When there are visible stack emissions from a baghouse, the process shall be shut down, and the entire baghouse shall be tested/inspected and failed or damaged parts shall be repaired or replaced.

   C. A spare parts inventory for each baghouse shall be maintained at the site of this facility.

   D. The TCEQ Regional Director shall be notified as soon as possible of any baghouse system malfunction that results in visible emissions.

Flares

10. The Olefins 1 Elevated Flare (EPN 1018), Olefins 2 Elevated Flare (EPN 1067), and Olefins 3 Elevated Flare (EPN OL3-FLRA/B/C) shall be designed and operated in accordance with the following requirements: **(TBD)**

    A. The flare systems shall be designed such that the combined assist natural gas and waste gas stream to each flare meets the 40 CFR § 60.18 specifications of minimum heating value and maximum tip velocity under normal and maintenance flow conditions.

    The heating value and velocity requirements shall be satisfied during operations authorized by this permit. Flare testing per shall be performed 40 CFR § 60.18(f) if 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 or an infrared monitor. The time, date, and duration of any loss of pilot flame shall be recorded. 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 (EPNs 1018, 1067, and OL3-FLRA/B/C).

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D. For each flare, the permit holder shall install a continuous flow monitor that provides a record of the vent stream flow to the flare. The flow monitor sensor sample points shall be installed in the vent stream as near as possible to the flare inlet such that the total vent stream to the flare is measured and analyzed. Readings shall be taken at least once every 15 minutes and the average hourly values of the flow shall be recorded each hour.

The monitors shall be calibrated on an annual basis to meet the following accuracy specifications: the flow monitor shall be ±5.0%, temperature monitor shall be ±2.0% at absolute temperature, and pressure monitor shall be ±5.0 mm Hg.

The monitors shall operate as required by this section at least 95% of the time when the flare is operational, averaged over a rolling 12-month period. Flared gas actual exit velocity determined in accordance with 40 CFR § 60.18(f)(4) shall be recorded at least once every hour. Hourly mass emission rates shall be determined and recorded using the above readings and the emission factors used in the permit amendment application PI-1 dated December 2, 2021.

E. For each of the Olefins 1, 2 and 3 Elevated Flares (EPNs 1018, 1067 and OL3-FLRA/B/C), the permit holder shall install a composition analyzer or calorimeter that provide a record of the vent stream composition or Btu content to the flares. The analyzer sample points shall be installed in the vent stream as near as possible to the flare inlet such that the total vent stream to the flare is measured and analyzed.

Calibration of the analyzer shall follow the procedures and requirements of Section 10.0 of 40 CFR Part 60, Appendix B, Performance Specification 9, as amended through October 17, 2000 (65 FR 61744), except that the multi-point calibration procedure in Section 10.1 of Performance Specification 9 shall be performed at least once every calendar quarter instead of once every month, and the mid-level calibration check procedure in Section 10.2 of Performance Specification 9 shall be performed at least once every calendar week instead of e every 24 hours. The calibration gases used for calibration procedures shall be in accordance with Section 7.1 of Performance Specification 9. Net heating value of the gas combusted in the flare shall be calculated according to the equation given in 40 CFR §60.18(f)(3) as amended through October 17, 2000 (65 FR 61744).

The calorimeters shall be calibrated, installed, operated, and maintained in accordance with manufacturer recommendations, to continuously measure and record the net heating value of the gas sent to the flare, in British thermal units/standard cubic foot of the gas.

F. The composition analyzer systems or calorimeters shall operate as required by this section at least 95% of the time when the flare is operational, averaged over a rolling 12-month period. Flared gas net heating value determined in accordance with 40 CFR §60.18(f)(3) shall be recorded at least once every 15 minutes.

G. After July 6, 2023, the Olefins 1 Elevated Flare (EPN 1018), Olefins 2 Elevated Flare (EPN 1067), and Olefins 3 Elevated Flare (EPN: OL3-FLRA/B/C) shall meet the requirements of Special Condition No. 11 which will replace and supersede the requirements of this Special Condition. If a compliance extension is granted in accordance with NESHAP procedures, then the effective date to meet the requirements of Special Condition No. 11 will be specified in the compliance extension approval.

11. The EGFs (EPNs EGF-1, EGF-2, EGF-3, and EGF-4) shall be designed and operated in accordance with the following requirements: **(TBD)**

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A. The flare systems shall be designed such that the combined flare vent gas, assist air, and/or total steam to each flare meets the 40 CFR § 63.670 specifications for minimum combustion zone net heating value and maximum tip velocity at all times that flare vent gas may be directed to the flare for more than 15 minutes. Flared gas actual exit velocity, vent gas net heating value, and flared gas combustion zone net heating value shall be determined in accordance with 40 CFR §63.670(k), §63.670(l), and §63.670(m) on a 15-minute block average and recorded at least once every 15 minutes.

If the flare actively receives perimeter assist air, it shall be operated to meet the 40 CFR §63.670 specifications for minimum net heating value dilution parameters.

B. The flares shall be operated with pilot flames present at all times flare vent gas may be directed to the flares. The pilot flames shall be continuously monitored by a thermocouple, infrared monitor, or ultraviolet monitor. The time, date, and duration of any loss of pilot flame shall be recorded. Each monitoring device shall be accurate to, and shall be calibrated at a frequency in accordance with, the manufacturer's specifications.

C. Flares shall be operated with no visible emissions except periods not to exceed a total of five minutes during any two consecutive hours, demonstrated and recorded per the requirements of §63.670(h).

D. The permit holder shall install flow monitors that continuously measure, calculate, and record the total volumetric vent stream flow rate (including waste gas, purge gas, supplemental gas, and sweep gas), and shall install a monitoring system capable of determining the concentration of individual components in the flare vent gas or the net heating value of the flare vent gas. The flow monitor sensor and analyzer sample points shall be installed in the vent stream such that the total vent stream to the flare is measured and analyzed.

If one or more gas streams that combine to comprise the total flare vent gas flow are monitored separately for net heating value and flow, the 15-minute block average net heating value shall be determined separately for each measurement location and a flow-weighted average of the gas stream net heating values shall be used to determine the 15-minute block average net heating value of the cumulative flare vent gas.

If assist air or assist steam is used, the owner or operator shall install, operate, calibrate, and maintain a monitoring system capable of continuously measuring, calculating, and recording the total volumetric flow rate of assist air and/or assist steam used with the flare.

If pre-mix assist air and/or perimeter assist air are used, the owner or operator shall install, operate, calibrate, and maintain a monitoring system capable of separately measuring, calculating, and recording the volumetric flow rate of premix assist air and/or perimeter assist air used with the flare. Continuously monitoring fan speed or power and using fan curves is an acceptable method for continuously monitoring assist air flow rates.

Perimeter assist air includes all air assist except premix assist air. Premix assist air includes any air intentionally entrained in center steam.

Assist air includes premix assist air and perimeter assist air, but does not include the surrounding ambient air.

The monitors shall be calibrated or have a calibration check performed as specified in Table 13 of the appendix to 40 CFR 63, Part CC to meet the following accuracy specifications: the vent flow monitor shall be ±20 percent of flow rate at velocities ranging from 0.03 to 0.3 meters per second (0.1 to 1 feet per second) ±5 percent of flow rate at velocities greater than 0.3 meters per second (1 feet per second), all other gas flow monitors shall be ±5 percent over the normal range of flow measured or 280 liters per minute (10 cubic feet per minute)

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whichever is greater, temperature monitor shall be ±1 percent over the normal range of temperature measured, expressed in degrees Celsius (C), or 2.8 degrees C, whichever is greater, and pressure monitor shall be ±5 percent over the normal operating range or 0.12 kilopascals (0.5 inches of water column), whichever is greater. For purposes of this permit, a calibration check means, at a minimum, using a second device or method to verify that the monitor is accurate as specified in the permit.

Calorimeters shall have an accuracy of at least ±2% of span and be calibrated, installed, operated, and maintained in accordance with manufacturer recommendations and as specified in Table 13 of the appendix to 40 CFR 63, Part CC, to continuously measure and record the net heating value of the vent gas sent to the flare, in British thermal units/standard cubic foot of the gas.

For determination of net heating value by gas chromatograph, the minimum accuracy shall be as specified in Performance Specification 9 of Part 60, appendix B. Composition monitoring instruments shall be calibrated, installed, operated, and maintained in accordance with manufacturer recommendations and as specified in 40 CFR §63.671(e) and Table 13 of 40 CFR Pt. 63, Subpart CC. Individual component properties specified in Table 12 of Subpart CC shall apply to net heating value calculations.

For determination of net heating value by continuous process mass spectrometer, the minimum accuracy; composition monitoring; calibration; installation; operation and maintenance shall be done in accordance with 40 CFR §63.1103(e)(4)(viii).

E. Quality assured (or valid) data must be generated during periods that flare is operating. 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 flare operated over the previous rolling 12-month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

F. Hourly mass emission rates shall be determined and recorded using the monitoring data collected pursuant to paragraph D of this Special Condition and the emission factors specified in the permit amendment application PI-1 dated December 2, 2021.

G. Pilot and supplemental (fuel) gas combusted in the flares shall be sweet natural gas containing no more than 0.26 grains of total sulfur per 100 dry standard cubic feet.

12. Vent gas streams for the HDPEI Plant may be directed to any of the EFGs or to any of the Olefins units elevated flares (EPNs EGF-1, EGF-2, EGF-3, EGF-4, 1018, 1067, and/or OL3-FLRA/B/C), with the exception of the scenario in Special Condition No. 13. **(TBD)**

13. The vents from the HDPE I unit to the Olefins I Elevated Flare (EPN 1018) and the Olefins II Elevated Flare (EPN 1067) are limited to the following scenarios:

    (1) All vents from the HDPE I unit may vent to EPN 1018 provided no vents from the HDPE I unit are venting at the same time to EPN 1067. The HDPE I unit may vent to EPN 1018 for no more than 5,256 hours per year.

    (2) All vents from the HDPE I unit may vent to EPN 1067 provided no vents from the HDPE I unit are venting at the same time to EPN 1018. The HDPE I unit may vent to EPN 1067 for no more than 5,256 hours per year.

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Records of when the HDPE I unit vents to EPN 1018 or EPN 1067 and the duration of the venting shall be kept on site to demonstrate compliance with this Special Condition.

14. The following operating restrictions apply to this permit.

A. Elutriate Bag Filter (EPN 3F708A), Railcar Bag Filter (EPN 3F708B), Olefins Flare I and II (EPNs 1018, 1067, and 1018&1067) shall operate no more than 7500 hours per year.

B. Recycle Pellet Cyclone (EPNs S-405, 2S405, 3S405) and Powder Vacuum Cleaner (EPN Z410) shall operate no more than 730 hours per year.

C. Catalyst Dip Pot (EPN V-102) and Seal Dip Pot (EPN 3V305) shall operate no more than 100 hours per year.

Fugitive Emission Monitoring

15. Piping, Valves, Connectors, Pumps, Agitators, and Compressors — 28VHP

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 Compound (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 readily available upon request.

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

(1) piping and instrumentation diagram (PID);

(2) a written or electronic database or electronic file;

(3) color coding;

(4) a form of weatherproof identification; or

(5) designation of exempted process unit boundaries.

B. Construction of new and reworked piping, valves, pump systems, 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 readily available upon request. The difficult-to-monitor and unsafe-to-monitor valves may be identified by one or more of the methods described in subparagraph A above. If an

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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 within the 72-hour 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. 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. If a relief valve is equipped with rupture disc, a pressure-sensing device shall be installed between the relief valve and rupture disc to monitor disc integrity.

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. All leaking discs shall be replaced at the earliest opportunity but no later than the next process shutdown.

The 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

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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.

Replacements for leaking components shall be re-monitored within 15 days of being placed back into VOC service.

G. Except as may be provided for in the special conditions of this permit, all pump, compressor, and agitator seals shall be monitored with an approved gas analyzer at least quarterly or be equipped with a shaft sealing system that prevents or detects emissions of VOC from the seal. Seal systems designed and operated to prevent emissions or seals equipped with an automatic seal failure detection and alarm system need not be monitored. These seal systems 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.

H. Damaged or leaking valves or connectors 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. Damaged or leaking pump, compressor, and agitator seals found to be emitting VOC in excess of 2,000 ppmv or found by visual inspection to be leaking (e.g., dripping process fluids) shall be tagged and replaced or repaired. A first attempt to repair the leak must be made within 5 days and a record of the attempt shall be maintained.

I. 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 within 15 days of the detection of the leak. 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), 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.

J. 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.

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K. Alternative monitoring frequency schedules of 30 TAC §§ 115.352 - 115.359 or National Emission Standards for Organic Hazardous Air Pollutants, 40 CFR Part 63, Subpart H, may be used in lieu of Items F through G of this condition.

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 (NSPS), or an applicable National Emission Standard for Hazardous Air Pollutants (NESHAPS) and does not constitute approval of alternative standards for these regulations.

M. With respect to this Special Condition, new and reworked is meant to apply to major changes in piping. It is not intended to apply to minor activities including but not limited to: installation/replacement of small number of valves and flanges; minor repairs; gasket replacement; repair/replacement of small sections of piping, etc. Also, “process pipelines” does not apply to underground process sewer lines, cooling tower water, fire water, etc. Additionally, the requirement for new and reworked buried connectors to be welded will not apply if compliance would require a process unit shutdown or would create a safety issue including, but not limited to, close proximity of other process pipelines and equipment or unsafe access to the piping.

16. In lieu of the 2000 ppmv VOC limit in Paragraph H of Special Condition 15, damaged or leaking pump, compressor, and agitator 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. A first attempt to repair the leak must be made within 5 days. Records of the first attempt to repair shall be maintained.

17. Piping, Valves, Pumps, and Compressors in Chlorine Service – 28AVO

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 once per shift.

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.

Cooling Tower

18. The cooling towers (EPN PO-CT) shall be operated and monitored in accordance with the following: **(09/19)**

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A. The holder of this permit shall do monthly cooling tower water monitoring using the El Paso Products Company method of analysis. This method is described in the TCEQ guidance document entitled "Air Quality Permit Technical Guidance for Chemical Sources - Cooling Towers," dated May 1997.

The holder of this permit may use an air stripping system equivalent to the El Paso Products Company method of analysis instead of the system in the first paragraph, provided that the permit holder previously obtains written approval from the TCEQ Office of Air, Air Permits Division.

B. The holder of this permit shall perform sampling and other testing as necessary to establish the pounds per hour of VOC being emitted into the atmosphere from each cooling tower associated with this permit. All sampling and testing methods shall be subject to approval of the TCEQ Executive Director prior to their implementation. The VOC concentration (ppmv) in the exhaust from the air stripping testing system or equivalent testing system and the corresponding pounds of strippable VOC/gallon (gal) of cooling water shall be reported. These will be used to determine the level (either ppmv or lb/VOC/gal) at which a leak into cooling water will be assumed in the ongoing monitoring program. Within 30 days after completion of sampling, copies of the test report shall be submitted to the TCEQ Corpus Christi Regional Office.

C. 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.

D. Total dissolved solids (TDS) shall not exceed 6500 parts per million by weight (ppmw) during operation of the cooling tower. Total dissolved solids shall not exceed 4150 parts per million by weight on a rolling 12-month average. Dissolved solids 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.

E. Cooling towers shall be analyzed for particulate emissions using one of the following methods:

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

(2) TDS monitoring may be reduced to weekly if conductivity is monitored daily 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 weekly basis. The permit holder may use the average of two consecutive TDS-to-conductivity ratios to calculate daily TDS; or

(3) TDS monitoring may be reduced to quarterly if conductivity is monitored daily and TDS is calculated using a correlation factor established for each cooling tower. The correlation factor shall be the average of nine consecutive weekly TDS-to-conductivity ratios determined using E(2) above provided the highest ratio is not more than 10% larger than the smallest ratio.

(4) 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 weekly until a new correlation factor can be established.

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

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(1) 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.

(2) 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.

(3) Alternate sampling and analysis methods may be used to comply with F(1) and F(2) with written approval from the TCEQ Regional Director.

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

G. 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.

H. The chlorination rate shall be less than 100 lb Cl_2 per hour on a rolling 24-hour average. The chlorination rate shall be less than 10 lb Cl_2 per hour on a rolling 12-month average.

I. Quality assured (or valid) data must be generated when the cooling tower is 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 cooling tower operated over the previous rolling 12-month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

Storage and Loading

19. Tanks are approved to store the liquids on the Approved Product List, Attachment 1

20. 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. 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.

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

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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. Tanks shall be constructed or equipped with a connection to a vapor recovery system that routes vapors from the vapor space under the landed roof to a control device.

E. Except for labels, logos, etc. not to exceed 15 percent of the tank total surface area, uninsulated tank exterior surfaces exposed to the sun shall be white or unpainted aluminum. Storage tanks must be equipped with permanent submerged fill pipes.

F. The permit holder shall maintain an emissions record which includes calculated emissions of VOC from all storage tanks during the previous calendar month and the past consecutive 12 month period. The record shall include tank identification number, control method used, tank capacity in gallons, name of the material stored or loaded, VOC molecular weight, VOC monthly average temperature in degrees Fahrenheit, VOC vapor pressure at the monthly average material temperature in psia, VOC throughput for the previous month and year-to-date. Records of VOC monthly average temperature are not required to be kept for unheated tanks which receive liquids that are at or below ambient temperatures.

Emissions from tanks shall be calculated using the methods that were used to determine the MAERT limits in the amendment application (Form PI-1 July 13, 2016). Sample calculations from the application shall be attached to a copy of this permit at the plant site.

G. Operation without visible liquid leaks or spills shall be maintained at all loading/unloading facilities, regardless of vapor pressure. This does not apply to momentary dripping associated with the initial connection or disconnection of fittings. Sustained dripping from fittings during loading/unloading operations is not permitted. Any liquid spill that occurs during loading/unloading activities shall be reported pursuant to 30 TAC §§ 101.6 or 101.7 and shall be cleaned up as soon as practicable to minimize air emissions.

Compliance

21. Ongoing compliance with VOC emission limits for the dryers (EPNs D-301, 2D-301, 3D-301) and polyethylene pellet handling systems (EPNs 2-HDPE and 3-HDPE) will be determined by calculation using weekly production rates and weekly sampling and testing of the polyethylene for residual VOC at the following two locations: immediately after each dryer (D) and at final product loading (P). An approved VOC head space test method shall be used to determine the total residual VOC in a sample. The test method shall be capable of determining the total residual concentrations of VOC species having 12 or fewer carbon atoms. A copy of the approved test method shall be retained at the plant site and attached to a copy of the permit. Separate samples are required for each product type produced during the week.

22. Polymer production rates and monitoring records to be maintained at the plant site for five years and made readily available upon request will include (but are not limited to):

A. Date and time of sample;

B. Actual plant production rate at the time of sample and weekly average production rate;

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C. Product number and melt index;

D. Measured pounds of VOC per million pounds of polymer after the dryer and final product are shipped; the VOC content of the polymer shall be less than 15 ppmw and

E. Downstream handling emissions shall be calculated by (D-P) x (weekly production).

23. The holder of this permit shall submit to the TCEQ Corpus Christi Regional Office at their request documentation which demonstrates the permit holder is achieving compliance with all the conditions of the permit. This documentation shall consist of a statement explaining how each requirement in a condition is being met. It will include a sample of each record sheet required to be maintained by any condition and a listing of all testing required with test dates.

Incinerator

24. Incinerators (EPNs H923A and H923B) shall be used to burn waste gases originating from this permitted facility. Each incinerator firebox temperature shall be continuously monitored and recorded when each one is in operation.

The temperature measurement device shall reduce the temperature readings to an averaging period of 6 minutes or less and record it at that frequency. These records shall be recorded and updated monthly with records kept at the plant site. The temperature measurement device shall be installed, calibrated, maintained and operated 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 ±2.5°C.

Quality assured (or valid) data must be generated when each EPN 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 EPN operated over the previous rolling 12 month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

Each incinerator shall operate with no less than 99.9 percent control in disposing of the VOC captured by the collection system and sent to each incinerator.

25. Each incinerator firebox temperature shall be maintained at not less than 1500°F while waste gas is being fed to each incinerator, except during planned periods of incinerator startup and shutdown and transition between incinerators, not to exceed three hours. Start of incinerator transition begins when valves are opened to begin diverting vent gas flow from one incinerator to the other incinerator and ends when the full waste gas flow is diverted. The temperature shall be maintained at least above that maintained during the last satisfactory stack test completed on each incinerator.

26. The H923A and H923B Incinerators shall each operate at not less than 7.0 percent O_2 and each not more than 45 ppmvd CO, corrected to 0 percent excess air in each incinerator stack while waste gas is being fed to each incinerator, except during planned periods of incinerator startup and shutdown and transition between incinerators, not to exceed three hours.

27. The holder of this permit is responsible for providing sampling and testing facilities and conducting the sampling and testing operations at his expense. The testing for Incinerators H923A and H923B

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was completed on April 20, 2005 and April 25, 2005 respectively and the test report was submitted to TCEQ Region 14.

A. The appropriate TCEQ Regional Office in the region where the source is located shall be contacted as soon as testing is scheduled, but not less than 45 days prior to sampling to schedule a pretest meeting. The notice shall include:

(1) 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.

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 submitting the test reports.

A written proposed description of any deviation from sampling procedures specified in permit conditions or TCEQ or EPA sampling procedures shall be made available to the TCEQ prior to the pretest meeting. The TCEQ Regional Manager or the TCEQ Regional Office shall approve or disapprove of any deviation from specified sampling procedures.

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 that must have EPA and TCEQ approval shall be submitted to the TCEQ Compliance Support Division.

B. Air contaminants emitted from the incinerators to be tested for include (but are not limited to) VOC, nitrogen oxides (NO_x), and CO. Sampling shall be performed using EPA Reference Methods 1 through 4 and 18 or 25A for VOC, Reference Method 7 or 7E for NO_x, and Reference Method 10 for CO.

C. Sampling shall occur at such other times as may be required by the Executive Director of the TCEQ. Requests for additional time to perform 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 EPA approval, and requests shall be submitted to the TCEQ Regional Office.

D. The plant shall operate at maximum production rates 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 plant is unable to operate at maximum rates during testing, then future production rates may be limited to 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 60 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 Corpus Christi Regional Office.

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One copy to EPA, Region 6, Dallas Office.

28. The holder of this permit shall install, calibrate, maintain and operate a continuous emission monitoring system (CEMS) to measure and record the in-stack concentration of CO and O_2 from each incinerator designated as EPNs H 923A and H-923B. **(09/19)**

A. Each CEMS shall meet the design and performance specifications, pass the field tests and meet the installation requirements and the data analysis and reporting requirements specified in the applicable Performance Specification Nos. 1 through 9, Title 40 Code of Federal Regulation Part 60 (40 CFR Part 60), Appendix B. If there are no applicable performance specifications in 40 CFR Part 60, Appendix B, contact the TCEQ Office of Air, Air Permits Division for requirements to be met.

B. Section 1 below applies to sources subject to the quality-assurance requirements of 40 CFR Part 60, Appendix F; section 2 applies to all other sources:

(1) The permit holder shall assure that the CEMS meets the applicable quality-assurance requirements specified in 40 CFR Part 60, Appendix F, Procedure 1. Relative accuracy exceedances, as specified in 40 CFR Part 60, Appendix F, § 5.2.3 and any CEMS downtime shall be reported to the appropriate TCEQ Regional Manager, and necessary corrective action shall be taken. Supplemental stack concentration measurements may be required at the discretion of the appropriate TCEQ Regional Manager.

(2) The system shall be zeroed and spanned daily, and corrective action taken when the 24-hour span drift exceeds two times the amounts specified in the applicable Performance Specification Nos. 1 through 9, 40 CFR Part 60, Appendix B, or as specified by the TCEQ if not specified in Appendix B. Zero and span is not required on weekends and plant holidays if instrument technicians are not normally scheduled on those days.

Each monitor shall be quality-assured at least quarterly using Cylinder Gas Audits (CGA) in accordance with 40 CFR Part 60, Appendix F, Procedure 1, Section 5.1.2, with the following exception: a relative accuracy test audit (RATA) is not required once every four quarters (i.e., four successive quarterly CGA may be conducted). An equivalent quality-assurance method approved by the TCEQ may also be used. Successive quarterly audits shall occur no closer than two months.

All CGA exceedances of +15 percent accuracy indicate that the CEMS is out of control.

C. The monitoring data shall be reduced to hourly average concentrations at least once everyday, using a minimum of four equally-spaced data points from each one-hour period. The individual average concentrations shall be reduced to units of pounds per hour at least once every week as follows:

The measured hourly average concentration from the CEMS shall be multiplied by the flow rate measured during the latest stack test performed in accordance with Special Condition No. 27 to determine the hourly emission rate.

D. All monitoring data and quality-assurance data shall be maintained by the source. The data from the CEMS may, at the discretion of the TCEQ, be used to determine compliance with the conditions of this permit.

E. The appropriate TCEQ Regional Office shall be notified at least 30 days prior to any required RATA in order to provide them the opportunity to observe the testing.

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F. Quality-assured (or valid) data must be generated when the high density polyethylene unit 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 high density polyethylene unit operated over the previous rolling 12-month period. The measurements missed shall be estimated using engineering judgement and the methods used recorded. Options to increase system reliability to an acceptable value, including a redundant CEMS, may be required by the TCEQ Regional Manager.

29. The following requirements apply to capture systems for flares designated as EPNs 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4, incinerators designated as EPNs H923A and H923B: **(TBD)**

A. 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

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. 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 15 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 prevent flow out the bypass.

A deviation shall be reported if the monitoring or inspections indicate bypass of the control device.

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

Maintenance, Startup, and Shutdown (MSS)

30. This permit authorizes air emissions from the planned maintenance, startup, and shutdown (MSS) activities identified in the following table performed at the facilities authorized by this permit.

Facilities	Description/ Emissions Activity	EPN
All facilities*	Depressurize, purge, or steam to flare or incinerators, with or without hexane purge, per Special Condition 31	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, H923A, or H923B

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Facilities	Description/ Emissions Activity	EPN
All facilities*	Degas facilities to atmosphere, after degassing to flare or incinerators, with or without hexane purge, per Special Condition 31	HDPE-MAINT
All facilities*	Fill and/or vent to flare or incinerator during startup	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, H923A, or H923B
Reactor startup	Reactor purge during startup	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, H923A, or H923B
See Attachment A	Attachment A activities	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4, H923A, H923B, or HDPE-MAINT
Incinerators	Route emissions to flare during planned MSS	1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, EGF-4,
Incinerators	Dryer emissions directed to atmosphere during incinerator planned MSS, including incinerator transitions and low-fire operation	DRYRVNTMSS
Incinerators	Curing repaired or replaced refractory	H923A H923B
Incinerators	Startup	H923A H923B
Vacuum trucks	Load and transport liquid to support MSS on permanent facilities	HDPE-MAINT
* - all facilities includes piping		

In addition, planned MSS emissions emitted from routine emission points are authorized provided the emissions are compliant with the respective MAERT allowable emission rates and special conditions. This permit authorizes emissions from the following temporary facilities used to support planned MSS activities at permanent site facilities: vacuum trucks and associated control devices. Emissions from temporary facilities are authorized provided the temporary facility (a) does not remain on the plant site for more than 12 consecutive months, (b) is used solely to support planned MSS activities at the permanent facilities authorized by this permit, and (c) does not operate as a replacement for an existing authorized facility.

Emissions from activities listed on Attachment A may be considered to be equal to the potential to emit represented in the permit amendment application, PI-1 dated January 3, 2008, and updated in subsequent application submittals. The estimated emissions from these activities must be revalidated annually. This revalidation shall consist verifying the estimated emissions for each type of activity and the basis for that emission estimate.

Routine maintenance activities, as identified in Attachment B may be tracked through the work orders or equivalent. Emissions from activities identified in Attachment B shall be calculated using

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the number of work orders or equivalent that month and the emissions associated with that activity identified in the permit application.

The performance of each planned MSS activity identified in Attachment C and the emissions associated with it shall be recorded and include at least the following information:

A. the process unit at which emissions from the MSS activity occurred, including the emission point number and common name of the process unit;

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.

31. Except for instrumentation/analyzer maintenance and vacuum trucks, process units and facilities shall be depressurized, degassed, and placed back into service in accordance with the following requirements. **(09/19)**

A. The process equipment shall be vented to a control device or a controlled recovery system during depressurization.

B. All liquids from process equipment or storage vessels must be removed to the maximum extent practical prior to opening equipment or commencing depressurization, degassing and/or maintenance. Equipment that only contains material with VOC partial pressure less than 0.50 psi at the normal process temperature and 95°F may be opened to the atmosphere after liquids are removed as required by this condition. 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.

C. If mixed phase materials must be removed from process equipment during depressurization, liquids removal, or degassing, the cleared material shall be routed to a knockout drum or equivalent to allow for managed initial phase separation. Any vents in the knockout drum or equivalent must be routed to a control device or a controlled recovery system. Control must remain in place while mixed phase material removal is being performed.

D. Facilities shall be degassed using practices that 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. Records shall be maintained of the control device or recovery system utilized with the estimated emissions from controlled and uncontrolled degassing calculated using the methods that were used to determine allowable emissions for the permit application.

E. After degassing in accordance with Special Condition 31.D, the VOC concentration in the facilities being degassed shall be verified to be below 10,000 ppmv or less than 10 percent of

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the lower explosive limit (LEL) using one of the methods below prior to opening directly to atmosphere.

(1) For MSS activities identified in Attachments A and B, the following option may be used in lieu of (2) 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 percent of the lower explosive limit (LEL) per the site safety procedures.

(2) Documentation shall be maintained of the locations and/or identifiers where the purge gas or steam enters the process equipment or storage vessel and the exit points for the purge gases. If the process equipment is purged with a gas, two system volumes of purge gas must have passed through the control device or controlled recovery system before the vent stream may be sampled to verify acceptable VOC concentration prior to uncontrolled venting. The VOC sampling and analysis shall be performed using an instrument meeting the requirements of Special Condition 32. 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. The facilities shall be degassed to a control device or controlled recovery system until the VOC concentration is less than 10,000 ppmv or less than 10 percent of the lower explosive limit (LEL). Documented plant procedures used to de-inventory 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.

F. Gases and vapors with VOC partial pressure greater than 0.50 psi 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 is no more than 50 lb of air contaminant to be vented to atmosphere during shutdown or startup, as applicable.

Except for Attachment A activities, all instances of venting directly to atmosphere per Special Condition 31.F must be documented when occurring as part of any MSS activity. The emissions associated with venting without control must be included in the activity record for those planned MSS activities.

32. Air contaminant concentration shall be measured using an instrument/detector meeting one of the following methods:

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:

B. The instrument shall be calibrated within 24 hours of use with a calibration gas such that the response factor of the VOC (or mixture of VOCs) to be monitored shall be less than 2.0. The calibration gas and the gas to be measured, and its approximate response factor shall be recorded.

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(1) 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, recording VOC concentration each minute. The highest measured VOC concentration shall not exceed the specified VOC concentration limit prior to uncontrolled venting.

C. 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 must be 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 (3), the concentration measured must be 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:

(a) measured contaminant concentration (ppmv) must be less than the release concentration.

Where the release concentration is:

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

The mole fraction of the air contaminants present that can be detected by the tube 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.

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

(1) The detector shall be calibrated monthly with a certified propane gas standard at 50% of the lower explosive limit (LEL) for propane. 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 50% of the LEL for propane may be used for calibration and functionality tests provided that the LEL response is within 95% of that for propane.

E. As an alternative to an instrument/detector, the analysis may be conducted in a laboratory. Bag samples of the gas discharged may be drawn and taken to a Formosa laboratory to be analyzed by gas chromatography (GC). A minimum of two bag samples shall be drawn approximately ten minutes apart. A Tedlar bag, or a bag appropriate for the material to be sampled, shall be used and shall have a valve to seal gas in the bag. The samples shall be drawn as follows:

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(1) The sample point on the equipment being cleared shall be purged sufficiently to ensure a representative sample at the sample valve.

(2) The sample bag shall be connected directly to the sample valve.

(3) The sample valve and sample bag shall be opened to allow the bag to fill to approximately 80% of capacity. The sample connections shall be fitted such that no air is drawn into the sample bag.

(4) The two valves shall then be closed to seal the sample in the bag.

(5) The sample bag shall then be disconnected and placed in a dark container out of direct sunlight for transport to the analyzer.

(6) This process is repeated to collect additional samples.

(7) The sample shall be analyzed within 12 hours of collection.

The laboratory GC shall meet or exceed the requirements of 40 CFR 60, Appendix A, Method 18 Sections 6 (Equipment and Supplies), 7 (Reagents and Standards), 9 (Quality Control), and 10 (Calibration and Standards). The sample shall be analyzed per Section 8.2.1.1.2 of Method 18, except the analysis does not need to be performed in triplicate. The highest measured VOC concentration shall not exceed the specified VOC concentration limit prior to uncontrolled venting.

33. 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 psi at 95°F 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 and the truck identifier (bill of lading or other unique identifier). Record the liquid level and document that the VOC partial pressure is less than 0.50 psi 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 psi 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 pump exhaust is controlled with a control device other than an engine or oxidizer, records shall be maintained of VOC exhaust concentration upon commencing each transfer, at the end of each transfer, and at least every hour during each transfer, measured using an instrument meeting the requirements of Special Condition 32.A or B.

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(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.

34. Bag filter maintenance shall be performed in a manner to minimize particulate matter emissions and minimize down time.

35. 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.

36. Control devices required by this permit for emissions from planned 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 process or to a collection system that is vented through a control device meeting the requirements of this permit condition. **(TBD)**

A. Carbon Adsorption 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 of 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) It 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.

(b) 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 the VOC concentration on the initial sample downstream of the first carbon canister following a new polishing canister being put in place is greater than 100 ppmv above background, it shall be assumed that breakthrough occurred while that canister functioned as the final polishing canister and a permit deviation shall be recorded.

(3) The method of VOC sampling and analysis shall be by detector meeting the requirements of Special Condition 32.A or B.

(4) Breakthrough is defined as the highest measured VOC concentration at or exceeding 100 ppmv above background. When the condition of breakthrough of VOC from the

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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 four hours. 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.

B. 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.

C. 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 United States Environmental Protection Agency (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 following each occurrence of engine maintenance which may reasonably be expected to increase emissions including oxygen sensor replacement and catalyst cleaning or replacement. 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 32.A or B 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

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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.

D. The plant flare system (EPNs 1018, 1067, and OL3-FLRA/B/C) shall be operated as specified in Special Condition No. 10.

E. The Enclosed Ground Flares (EPNs EGF-1, EGF-2, EGF-3 and/or EFG-4) shall be operated as specified in Special Condition No. 11.

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

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

(2) The method of VOC sampling and analysis shall be by detector meeting the requirements of Special Condition 32.A or B.

(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 for more than one minute. The date and time of all alarms and the actions taken shall be recorded.

Greenhouse Gas Emissions

37. Permit holders must keep records sufficient to demonstrate compliance with 30 Texas Administrative Code § 116.164. If construction, a physical change or a change in method of operation results in Prevention of Significant Deterioration (PSD) review for criteria pollutants, then records shall be maintained that are sufficient to demonstrate the amount of emissions of GHGs from the source as a result of such construction, physical change or change in method of operation does not require authorization under 30 TAC §116.164(a). If there is construction, a physical change or a change in the method of operation that will result in a net emission increase of 75,000 tpy or more $CO_{2e.}$ greenhouse gas emissions are subject to PSD review. **(TBD)**

38. Monitoring, quality assurance/quality control requirements, emission calculation methodologies, record keeping, and reporting requirements related to Greenhouse Gas (GHG) emissions shall adhere to the applicable requirements in 40 CFR Part 98 and in this permit. **(TBD)**

39. Permittee shall calculate the CO_{2e} emissions on a 12-month rolling basis, based on the procedures and Global Warming Potentials (GWP) contained in Greenhouse Gas Regulations, 40 CFR Part 98, Subpart A, Table A-1. **(TBD)**

40. Records of emissions of GHG, and how they were determined, in compliance with Special Condition Nos. 37, 38, and 39 must be maintained by the holder of this permit in a form suitable for inspection for a period of five years after collection and must be made available upon request to representatives of the TCEQ, EPA, or any local air pollution control program having jurisdiction. **(TBD)**

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Alternative Means of Compliance

1. The permit holder shall comply with the requirements of Alternative Method of Compliance (AMOC) No. 213. **(TBD)**

Date: TBD

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Permit Numbers 19201, PSDTX1232M1, and GHGPSDTX219
Attachment 1

Storage tank throughput and service shall be limited to the following:

Tank Identifier (EPN)	Service	Compound
3T-501	IFR	Hexane
3T-502	IFR	Hexane
3T-503	IFR	Hexane
5T6010	IFR	Hexane
5T6020	IFR	Hexane
5T6030	IFR	Hexane
5T6040	IFR	Hexane
5T6050	IFR	Hexane
V-960	VFR	NaOH
V-961	VFR	NaOH
3V-961	VFR	NaOH

DATE: August 12, 2019

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Permit Numbers 19201, PSDTX1232M1, and GHGPSDTX219
Attachment A

Inherently Low Emitting Activities

Activity	Emissions			
	VOC	NO_x	CO	PM
Repair/replace baghouses/bag filters				X
Repair/replace filters and strainers	X	X	X	X
Other Attachment A activities with emission rates less than 0.1 pound VOC	X	X	X	X

Date: August 12, 2019

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Permit Numbers 19201, PSDTX1232M1, and GHGPSDTX219
Attachment B

Routine Maintenance Activities

Cyclone/Elutriator and scrubbers repair/replacement

Vessel, compressor, pump repair/replacement

Pressure storage vessel and floating roof tank repair/replacement

Column, reactor, and heat exchanger repair/replacement

Drum opening

Piping degassing

Date: August 12, 2019

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Permit Numbers 19201, PSDTX1232M1, and GHGPSDTX219
Attachment C

Significant MSS Activity Summary

The following activities are subject to the full recordkeeping requirements specified by Special Condition 30.

Dryer venting to atmosphere

Directing waste gas to flare rather than incinerator

Startup/shutdown and turnaround

Incinerator curing

Activities not listed on Attachments A and B

Date: August 12, 2019

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Emission Sources - Maximum Allowable Emission Rates

Permit Number 140763 and PSDTX1500M1

This table lists the maximum allowable emission rates and all sources of air contaminants on the applicant's property covered by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
3U-7A	UT3 No. 1 Gas Turbine	NO_x	9.69	50.74
		NO_x (MSS)	177.18	
		CO	11.79	78.16
		CO (MSS)	434.17	
		VOC	3.37	15.82
		VOC (MSS)	37.22	
		SO_2	0.93	3.67
		PM	4.03	17.38
		PM_{10}	4.03	17.38
		$PM_{2.5}$	4.03	17.38
		NH_3	17.93	73.08
		NH_3 (MSS)	50.00	
		H_2SO_4	0.43	1.68
		$(NH_4)_2SO_4$	0.58	2.27
3U-7ALOVT	UT3 No. 1 Gas Turbine Lube Oil Vent (5)	VOC	0.01	0.04
		PM	0.01	0.04
		PM_{10}	0.01	0.04
		$PM_{2.5}$	0.01	0.04
3U-7ANGVT	UT3 No. 1 Gas Turbine Natural Gas Vent (5)	VOC	0.66	0.02
3U-CL2FUG	UT3 Chlorine Fugitives (5)	Cl_2	0.01	0.02

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
3U-7B	UT3 No. 2 Gas Turbine	NO_x	9.69	50.74
		NO_x (MSS)	177.18	
		CO	11.79	78.16
		CO (MSS)	434.17	
		VOC	3.37	15.82
		VOC (MSS)	37.22	
		SO_2	0.93	3.67
		PM	4.03	17.38
		PM_{10}	4.03	17.38
		$PM_{2.5}$	4.03	17.38
		NH_3	17.93	73.08
		NH_3 (MSS)	50.00	
		H_2SO_4	0.43	1.68
		$(NH_4)_2SO_4$	0.58	2.27
3U-7BLOVT	UT3 No. 2 Gas Turbine Lube Oil Vent (5)	VOC	0.01	0.04
		PM	0.01	0.04
		PM_{10}	0.01	0.04
		$PM_{2.5}$	0.01	0.04
3U-7BNGVT	UT3 No. 2 Gas Turbine Natural Gas Vent (5)	VOC	0.66	0.02
3U-STLOVT	UT3 Steam Turbine Lube Oil Vent (5)	VOC	0.01	0.04
		PM	0.01	0.04
		PM_{10}	0.01	0.04
		$PM_{2.5}$	0.01	0.04
3U-NGFUG	UT3 Natural Gas Fugitives (5)	VOC	0.12	0.51
3U-NH3FUG	UT3 Aqueous Ammonia Fugitives (5)	NH_3	0.02	0.08

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
3U-MSS	UT3 ILE Maintenance Fugitives (5)	NO_x	0.01	0.01
		CO	0.01	0.01
		VOC	1.00	0.01
		PM	27.83	0.14
		PM_{10}	27.83	0.14
		$PM_{2.5}$	27.83	0.14
		NH_3	47.96	0.05
3U-W10	UT3 Cooling Tower	PM	0.86	2.40
		PM_{10}	0.20	0.87
		$PM_{2.5}$	0.01	0.01
		HOCl	0.01	0.01
3U-TTW12	UT3 Sulfuric Acid Tank	H_2SO_4	0.01	0.01
1018, 1067, OL3-FLRA, OL3-FLRB, OL3-FLRC, EGF-1, EGF-2, EGF-3, EGF-4	UT3 Contribution Hourly Cap (6)	VOC	15.02	-
		NO_X (Elevated Flare option)	2.00	-
		CO (Elevated Flare option)	7.98	-
		NO_x (EGF option)	2.00	-
		CO (EGF option)	4.00	-
FLARECAP	Elevated and Enclosed Ground Flares Annual Cap (7)	NO_x	-	0.01
		CO	-	0.01
		VOC	-	0.01

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.
(2) Specific point source name. For fugitive sources, use area name or fugitive source name.
(3) VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1
HOCl - hypochlorous acid
H_2SO_4 - sulfuric acid
NO_x - total oxides of nitrogen
SO_2 - sulfur dioxide
PM - total particulate matter, suspended in the atmosphere, including PM_{10} and $PM_{2.5}$, as represented
PM_{10} - total particulate matter equal to or less than 10 microns in diameter, including $PM_{2.5}$, as represented
$PM_{2.5}$ - particulate matter equal to or less than 2.5 microns in diameter

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Emission Sources - Maximum Allowable Emission Rates

CO - carbon monoxide
NH_3 - ammonia
$(NH_4)_2SO_4$ - ammonium sulfate
Cl_2 - chlorine gas

(4) Compliance with annual emission limits (tons per year) is based on a 12 month rolling period.
(5) Emission rate is an estimate and is enforceable through compliance with the applicable special condition(s) and permit application representations.
(6) Maximum hourly emission rate for waste gas flaring may occur from any combination of EPNs.
(7) Emissions in the cap are authorized to be emitted from any combination of the following flare EPNs: 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4.

Date: TBD

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Emission Sources - Maximum Allowable Emission Rates

Permit Number GHGPSDTX46M1

This table lists the maximum allowable emission rates of greenhouse gas (GHG) emissions, as defined in Title 30 Texas Administrative Code § 101.1, for all sources of GHG air contaminants on the applicant's property that are authorized by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities authorized by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates
			TPY (4)
3U-7A	Combined-cycle CT No. 1/HRSG	CO_2 (5)	548,583.00
		CH_4 (5)	10.00
		N_2O (5)	1.00
		CO_2e	549,150.00
3U-7ANGVT	Turbine No. 1 Startup Natural Gas Purges	CO_2 (5)	<1.00
		CH_4 (5)	<1.00
		CO_2e	13.00
3U-7B	Combined-cycle CT No. 2/HRSG	CO_2 (5)	548,583.00
		CH_4 (5)	10.00
		N_2O (5)	1.00
		CO_2e	549,150.00
3U-7BNGVT	Turbine No. 2 Startup Natural Gas Purges	CO_2 (5)	<1.00
		CH_4 (5)	<1.00
		CO_2e	13.00
3U-NGFUG	Natural Gas Fugitives	CO_2 (5)	3.00
		CH_4 (5)	<1.00
		CO_2e	80.00
3U-MSS	Natural gas purges during small equipment and fugitive component repair, replacement, and maintenance	CO_2 (5)	1.00
		CH_4 (5)	1.00
		CO_2e	7.00
GHGFLARECAP	Elevated and Enclosed Ground Flares GHG Annual Cap (6)	CO_2 (5)	1.00
		CH_4 (5)	1.00
		N_2O (5)	1.00
		CO_2e	1.00

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.
(2) Specific point source name. For fugitive sources, use area name or fugitive source name.
(3) CO_2 - carbon dioxide

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Emission Sources - Maximum Allowable Emission Rates

N_2O - nitrous oxide
CH_4 - methane
HFCs - hydrofluorocarbons
PFCs - perfluorocarbons
SF_6 - sulfur hexafluoride
CO_2e - carbon dioxide equivalents based on the following Global Warming Potentials (1/2015): CO_2 (1), N_2O (298), CH_4(25), SF_6 (22,800), HFC (various), PFC (various)

(4) Compliance with annual emission limits (tons per year) is based on a 12-month rolling period. These rates include emissions from maintenance, startup, and shutdown.
(5) Emission rate is given for informational purposes only and does not constitute enforceable limit.
(6) Emissions in the cap are authorized to be emitted from any combination of the following flare EPNs: 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4.

Date: TBD

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Emission Sources - Maximum Allowable Emission Rates

Permit Numbers 19871 and PSDTX1236M1

This table lists the maximum allowable emission rates and all sources of air contaminants on the applicant's property covered by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
8DF-20A	Diesel Storage Tank	VOC	0.13	0.01
8DF-20B	Diesel Storage Tank	VOC	0.13	0.01
8FP-D20A	Diesel Fire Water Pump	NO_x	14.88	0.39
		CO	3.22	0.08
		VOC	1.19	0.03
		PM	1.06	0.03
		PM_{10}	1.06	0.03
		$PM_{2.5}$	1.06	0.03
		SO_2	1.68	0.04
8FP-D20B	Diesel Fire Water Pump	NO_x	14.88	0.39
		CO	3.22	0.08
		VOC	1.19	0.03
		PM	1.06	0.03
		PM_{10}	1.06	0.03
		$PM_{2.5}$	1.06	0.03
		SO_2	1.68	0.04
8FT-D01	Naphtha Tank	VOC	12.79	23.39
8FT-D03	Naphtha Tank	VOC	6.82	11.70
8FT-D09A	MEG Tank	VOC	0.48	0.43
8FT-D09B	MEG Tank	VOC	0.48	0.43
8FT-D14	Diethylene Glycol Storage Tank	VOC	0.01	0.01
8F-D01	Chandelier Flare	NO_x	0.15	0.01
		NO_x MSS	10.24	0.51
		CO	0.30	0.01

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		CO MSS	20.45	1.02
		SO_2	0.01	0.01
		SO_2 MSS	0.01	0.01
		VOC MSS	62.89	3.09
8FD02	Dock Incinerator/Scrubber/Ship and Barge Loading	EDC	0.04	0.02
		NO_x	3.30	14.45
		CO	0.14	0.61
		PM	1.10	4.82
		PM_{10}	1.10	4.82
		$PM_{2.5}$	1.10	4.82
		SO_2	0.03	0.15
		HCl	0.42	1.84
		Cl_2	0.41	1.80
		VOC	0.40	1.75
8FD03	Dock Flare/Barge Loading	VOC	22.42	15.97
		NO_x	2.47	1.69
		CO	21.12	14.15
		SO_2	0.01	0.01
8FD05	BTX Tank Flare	CO	1.77	7.75
		CO MSS	3.91	0.39
		NO_X	0.88	3.85
		NO_x MSS	1.96	0.28
		SO_2	0.01	0.02
		SO_2 MSS	0.01	0.01
		VOC	0.01	0.01
		VOC MSS	14.96	0.04
8F-D06	Tank Farm Flare	VOC	0.23	0.22

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		VOC MSS	1.06	0.02
		NO_x	2.02	8.73
		NO_x MSS	0.14	0.01
		CO	4.02	17.44
		CO MSS	0.27	0.01
		SO_2	0.01	0.05
		SO_2 MSS	0.01	0.01
8F-D07	Dock Vapor Combustor/Barge and Ship Loading (7)	VOC	11.21	8.04
		NO_x	2.02	3.07
		CO	17.24	26.02
		PM	0.23	0.35
		PM_{10}	0.23	0.35
		$PM_{2.5}$	0.23	0.35
		SO_2	0.01	0.02
8F-D03/8F-D07	Flare/Vapor Combustor Cap	NO_x	—	3.07
		CO	—	26.02
		VOC	—	15.97
		SO_2	—	0.02
		PM	—	0.35
		PM_{10}	—	0.35
		$PM_{2.5}$	—	0.35
8FT-901S1	Caustic Tank	NaOH	0.01	0.01
8FT-901S2	Caustic Tank	NaOH	0.01	0.01
8FT-902	Caustic Tank	NaOH	0.01	0.01
8FT-911S1	Caustic Tank	NaOH	0.01	0.01
8FT-911S2	Caustic Tank	NaOH	0.01	0.01
8FT-911S3	Caustic Tank	NaOH	0.01	0.01

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
8FT-911S4	Caustic Tank	NaOH	0.01	0.01
8FT-D07A	Caustic Tank	NaOH	0.01	0.01
8FT-D07B	Caustic Tank	NaOH	0.01	0.01
8FT-D07C	Caustic Tank	NaOH	0.01	0.01
8F-EG	MEG and DEG Loading (6)	VOC	1.86	1.13
PFO-L01	Uncollected Pyrolysis Fuel Oil Loading Losses	VOC	21.89	0.27
PFL02	Inland Traffic Uncollected EG Loading Losses	VOC	0.31	0.22
8FDFUGDOCK	Dock Piping Process Fugitives (5)	VOC	0.79	3.47
		EDC	0.11	0.46
8FDFUGINLD	Inland Traffic Process Fugitives (5)	VOC	0.32	1.41
		EDC	0.31	1.34
8FD-FUGTK	Tank Farm Process Fugitives (5)	VOC	1.10	4.80
		EDC	0.19	0.84
8GT-809B	TEG Storage Tank	VOC	0.01	0.01
8GT-811	DEG Storage Tank	VOC	0.01	0.01
TRFDSLFUG	Traffic Facility Fire Water System Fugitives (5)	VOC	0.74	3.24
PF-BARGFUG	Barge Process Loading Fugitives (5)	VOC	56.06	0.80
PF-SHIPFUG	Ship Process Loading Fugitives (5)	VOC	11.01	2.81
		EDC	4.00	0.57
IBLFUG	Railcar Piping Process Fugitives	VOC	0.28	1.22
ITRAF-MNT	Inland Traffic MSS to Atmosphere	VOC MSS	760.33	7.61
		EDC MSS	760.33	7.61
		CO MSS	2.04	0.09
		NO_x MSS	1.02	0.04
		SO_2 MSS	0.01	0.01
MTRAF-MNT		VOC MSS	469.00	5.19

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
	Marine Traffic MSS to Atmosphere	EDC MSS	469.00	5.19
		CO MSS	3.00	0.14
		NO_x MSS	1.50	0.09
		SO_2 MSS	0.01	0.01
		PM MSS	0.07	0.01
		PM_{10} MSS	0.07	0.01
		$PM_{2.5}$ MSS	0.07	0.01
		SO_2	0.01	-
1018, 1067, OL3-FLRA, OL3-FLRB, OL3-FLRC, EGF-1, EGF-2, EGF-3, EGF-4	Inland Traffic Contribution from Railcar Loading Arm Waste Gas Flaring Hourly Cap (8)	VOC (Elevated Flare option)	0.11	-
		NO_x (Elevated Flare option)	0.03	-
		CO (Elevated Flare option)	0.02	-
		VOC (EGF option)	0.10	-
		NO_x (EGF option)	0.01	-
		CO (EGF option)	0.03	-
		SO_2	0.01	-
FLARECAP	Elevated and Enclosed Ground Flares Annual Cap (9)	VOC	-	0.06
		NO_x	-	0.13
		CO	-	0.11
		SO_2	-	0.01

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.
(2) Specific point source name. For fugitive sources, use area name or fugitive source name.
(3) VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1
NO_x - total oxides of nitrogen
SO_2 - sulfur dioxide
PM - total particulate matter, suspended in the atmosphere, including PM_{10} and $PM_{2.5}$, as represented
PM_{10} - total particulate matter equal to or less than 10 microns in diameter, including $PM_{2.5}$, as represented
$PM_{2.5}$ - particulate matter equal to or less than 2.5 microns in diameter
CO - carbon monoxide
EDC - ethylene dichloride
HCl - hydrogen chloride
Cl_2 - chlorine
NaOH - sodium hydroxide

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Emission Sources - Maximum Allowable Emission Rates

(4) Compliance with annual emission limits (tons per year) is based on a 12-month rolling period.
(5) Emission rate is an estimate and is enforceable through compliance with the applicable special condition(s) and permit application representations.
(6) Includes losses from MEG ship and barge loading and DEG barge loading.
(7) The sum of the annual contributions for EPNs 8F-D03 and 8F-D07 cannot exceed the cap established by EPN 8F-D03/8F-D07, Flare/Vapor Combustor Cap.
(8) Maximum hourly emission rate for waste gas flaring may occur from any combination of EPNs.
(9) Emissions in the cap are authorized to be emitted from any combination of the following flare EPNs: 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4.

Date: TBD

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Emission Sources - Maximum Allowable Emission Rates

Permit Number GHGPSDTX221

This table lists the maximum allowable emission rates of greenhouse gas (GHG) emissions, as defined in Title 30 Texas Administrative Code § 101.1, for all sources of GHG air contaminants on the applicant's property that are authorized by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities authorized by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates
			TPY (4)
GHGFLARECAP	Elevated and Enclosed Ground Flares GHG Annual Cap (6)	CO_2 (5)	11.58
		CH_4 (5)	0.01
		N_2O (5)	0.01
		CO_2e	12.49

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.
(2) Specific point source name. For fugitive sources, use area name or fugitive source name.
(3) CO_2 - carbon dioxide
N_2O - nitrous oxide
CH_4 - methane
HFCs - hydrofluorocarbons
PFCs - perfluorocarbons
SF_6 - sulfur hexafluoride
CO_2e - carbon dioxide equivalents based on the following Global Warming Potentials (1/2015): CO_2 (1), N_2O (298), CH_4(25), SF_6 (22,800), HFC (various), PFC (various)
(4) Compliance with annual emission limits (tons per year) is based on a 12-month rolling period. These rates include emissions from maintenance, startup, and shutdown.
(5) Emission rate is given for informational purposes only and does not constitute enforceable limit.
(6) Emissions in the cap are authorized to be emitted from any combination of the following flare EPNs: 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4.

Date: TBD

Emission Sources - Maximum Allowable Emission Rates

Permit Number 91780 and PSDTX1240M1

This table lists the maximum allowable emission rates and all sources of air contaminants on the applicant's property covered by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
PP2-FUG	Fugitives, PP-2 Unit (5)	VOC	8.01	35.09
		Cl_2	0.01	0.05
Train No. 1 and Train No. 2				
D-407	Peroxide Drum	VOC	0.01	0.01
F-400	Vacuum Cleaner Bag Filter	PM	0.03	0.11
		PM_{10}	0.03	0.11
		$PM_{2.5}$	0.03	0.11
F-402	Masterbatch Vent Bag Filter	PM	0.02	0.09
		PM_{10}	0.02	0.09
		$PM_{2.5}$	0.02	0.09
		VOC	0.02	0.06
F-403	Off Pellet Bag Filter	PM	0.49	1.95
		PM_{10}	0.49	1.95
		$PM_{2.5}$	0.49	1.95
F-987	Railcar Vacuum Cleaning System	PM	0.02	0.08
		PM_{10}	0.02	0.08
		$PM_{2.5}$	0.02	0.08
PP2-CT	Cooling Tower	VOC	1.32	5.77
		PM	1.09	4.79
		PM_{10}	0.40	1.74
		$PM_{2.5}$	0.01	0.01
		Chlorine Compounds	<0.01	<0.01
PP2-T1	Downstream Pellet Handling PP-2, Train No. 1 (7)	VOC	6.37	5.60

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
PP2-T2	Downstream Pellet Handling PP-2, Train No. 2 (8)	VOC	6.37	5.60
1F-404	Additive Hopper Vent Bag Filters	PM	0.02	0.02
		PM_{10}	0.02	0.02
		$PM_{2.5}$	0.02	0.02
1F-405	Vent Bag Filter, Train No. 1	PM	0.12	0.48
		PM_{10}	0.12	0.48
		$PM_{2.5}$	0.12	0.48
		VOC	0.74	3.23
1F-406B	Vent Hopper Sock, Train No. 1	PM	0.01	0.04
		PM_{10}	0.01	0.04
		$PM_{2.5}$	0.01	0.04
1F-501	Blending Silos Bag Filter, Train No. 1	PM	0.49	1.95
		PM_{10}	0.49	1.95
		$PM_{2.5}$	0.49	1.95
1F-982	Elutriator Bag Filter, Train No. 1	PM	0.98	3.89
		PM_{10}	0.98	3.89
		$PM_{2.5}$	0.98	3.89
1F-985	Railcar Bag Filter Train No. 1	PM	0.49	1.95
		PM_{10}	0.49	1.95
		$PM_{2.5}$	0.49	1.95
1S-404	Dryer Train No. 1	PM	0.51	1.99
		PM_{10}	0.51	1.99
		$PM_{2.5}$	0.51	1.99
1S-405	Classifier	PM	0.04	0.18
		PM_{10}	0.04	0.18
		$PM_{2.5}$	0.04	0.18
2F-405	Vent Bag Filter, Train No. 2	PM	0.12	0.48

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		PM_{10}	0.12	0.48
		$PM_{2.5}$	0.12	0.48
		VOC	0.74	3.23
2F-406B	Vent Hopper Sock	PM	0.01	0.04
		PM_{10}	0.01	0.04
		$PM_{2.5}$	0.01	0.04
2F-501	Blending Silos Bag Filter, Train No. 2	PM	0.49	1.95
		PM_{10}	0.49	1.95
		$PM_{2.5}$	0.49	1.95
2F-982	Elutriator Bag Filter, Train No. 2	PM	0.98	3.89
		PM_{10}	0.98	3.89
		$PM_{2.5}$	0.98	3.89
2F-985	Railcar Bag Filter Train No. 2	PM	0.49	1.95
		PM_{10}	0.49	1.95
		$PM_{2.5}$	0.49	1.95
2S-404	Dryer Train No. 2	PM	0.51	1.99
		PM_{10}	0.51	1.99
		$PM_{2.5}$	0.51	1.99
2S-405	Classifier	PM	0.04	0.18
		PM_{10}	0.04	0.18
		$PM_{2.5}$	0.04	0.18
Train No. 3				
PP2-3F405	Vent Bag Filter	PM	0.16	0.63
		PM_{10}	0.03	0.13
		$PM_{2.5}$	0.01	0.05
		VOC	0.61	2.43
PP2-3F406B	Vent Hopper Sock	PM	0.01	0.04

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		PM_{10}	<0.01	<0.01
		$PM_{2.5}$	<0.01	<0.01
PP2-3F982	Elutriator Bag Filter	PM	1.30	5.16
		PM_{10}	0.26	1.03
		$PM_{2.5}$	0.10	0.41
PP2-3F985	Railcar Bag Filter	PM	0.71	2.83
		PM_{10}	0.14	0.57
		$PM_{2.5}$	0.06	0.23
PP2-3F987	Railcar Vacuum	PM	0.02	0.08
		PM_{10}	<0.01	0.02
		$PM_{2.5}$	<0.01	0.01
PP2-3S404	Dryer Train No. 3	PM	0.67	2.64
		PM_{10}	0.13	0.53
		$PM_{2.5}$	0.05	0.21
PP2-3S405	Classifier	PM	0.01	0.05
		PM_{10}	<0.01	0.01
		$PM_{2.5}$	<0.01	<0.01
PP2-3F501	Silo Bag Filter	PM	0.70	2.78
		PM_{10}	0.14	0.56
		$PM_{2.5}$	0.06	0.22
PP2-3F400	Vacuum Cleaner Bag Filter	PM	0.03	0.11
		PM_{10}	0.01	0.02
		$PM_{2.5}$	<0.01	0.01
PP2-3F402	Masterbatch Vent Bag Filter	PM	0.02	0.09
		PM_{10}	<0.01	0.02
		$PM_{2.5}$	<0.01	0.01
		VOC	0.02	0.08

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
PP2-3F403	Off Pellet Vent Bag Filter	PM	0.49	1.94
		PM_{10}	0.10	0.39
		$PM_{2.5}$	0.04	0.15
PP2-CT3	PP2 Train 3 Cooling Tower	Chlorine Compounds	<0.01	<0.01
		PM	1.25	5.46
		PM_{10}	0.45	1.98
		$PM_{2.5}$	< 0.01	0.01
		VOC	1.50	6.58
PP2-T3	Train 3 - Downstream Pellet Handling (9)	VOC	8.75	6.90
PP2-3D407	Peroxide Dip Pot	VOC	<0.01	<0.01
Maintenance, Startup, and Shutdown (MSS) – Train Nos. 1, 2, and 3				
PP2-MAINT	MSS to Atmosphere	VOC	202.88	3.61
		PM	3.94	0.24
		PM_{10}	3.94	0.24
		$PM_{2.5}$	3.94	0.24
Flares – Train Nos. 1, 2, and 3				
1018, 1067, OL3-FLRA, OL3-FLRB, OL3-FLRC, EGF-1, EGF-2, EGF-3, EGF-4	Elevated and Enclosed Ground Flares Hourly Cap (10)	NO_x (Elevated Flare option)	2.81	-
		CO (Elevated Flare option)	14.37	-
		VOC (Elevated Flare option)	15.16	-
		SO_2 (Elevated Flare option)	0.02	-
		NO_x (EGF option)	2.65	-
		CO (EGF option)	21.73	-
		VOC (EGF option)	15.13	
		SO_2 (EGF option)	0.01	
1018, 1067, OL3-FLRA, OL3-FLRB, OL3-FLRC,		NO_x (Elevated Flare option)	13.16	-

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
EGF-1, EGF-2, EGF-3, EGF-4	Elevated and Enclosed Ground Flares Hourly Cap - Product Transition (10)	CO (Elevated Flare option)	81.58	-
		VOC (Elevated Flare option)	116.28	-
		NO_x (EGF option)	32.14	-
		CO (EGF option)	64.16	-
		VOC (EGF option)	116.27	-
1018, 1067, OL3-FLRA, OL3-FLRB, OL3-FLRC, EGF-1, EGF-2, EGF-3, EGF-4, PP2-TEMP	Elevated and Enclosed Ground Flares MSS Hourly Cap (10)	NO_x (Elevated Flare option)	140.22	-
		CO (Elevated Flare option)	899.55	-
		VOC (Elevated Flare option)	718.09	-
		NO_x (EGF option)	339.42	-
		CO (EGF option)	677.61	-
		VOC (EGF option)	717.49	-
FLARECAP	Elevated and Enclosed Ground Flares Annual Cap (11)	NOx	-	6.72
		CO	-	57.65
		VOC	-	10.83
		SO_2	-	0.06
FLARECAP	Elevated and Enclosed Ground Flares Annual Cap - Product Transition (11)	NOx	-	1.83
		CO	-	4.64
		VOC	-	6.58
MSSFLARECAP	Elevated and Enclosed Ground Flares MSS Annual Cap (11)	NOx	-	6.01
		CO	-	15.80
		VOC	-	22.06

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.
(2) Specific point source name. For fugitive sources, use area name or fugitive source name.
(3) VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1
NO_x - total oxides of nitrogen
SO_2 - sulfur dioxide
PM - total particulate matter, suspended in the atmosphere, including PM_{10} and $PM_{2.5}$, as represented
PM_{10} - total particulate matter equal to or less than 10 microns in diameter, including $PM_{2.5}$, as represented

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Emission Sources - Maximum Allowable Emission Rates

$PM_{2.5}$ - particulate matter equal to or less than 2.5 microns in diameter
CO - carbon monoxide
Cl_2 - chlorine

(4) Compliance with annual emission limits (tons per year) is based on a 12 month rolling period.
(5) Emission rate is an estimate and is enforceable through compliance with the applicable special condition(s) and permit application representations.
(6) PP II vents shall be rerouted to one flare or the other.
(7) Total VOC emissions from the following emission points: F-403, 1F-406B, 1F-501, 1F-982, 1F-985, 1S-404 and 1S-405.
(8) Total VOC emissions from the following emission points: F-403, 2F-406B, 2F-501, 2F-982, 2F-985, 2S-404 and 2S-405.
(9) Total VOC emissions from the following emission points: PP2-3F403, PP2-3F501, PP2-3S405, PP2-3F985, PP2 3F982, PP2-3F406B, and PP2-3S404
(10) Maximum hourly emission rate for waste gas flaring may occur from any combination of EPNs.
(11) Emissions in the cap are authorized to be emitted from any combination of the following flare EPNs: 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4.

Date: TBD

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Emission Sources - Maximum Allowable Emission Rates

Permit Number GHGPSDTX223

This table lists the maximum allowable emission rates of greenhouse gas (GHG) emissions, as defined in Title 30 Texas Administrative Code § 101.1, for all sources of GHG air contaminants on the applicant's property that are authorized by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities authorized by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates
			TPY (4)
GHGFLARECAP	Elevated and Enclosed Ground Flares GHG Annual Cap (routine, grade transition, and MSS) (6)	CO_2 (5)	39,204.25
		CH_4 (5)	118.34
		N_2O (5)	0.39
		CO_2e	42,279.49

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.
(2) Specific point source name. For fugitive sources, use area name or fugitive source name.
(3) CO_2 - carbon dioxide
N_2O - nitrous oxide
CH_4 - methane
HFCs - hydrofluorocarbons
PFCs - perfluorocarbons
SF_6 - sulfur hexafluoride
CO_2e - carbon dioxide equivalents based on the following Global Warming Potentials (1/2015): CO_2 (1), N_2O (298), CH_4(25), SF_6 (22,800), HFC (various), PFC (various)
(4) Compliance with annual emission limits (tons per year) is based on a 12-month rolling period. These rates include emissions from maintenance, startup, and shutdown.
(5) Emission rate is given for informational purposes only and does not constitute enforceable limit.
(6) Emissions in the cap are authorized to be emitted from any combination of the following flare EPNs: 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4.

Date: TBD

Emission Sources - Maximum Allowable Emission Rates

Permit Numbers 19200 and PSDTX1237M1

This table lists the maximum allowable emission rates and all sources of air contaminants on the applicant's property covered by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
B-242	Co-Catalyst Area Dip Pot	VOC	0.03	0.01
B-292A	Peroxide Dip Pot	VOC	0.05	0.01
B-292B	Peroxide Dip Pot	VOC	0.05	0.01
B-360	Pellet Buffer Vessel	PM	0.01	0.06
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
B-406	Catalyst Slurry Prep System Dip Pot	VOC	0.05	0.01
B-460	Pellet Buffer Vessel	PM	0.01	0.06
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
B-560	Pellet Buffer Vessel	PM	0.01	0.06
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
B-760	Pellet Buffer Vessel	PM	0.01	0.06
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
F-343	Powder Vent Gas Filter	VOC	0.01	0.01
		PM	0.04	0.06
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
F-346	Additive Feed Conveying Gas Filter	VOC	0.01	0.01
		PM	0.02	0.01
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
F-367	Pellet Water Pre-separator Sieve	PM	0.03	0.14
		PM_{10}	0.01	0.03
		$PM_{2.5}$	0.01	0.02
F-368	Classifier	PM	0.03	0.14

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		PM_{10}	0.01	0.03
		$PM_{2.5}$	0.01	0.02
F-387A	Silos Cyclone Separator, Train No. 1	PM	0.40	1.06
		PM_{10}	0.08	0.21
		$PM_{2.5}$	0.07	0.19
F-443	Powder Vent Gas Filter	VOC	0.01	0.01
		PM	0.04	0.06
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
F-446	Additive Feed Conveying Gas Filter	VOC	0.01	0.01
		PM	0.02	0.01
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
F-467	Pellet Water Pre-separator Sieve	PM	0.03	0.14
		PM_{10}	0.01	0.03
		$PM_{2.5}$	0.01	0.02
F-468	Classifier	PM	0.03	0.14
		PM_{10}	0.01	0.03
		$PM_{2.5}$	0.01	0.02
F-487A	Silos Cyclone Separator, Train No. 2	PM	0.40	1.06
		PM_{10}	0.08	0.21
		$PM_{2.5}$	0.07	0.19
F-541	500 Line-Off Spec Silo Bag Filter	PM	0.20	0.86
		PM_{10}	0.04	0.17
		$PM_{2.5}$	0.04	0.16
F-543	Powder Vent Gas Filter	VOC	0.01	0.01
		PM	0.04	0.06
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
F-546	Additive Feed Conveying Gas Filter	VOC	0.01	0.01
		PM	0.02	0.01
		PM_{10}	0.01	0.01

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		$PM_{2.5}$	0.01	0.01
F-567	Pellet Water Pre-separator Sieve	PM	0.03	0.14
		PM_{10}	0.01	0.03
		$PM_{2.5}$	0.01	0.02
F-568	Classifier	PM	0.03	0.14
		PM_{10}	0.01	0.03
		$PM_{2.5}$	0.01	0.02
F-575	300/400 Line - Off Spec Silo Bag Filter	PM	0.59	2.29
		PM_{10}	0.12	0.46
		$PM_{2.5}$	0.11	0.41
F-587A	Silos Cyclone Separator, Train No. 3	PM	0.40	1.06
		PM_{10}	0.08	0.21
		$PM_{2.5}$	0.07	0.19
F-705	Auto Packer Cyclone	PM	0.14	0.59
		PM_{10}	0.03	0.12
		$PM_{2.5}$	0.02	0.11
F-706A	Truck Silo Cyclone	PM	0.14	0.59
		PM_{10}	0.03	0.12
		$PM_{2.5}$	0.02	0.11
F-706B	Auto Packer Cyclone	PM	0.16	0.69
		PM_{10}	0.03	0.14
		$PM_{2.5}$	0.03	0.12
F-711A	Hopper Silo Cyclone, Train No. 1	PM	0.14	0.59
		PM_{10}	0.03	0.12
		$PM_{2.5}$	0.02	0.11
F-711B	PP1 Railcar Vacuum Cleaning System	PM	0.14	0.59
		PM_{10}	0.03	0.12
		$PM_{2.5}$	0.02	0.11
F-711G	Streamer Remover Bag Filter, Train No. 4	PM	0.40	1.59
		PM_{10}	0.08	0.32
		$PM_{2.5}$	0.07	0.29
F-741	700 Line Off Spec Silo Bag Filter	PM	0.12	0.48

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		PM_{10}	0.02	0.10
		$PM_{2.5}$	0.02	0.09
F-743	Additive Vent Gas Filter	VOC	0.01	0.01
		PM	0.01	0.01
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
F-743A	Powder Vent Bag Filter	VOC	0.01	0.01
		PM	0.01	0.01
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
F-746	Additive Feed Conveying Gas Filter	VOC	0.01	0.01
		PM	0.02	0.01
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
F-747 A	Bag Dumping Unit	PM	0.02	0.01
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
F-747 B	Bag Dumping Unit	PM	0.02	0.01
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
F-747 C	Bag Dumping Unit	PM	0.02	0.01
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
F-767	Pellet Water Pre-separator Sieve	PM	0.03	0.14
		PM_{10}	0.01	0.03
		$PM_{2.5}$	0.01	0.02
F-768	Classifier	PM	0.03	0.14
		PM_{10}	0.01	0.03
		$PM_{2.5}$	0.01	0.02
F-781A	Product Silo Cyclone Train No. 1	PM	0.38	1.64
		PM_{10}	0.08	0.33
		$PM_{2.5}$	0.07	0.30

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
F-781B	Product Silo Cyclone Train No. 2	PM	0.38	1.64
		PM_{10}	0.08	0.33
		$PM_{2.5}$	0.07	0.30
F-781C	Product Silo Cyclone Train No. 3	PM	0.38	1.64
		PM_{10}	0.08	0.33
		$PM_{2.5}$	0.07	0.30
F-787	Silo Air Filters Train No. 4	PM	0.48	1.87
		PM_{10}	0.10	0.37
		$PM_{2.5}$	0.09	0.34
F-787A	Silos Cyclone Separator, Train No. 4	PM	0.40	1.06
		PM_{10}	0.08	0.21
		$PM_{2.5}$	0.07	0.19
F-875	B Train Loading Station Cyclone Separator	PM	0.30	0.61
		PM_{10}	0.06	0.12
		$PM_{2.5}$	0.05	0.11
F-902	Filter Receiver	PM	0.03	0.07
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
F-975	C Train Loading Station Cyclone Separator	PM	0.30	0.61
		PM_{10}	0.06	0.12
		$PM_{2.5}$	0.05	0.11
F-981	Product Silo Air Cyclone Train No. 4	PM	1.01	3.98
		PM_{10}	0.20	0.80
		$PM_{2.5}$	0.18	0.72
PO-CT	Cooling Tower	VOC	1.32	5.79
		PM	0.86	2.40
		PM_{10}	0.20	0.87
		$PM_{2.5}$	0.01	0.01
		Chlorine compounds	0.01	0.01
PP1-300	Downstream Pellet Handling PP-1, Train No. 1 (7)	VOC	3.30	3.64
PP1-400	Downstream Pellet Handling PP-1, Train No. 2 (8)	VOC	3.46	3.77

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
PP1-500	Downstream Pellet Handling PP-1, Train No. 3 (9)	VOC	2.87	3.79
PP1-700	Downstream Pellet Handling PP-1, Train No. 4 (10)	VOC	1.27	3.55
PP1-CT	Cooling Tower	VOC	0.44	1.93
		PM	0.29	0.80
		PM_{10}	0.07	0.29
		$PM_{2.5}$	0.01	0.01
		Chlorine compounds	0.01	0.01
PP1-FUG	Fugitives PP-1 Unit (5)	VOC	13.19	57.76
		PM	0.05	0.27
		PM_{10}	0.05	0.27
		$PM_{2.5}$	0.05	0.27
		Cl_2	0.01	0.02
T-367	Dryer Train No. 1	PM	0.33	1.21
		PM_{10}	0.07	0.24
		$PM_{2.5}$	0.06	0.22
T-467	Dryer Train No. 2	PM	0.45	1.89
		PM_{10}	0.09	0.38
		$PM_{2.5}$	0.08	0.34
T-567	Dryer Train No. 3	PM	0.33	1.21
		PM_{10}	0.07	0.24
		$PM_{2.5}$	0.06	0.22
T-767	Dryer Train No. 4	PM	0.41	1.76
		PM_{10}	0.08	0.35
		$PM_{2.5}$	0.07	0.32
PP1-MAINT	MSS to Atmosphere	VOC	102.27	1.81
		PM	3.19	0.42
		PM_{10}	3.19	0.42
		$PM_{2.5}$	3.19	0.42
1018, 1067, OL3-FLRA, OL3-FLRB, OL3-FLRC, EGF-1, EGF-2, EGF-3, EGF-4	Routine Waste Gas Flaring Hourly Cap (11)	NO_x (Elevated Flare option)	3.02	-
		CO (Elevated Flare option)	15.40	-
		SO_2 (Elevated Flare option)	0.01	-

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		VOC (Elevated Flare option)	12.47	-
		NO_x (EGF option)	2.85	-
		CO (EGF option)	24.43	-
		SO_2 (EGF option)	0.02	-
		VOC (EGF option)	12.45	-
1018, 1067, OL3-FLRA, OL3-FLRB, OL3-FLRC, EGF-1, EGF-2, EGF-3, EGF-4, PP2-TEMP	MSS Waste Gas Flaring Hourly Cap (11)	NO_x (Elevated Flare option)	71.24	-
		CO (Elevated Flare option)	513.54	-
		VOC	949.97	-
		NO_x (EGF option)	202.31	-
		CO (EGF option)	403.89	-
FLARECAP	Elevated and Enclosed Ground Flares Annual Cap (12)	NO_x	-	8.40
		CO	-	67.87
		SO_2	-	0.07
		VOC	-	18.48
MSSFLARECAP	Elevated and Enclosed Ground Flares MSS Annual Cap (12)	NO_x	-	10.35
		CO	-	26.27
		VOC	-	39.05

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.
(2) Specific point source name. For fugitive sources, use area name or fugitive source name.
(3) VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1
NO_x - total oxides of nitrogen
SO_2 - sulfur dioxide
PM - total particulate matter, suspended in the atmosphere, including PM_{10} and $PM_{2.5}$, as represented
PM_{10} - total particulate matter equal to or less than 10 microns in diameter, including $PM_{2.5}$, as represented
$PM_{2.5}$ - particulate matter equal to or less than 2.5 microns in diameter
CO - carbon monoxide
Cl_2 - chlorine
Chlorine compounds - hypochlorous acid and hydrogen chloride
(4) Compliance with annual emission limits (tons per year) is based on a 12-month rolling period.
(5) Emission rate is an estimate and is enforceable through compliance with the applicable special condition(s) and permit application representations.
(6) PP1 vents shall all be routed to one flare or the other.
(7) Total VOC emissions from the following emissions points: B-360, F-367, F-368, F-387A, F-575, F-705, F-706A, F-706B, F-781A, F-711A, F-711G, F-711B, F-975, and T-367.
(8) Total VOC emissions from the following emissions points: B-460, F-467, F-468, F-487A, F-575, F-705, F-706A, F-706B, F-711A, F-711B, F-711G, F-781B, F-975, and T-467.
(9) Total VOC emissions from the following emissions points: B-560, F-541, F-567, F-568, F-587A, F-705, F-706A, F-706B, F-711A, F-711B, F-711G, F-781C, F-975, and T-567.

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Emission Sources - Maximum Allowable Emission Rates

(10) Total VOC emissions from the following emissions points: B-760, F-705, F-706A, F-706B, F-711A, F-711B, F-711G, F-741, F-767, F-768, F-787, F-787A, F-975, F-981, and T-767.
(11) Maximum hourly emission rate for waste gas flaring may occur from any combination of EPNs.
(12) Emissions in the cap are authorized to be emitted from any combination of the following flare EPNs: 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4.

Date: TBD

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Emission Sources - Maximum Allowable Emission Rates

Permit Number GHGPSDTX218

This table lists the maximum allowable emission rates of greenhouse gas (GHG) emissions, as defined in Title 30 Texas Administrative Code § 101.1, for all sources of GHG air contaminants on the applicant's property that are authorized by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities authorized by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates
			TPY (4)
GHGFLARECAP	Elevated and Enclosed Ground Flares GHG Annual Cap (routine and MSS) (6)	CO_2 (5)	38,115.84
		CH_4 (5)	115.05
		N_2O (5)	0.38
		CO_2e	41,105.70

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.
(2) Specific point source name. For fugitive sources, use area name or fugitive source name.
(3) CO_2 - carbon dioxide
N_2O - nitrous oxide
CH_4 - methane
HFCs - hydrofluorocarbons
PFCs - perfluorocarbons
SF_6 - sulfur hexafluoride
CO_2e - carbon dioxide equivalents based on the following Global Warming Potentials (1/2015): CO_2 (1), N_2O (298), CH_4(25), SF_6 (22,800), HFC (various), PFC (various)
(4) Compliance with annual emission limits (tons per year) is based on a 12-month rolling period. These rates include emissions from maintenance, startup, and shutdown.
(5) Emission rate is given for informational purposes only and does not constitute enforceable limit.
(6) Emissions in the cap are authorized to be emitted from any combination of the following flare EPNs: 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4.

Date: TBD

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Emission Sources - Maximum Allowable Emission Rates

Permit Number 19168 and PSDTX1226M1

This table lists the maximum allowable emission rates and all sources of air contaminants on the applicant's property covered by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
1001	Pyrolysis Furnace # 1	CO	12.18	-
		CO MSS (8)	47.18	-
		NO_x	31.02	-
		NO_x MSS (8)	34.02	-
		PM	3.69	-
		PM_{10}	3.69	-
		$PM_{2.5}$	3.69	-
		SO_2	0.38	-
		VOC	4.69	-
1002	Pyrolysis Furnace #2	CO	12.18	-
		CO MSS (8)	47.18	-
		NO_x	31.02	-
		NO_x MSS (8)	34.02	-
		PM	3.69	-
		PM_{10}	3.69	-
		$PM_{2.5}$	3.69	-
		SO_2	0.38	-
		VOC	4.69	-
1003	Pyrolysis Furnace #3	CO	8.16	-
		CO MSS (8)	43.16	-
		NO_x	30.29	-
		NO_x MSS (8)	33.29	-
		PM	3.69	-
		PM_{10}	3.69	-
		$PM_{2.5}$	3.69	-
		SO_2	0.38	-

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		VOC	2.67	-
1004	Pyrolysis Furnace #4	CO	8.16	-
		CO MSS (8)	43.16	-
		NO_x	30.29	-
		NO_x MSS (8)	33.29	-
		PM	3.69	-
		PM_{10}	3.69	-
		$PM_{2.5}$	3.69	-
		SO_2	0.38	-
		VOC	2.67	-
1005	Pyrolysis Furnace #5	CO	8.16	-
		CO MSS (8)	43.16	-
		NO_x	30.29	-
		NO_x MSS (8)	33.29	-
		PM	3.69	-
		PM_{10}	3.69	-
		$PM_{2.5}$	3.69	-
		SO_2	0.38	-
		VOC	2.67	-
1006	Pyrolysis Furnace #6	CO	8.16	-
		CO MSS (8)	43.16	-
		NO_x	30.29	-
		NO_x MSS (8)	33.29	-
		PM	3.69	-
		PM_{10}	3.69	-
		$PM_{2.5}$	3.69	-
		SO_2	0.38	-
		VOC	2.67	-
1007	Pyrolysis Furnace #7	CO	8.16	-

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		CO MSS (8)	43.16	-
		NO_x	30.29	-
		NO_x MSS (8)	33.29	-
		PM	3.69	-
		PM_{10}	3.69	-
		$PM_{2.5}$	3.69	-
		SO_2	0.38	-
		VOC	2.67	-
1008	Pyrolysis Furnace #8	CO	8.16	-
		CO MSS (8)	43.16	-
		NO_x	30.29	-
		NO_x MSS (8)	33.29	-
		PM	3.69	-
		PM_{10}	3.69	-
		$PM_{2.5}$	3.69	-
		SO_2	0.38	-
		VOC	2.67	-
1009	Decoke Drum (6)	CO	153.19	27.04
		PM	14.07	2.48
		PM_{10}	14.07	2.48
		$PM_{2.5}$	14.07	2.48
		VOC	0.01	0.01
1009B	Pyrolysis Furnace #9	CO	8.16	-
		CO MSS (8)	43.16	-
		NO_x	30.29	-
		NO_x MSS (8)	33.29	-
		PM	3.69	-
		PM_{10}	3.69	-
		$PM_{2.5}$	3.69	-

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		SO_2	0.38	-
		VOC	2.67	-
1010B	Pyrolysis Furnace #10	CO	8.75	-
		CO MSS (8)	43.75	-
		NO_x	18.75	-
		NO_x MSS (8)	21.75	-
		PM	3.96	-
		PM_{10}	3.96	-
		$PM_{2.5}$	3.96	-
		SO_2	0.41	-
		VOC	2.28	-
1011B	Pyrolysis Furnace #11	CO	8.75	32.19
		CO MSS (8)	43.75	-
		NO_x	18.75	39.48
		NO_x MSS (8)	21.75	-
		PM	3.96	14.56
		PM_{10}	3.96	14.56
		$PM_{2.5}$	2.44	8.97
		SO_2	0.41	1.49
		VOC	2.28	8.37
1001-1008, 1009B, 1010B, 1011B	Pyrolysis Furnace Cap (10)	CO	-	350.05
		CO MSS (8)	-	19.44
		NO_x	-	1259.77
		PM	-	162.78
		PM_{10}	-	162.78
		$PM_{2.5}$	-	162.78
		SO_2	-	16.72
		VOC	-	115.34
1010	Olefins Cooling Tower	VOC	5.46	23.91

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		PM	4.23	11.82
		PM_{10}	0.98	4.29
		$PM_{2.5}$	0.01	0.02
		Chlorine Compounds	0.01	0.01
1011	Olefins Oil & Water Separator	VOC	2.76	12.09
1012	MAPD Regenerator 3418F	CO	7.58	0.03
		VOC	0.24	0.01
OL1-TEMP	Temporary Portable Thermal Oxidizer (MSS) (11)	CO	0.92	1.15
		NO_x	1.37	1.71
		PM	0.01	0.01
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
		SO_2	0.01	0.01
		VOC	1.01	1.26
1028	Olefins 1 Plant Fugitives (5)	VOC	24.52	107.40
		Cl_2	0.01	0.02
OL1-MAINT	OL1 Process Fugitive MSS	VOC MSS	258.12	4.10
1050	H_2SO_4 Tank	H_2SO_4	0.01	0.01
1051	Tank Vapor Combustor	CO	9.84	23.77
		CO MSS	-	0.01
		NO_x	2.47	5.97
		NO_x MSS	-	0.02
		PM	0.32	1.00
		PM MSS	0.04	0.01
		PM_{10}	0.32	1.00
		PM_{10} MSS	0.04	0.01
		$PM_{2.5}$	0.32	1.00
		$PM_{2.5}$ MSS	0.04	0.01
		SO_2	0.02	0.05

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		VOC	0.27	0.65
		VOC MSS	3.37	0.15
7900LJD	Emergency Generator Vent	CO	0.44	0.01
		NO_x	13.40	0.35
		PM	0.50	0.01
		PM_{10}	0.50	0.01
		$PM_{2.5}$	0.50	0.01
		SO_2	2.79	0.07
		VOC	0.08	0.01
7900LJDF	Diesel Storage Tank Vent	VOC	0.06	0.01
PGCLUBE	Olefins – Lube Oil Reservoir V	VOC	0.01	0.01
PRCERCLUBE	P.R.C. & E.R.C. Lube Oil Reservoir	VOC	0.01	0.01
3602J1/J2L	Methane Expander Lube Oil Vent	VOC	0.01	0.01
PGCSEAL	P.G.C Seal Oil Reservoir Vent	VOC	0.01	0.01
PRCERCSEAL	P.R.C & E.R.C Seal Oil Reservoir	VOC	0.01	0.01
2412FCC	Caustic Sump Carbon Canister	VOC	0.01	0.01
C29600	Chemical Additive Storage Tank	VOC	4.68	0.03
C29601	Chemical Additive Storage Tank	VOC	4.68	0.03
N83070	Chemical Additive Storage Tank	VOC	0.05	0.01
N83071	Chemical Additive Storage Tank	VOC	0.06	0.01
N79134	Chemical Additive Storage Tank	VOC	6.08	0.04
1018, 1067, OL3-FLRA, OL3-FLRB, OL3-FLRC	Elevated Flares - Olefins 1 Contribution (12)	VOC	3.04	-
		NOx	2.77	-
		CO	14.12	-
		SO_2	0.01	-
1018, 1067, OL3-FLRA, OL3-FLRB, OL3-FLRC	Elevated Flares MSS - Olefins 1 Contribution (12)	CO	13,679.58	-
		NOx	2,684.59	-
		VOC	8,603.67	-
OL1FLRCAP		CO	-	99.06

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
	Elevated and Enclosed Ground Flares Annual Cap – Olefins 1 Sources (13)	NO_x	-	13.31
		VOC	-	13.37
		SO_2	-	0.06
EGF-1, EGF-2, EGF-3, EGF-4	Enclosed Ground Flares - Olefins 1 Contribution – Hourly Cap (12)	VOC	3.04	-
		NOx	2.61	-
		CO	22.39	-
		SO2	0.01	-
EGF-1, EGF-2, EGF-3, EGF-4	Enclosed Ground Flares MSS - Olefins 1 Contribution – Hourly Cap (12)	CO	11,786.00	-
		NOx	2,959.50	-
		VOC	4,674.00	-
Olefins II Unit				
1054	Furnace 1 Stack	CO	12.57	-
		CO MSS (8)	47.57	-
		NO_x	20.02	-
		NO_x MSS (8)	23.02	-
		PM	3.86	-
		PM_{10}	3.86	-
		$PM_{2.5}$	3.86	-
		SO_2	0.40	-
		VOC	4.81	-
1055	Furnace 2 Stack	CO	12.57	-
		CO MSS (8)	47.57	-
		NO_x	20.02	-
		NO_x MSS (8)	23.02	-
		PM	3.86	-
		PM_{10}	3.86	-
		$PM_{2.5}$	3.86	-
		SO_2	0.40	-
		VOC	4.81	-

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
1056	Furnace 3 Stack	CO	12.57	-
		CO MSS (8)	47.57	-
		NO_x	20.02	-
		NO_x MSS (8)	23.02	-
		PM	3.86	-
		PM_{10}	3.86	-
		$PM_{2.5}$	3.86	-
		SO_2	0.40	-
		VOC	4.81	-
1057	Furnace 4 Stack	CO	8.54	-
		CO MSS (8)	43.54	-
		NO_x	19.29	-
		NO_x MSS (8)	22.29	-
		PM	3.86	-
		PM_{10}	3.86	-
		$PM_{2.5}$	3.86	-
		SO_2	0.40	-
		VOC	2.80	-
1058	Furnace 5 Stack	CO	8.54	-
		CO MSS (8)	43.54	-
		NO_x	19.29	-
		NO_x MSS (8)	22.29	-
		PM	3.86	-
		PM_{10}	3.86	-
		$PM_{2.5}$	3.86	-
		SO_2	0.40	-
		VOC	2.80	-
1059	Furnace 6 Stack	CO	8.54	-
		CO MSS (8)	43.54	-

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		NO_x	19.29	-
		NO_x MSS (8)	22.29	-
		PM	3.86	-
		PM_{10}	3.86	-
		$PM_{2.5}$	3.86	-
		SO_2	0.40	-
		VOC	2.80	-
1060	Furnace 7 Stack	CO	8.54	-
		CO MSS (8)	43.54	-
		NO_x	19.29	-
		NO_x MSS (8)	22.29	-
		PM	3.86	-
		PM_{10}	3.86	-
		$PM_{2.5}$	3.86	-
		SO_2	0.40	-
		VOC	2.80	-
1061	Furnace 8 Stack	CO	8.54	-
		CO MSS (8)	43.54	-
		NO_x	19.29	-
		NO_x MSS (8)	22.29	-
		PM	3.86	-
		PM_{10}	3.86	-
		$PM_{2.5}$	3.86	-
		SO_2	0.40	-
		VOC	2.80	-
1062	Furnace 9 Stack	CO	8.54	-
		CO MSS (8)	43.54	-
		NO_x	19.29	-
		NO_x MSS (8)	22.29	-

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		PM	3.86	-
		PM_{10}	3.86	-
		$PM_{2.5}$	3.86	-
		SO_2	0.40	-
		VOC	2.80	-
1091	Furnace 10 Stack	CO	8.54	-
		CO MSS (8)	43.54	-
		NO_x	19.29	-
		NO_x MSS (8)	22.29	-
		PM	3.86	-
		PM_{10}	3.86	-
		$PM_{2.5}$	3.86	-
		SO_2	0.40	-
		VOC	2.80	-
1054-1062, 1091	Pyrolysis Furnace Annual Caps	CO	-	319.16
		NO_x	-	720.57
		PM	-	144.32
		PM_{10}	-	144.32
		$PM_{2.5}$	-	144.32
		SO_2	-	14.81
		VOC	-	104.66
N1011	Pyrolysis Furnace	CO	8.75	28.47
		CO MSS (8)	43.75	-
		NO_x	18.75	65.70
		NO_x MSS (8)	21.75	-
		PM	3.96	17.34
		PM_{10}	3.96	17.34
		$PM_{2.5}$	3.96	17.34
		SO_2	0.41	1.78

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		VOC	2.28	9.97
N1012	Pyrolysis Furnace	CO	8.75	28.47
		CO MSS (8)	43.75	-
		NO_x	18.75	65.70
		NO_x MSS (8)	21.75	-
		PM	3.96	17.34
		PM_{10}	3.96	17.34
		$PM_{2.5}$	3.96	17.34
		SO_2	0.41	1.78
		VOC	2.28	9.97
1054-1062, 1091, N1011, N1012	Pyrolysis Furnace Cap	CO MSS	-	12.92
1063	Decoking Drum Vent (6)	CO	153.19	34.69
		PM	14.07	3.19
		PM_{10}	14.07	3.19
		$PM_{2.5}$	14.07	3.19
		VOC	0.01	0.01
1064	Cooling Tower	VOC	5.28	23.14
		PM	6.87	19.21
		PM_{10}	1.59	6.97
		$PM_{2.5}$	0.01	0.04
		Chlorine Compounds	0.01	0.01
1065	Corrugated Plate Interface - OLII	VOC	2.76	12.09
1066	MAPD Regenerator	CO	7.58	0.03
		VOC	0.24	0.01
OL2-TEMP	Temporary Portable Thermal Oxidizer (MSS) (11)	CO	0.92	1.15
		NO_x	1.37	1.71
		PM	0.01	0.01
		PM_{10}	0.01	0.01

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		$PM_{2.5}$	0.01	0.01
		SO_2	0.01	0.01
		VOC	1.01	1.26
1068	Olefins 2 Fugitives (5)	VOC	31.37	137.37
		Cl_2	0.01	0.02
OL2-MAINT	OL2 Process Fugitive MSS	VOC MSS	237.61	2.40
1085	Fuel Oil Tank N6499FA	VOC	1.64	3.10
1086	Fuel Oil Tank N6499FB	VOC	1.64	3.10
1087	Olefins 2 Tank Flare	CO	12.48	8.70
		CO MSS	16.08	0.39
		NO_x	3.13	13.66
		NO_x MSS	3.12	0.08
		SO_2	0.02	0.08
		VOC	0.26	0.66
		VOC MSS	45.90	1.13
1088	Wash Oil Day Tank 2410F	VOC	2.45	0.10
1090	H_2SO_4 Tank	H_2SO_4	0.01	0.01
N7900LJD	Diesel Emergency Generator	CO	4.16	0.11
		NO_x	9.13	0.24
		PM	0.58	0.02
		PM_{10}	0.58	0.02
		$PM_{2.5}$	0.58	0.02
		SO_2	1.85	0.05
		VOC	0.10	0.01
NPGCLUBE	Olefins II – Lube Oil Reservoir	VOC	0.01	0.01
NPRCERCLUB	P.R.C. & E.R.C. Lube Oil Reservoir	VOC	0.01	0.01
N3602JLUBE	Methane Expander Lube Oil Vent	VOC	0.01	0.01
NPGCSEAL 1	P.G.C. Seal Oil Reservoir Vent	VOC	0.01	0.01
N2413F	OL2 PGC Antifoulant Bulk Storage Tank	VOC	2.84	0.05

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
N5704LF3CC	Zimpro Carbon Canister	VOC	0.04	0.01
N920766	Chemical Additive Storage Tank	VOC	9.35	0.04
N920425	Chemical Additive Storage Tank	VOC	4.60	0.03
N1705L2F	Additive Storage Tank	VOC	0.08	0.01
N1705L5F	Additive Storage Tank	VOC	0.08	0.01
1018, 1067, OL3-FLRA, OL3-FLRB, OL3-FLRC	Elevated Flares - Olefins 2 & FRACII Contribution – Hourly Cap (12)	VOC	1.89	-
		NOx	4.52	-
		CO	23.04	-
		SO2	0.03	-
1018, 1067, OL3-FLRA, OL3-FLRB, OL3-FLRC	Elevated Flares MSS - Olefins 2 & FRACII Contribution – Hourly Cap (12)	CO	13,684.37	-
		NOx	2,685.25	-
		VOC	8,612.34	-
		SO2	0.01	-
EGF-1, EGF-2, EGF-3, EGF-4	Enclosed Ground Flares - Olefins 2 & FRACII Contribution – Hourly Cap (12)	VOC	1.89	-
		NOx	4.26	-
		CO	36.55	-
		SO2	0.62	-
EGF-1, EGF-2, EGF-3, EGF-4	Enclosed Ground Flares MSS - Olefins 2 & FRACII Contribution – Hourly Cap (12)	CO	11,786.00	-
		NOx	2,959.50	-
		VOC	4,674.00	-
		SO2	0.22	
OL2FLRCAP	Elevated and Enclosed Ground Flares Annual Cap – Olefins 2 & FRACII Sources (13)	CO	-	161.09
		NO_x	-	20.99
		VOC	-	8.35
		SO_2	-	2.75
MSSFLARECAP	Elevated and Enclosed Ground Flares MSS Annual Cap – Olefins 1, 2, & FRACII Contribution (13)	CO MSS	-	950.27
		NO_x MSS	-	238.83
		VOC MSS	-	552.98
		SO_2 MSS	-	0.04

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
Gasoline Hydrotreater Unit				
8001B	Regeneration Heater (1,000 hours per year)	CO	1.92	0.96
		NO_x	0.66	0.33
		PM	0.17	0.09
		PM_{10}	0.17	0.09
		$PM_{2.5}$	0.17	0.09
		SO_2	0.02	0.01
		VOC	0.13	0.06
8002B	Second Stage Feed Heater	CO	0.70	3.09
		NO_x	0.24	1.06
		PM	0.06	0.28
		PM_{10}	0.06	0.28
		$PM_{2.5}$	0.06	0.28
		SO_2	0.01	0.03
		VOC	0.05	0.20
8003B	GHU Vapor Combustor	CO	9.07	26.70
		CO MSS	6.58	0.37
		NO_x	2.28	6.71
		NO_x MSS	1.28	0.07
		PM	0.32	1.00
		PM MSS	0.14	0.01
		PM_{10}	0.32	1.00
		PM_{10} MSS	0.14	0.01
		$PM_{2.5}$	0.32	1.00
		$PM_{2.5}$ MSS	0.14	0.01
		SO_2	0.01	0.03
		VOC	1.93	5.69
		VOC MSS	9.39	0.54
8801U	GHU Cooling Tower	VOC	1.32	5.79

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		PM	1.72	4.80
		PM_{10}	0.40	1.74
		$PM_{2.5}$	0.01	0.01
		Chlorine Compounds	0.01	0.01
8801F	GHU Fugitives (5)	VOC	3.81	16.70
		Cl_2	0.01	0.02
Propylene Purification Unit				
PPUFUG-1	Unloading Station Fugitives (5)	VOC	1.15	5.04
PPUFUG-2	Process Area Fugitives (5)	VOC	2.51	10.98
PPUFUG-3	Storage Spheres Fugitives (5)	VOC	0.19	0.85
PPULUBE	P.P.U. Lube. Oil Reservoir	VOC	0.01	0.01
West Metering Station				
WMS-1	UCC West Metering Station Analyzer Purge	VOC	0.23	1.01
Natural Gas Liquids Fractionation Unit				
FRACII-FUG	Process Area Fugitives (5)	VOC	1.65	7.24
		Cl_2	0.01	0.02
FRACII-CT	Cooling Tower	VOC	1.50	6.58
		PM	1.95	5.46
		PM_{10}	0.45	1.98
		$PM_{2.5}$	0.01	0.01
		Chlorine Compounds	0.01	0.01
FRACII-VO	Vessel Opening	VOC MSS	3.02	0.10

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.
(2) Specific point source name. For fugitive sources, use area name or fugitive source name.
(3) VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1
NO_x - total oxides of nitrogen
SO_2 - sulfur dioxide
PM - total particulate matter, suspended in the atmosphere, including PM_{10} and $PM_{2.5}$, as represented
PM_{10} - total particulate matter equal to or less than 10 microns in diameter, including $PM_{2.5}$, as represented
$PM_{2.5}$ - particulate matter equal to or less than 2.5 microns in diameter
CO - carbon monoxide

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Emission Sources - Maximum Allowable Emission Rates

H_2SO_4 - Sulfuric acid (98%)

(4) Compliance with annual emission limits (tons per year) is based on a 12-month rolling period.
(5) Emission rate is an estimate and is enforceable through compliance with the applicable special condition(s) and permit application representations.
(6) No more than 6 pyrolysis furnaces shall be de-coked at any one time: two furnaces to decoke drum EPN 1009 (Olefins I), two furnaces to de-coke drum EPN 1063 (Olefins II), and two furnaces to either decoke drum EPN 1009 (Olefins I) or to de-coke drum EPN 1063 (Olefins II).
(7) Only one flare may be used to control startup emissions at one time.
(8) Any two pyrolysis furnaces listed in Special Condition No. 6 of this permit may each emit at this maximum lb/hr NOx allowable emission rates. Any two pyrolysis furnaces listed in Special Condition No. 8 of this permit may each emit at this maximum lb/hr CO allowable emission rates. Annual CO and NOx MSS emissions are included in the routine operations TPY values for EPN 1011B.
(9) TPY allowable emission rates for CO, NOx and VOC MSS reflect combined cap for flares 1018 and 1067.
(10) See individual EPN for hourly limits for these furnaces. Furnace 11 (EPN 1011B) is included in the annual Furnace Cap and also has individual annual emission limits. The annual cap values for each pollutant reflect the respective sums of the individual annual allowable emission rates for these sources.
(11) Hourly and annual emissions from MSS control devices (EPNs 1018, 1051, 1067, 1087, 8003B, OL1-TEMP, and OL2-TEMP) will not exceed the total hourly and annual MSS emissions authorized for EPNs 1018, 1051, 1067, 1087, and 8003B. No more than 1 portable thermal oxidizer (EPN OL1-TEMP) in Olefins 1 Plant and 1 portable thermal oxidizer (EPN OL2-TEMP) in Olefins 2 Plant will operate simultaneously.
(12) Maximum hourly emission rate for waste gas flaring may occur from any combination of EPNs.
(13) Emissions in the cap are authorized to be emitted from any combination of the following flare EPNs: 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4.

Date: TBD

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Emission Sources - Maximum Allowable Emission Rates

Permit Number GHGPSDTX224

This table lists the maximum allowable emission rates of greenhouse gas (GHG) emissions, as defined in Title 30 Texas Administrative Code § 101.1, for all sources of GHG air contaminants on the applicant's property that are authorized by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities authorized by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates
			TPY (4)
1028	Olefins 1 Plant Fugitives	CO_2 (5)	0.13
		CH_4 (5)	4.35
		CO_2e	108.89
1068	Olefins 2 Fugitives	CO_2 (5)	0.12
		CH_4 (5)	4.00
		CO_2e	100.22
GHGFLARECAP	Elevated and Enclosed Ground Flares GHG Annual Cap (Olefins 1, 2, & FRACII Routine and MSS) (6)	CO_2 (5)	1,057,040.35
		CH_4 (5)	3,182.22
		N_2O (5)	10.55
		CO_2e	1,139,739.03

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.
(2) Specific point source name. For fugitive sources, use area name or fugitive source name.
(3) CO_2 - carbon dioxide
N_2O - nitrous oxide
CH_4 - methane
CO_2e - carbon dioxide equivalents based on the following Global Warming Potentials (1/2015): CO_2 (1), N_2O (298), CH_4(25), SF_6 (22,800), HFC (various), PFC (various)
(4) Compliance with annual emission limits (tons per year) is based on a 12-month rolling period. These rates include emissions from maintenance, startup, and shutdown.
(5) Emission rate is given for informational purposes only and does not constitute enforceable limit.
(6) Emissions in the cap are authorized to be emitted from any combination of the following flare EPNs: 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4.

Date: TBD

Emission Sources - Maximum Allowable Emission Rates

Permit Numbers 107518 and PSDTX1383M2

This table lists the maximum allowable emission rates and all sources of air contaminants on the applicant's property covered by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
All Furnace EPNs (OL3- FUR1 through OL3-FUR14)	Pyrolysis Furnace Annual CAP	NO_x	(6)	167.28
		CO	(6)	472.16
		VOC	(6)	165.84
		PM	(6)	33.73
		PM_{10}	(6)	33.73
		$PM_{2.5}$	(6)	33.73
		NH_3	(6)	60.18
		SO_2	(6)	13.79
OL3-FUR1	Pyrolysis Furnace 1	NO_x	5.50	(6)
		NO_x (startup & shutdown)	15.00	(6)
		CO	7.70	(6)
		CO (startup & shutdown)	21.00	(6)
		VOC	2.70	(6)
		PM	0.55	(6)
		PM_{10}	0.55	(6)
		$PM_{2.5}$	0.55	(6)
		NH_3	1.47	(6)
		SO_2	0.22	(6)
OL3-FUR2	Pyrolysis Furnace 2	NO_x	5.50	(6)
		NO_x (startup & shutdown)	15.00	(6)
		CO	7.70	(6)
		CO (startup & shutdown)	21.00	(6)
		VOC	2.70	(6)
		PM	0.55	(6)
		PM_{10}	0.55	(6)
		$PM_{2.5}$	0.55	(6)

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		NH_3	1.47	(6)
		SO_2	0.22	(6)
OL3-FUR3	Pyrolysis Furnace 3	NO_x	5.50	(6)
		NO_x (startup & shutdown)	15.00	(6)
		CO	7.70	(6)
		CO (startup & shutdown)	21.00	(6)
		VOC	2.70	(6)
		PM	0.55	(6)
		PM_{10}	0.55	(6)
		$PM_{2.5}$	0.55	(6)
		NH_3	1.47	(6)
		SO_2	0.22	(6)
OL3-FUR4	Pyrolysis Furnace 4	NO_x	5.50	(6)
		NO_x (startup & shutdown)	15.00	(6)
		CO	7.70	(6)
		CO (startup & shutdown)	21.00	(6)
		VOC	2.70	(6)
		PM	0.55	(6)
		PM_{10}	0.55	(6)
		$PM_{2.5}$	0.55	(6)
		NH_3	1.47	(6)
		SO_2	0.22	(6)
OL3-FUR5	Pyrolysis Furnace 5	NO_x	5.50	(6)
		NO_x (startup & shutdown)	15.00	(6)
		CO	7.70	(6)
		CO (startup & shutdown)	21.00	(6)
		VOC	2.70	(6)
		PM	0.55	(6)
		PM_{10}	0.55	(6)

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		$PM_{2.5}$	0.55	(6)
		NH_3	1.47	(6)
		SO_2	0.22	(6)
OL3-FUR6	Pyrolysis Furnace 6	NO_x	5.50	(6)
		NO_x (startup & shutdown)	15.00	(6)
		CO	7.70	(6)
		CO (startup & shutdown)	21.00	(6)
		VOC	2.70	(6)
		PM	0.55	(6)
		PM_{10}	0.55	(6)
		$PM_{2.5}$	0.55	(6)
		NH_3	1.47	(6)
		SO_2	0.22	(6)
OL3-FUR7	Pyrolysis Furnace 7	NO_x	5.50	(6)
		NO_x (startup & shutdown)	15.00	(6)
		CO	7.70	(6)
		CO (startup & shutdown)	21.00	(6)
		VOC	2.70	(6)
		PM	0.55	(6)
		PM_{10}	0.55	(6)
		$PM_{2.5}$	0.55	(6)
		NH_3	1.47	(6)
		SO_2	0.22	(6)
OL3-FUR8	Pyrolysis Furnace 8	NO_x	5.50	(6)
		NO_x (startup & shutdown)	15.00	(6)
		CO	7.70	(6)
		CO (startup & shutdown)	21.00	(6)
		VOC	2.70	(6)
		PM	0.55	(6)

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		PM_{10}	0.55	(6)
		$PM_{2.5}$	0.55	(6)
		NH_3	1.47	(6)
		SO_2	0.22	(6)
OL3-FUR9	Pyrolysis Furnace 9	NO_x	5.50	(6)
		NO_x (startup & shutdown)	15.00	(6)
		CO	7.70	(6)
		CO (startup & shutdown)	21.00	(6)
		VOC	2.70	(6)
		PM	0.55	(6)
		PM_{10}	0.55	(6)
		$PM_{2.5}$	0.55	(6)
		NH_3	1.47	(6)
		SO_2	0.22	(6)
OL3-FUR10	Pyrolysis Furnace 10	NO_x	5.50	(6)
		NO_x (startup & shutdown)	15.00	(6)
		CO	7.70	(6)
		CO (startup & shutdown)	21.00	(6)
		VOC	2.70	(6)
		PM	0.55	(6)
		PM_{10}	0.55	(6)
		$PM_{2.5}$	0.55	(6)
		NH_3	1.47	(6)
		SO_2	0.22	(6)
OL3-FUR11	Pyrolysis Furnace 11	NO_x	5.50	(6)
		NO_x (startup & shutdown)	15.00	(6)
		CO	7.70	(6)
		CO (startup & shutdown)	21.00	(6)
		VOC	2.70	(6)

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		PM	0.55	(6)
		PM_{10}	0.55	(6)
		$PM_{2.5}$	0.55	(6)
		NH_3	1.47	(6)
		SO_2	0.22	(6)
OL3-FUR12	Pyrolysis Furnace 12	NO_x	5.50	(6)
		NO_x (startup & shutdown)	15.00	(6)
		CO	7.70	(6)
		CO (startup & shutdown)	21.00	(6)
		VOC	2.70	(6)
		PM	0.55	(6)
		PM_{10}	0.55	(6)
		$PM_{2.5}$	0.55	(6)
		NH_3	1.47	(6)
		SO_2	0.22	(6)
OL3-FUR13	Pyrolysis Furnace 13	NO_x	5.50	(6)
		NO_x (startup & shutdown)	15.00	(6)
		CO	7.70	(6)
		CO (startup & shutdown)	21.00	(6)
		VOC	2.70	(6)
		PM	0.55	(6)
		PM_{10}	0.55	(6)
		$PM_{2.5}$	0.55	(6)
		NH_3	1.47	(6)
		SO_2	0.22	(6)
OL3-FUR14	Pyrolysis Furnace 14	NO_x	5.50	(6)
		NO_x (startup & shutdown)	15.00	(6)
		CO	7.70	(6)
		CO (startup & shutdown)	21.00	(6)

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		VOC	2.70	(6)
		PM	0.55	(6)
		PM_{10}	0.55	(6)
		$PM_{2.5}$	0.55	(6)
		NH_3	1.47	(6)
		SO_2	0.22	(6)
All Steam Boiler EPNs (OL3-BOIL1 through OL3-BOIL4)	Steam Boiler Annual CAP	NO_x	(8)	75.51
		CO	(8)	279.39
		VOC	(8)	64.79
		PM	(8)	18.88
		PM_{10}	(8)	18.88
		$PM_{2.5}$	(8)	18.88
		NH_3	(8)	36.76
		SO_2	(8)	75.14
OL3-BOIL1	Steam Boiler 1	NO_x	6.47	(8)
		NO_x (startup & shutdown)	43.10	(8)
		CO	15.95	(8)
		VOC	3.70	(8)
		PM	1.08	(8)
		PM_{10}	1.08	(8)
		$PM_{2.5}$	1.08	(8)
		NH_3	3.15	(8)
		SO_2	4.29	(8)
OL3-BOIL2	Steam Boiler 2	NO_x	6.47	(8)
		NO_x (startup & shutdown)	43.10	(8)
		CO	15.95	(8)
		VOC	3.70	(8)
		PM	1.08	(8)
		PM_{10}	1.08	(8)

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		$PM_{2.5}$	1.08	(8)
		NH_3	3.15	(8)
		SO_2	4.29	(8)
OL3-BOIL3	Steam Boiler 3	NO_x	6.47	(8)
		NO_x (startup & shutdown)	43.10	(8)
		CO	15.95	(8)
		VOC	3.70	(8)
		PM	1.08	(8)
		PM_{10}	1.08	(8)
		$PM_{2.5}$	1.08	(8)
		NH_3	3.15	(8)
		SO_2	4.29	(8)
OL3-BOIL4	Steam Boiler 4	NO_x	6.47	(8)
		NO_x (startup & shutdown)	43.10	(8)
		CO	15.95	(8)
		VOC	3.70	(8)
		PM	1.08	(8)
		PM_{10}	1.08	(8)
		$PM_{2.5}$	1.08	(8)
		NH_3	3.15	(8)
		SO_2	4.29	(8)
OL3-DK1, OL3-DK2	Decoking Drums 1 and 2 (7)	VOC	<0.01	<0.01
		CO	196.07	68.66
		PM	0.52	0.18
		PM_{10}	0.29	0.10
		$PM_{2.5}$	0.25	0.09
OL3-CTWR	Olefins 3 Cooling Tower	VOC	5.75	25.21
		Chlorine Compounds	<0.01	<0.01
		PM	7.48	20.92

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		PM_{10}	1.76	7.72
		$PM_{2.5}$	0.01	0.04
PDH-CTWR	PDH Unit Cooling Tower	VOC	3.75	16.44
		Chlorine Compounds	<0.01	<0.01
		PM	4.88	13.64
		PM_{10}	1.15	5.04
		$PM_{2.5}$	0.01	0.03
OL3-FUG	Olefins 3 Fugitives	VOC	124.14	543.75
		Cl_2	<0.01	0.02
		NH_3	0.24	1.04
All VCU EPNs (OL3-VCU1 & OL3-VCU2)	Olefins 3 VCU 1 & 2 Annual CAP	VOC	(9)	3.21
		NO_x	(9)	31.32
		CO	(9)	69.99
		PM	(9)	0.88
		PM_{10}	(9)	0.88
		$PM_{2.5}$	(9)	0.88
		SO_2	(9)	0.09
OL3-VCU1	Olefins 3 VCU 1	VOC	0.97	(9)
		NO_x	3.80	(9)
		CO	10.98	(9)
		PM	0.10	(9)
		PM_{10}	0.10	(9)
		$PM_{2.5}$	0.10	(9)
		SO_2	0.01	(9)
OL3-VCU2	Olefins 3 VCU 2	VOC	0.97	(9)
		NO_x	3.80	(9)
		CO	10.98	(9)
		PM	0.10	(9)
		PM_{10}	0.10	(9)

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		$PM_{2.5}$	0.10	(9)
		SO_2	0.01	(9)
OL3-MAPD	MAPD Regeneration Vent	VOC	0.21	<0.01
		CO	11.55	0.05
OL3-GEN	OL3 Unit Diesel Emergency Generator Engine	NO_x	11.69	0.58
		CO	6.33	0.32
		VOC	11.69	0.58
		PM	0.37	0.02
		PM_{10}	0.37	0.02
		$PM_{2.5}$	0.37	0.02
		SO_2	0.01	<0.01
PDH-RXNHTR	PDH Reactor Charge Heater	NO_x	4.50	13.14
		NO_x (startup & shutdown)	20.25	
		CO	12.67	54.24
		VOC	2.57	11.28
		PM	1.55	6.79
		PM_{10}	1.55	6.79
		$PM_{2.5}$	1.55	6.79
		NH_3	2.01	5.86
		SO_2	2.99	13.08
PDH-WHBLR	PDH Waste Heat Boiler (and Air Heater)	NO_x	30.59	74.45
		NO_x (startup & shutdown)	76.49	
		CO	55.63	148.89
		VOC	13.25	58.02
		PM	3.15	13.79
		PM_{10}	3.15	13.79
		$PM_{2.5}$	3.15	13.79
		NH_3	7.18	20.96
		SO_2	2.00	8.76

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
PDH-FUG	PDH Unit Fugitives (5)	VOC	17.59	77.06
		Cl_2	<0.01	0.02
		NH_3	0.05	0.21
PDH-GEN	PDH Unit Diesel Emergency Generator Engine	NO_x	11.64	0.58
		CO	6.31	0.32
		VOC	11.64	0.58
		PM	0.36	0.02
		PM_{10}	0.36	0.02
		$PM_{2.5}$	0.36	0.02
		SO_2	0.01	<0.01
OL3-ACID	Sulfuric Acid Tank	H_2SO_4	1.27	0.03
OL3-PLO	PGC Lube Oil Reservoir	VOC	0.91	<0.01
OL3-PRLO	PRC Lube Oil Reservoir	VOC	0.37	<0.01
OL3-BRLO	BRC Lube Oil Reservoir	VOC	0.47	<0.01
OL3-Chem1	Amine Storage Tank	VOC	0.79	<0.01
OL3-Chem2	Amine Storage Tank	VOC	0.79	<0.01
OL3-Chem3	Inhibitor Storage Tank	VOC	7.36	0.06
OL3-Chem4	Inhibitor Storage Tank	VOC	7.36	0.06
OL3-Chem5	Amine Storage Tank	VOC	0.79	0.01
OL3-Chem6	OL3 BFW Amine Tank	VOC	2.08	0.01
OL3-Chem7	Package Boilers BFW Amine Tank	VOC	0.71	0.01
OL3-DIES	OL3 Emergency Generator Diesel Storage Tank	VOC	0.10	<0.01
OL3-ACID2	Zimpro Acid Day Tank	H_2SO_4	4.30	0.04
PDH-PLO	PGC Lube Oil Reservoir	VOC	0.02	<0.01
PDH-PRLO	PRC Lube Oil Reservoir	VOC	0.02	<0.01
PDH-ACID	Sulfuric Acid Tank	H_2SO_4	1.02	<0.01
PDH-ERLO	ERC Lube Oil Reservoir	VOC	0.02	<0.01
PDH-Chem1	Amine Storage Tank	VOC	0.49	<0.01
PDH-Chem2	Inhibitor Storage Tank	VOC	4.48	0.06

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
PDH-Chem3	Inhibitor Storage Tank	VOC	4.48	0.06
PDH-Chem4	Inhibitor Storage Tank	VOC	3.72	0.05
PDH-Chem5	Product Inhibitor Storage Tank	VOC	3.72	0.05
PDH-DIES	Diesel Storage Tank	VOC	0.21	<0.01
PDH-RALO1	RAC 1 Lube Oil Reservoir	VOC	0.02	<0.01
PDH-RALO2	RAC 2 Lube Oil Reservoir	VOC	0.02	<0.01
PDH-TRK	PDH Truck Loading Fugitives	VOC	0.06	<0.01
PDH-MSSVO	PDH Maintenance Fugitives	VOC-MSS	68.69	1.82
		Inorganics – MSS	0.16	<0.01
OL3-MSSVO	MSS - Vessel Opening	VOC-MSS	214.73	6.99
		Inorganics – MSS	1.90	<0.01
1018, 1067, OL3-FLRA, OL3-FLRB, OL3-FLRC, EGF-1, EGF-2, EGF-3, EGF-4	Routine Waste Gas Flaring Hourly Cap (10)	VOC	34.08	-
		NO_X (Elevated Flare option)	79.45	-
		CO (Elevated Flare option)	409.00	-
		SO_2 (Elevated Flare option)	0.01	-
		NO_X (EGF option)	75.00	-
		CO (EGF option)	641.05	-
		SO_2 (EGF option)	0.89	
1018, 1067, OL3-FLRA, OL3-FLRB, OL3-FLRC, EGF-1, EGF-2, EGF-3, EGF-4	MSS Waste Gas Flaring Hourly Cap (10)	VOC (Elevated Flare option)	5,057.15	-
		VOC (EGF option)	5372.0	-
		NO_X (Elevated Flare option)	1,615.32	-
		CO (Elevated Flare option)	8,321.30	-
		NO_X (EGF option)	3,482.4	-
		CO (EGF option)	13,869.0	-
FLARECAP	Elevated and Enclosed Ground Flares Annual Cap (11)	CO	-	2162.07
		NOx	-	267.89
		SO_2	-	3.01
		VOC	-	95.14

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
FLARECAP	Elevated and Enclosed Ground Flares MSS Annual Cap (11)	VOC	-	321.37
		NOx	-	145.31
		CO	-	578.70

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.
(2) Specific point source name. For fugitive sources, use area name or fugitive source name.
(3) VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1
NO_x - total oxides of nitrogen
SO_2 - sulfur dioxide
PM - total particulate matter, suspended in the atmosphere, including PM_{10} and $PM_{2.5}$, as represented
PM_{10} - total particulate matter equal to or less than 10 microns in diameter, including $PM_{2.5}$, as represented
$PM_{2.5}$ - particulate matter equal to or less than 2.5 microns in diameter
CO - carbon monoxide
H_2SO_4 - sulfuric acid mist
Cl_2 - chlorine
NH_3 - ammonia
Chlorine Compounds - includes hypochlorous and hydrochloric acids
(4) Compliance with annual emission limits (tons per year) is based on a 12 month rolling period.
(5) Emission rate is an estimate and is enforceable through compliance with the applicable special condition(s) and permit application representations.
(6) Annual emissions included in annual compliance CAP for pyrolysis furnaces (EPNs OL3- FUR1 through OL3-FUR14).
(7) Maximum emissions from decoking all furnaces to either decoke drum (EPN OL3-DK1 or OL3-DK2).
(8) Annual emissions included in annual compliance CAP for steam boilers (EPNs OL3-BOIL1 through OL3-BOIL4).
(9) Annual emissions included in annual compliance CAP for VCUs (EPNs OL3-VCU1 & OL3-VCU2).
(10) Maximum hourly emission rate for waste gas flaring may occur from any combination of EPNs.

(11) Emissions in the cap are authorized to be emitted from any combination of the following flare EPNs: 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4.

Date: TBD

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Emission Sources - Maximum Allowable Emission Rates

Permit Number GHGPSDTX48M1

This table lists the maximum allowable emission rates of greenhouse gas (GHG) emissions, as defined in Title 30 Texas Administrative Code § 101.1, for all sources of GHG air contaminants on the applicant's property that are authorized by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities authorized by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates
			TPY (4)
GHGFLARECAP	Elevated and Enclosed Ground Flares GHG Annual Cap (6)	CO_2 (5)	661,230.60
		CH_4 (5)	715.40
		N_2O (5)	4.39
		CO_2e	681,822.90
OL3-FUR1 OL3-FUR2 OL3-FUR3 OL3-FUR4 OL3-FUR5 OL3-FUR6 OL3-FUR7 OL3-FUR8 OL3-FUR9 OL3-FUR10 OL3-FUR11 OL3-FUR12 OL3-FUR13 OL3-FUR14	Pyrolysis Cracking Furnaces	CO_2 (5)	1,553,673.00
		CH_4 (5)	82.10
		N_2O (5)	15.46
		CO_2e	1,560,331.00
OL3-BOIL1 OL3-BOIL2 OL3-BOIL3 OL3-BOIL4	Steam Boilers	CO_2 (5)	695,769.00
		CH_4 (5)	40.44
		N_2O (5)	7.61
		CO_2e	699,048.00
OL3-VCU1	Olefins 3 VCU 1	CO_2 (5)	13,159.00
		CH_4 (5)	9.86
		N_2O (5)	0.08
		CO_2e	13,429.00
OL3-VCU2	Olefins 3 VCU 2	CO_2 (5)	13,159.00
		CH_4 (5)	9.86
		N_2O (5)	0.08
		CO_2e	13,429.00
OL3-DK1 OL3-DK2	Decoking drum	CO_2 (5)	329.00
		CO_2e	329.00
OL3-GEN	Emergency generator engine	CO_2 (5)	592.00
		CO_2e	592.00
PDH-GEN	Emergency generator engine	CO_2 (5)	592.00
		CO_2e	592.00

Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates
			TPY (4)
PDH-RXNHTR	Reactor charge heater	CO_2 (5)	133,684.00
		CH_4 (5)	8.43
		N_2O (5)	1.61
		CO_2e	13,4376.00
PDH-WHBLR	Air heater and waste heat boiler	CO_2 (5)	495,571.00
		CH_4 (5)	643.00
		CO_2e	511,636.00

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.
(2) Specific point source name. For fugitive sources, use area name or fugitive source name.
(3) CO_2 - carbon dioxide
N_2O - nitrous oxide
CH_4 - methane
HFCs - hydrofluorocarbons
PFCs - perfluorocarbons
SF_6 - sulfur hexafluoride
CO_2e - carbon dioxide equivalents based on the following Global Warming Potentials (1/2015): CO_2 (1), N_2O (298), CH_4(25), SF_6 (22,800), HFC (various), PFC (various)
(4) Compliance with annual emission limits (tons per year) is based on a 12-month rolling period. These rates include emissions from maintenance, startup, and shutdown.
(5) Emission rate is given for informational purposes only and does not constitute enforceable limit.
(6) Emissions in the cap are authorized to be emitted from any combination of the following flare EPNs: 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4.

Date: TBD

Emission Sources - Maximum Allowable Emission Rates

Permit Number 20203 and PSDTX1224M1

This table lists the maximum allowable emission rates and all sources of air contaminants on the applicant's property covered by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
LL-003	Extruder Feed Bin No. 1	VOC	2.37	9.72
LL-004	Extruder Feed Bin No. 2	VOC	2.37	9.72
LL-005	Catalyst Filling Vent No. 1	VOC	9.65	0.43
LL-006	Catalyst Filling Vent No. 2	VOC	8.80	0.10
LL-007	Buffer Silo No. 1	VOC	2.28	6.48
		PM	0.10	0.46
		PM_{10}	0.10	0.46
		$PM_{2.5}$	0.10	0.46
LL-008	Powder Bin No. 1	VOC	1.20	5.28
		PM	0.10	0.46
		PM_{10}	0.10	0.46
		$PM_{2.5}$	0.10	0.46
LL-011	Blending Silo No. 1	PM	0.18	0.78
		PM_{10}	0.18	0.78
		$PM_{2.5}$	0.18	0.78
LL-012	Blending Silo No. 2	PM	0.18	0.78
		PM_{10}	0.18	0.78
		$PM_{2.5}$	0.18	0.78
LL-013	Product Silo No. 1	PM	0.13	0.58
		PM_{10}	0.13	0.58
		$PM_{2.5}$	0.13	0.58
LL-014	Product Silo No. 2	PM	0.13	0.58

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		PM_{10}	0.13	0.58
		$PM_{2.5}$	0.13	0.58
LL-015	Hopper Car Silo No. 1 and Hopper Car Loading No. 1	PM	0.18	0.79
		PM_{10}	0.18	0.79
		$PM_{2.5}$	0.18	0.79
LL-016	Hopper Car Silo No. 2 and Hopper Car Loading No. 2	PM	0.18	0.79
		PM_{10}	0.18	0.79
		$PM_{2.5}$	0.18	0.79
LL-017	Truck Silo No. 1	PM	0.26	1.16
		PM_{10}	0.26	1.16
		$PM_{2.5}$	0.26	1.16
LL-019	Auto-Packer Silo No. 1	PM	0.26	1.16
		PM_{10}	0.26	1.16
		$PM_{2.5}$	0.26	1.16
LL-023	Additive Mix Tanks Bag Filter	PM	0.01	0.02
		PM_{10}	0.01	0.02
		$PM_{2.5}$	0.01	0.02
LL-025	Master Batch No. 1	PM	0.06	0.24
		PM_{10}	0.06	0.24
		$PM_{2.5}$	0.06	0.24
LL-026	Master Batch No. 2	PM	0.06	0.24
		PM_{10}	0.06	0.24
		$PM_{2.5}$	0.06	0.24
Process	Process Fugitives (5)	VOC	9.97	43.68

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
LI-01A/B	Incinerator	VOC	2.21	9.68
		PM	1.38	6.02
		PM_{10}	1.38	6.02
		$PM_{2.5}$	1.38	6.02
		NO_X	7.57	33.17
		CO	13.59	59.52
		SO_2	0.03	0.12
LI-01A/B	Incinerator MSS	VOC	1,303.70	14.93
		NO_X	79.30	1.04
		CO	573.00	7.53
LL-CT	LLDPE Cooling Tower	VOC	1.77	7.72
		PM	0.42	1.85
		PM_{10}	0.33	1.44
		$PM_{2.5}$	0.01	0.01
LL-009	Weight Feeder Surge Hopper F1-850	PM	0.01	0.05
		PM_{10}	0.01	0.05
		$PM_{2.5}$	0.01	0.05
LL-010	Weight Feeder Surge Hopper F2-850	PM	0.01	0.05
		PM_{10}	0.01	0.05
		$PM_{2.5}$	0.01	0.05
LL-030	Train 1 Re-Run Filter S1-855	PM	0.27	1.07
		PM_{10}	0.27	1.07
		$PM_{2.5}$	0.27	1.07
LL-031	Train 2 Re-Run Filter S2-855	PM	0.27	1.07
		PM_{10}	0.27	1.07

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		$PM_{2.5}$	0.27	1.07
LL-032	Train 1 Masterbatch Hopper F1-830A/B	PM	0.01	0.03
		PM_{10}	0.01	0.03
		$PM_{2.5}$	0.01	0.03
LL-033	Train 2 Masterbatch Hopper F2-830A/B	PM	0.01	0.03
		PM_{10}	0.01	0.03
		$PM_{2.5}$	0.01	0.03
LL-034	Train 1 Q1-830 Feeder Filter S1-830	PM	0.01	0.01
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
LL-035	Train 2 Q2-830 Feeder Filter S2-830	PM	0.01	0.01
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
LL-036	Train 1 F1-810 Vent Filter S1-811	PM	0.02	0.06
		PM_{10}	0.02	0.06
		$PM_{2.5}$	0.02	0.06
LL-037	Train 2 F2-810 Vent Filter S2-811	PM	0.02	0.06
		PM_{10}	0.02	0.06
		$PM_{2.5}$	0.02	0.06
LL-038	Train 1 F1-812 Vent Filter S1-812	PM	0.02	0.07
		PM_{10}	0.02	0.07
		$PM_{2.5}$	0.02	0.07
LL-039	Train 2 F2-812 Vent Filter S2-812	PM	0.02	0.07
		PM_{10}	0.02	0.07
		$PM_{2.5}$	0.02	0.07

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
LL-040	Train 1 F1-800 Vent Filter S1-800.1	PM	0.02	0.06
		PM_{10}	0.02	0.06
		$PM_{2.5}$	0.02	0.06
LL-041	Train 2 F2-800 Vent Filter S2-800.1	PM	0.02	0.06
		PM_{10}	0.02	0.06
		$PM_{2.5}$	0.02	0.06
LL-042	Train 1 F1-810 Feeder Filter Q1-810	PM	0.02	0.06
		PM_{10}	0.02	0.06
		$PM_{2.5}$	0.02	0.06
LL-043	Train 2 F2-810 Feeder Filter Q2-810	PM	0.02	0.06
		PM_{10}	0.02	0.06
		$PM_{2.5}$	0.02	0.06
LL-044	Train 1 F1-856 Feeder Filter Q1-856	PM	0.02	0.06
		PM_{10}	0.02	0.06
		$PM_{2.5}$	0.02	0.06
LL-045	Train 2 F2-856 Feeder Filter Q2-856	PM	0.02	0.06
		PM_{10}	0.02	0.06
		$PM_{2.5}$	0.02	0.06
LL-046	Train 1 X1-856 Feeder Filter C1-856	PM	0.02	0.06
		PM_{10}	0.02	0.06
		$PM_{2.5}$	0.02	0.06
LL-047	Train 2 X2-856 Feeder Filter C2-856	PM	0.02	0.06
		PM_{10}	0.02	0.06
		$PM_{2.5}$	0.02	0.06
LL-048	F1-325 Waste Hopper	VOC	0.01	0.01

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		PM	0.01	0.04
		PM_{10}	0.01	0.04
		$PM_{2.5}$	0.01	0.04
LL-049	F2-325 Waste Hopper	VOC	0.01	0.01
		PM	0.01	0.04
		PM_{10}	0.01	0.04
		$PM_{2.5}$	0.01	0.04
LL-050	S1-412 Waste Powder	VOC	0.01	0.01
		PM	0.01	0.04
		PM_{10}	0.01	0.04
		$PM_{2.5}$	0.01	0.04
LL-051	S2-412 Waste Powder	VOC	0.01	0.01
		PM	0.01	0.04
		PM_{10}	0.01	0.04
		$PM_{2.5}$	0.01	0.04
LL-052	S1-440 Sieve Clean-Out	VOC	0.01	0.01
		PM	0.01	0.04
		PM_{10}	0.01	0.04
		$PM_{2.5}$	0.01	0.04
LL-053	S2-440 Sieve Clean-Out	VOC	0.01	0.01
		PM	0.01	0.04
		PM_{10}	0.01	0.04
		$PM_{2.5}$	0.01	0.04
LL-054	F1-445 Refuse Hopper	VOC	0.01	0.01
		PM	0.01	0.04

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		PM_{10}	0.01	0.04
		$PM_{2.5}$	0.01	0.04
LL-055	F2-445 Refuse Hopper	VOC	0.01	0.01
		PM	0.01	0.04
		PM_{10}	0.01	0.04
		$PM_{2.5}$	0.01	0.04
LL-056	F1-553 Refuse Hopper	VOC	0.01	0.01
		PM	0.01	0.04
		PM_{10}	0.01	0.04
		$PM_{2.5}$	0.01	0.04
LL-057	F2-553 Refuse Hopper	VOC	0.01	0.01
		PM	0.01	0.04
		PM_{10}	0.01	0.04
		$PM_{2.5}$	0.01	0.04
LL-059	F2-800 Bag Filter	VOC	0.01	0.01
		PM	0.02	0.07
		PM_{10}	0.02	0.07
		$PM_{2.5}$	0.02	0.07
LL-060	F2-810 Bag Filter	VOC	0.01	0.01
		PM	0.02	0.07
		PM_{10}	0.02	0.07
		$PM_{2.5}$	0.02	0.07
LL-061	C1-841 Pellet Dryer	PM	0.01	0.02
		PM_{10}	0.01	0.02
		$PM_{2.5}$	0.01	0.02

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
LL-062	C2-841 Pellet Dryer	PM	0.01	0.02
		PM_{10}	0.01	0.02
		$PM_{2.5}$	0.01	0.02
LL-063	S1-847 Bag Filter	PM	0.01	0.03
		PM_{10}	0.01	0.03
		$PM_{2.5}$	0.01	0.03
LL-064	S2-847 Bag Filter	PM	0.01	0.03
		PM_{10}	0.01	0.03
		$PM_{2.5}$	0.01	0.03
LL-065	C1-400 Compressor Lube Oil Container	VOC	0.45	1.52
LL-066	C2-400 Compressor Lube Oil Container	VOC	0.45	1.52
LL-067	FO-912 Hexene Storage Tank	VOC	0.53	0.81
LL-068	FO-913 Hexene Storage Tank	VOC	0.53	0.81
LL-069	Hopper Car Unloading Bag Filter	PM	0.03	0.09
		PM_{10}	0.03	0.09
		$PM_{2.5}$	0.03	0.09
LL-070	Elutriator Cyclone S1-897	PM	0.14	0.60
		PM_{10}	0.09	0.41
		$PM_{2.5}$	0.02	0.09
LL-071	Elutriator Cyclone S2-897	PM	0.14	0.60
		PM_{10}	0.09	0.41
		$PM_{2.5}$	0.02	0.09
LLDPE-MNT	MSS to Atmosphere	VOC MSS	226.2	3.59
		PM MSS	1.70	0.04

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		PM_{10} MSS	1.70	0.04
		$PM_{2.5}$ MSS	1.70	0.04
LLDPE-TMP	MSS from Temporary Sources	VOC MSS (7)	1303.70	14.93
		NO_x MSS (7)	79.30	1.04
		CO MSS (7)	573.00	7.53
1018, 1067, OL3-FLRA, OL3-FLRB, OL3-FLRC, EGF-1, EGF-2, EGF-3, EGF-4	Routine Waste Gas Flaring Hourly CAP (8)	VOC	65.07	-
		NO_X (Elevated Flare option)	5.31	-
		CO (Elevated Flare option)	38.24	-
		NO_X (EGF option)	13.47	
		CO (EGF option)	26.89	
1018, 1067, OL3-FLRA, OL3-FLRB, OL3-FLRC, EGF-1, EGF-2, EGF-3, EGF-4	MSS Waste Gas Flaring Hourly CAP (8)	VOC	1303.70	-
		NO_X (Elevated Flare option)	79.30	-
		CO (Elevated Flare option)	573.00	-
		NO_X (EGF option)	228.21	
		CO (EGF option)	455.59	
FLARECAP	Elevated and Enclosed Ground Flares Annual Cap (9)	VOC	-	6.39
		NO_X	-	1.31
		CO	-	3.99
MSSFLARECAP	Elevated and Enclosed Ground Flares MSS Annual Cap (9)	VOC	-	14.93
		NO_X	-	3.00
		CO	-	7.53

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.
(2) Specific point source name. For fugitive sources, use area name or fugitive source name.
(3) VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1

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Emission Sources - Maximum Allowable Emission Rates

NO_x - total oxides of nitrogen
SO_2 - sulfur dioxide
PM - total particulate matter, suspended in the atmosphere, including PM_{10} and $PM_{2.5}$, as represented
PM_{10} - total particulate matter equal to or less than 10 microns in diameter, including $PM_{2.5}$, as represented
$PM_{2.5}$ - particulate matter equal to or less than 2.5 microns in diameter
CO - carbon monoxide

(4) Compliance with annual emission limits (tons per year) is based on a 12 month rolling period.
(5) Emission rate is an estimate and is enforceable through compliance with the applicable special condition(s) and permit application representations.
(6) The emissions contributed only from this permitted facility which is the Linear Low Density Polyethylene (LLDPE) unit. The vents from the LLDPE unit to the Olefins I Elevated Flare (EPN 1018) and the Olefins II Elevated Flare (EPN 1067) are limited to the following scenarios:
   A. All vents from the LLDPE unit can vent to EPN 1018 with no vents from the LLDPE unit venting at the same time to EPN 1067.
   B. All vents from the LLDPE unit can vent to EPN 1067 with no vents from the LLDPE unit venting at the same time to EPN 1018.

   This exception does not exempt the holder of this permit from the requirements of 30 TAC §§ 101.201 and 101.211.
(7) TPY allowable emission rates for CO MSS, NO_x MSS, and VOC MSS reflect combined cap for flares LI-01, LLDPE-TMP, 1018 and 1067.
(8) Maximum hourly emission rate for waste gas flaring may occur from any combination of EPNs.
(9) Emissions in the CAP are authorized to be emitted from any combination of the following flare EPNs: 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4.

Date: TBD

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Emission Sources - Maximum Allowable Emission Rates

Permit Number GHGPSDTX222

This table lists the maximum allowable emission rates of greenhouse gas (GHG) emissions, as defined in Title 30 Texas Administrative Code § 101.1, for all sources of GHG air contaminants on the applicant's property that are authorized by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities authorized by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates
			TPY (4)
GHGFLARECAP	Elevated and Enclosed Ground Flares Annual GHG Cap (routine and MSS) (6)	CO_2 (5)	5,251.52
		CH_4 (5)	15.85
		N_2O (5)	0.05
		CO_2e	5,663.46

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.
(2) Specific point source name. For fugitive sources, use area name or fugitive source name.
(3) CO_2 - carbon dioxide
N_2O - nitrous oxide
CH_4 - methane
HFCs - hydrofluorocarbons
PFCs - perfluorocarbons
SF_6 - sulfur hexafluoride
CO_2e - carbon dioxide equivalents based on the following Global Warming Potentials (1/2015): CO_2 (1), N_2O (298), CH_4(25), SF_6 (22,800), HFC (various), PFC (various)
(4) Compliance with annual emission limits (tons per year) is based on a 12-month rolling period. These rates include emissions from maintenance, startup, and shutdown.
(5) Emission rate is given for informational purposes only and does not constitute enforceable limit.
(6) Emissions in the CAP are authorized to be emitted from any combination of the following flare EPNs: 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4.

Date: TBD

Emission Sources - Maximum Allowable Emission Rates

Permit Numbers 40157 and PSDTX1222M1

This table lists the maximum allowable emission rates and all sources of air contaminants on the applicant's property covered by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
1	Flash Tank Cleanout Screen	VOC	2.30	0.14
2	Powder Storage Tank	PM	0.05	0.22
		PM_{10}	0.05	0.22
		$PM_{2.5}$	0.05	0.22
3	Pellet Dryer	VOC	0.66	2.90
004a 004b	Pellet Blending and Storage I (6) Pellet Blending and Storage II (6)	VOC	1.38	6.05
		PM	0.26	1.15
		PM_{10}	0.26	1.15
		$PM_{2.5}$	0.26	1.15
005a 005b 005c 005d	Pellet Loadout Filter I (7) Pellet Loadout Filter II (7) Pellet Loadout Filter III (7) Pellet Loadout Filter IV (7)	VOC	1.38	6.05
		PM	0.50	2.18
		PM_{10}	0.50	2.18
		$PM_{2.5}$	0.50	2.18
6	Process Fugitives (5)	VOC	15.66	68.61
11	Fluff Hopper Car Loading Filter	PM	0.04	0.15
		PM_{10}	0.04	0.15
		$PM_{2.5}$	0.04	0.15
12	Pellet Hopper Car Loading Filter	PM	0.01	0.01
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
13		VOC	0.27	1.18

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
	Extruder Feed Tank Vent	PM	0.01	0.04
		PM_{10}	0.01	0.04
		$PM_{2.5}$	0.01	0.04
14	Extruder Building Vacuum Filter	PM	0.01	0.04
		PM_{10}	0.01	0.04
		$PM_{2.5}$	0.01	0.04
16	HEPA Filter Vent Activator	CO	3.69	7.12
		PM	0.01	0.01
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
17	Quench Station Vent	PM	0.01	0.01
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
18	Raw Catalyst Charge Bldg. Filter	PM	0.01	0.01
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
19	Drum Unloading Enclosure Filter	PM	0.01	0.01
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
20	Catalyst Fugitives	PM	0.01	0.01
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
H-601	Catalyst Activator Direct Heater	VOC	0.09	0.30
		NO_x	0.96	3.27

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		CO	1.10	3.73
		PM	0.12	0.42
		PM_{10}	0.12	0.42
		$PM_{2.5}$	0.12	0.42
		SO_2	0.01	0.03
IC4LOAD	Isobutane Unloading Line Vent	VOC	0.01	0.01
PP2-CT	Cooling Tower	VOC	1.32	5.79
		PM	1.72	4.80
		PM_{10}	0.40	1.74
		$PM_{2.5}$	0.01	0.01
		Chlorine Compounds	0.01	0.01
006MSS	Hydroblasting	VOC	963.90	4.30
	Other MSS	VOC	94.00	2.49
		PM	0.60	0.03
		PM_{10}	0.60	0.03
		$PM_{2.5}$	0.60	0.03
1018, 1067, OL3-FLRA, OL3-FLRB, OL3-FLRC, EGF-1, EGF-2, EGF-3, EGF-4	Routine Waste Gas Flaring Hourly Cap (9)	VOC (Elevated Flare option)	4.75	-
		NO_X (Elevated Flare option)	2.59	-
		CO (Elevated Flare option)	13.20	-
		SO_2 (Elevated Flare option)	0.02	-
		VOC (EGF option)	4.55	-
		NO_X (EGF option)	2.44	-
		CO (EGF option)	20.94	-

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		SO_2 (EGF option)	0.03	-
1018, 1067, OL3-FLRA, OL3-FLRB, OL3-FLRC, EGF-1, EGF-2, EGF-3, EGF-4	MSS Waste Gas Flaring Hourly Cap (9)	VOC	699.88	-
		NO_X (Elevated Flare option)	44.75	-
		CO (Elevated Flare option)	299.66	-
		SO_2 (Elevated Flare option)	0.10	-
		NO_X (EGF option)	55.43	-
		CO (EGF option)	475.30	-
FLARECAP	Elevated and Enclosed Ground Flares Annual Cap (10)	VOC	-	20.81
		NO_x	-	11.35
		CO	-	91.74
		SO_2	-	0.11
MSSFLARECAP	Elevated and Enclosed Ground Flares MSS Annual Cap (10)	VOC	-	7.72
		NO_x	-	6.63
		CO	-	54.85
		SO_2	-	0.06

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.
(2) Specific point source name. For fugitive sources, use area name or fugitive source name.
(3) VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1
NO_x - total oxides of nitrogen
SO_2 - sulfur dioxide
PM - total particulate matter, suspended in the atmosphere, including PM_{10} and $PM_{2.5}$, as represented
CO - carbon monoxide
(4) Compliance with annual emission limits (tons per year) is based on a 12 month rolling period.
(5) Emission rate is an estimate and is enforceable through compliance with the applicable special condition(s) and permit application representations.
(6) The EPNs 004a and 004b, Pellet Blending and Storage, are two identical vent stack systems. Maximum hourly and annual emissions are for both systems combined.
(7) The EPNs 005a, 005b, 005c, and 005d, Pellet Loadout Filter System, are two identical sets of dual vent stacks. Maximum hourly and annual emissions are for both sets combined.
(8) The vents from the HDPE II unit to the Olefins I Elevated Flare (EPN 1018) and the Olefins II Elevated Flare (EPN 1067) are limited to the following scenarios:

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Emission Sources - Maximum Allowable Emission Rates

(i) All vents from the HDPE II unit may vent to EPN 1018 provided no vents from the HDPE II unit are venting at the same time to EPN 1067.
(ii) All vents from the HDPE II unit may vent to EPN 1067 provided no vents from the HDPE II unit are venting at the same time to EPN 1018.

(9) Maximum hourly emission rate for waste gas flaring may occur from any combination of EPNs.

(10) Emissions in the cap are authorized to be emitted from any combination of the following flare EPNs: 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4.

Date: TBD

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Emission Sources - Maximum Allowable Emission Rates

Permit Number GHGPSDTX225

This table lists the maximum allowable emission rates of greenhouse gas (GHG) emissions, as defined in Title 30 Texas Administrative Code § 101.1, for all sources of GHG air contaminants on the applicant's property that are authorized by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities authorized by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates
			TPY (4)
GHGFLARECAP	Elevated and Enclosed Ground Flares GHG Annual Cap (routine and MSS) (6)	CO_2 (5)	26,193.37
		CH_4 (5)	79.06
		N_2O (5)	0.26
		CO_2e	28,248.01

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.
(2) Specific point source name. For fugitive sources, use area name or fugitive source name.
(3) CO_2 - carbon dioxide
N_2O - nitrous oxide
CH_4 - methane
HFCs - hydrofluorocarbons
PFCs - perfluorocarbons
SF_6 - sulfur hexafluoride
CO_2e - carbon dioxide equivalents based on the following Global Warming Potentials (1/2015): CO_2 (1), N_2O (298), CH_4(25), SF_6 (22,800), HFC (various), PFC (various)
(4) Compliance with annual emission limits (tons per year) is based on a 12-month rolling period. These rates include emissions from maintenance, startup, and shutdown.
(5) Emission rate is given for informational purposes only and does not constitute enforceable limit.
(6) Emissions in the cap are authorized to be emitted from any combination of the following flare EPNs: 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4.

Date: TBD

Emission Sources - Maximum Allowable Emission Rates

Permit Numbers 19201 and PSDTX1232M1

This table lists the maximum allowable emission rates and all sources of air contaminants on the applicant's property covered by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
2-HDPE	Downstream Pellet Handling	VOC	0.99	4.34
3-HDPE	Downstream Pellet Handling	VOC	0.69	3.02
3T-501	3T-501 Hexane Tank	VOC	0.31	0.56
3T502	3T-502 Hexane Tank	VOC	0.34	1.01
3T-503	3T-503 Hexane Tank	VOC	0.34	1.01
5T6010	Tank T-501	VOC	0.32	0.53
5T6020	Tank T-502	VOC	0.36	1.12
5T6030	Tank 2T-502	VOC	0.36	1.12
5T6040	Tank T-503	VOC	0.36	1.12
5T6050	Tank 2T-503	VOC	0.36	1.12
V-960	Caustic storage tank	NaOH	0.01	0.01
V-961	Caustic storage tank	NaOH	0.01	0.01
3V-961	Caustic storage tank	NaOH	0.01	0.01
D-301	HDPE Train A Dryer Vent	VOC	44.00	11.80
2D-301	HDPE Train B Dryer Vent	VOC	44.00	
3D-301	HDPE Train C Dryer Vent	VOC	44.00	
F-302	Powder Silo Bag Filter	PM	0.09	0.42
		PM_{10}	0.09	0.42
		$PM_{2.5}$	0.09	0.42
2F-302	Powder Silo Bag Filter	PM	0.09	0.42
		PM_{10}	0.09	0.42
		$PM_{2.5}$	0.09	0.42
3F302	Powder Silo Bag Filter	PM	0.16	0.62
		PM_{10}	0.16	0.62
		$PM_{2.5}$	0.16	0.62
F-401	Powder Feed Hopper Bag Filter	PM	0.01	0.01
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
2F401	Powder Feed Hopper Bag Filter	PM	0.01	0.01
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
3F401	Powder Feed Hopper Bag Filter	PM	0.01	0.01
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
F408	Powder Feed Hopper Bag Filter	PM	0.01	0.01
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
2F408	Powder Feed Hopper Bag Filter	PM	0.01	0.01
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
3F408	Powder Feed Hopper Bag Filter	PM	0.01	0.01
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
3F708A	Elutriate Bag Filter	PM	1.34	4.33
		PM_{10}	1.34	4.33
		$PM_{2.5}$	1.34	4.33
F-701	Blend Silo Bag Filter	PM	0.09	0.37
		PM_{10}	0.09	0.37
		$PM_{2.5}$	0.09	0.37
2F-701	Blend Silo Bag Filter	PM	0.09	0.37
		PM_{10}	0.09	0.37
		$PM_{2.5}$	0.09	0.37
3F701A	Blending Silo Bag Filter	PM	0.35	1.54
		PM_{10}	0.35	1.54
		$PM_{2.5}$	0.35	1.54
3F701B	Blending Silo Bag Filter	PM	0.35	1.54
		PM_{10}	0.35	1.54
		$PM_{2.5}$	0.35	1.54

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
F-708A	Hopper Car Bag Filter F-708A	PM	0.05	0.21
		PM_{10}	0.05	0.21
		$PM_{2.5}$	0.05	0.21
F-708B	Hopper Car Bag Filter F-708B	PM	0.05	0.21
		PM_{10}	0.05	0.21
		$PM_{2.5}$	0.05	0.21
S-705	Packer Silo Cyclone Separator	PM	0.06	0.28
		PM_{10}	0.06	0.28
		$PM_{2.5}$	0.06	0.28
2S-705	Packer Silo Cyclone Separator	PM	0.06	0.28
		PM_{10}	0.06	0.28
		$PM_{2.5}$	0.06	0.28
S-707	Packer Silo Cyclone Separator	PM	0.06	0.28
		PM_{10}	0.06	0.28
		$PM_{2.5}$	0.06	0.28
2S-707	Packer Silo Cyclone Separator	PM	0.06	0.28
		PM_{10}	0.06	0.28
		$PM_{2.5}$	0.06	0.28
S-708A	Hopper Silo Cyclone Separator	PM	0.06	0.28
		PM_{10}	0.06	0.28
		$PM_{2.5}$	0.06	0.28
S-708B	Hopper Silo Cyclone Separator	PM	0.06	0.28
		PM_{10}	0.06	0.28
		$PM_{2.5}$	0.06	0.28
S-709A	Product Silos Cyclone Separator S-709A	PM	0.06	0.28
		PM_{10}	0.06	0.28
		$PM_{2.5}$	0.06	0.28
S-709B	Product Silos Cyclone Separator S-709B	PM	0.06	0.28
		PM_{10}	0.06	0.28
		$PM_{2.5}$	0.06	0.28

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
S-405	Recycle Pellet Cyclone	PM	0.28	0.10
		PM_{10}	0.28	0.10
		$PM_{2.5}$	0.28	0.10
2S405	Recycle Pellet Cyclone	PM	0.28	0.10
		PM_{10}	0.28	0.10
		$PM_{2.5}$	0.28	0.10
3S405	Recycle Pellet Cyclone	PM	0.28	0.10
		PM_{10}	0.28	0.10
		$PM_{2.5}$	0.28	0.10
V-102	Catalyst Dip Pot	VOC	0.53	0.03
Z405	Additive Dust Collector	PM	0.02	0.08
		PM_{10}	0.02	0.08
		$PM_{2.5}$	0.02	0.08
2Z405	Additive Dust Collector	PM	0.02	0.08
		PM_{10}	0.02	0.08
		$PM_{2.5}$	0.02	0.08
Z410	Powder Vacuum Cleaner	PM	0.01	0.01
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
PO-CT	Cooling Tower	VOC	1.32	5.79
		PM	1.72	4.80
		PM_{10}	0.35	1.74
		$PM_{2.5}$	0.01	0.01
		HOCl	0.01	0.01

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
H923A	Thermal Incinerator (6),	CO	15.49	-
		NO_x	10.25	-
		SO_2	0.09	-
		VOC	0.96	-
		PM	0.96	-
		PM_{10}	0.96	
		$PM_{2.5}$	0.96	
		CO (MSS)	75.00	18.70
		NO_x (MSS)	-	1.00
		SO_2 (MSS)	0.10	0.10
		VOC (MSS)	-	0.20
H923B	Thermal Incinerator (6),	CO	15.49	-
		NO_x	10.25	-
		SO_2	0.09	-
		VOC	0.96	-
		PM	0.96	-
		PM_{10}	0.96	
		$PM_{2.5}$	0.96	
		CO (MSS)	75.00	18.70
		NO_x (MSS)	-	1.00
		SO_2 (MSS)	0.10	0.10
		VOC (MSS)	-	0.20
H923A/B	Thermal Incinerators Annual Cap (6)	CO	-	55.97
		NO_x	-	44.90
		SO_2	-	0.38
		VOC	-	4.19
		PM	-	4.21
		PM_{10}	-	4.21
		$PM_{2.5}$	-	4.21
2F-302B	Powder Silo Bag Filter	PM	0.10	0.45
		PM_{10}	0.10	0.45
		$PM_{2.5}$	0.10	0.45

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
3F708B	Railcar Bag Filter	PM	0.52	1.59
		PM_{10}	0.52	1.59
		$PM_{2.5}$	0.52	1.59
3V305	Seal Dip Pot	VOC	0.01	0.01
PE-FUG	Plant Process Fugitives (5)	VOC	23.42	102.59
		Cl_2	0.01	0.02
DRYRVNTMSS	Dryer Vent MSS Activities	VOC	132.00	37.50
HDPE-MAINT	MSS to Atmosphere	VOC	80.60	2.50
		PM	0.20	0.30
		PM_{10}	0.20	0.30
		$PM_{2.5}$	0.20	0.30
MSS HOURLY CAP-VOC	Total planned MSS VOC emissions from 1018, 1067, H923A, and H923B	VOC	66.00	-
MSS HOURLY CAP-SO_2	Total planned MSS SO_2 emissions from H923A and H923B	SO_2	0.10	-
1018, 1067, OL3-FLRA, OL3-FLRB, OL3-FLRC, EGF-1, EGF-2, EGF-3, EGF-4	Routine Waste Gas Flaring Hourly Cap (6)	CO (Elevated Flare option)	10.31	-
		NO_x (Elevated Flare option)	2.02	-
		SO_2 (Elevated Flare option)	0.01	-
		VOC	13.74	-
		CO (EGF option)	16.36	-
		NO_x (EGF option)	1.91	-
		SO_2 (EGF option)	0.01	
1018, 1067, OL3-FLRA, OL3-FLRB, OL3-FLRC, EGF-1, EGF-2, EGF-3, EGF-4	MSS Waste Gas Flaring Hourly Cap (6)	CO (Elevated Flare option)	65.30	-
		NO_x (Elevated Flare option)	9.00	-
		VOC	243.20	-
		CO (EGF option)	103.58	-
		NO_x (EGF option)	12.08	-
FLARECAP		CO	-	42.99
		NO_X	-	5.32

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
	Elevated and Enclosed Ground Flares Annual Cap (8)	SO_2	-	0.01
		VOC	-	36.10
MSSFLARECAP	Elevated and Enclosed Ground Flares MSS Annual Cap (8)	CO	-	15.70
		NO_x	-	1.83
		VOC	-	16.70

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.
(2) Specific point source name. For fugitive sources, use area name or fugitive source name.
(3) VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1
NO_x - total oxides of nitrogen
SO_2 - sulfur dioxide
PM - total particulate matter, suspended in the atmosphere, including PM_{10} and $PM_{2.5}$, as represented
PM_{10} - total particulate matter equal to or less than 10 microns in diameter, including $PM_{2.5}$, as represented
$PM_{2.5}$ - particulate matter equal to or less than 2.5 microns in diameter
CO - carbon monoxide
NaOH - sodium hydroxide
HOCl - hypochlorous acid
Cl_2 - chlorine
(4) Compliance with annual emission limits (tons per year) is based on a 12 month rolling period.
(5) Emission rate is an estimate and is enforceable through compliance with the applicable special condition(s) and permit application representations.
(6) The emissions from the incinerator stacks are the total emissions related to disposal of waste gases from the high density polyethylene, linear low density polyethylene and polypropylene plants.
(7) Maximum hourly emission rate for waste gas flaring may occur from any combination of EPNs.
(8) Emissions in the cap are authorized to be emitted from any combination of the following flare EPNs: 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4.

Date: TBD

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Emission Sources - Maximum Allowable Emission Rates

Permit Number GHGPSDTX219

This table lists the maximum allowable emission rates of greenhouse gas (GHG) emissions, as defined in Title 30 Texas Administrative Code § 101.1, for all sources of GHG air contaminants on the applicant's property that are authorized by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities authorized by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates
			TPY (4)
GHGFLARECAP	Elevated and Enclosed Ground Flares GHG Annual Cap (routine and MSS) (6)	CO_2 (5)	17,082.69
		CH_4 (5)	51.56
		N_2O (5)	0.17
		CO_2e	18,422.69

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.
(2) Specific point source name. For fugitive sources, use area name or fugitive source name.
(3) CO_2 - carbon dioxide
N_2O - nitrous oxide
CH_4 - methane
HFCs - hydrofluorocarbons
PFCs - perfluorocarbons
SF_6 - sulfur hexafluoride
CO_2e - carbon dioxide equivalents based on the following Global Warming Potentials (1/2015): CO_2 (1), N_2O (298), CH_4(25), SF_6 (22,800), HFC (various), PFC (various)
(4) Compliance with annual emission limits (tons per year) is based on a 12-month rolling period. These rates include emissions from maintenance, startup, and shutdown.
(5) Emission rate is given for informational purposes only and does not constitute enforceable limit.
(6) Emissions in the cap are authorized to be emitted from any combination of the following flare EPNs: 1018, 1067, OL3-FLRA/B/C, EGF-1, EGF-2, EGF-3, and EGF-4.

Date: TBD

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Permit Amendment
Source Analysis & Technical Review

Company	**Formosa Plastics Corporation Texas**	Permit Numbers	**19168, PSDTX1226M1, GHGPSDTX224 19200, PSDTX1237M1, GHGPSDTX218 19201, PSDTX1232M1, GHGPSDTX219 19871, PSDTX1236M1, GHGPSDTX221 20203, PSDTX1224M1, GHGPSDTX222 40157, PSDTX1222M1, GHGPSDTX225 91780, PSDTX1240M1, GHGPSDTX223 107518, PSDTX1383M2, GHGPSDTX48M1 140763, PSDTX1500M1, GHGPSDTX46M1**
City	**Point Comfort**	Project Numbers	**336052, 336051, 336056, 336049, 336054, 336055, 336050, 336053, and 336048**
County	**Calhoun and Jackson**	Regulated Entity Number	**RN100218973**
Project Type	**Amendment**	Customer Reference Number	**CN600130017**
Project Reviewer	**Cara Hill**	Received Date	**December 2, 2021**
Site Name	**Formosa Point Comfort Plant**		

Project Overview

Formosa Plastics Corporation, Texas (FPC TX) owns and operates a chemical complex in Point Comfort, Calhoun and Jackson Counties, Texas. FPC TX submitted nine concurrent amendment applications to request authorization for the Flare Improvement Project, which will involve changes to the elevated flares and construction of four new low pressure enclosed ground flares to comply with the EPA Residual Risk and Technology Review rulemakings. Additional fugitive components will also be required. FPC TX is also proposing to update the MSS flaring emissions. Finally, FPC TX proposes to establish emission caps for the flares. Standard Permit (SP) registrations will be incorporated consolidation. Maintenance, startup, and shutdown are located within these permits.

Emission Summary

Current Allowable Emission Rates (tpy)									
Air Contaminant	**Permit No.**	**Permit No.**	**Permit No.**	**Permit No.**	**Permit No.**	**Permit No.**	**Permit No.**	**Permit No.**	**Permit No.**
	19168	**19200**	**19201**	**19871**	**20203**	**40157**	**91780**	**107518**	**140763**
VOC	837.36	139.70	232.56	97.45	177.71	126.35	117.67	1127.73	31.94
PM	405.74	36.16	24.15	5.59	17.92	9.09	50.05	108.41	35.75
PM_{10}	379.43	8.38	21.09	5.59	17.13	6.03	30.46	86.53	35.58
$PM_{2.5}$	358.94	6.59	19.36	5.59	15.06	4.30	24.79	73.83	35.03
NO_x	2237.04	11.95	53.72	36.71	40.50	21.25	9.33	505.24	101.50
CO	1238.19	69.06	130.38	93.92	65.92	103.27	51.71	1462.69	156.34
SO_2	37.09	0.06	0.59	0.42	0.18	0.19	0.05	110.85	7.34
NaOH	0.00	0.00	0.03	0.10	0.00	0.00	0.00	0.00	0.00
HOCl	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01
NH_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	125.01	146.25
H_2SO_4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.37
$(NH_4)_2SO_4$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.54
EDC	0.00	0.00	0.00	16.03	0.00	0.00	0.00	0.00	0.00
HCl	0.00	0.00	0.00	1.84	0.00	0.00	0.00	0.00	0.00
Chlorine Compounds	0.04	0.02	0.00	0.00	0.00	0.01	0.02	0.02	0.00
Cl_2	0.08	0.02	0.02	1.80	0.00	0.00	0.05	0.04	0.02

Current Allowable Emission Rates (tpy)									
Air Contaminant	**Permit No.**	**Permit No.**	**Permit No.**	**Permit No.**	**Permit No.**	**Permit No.**	**Permit No.**	**Permit No.**	**Permit No.**
	19168	**19200**	**19201**	**19871**	**20203**	**40157**	**91780**	**107518**	**140763**
H_2SO_4	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00
Inorganics	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00
CO_2 Equivalent	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,176,957	0.00
CO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,139,853	0.00
CH_4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Proposed Allowable Emission Rates (tpy)									
Air Contaminant	**Permit No.**	**Permit No.**	**Permit No.**	**Permit No.**	**Permit No.**	**Permit No.**	**Permit No.**	**Permit No.**	**Permit No.**
	19168	**19200**	**19201**	**19871**	**20203**	**40157**	**91780**	**107518**	**140763**
VOC	679.17	100.65	215.46	97.45	132.92	118.63	95.61	1062.43	31.94
PM	405.72	36.16	24.15	5.58	17.92	9.09	50.05	108.41	35.75
PM_{10}	379.41	8.38	21.09	5.58	17.13	6.03	30.46	86.56	35.58
$PM_{2.5}$	358.92	6.59	19.36	5.58	15.06	4.30	24.79	73.83	35.03
NO_x	2217.26	8.40	50.22	35.78	38.11	14.62	8.55	630.75	101.50
CO	1145.92	67.87	98.96	92.27	43.33	68.69	62.69	3256.09	156.34
SO_2	39.77	0.07	0.39	0.37	0.18	0.13	0.06	113.89	7.34
NaOH	0.00	0.00	0.03	0.10	0.00	0.00	0.00	0.00	0.00
HOCl	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01
NH_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	125.01	146.25
H_2SO_4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.37
$(NH_4)_2SO_4$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.54
EDC	0.00	0.00	0.00	3.23	0.00	0.00	0.00	0.00	0.00
HCl	0.00	0.00	0.00	1.84	0.00	0.00	0.00	0.00	0.00
Chlorine Compounds	0.04	0.02	0.00	0.00	0.00	0.01	0.02	0.02	0.00
Cl_2	0.08	0.02	0.02	0.00	0.00	0.00	0.05	0.04	0.02
H_2SO_4	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00
Inorganics	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00
CO_2 Equivalent	1,139,948	41,105.70	18,422.70	0.00	5,663.5	28,428	42,279.50	3,615,589	1,098,405
CO_2	1,057,041	38,115.84	17,082.70	0.00	5,251.5	26,193.4	39,204.30	3,567,759	1,097,173

Proposed Allowable Emission Rates (tpy)									
Air Contaminant	**Permit No.**	**Permit No.**	**Permit No.**	**Permit No.**	**Permit No.**	**Permit No.**	**Permit No.**	**Permit No.**	**Permit No.**
	19168	**19200**	**19201**	**19871**	**20203**	**40157**	**91780**	**107518**	**140763**
CH_4	3190.57	115.05	51.56	0.00	15.85	79.06	118.34	1509.09	25
N_2O	0.00	0.38	0.17	0.00	0.05	0.26	0.39	29.23	3.00

Air Contaminant	Current Allowable Emission Rates (tpy)*	Proposed Allowable Emission Rates (tpy)*	Change in Allowable Emission Rates (tpy)*	Project Changes at Major Sources (Baseline Actual to Allowable)**
PM	692.86	692.86	0.00	N/A
PM_{10}	590.22	590.22	0.00	N/A
$PM_{2.5}$	543.49	543.49	0.00	N/A
VOC	2,888.47	3,572.51	684.04	522.34
NO_X	3,017.24	3,522.33	505.09	291.90
CO	3,371.48	6,728.52	3357.04	1,444.00
SO_2	156.77	179.41	22.64	4.63
CO_{2e}	3,176,957.00	4,891,436.39	1,714,479.39	323,028.00

* Emission rates are combined for all nine permits.
** Project increases were calculated using an actual-to-potential applicability test. Project increases exceeded the PSD threshold for VOC, NO_X, CO, and GHG.

Compliance History Evaluation - 30 TAC Chapter 60 Rules

A compliance history report was reviewed on:	December 15, 2021
Site rating & classification:	13.63 / Satisfactory
Company rating & classification:	12.55 / Satisfactory
Has the permit changed on the basis of the compliance history or rating?	No
Did the Regional Office have any comments? If so, explain.	Yes. The Regional Office noted that there were enforcement actions relating to the flares and that it is anticipated this project will address those issues.

Public Notice Information

Requirement	Date
Legislator letters mailed	12/16/2021

Requirement	**Date**
Date 1st notice published	12/22/2021
Publication Name: *Port Lavaca Wave*	
Pollutants: carbon monoxide, hazardous air pollutants, nitrogen oxides, organic compounds, sulfur dioxide, particulate matter including particulate matter with diameters of 10 microns or less and 2.5 microns or less and sulfuric acid mist	
Date 1st notice Alternate Language published	12/20/2021
Publication Name (Alternate Language): *Revista De Victoria*	
1st public notice tearsheet(s) received	01/06/2022
1st public notice affidavit(s) received	01/06/2022
1st public notice certification of sign posting/application availability received	01/31/2022
SB709 Notification mailed	1/7/2022 (re-notice 9/23/2022) (re-notice 7/26/2023)
Date 2nd notice published	
Publication Name:	
Pollutants:	
Date 2nd notice published (Alternate Language)	
Publication Name (Alternate Language):	
2nd public notice tearsheet(s) received	
2nd public notice affidavit(s) received	
2nd public notice certification of sign posting/application availability received	

Public Interest

Number of comments received	
Number of meeting requests received	
Number of hearing requests received	
Date meeting held	
Date response to comments filed with OCC	
Date of SOAH hearing	

Federal Rules Applicability

Requirement	
Subject to NSPS?	**Yes**
Subparts (Permit No. 19168)	**A, Kb, VV, VVa, NNN, RRR, & OOOO**
Subparts (Permit No. 19200)	**A, VV, & DDD**
Subparts (Permit No. 19201)	**A, Kb, VV, & DDD**
Subparts (Permit No. 19871)	**A, Kb, VV, and VVa**
Subparts (Permit No. 20203)	**A, Kb, VV, & DDD**
Subparts (Permit No. 40157)	**A, Kb, VV, & DDD**
Subparts (Permit No. 91780)	**A, Kb, VV, & DDD**
Subparts (Permit No. 107518)	**A, VVa, NNN, RRR, & IIII**
Subparts (Permit No. 140763)	**A & KKKK**
Subject to NESHAP?	**Yes**
Subparts (Permit No. 19168)	**A, J, V, & FF**
Subparts (Permit No. 19200)	**N/A**
Subparts (Permit No. 19201)	**N/A**
Subparts (Permit No. 19871)	**A, J, V, & BB**
Subparts (Permit No. 20203)	**N/A**
Subparts (Permit No. 40157)	**N/A**
Subparts (Permit No. 91780)	**N/A**
Subparts (Permit No. 107518)	**A, J, V, & FF**
Subparts (Permit No. 140763)	**N/A**
Subject to NESHAP (MACT) for source categories?	**Yes**
Subparts (Permit No. 19168)	**A, F, G, H, & YY**
Subparts (Permit No. 19200)	**A & FFFF**
Subparts (Permit No. 19201)	**A & FFFF**
Subparts (Permit No. 19871)	**A, F, G, H, Y, & EEEE**
Subparts (Permit No. 20203)	**A & FFFF**
Subparts (Permit No. 40157)	**A & FFFF**
Subparts (Permit No. 91780)	**A & FFFF**
Subparts (Permit No. 107518)	**A, XX, YY, FFFF, & DDDDD**
Subparts (Permit No. 140763)	**A & YYYY**

Nonattainment review applicability:
The manufacturing plant is located in Jackson and Calhoun Counties, which are both classified as attainment for all criteria pollutants. Nonattainment review is not applicable.

PSD review applicability:
The manufacturing plant is located in Jackson and Calhoun Counties, which are both classified as attainment for all criteria pollutants. Project increases were calculated using an actual-to-potential applicability test. Project increases exceeded the PSD threshold for VOC, NO_X, CO, and GHG.

Title V Applicability - 30 TAC Chapter 122 Rules

Requirement

Title V applicability:
The site is subject to the Title V program because it is a major source. The facility currently operates under Site Operating Permit Nos. O-1955, O-1956, O-1957, O-4165, and O-4212.

Periodic Monitoring (PM) applicability:
Periodic Monitoring is applicable because the site is a major source. The following provisions for monitoring are being included in the special conditions:

- Continuous monitoring of flowrate and heating value for the flares
- Implementation of the 28VHP and 28CNTA LDAR programs

Compliance Assurance Monitoring (CAM) applicability:
The site is subject to Title V permitting requirements. The flare are control devices used to achieve compliance with an applicable requirement of the permit, and control emissions sources with a pre-control emission rate in excess of an applicable major source threshold. CAM for the flares is addressed by continuous monitoring of the flow and heating value. The capture system is required to be inspected annually in accordance with 40 CFR Part 60, Appendix A, Test Method 21 and the bypass monitored.

Process Description

The processes associated with each permit are summarized below. Detailed process descriptions are contained in the public files for this project.

Permit Nos. 19168, PSDTX1226M1, and GHGPSDTX224
The Olefins Plant consists of the Olefins 1 (OLI) unit, the Olefins 2 (OLII) unit, the Gasoline Hydrotreating Unit (GHU), the Propylene Purification Unit (PPU), and the Natural Gas Liquids Fractionation Unit (FRAC-II).

Olefins I and Olefins II
The OLI and OLII Units have a combined total of 23 pyrolysis furnaces used to crack a range of feedstocks consisting of propane, natural gas liquids (NGL), naphtha, and an ethane/propane mixture. The resulting products are ethylene, propylene, a mixed C4 product, pyrolysis gasoline, and pyrolysis fuel oil.

Gasoline Hydrotreater Unit
The purpose of the GHU is to treat and refine the raw pyrolysis gasoline produced in the OLI and OLII Units as well as the OL3 plant. Products from the GHU include a C5 cut, a C6 to C8 aromatics cut, C9 (<400°F endpoint) cut, and a C9 (>400°F endpoint) cut. The C5 cut is used as feed stock to OLI and OLII, to reduce the amount of naphtha feedstock to be imported. The C6 to C8 aromatics cut, also known as BTX (benzene, toluene, and xylene), and the C9 >400°F endpoint cut are sold as product. The C9 >400°F is also used as flux oil make up to the pyrolysis fractionator. The C9 <400°F endpoint cut, also known as wash oil, is sold as product and also used in the Olefins Units as compressor wash oil to prevent polymer build-up on the impeller blades.

Propylene Purification Unit (PPU)
The Propylene Purification Unit (PPU) purifies refinery-grade propylene (RGP) into polymer-grade (PGP). The PGP produced is delivered to storage sphere 6430FA/FB in the Olefins Plant outside battery limit (OSBL) area and exported to the Polypropylene Plant for further processing. The byproduct, propane, is used as a feedstock in the Olefins Plant.

Natural Gas Liquids Fractionation Unit (FRAC-II)
The NGL product is supplied via pipeline and once it has been coalesced, it proceeds to the fractionation section of the plant, which begins with the DeEthanizer tower. In the DeEthanizer tower, the ethane along with small amounts of CO2

are boiled off and separated from the NGL stream. The produced ethane is directed to the amine system to lower the CO2 content to acceptable product levels. The amine system includes a regeneration system. The DeEthanizer bottoms stream flows to the DePropanizer tower.

In the DePropanizer tower, propane is separated and exits the tower as overhead product. The Isobutanerich bottom stream proceeds to the DeIsobutanizer tower to allow the isobutane to separate as an overhead product stream as well. This purified isobutane stream proceeds to a product sphere for storage. The bottoms of the DeIsobutanizer tower, comprised of n-butane and heavies, flow to the DePentanizer tower. In the DePentanizer, normal butane and pentane boil off as overhead and are processed as feed to the OLI and OLII units. The remaining C6 plus stream continues on to a product tank for storage.

Permit Nos. 19200, PSDTX1237M1, and GHGPSDTX218
The PPI Plant utilizes NTH gas-phase reactor technology to produce polypropylene (PP) resin using propylene as the raw material. The PPI Plant has four independent production lines: 300, 400, 500, and 700. Each production line has an independent Polymerization Area, Extrusion Area and product pellet Silo Area. Common to all production lines are the Raw Material Tanks, Catalyst Preparation Area, and Product Pellet Loading Area.

Permit Nos. 19201, PSDTX1232M1, and GHGPSDTX219
The HDPEI Plant produces polyethylene and is composed of the Catalyst Preparation, Polymerization, Hexane Removal and Powder Drying, Extrusion, and Hexane Recovery and Refining sections.

Permit Nos. 19871, PSDTX1236M1, and GHGPSDTX221
The Traffic Facility is a storage and loading/unloading operation designed to accommodate the chemical production units. Inland Traffic (a division of the Traffic Facility) is charged with loading liquid products to railcars and trucks, unloading propylene for Olefins Unit, and loading isobutane under pressure for the hydrocarbons plant. Marine Traffic (a division of the Traffic Facility) is charged with loading liquid products, loading Isobutane and C4 Mix under pressure, and unloading liquid feedstock to and from ships and barges. This process is accomplished by the use of truck and railcar loading facilities, marine barge and ship terminal, tank farm, and pipeline system.

Permit Nos. 20203, PSDTX1224M1, and GHGPSDTX222
LLDPE Plant, polymerization occurs in an Isobutane slurry using high activity proprietary catalyst in a loop reactor. The LLDPE Plant has the capability of producing several different grades of products for various applications by customers. The LLDPE Plant is composed of the following sections: Catalyst Preparation and Activation, Feed Preparation, Polymerization, Gas recovery, and Extrusion / Blending & Storage / Railcar Loading. The LLDPE Plant is designed to produce LLDPE using two parallel reactor lines. The process employs a gas phase, fluidized bed reactor in which ethylene and co-monomers are polymerized using a proprietary catalyst.

Permit Nos. 40157, PSDTX1222M1, and GHGPSDTX225
In the HDPEII Plant, polymerization occurs in an Isobutane slurry using high activity proprietary catalyst in a loop reactor. The HDPEII Plant has the capability of producing several different grades of products for various applications by customers. The HDPEII Plant is composed of the following sections: Catalyst Preparation and Activation, Feed Preparation, Polymerization, Gas recovery, and Extrusion / Blending & Storage / Railcar Loading.

Permit Nos. 91780, PSDTX1240M1, and GHGPSDTX223
The PPII Unit utilizes Chisso/Amoco technology to produce polypropylene resin using propylene supplied from the Olefins Plant. The PPII Unit has two independent production lines, Train No. 1 and Train No. 2 as well as the permitted, but not yet operating, Train No. 3. Each production line has an independent Polymerization Area, Extrusion Area, and Silo Area. Common to both production lines are the Raw Material Tanks, Purification Area, and Catalyst Preparation Area.

Permit Nos. 107518, PSDTX1383M2, and GHGPSDTX48M1
The OL3 Plant is designed to produce high purity ethylene product and consists of a Saturator, Pyrolysis Furnaces, a Quench tower, a Process Water Stripper, a Process Gas Compressor, a Caustic/Water Wash Tower, a Spent Caustic Oxidation Unit, Charge Gas Drying and Cooling, a Deethanizer, an Acetylene Converter, a Demethanizer, an Ethylene Fractionator, a depropanizer, an MAPD converter, a De-butanizer, a Refrigeration system, control devices, a cooling tower, and storage.

Permit Nos. 140763, PSDTX1500M1, and GHGPSDTX46M1
The UT3 plant consists of two combustion turbines, heat recovery steam generators, lube oil recirculation systems, a cooling tower, and a sulfuric acid tank.

Project Scope

FPC TX submitted nine concurrent amendment applications to request authorization for the Flare Improvement Project, which will involve changes to the elevated flares and construction of four new low pressure enclosed ground flares to comply with the EPA Residual Risk and Technology Review rulemakings. Additional fugitive components will also be required. FPC TX is also proposing to update the MSS flaring emissions to allow for an increased annual frequency of startup and shutdown activities. Finally, FPC TX proposes to establish emission caps for the flares.

The OLI and OLII flare systems are designed to control air emissions from waste vent gas streams generated at FPC TX's chemical complex in Point Comfort, Texas. The flare systems are designed to control both routine and MSS waste gases.

Waste gas streams controlled by the new OLI and OLII flare systems will first be routed through an existing knock-out drum to remove any entrained liquids. The waste gas is then selectively routed to either one or both of two EGFs which service each of the elevated flares. As the flare header pressure rises some waste gas will be diverted to the elevated flare through a deep water seal bypass system, to utilize the smokeless capacity of the elevated flare. During normal operations, the overall hydraulic balance in the flare header system and the new deepwater seal drums will divert the flow to the EGFs. During Startups, Shutdowns, which have the potential to generate large quantities of waste gas, the water seals in the new deep liquid seal drums would be overcome (i.e., when flare header pressure exceeds water seal static pressure) and the full rated hydraulic capacities provided by the elevated flares will be available.

New equipment are being proposed as part of this permitting action to help FPC TX comply with the new RTR flare requirements. The proposed new physical equipment includes two non-emitting, pressurized C3 Buffer Drum Systems - one for the OLI unit and the other for the OLII unit. This change results in additional fugitive piping component emissions only.

A summary of the changes to the draft permit requirements, including control, monitoring, recordkeeping and reporting requirements, is given below.

Permit Nos. 19168, PSDTX1226M1, and GHGPSDTX224	
SC No.	Change
12-14	Operational requirements for elevated flares, including continuous parametric monitoring requirements, and a schedule of compliance for meeting the 40 CFR 63 Subpart YY specifications. Operational requirements for enclosed ground flares, including continuous parametric monitoring requirements.
31	Removed Olefins Tank 6401F (EPN 1020) that is no longer in service.
40	Added capture system requirements for elevated and enclosed ground flares
51-54	Greenhouse gas emissions recordkeeping requirements
55	Incorporated AMOC by reference

Permit Nos. 19200, PSDTX1237M1, and GHGPSDTX218	
SC No.	Change
6-8	Operational requirements for elevated flares, including continuous parametric monitoring requirements, and a schedule of compliance for meeting the 40 CFR 63 Subpart YY specifications. Operational requirements for enclosed ground flares, including continuous parametric monitoring requirements.
16	Added flares to approved control devices for MSS activities
19	Added capture system requirements for elevated and enclosed ground flares
26-29	Greenhouse gas emissions recordkeeping requirements
30	Incorporated AMOC by reference

Permit Nos. 19201, PSDTX1232M1, and GHGPSDTX219	
SC No.	Change
10-12	Operational requirements for elevated flares, including continuous parametric monitoring requirements, and a schedule of compliance for meeting the 40 CFR 63 Subpart YY specifications. Operational requirements for enclosed ground flares, including continuous parametric monitoring requirements.
29	Added capture system requirements for elevated and enclosed ground flares
36	Added flares to approved control devices for MSS activities
37-40	Greenhouse gas emissions recordkeeping requirements
41	Incorporated AMOC by reference

Permit Nos. 19871, PSDTX1236M1, and GHGPSDTX221	
SC No.	Change
7, 9-10	Operational requirements for elevated flares, including continuous parametric monitoring requirements, and a schedule of compliance for meeting the 40 CFR 63 Subpart YY specifications. Operational requirements for enclosed ground flares, including continuous parametric monitoring requirements.
30, 52	Added capture system requirements for elevated and enclosed ground flares
43, 51	Added flares to approved control devices for MSS activities
54-57	Greenhouse gas emissions recordkeeping requirements

Permit Nos. 20203, PSDTX1224M1, and GHGPSDTX222	
SC No.	Change
9-12	Operational requirements for elevated flares, including continuous parametric monitoring requirements, and a schedule of compliance for meeting the 40 CFR 63 Subpart YY specifications. Operational requirements for enclosed ground flares, including continuous parametric monitoring

Permit Nos. 20203, PSDTX1224M1, and GHGPSDTX222	
SC No.	Change
	requirements.
14	Added capture system requirements for elevated and enclosed ground flares
22, 29	Added flares to approved control devices for MSS activities
30-33	Greenhouse gas emissions recordkeeping requirements
34	Incorporated AMOC by reference

Permit Nos. 40157, PSDTX1222M1, and GHGPSDTX225	
SC No.	Change
8-10	Operational requirements for elevated flares, including continuous parametric monitoring requirements, and a schedule of compliance for meeting the 40 CFR 63 Subpart YY specifications. Operational requirements for enclosed ground flares, including continuous parametric monitoring requirements.
11, 27	Added capture system requirements for elevated and enclosed ground flares
19, 26	Added flares to approved control devices for MSS activities
28-31	Greenhouse gas emissions recordkeeping requirements
32	Incorporated AMOC by reference

Permit Nos. 91780, PSDTX1240M1, and GHGPSDTX223	
SC No.	Change
3	Updates to applicable special conditions for each production train
7-10, 12	Operational requirements for elevated flares, including continuous parametric monitoring requirements, and a schedule of compliance for meeting the 40 CFR 63 Subpart YY specifications. Operational requirements for enclosed ground flares, including continuous parametric monitoring requirements.
23, 52	Added capture system requirements for elevated and enclosed ground flares
24, 31, 61, Attachment F	Added flares to approved control devices for MSS activities
62-65	Greenhouse gas emissions recordkeeping requirements
66	Incorporated AMOC by reference

Permit Nos. 107518, PSDTX1383M2, and GHGPSDTX48M1	
SC No.	Change
10-12	Operational requirements for elevated flares, including continuous parametric monitoring requirements, and a schedule of compliance for meeting the 40 CFR 63 Subpart YY specifications. Operational requirements for enclosed ground flares, including continuous parametric monitoring requirements.
16	Added capture system requirements for elevated and enclosed ground flares
42, Attachment C	Added flares to approved control devices for MSS activities

Permit Nos. 107518, PSDTX1383M2, and GHGPSDTX48M1	
SC No.	Change
45-48	Greenhouse gas emissions recordkeeping requirements
49	Incorporated AMOC by reference

Permit Nos. 140763, PSDTX1500M1, and GHGPSDTX46M1	
SC No.	Change
14-16	Operational requirements for elevated flares, including continuous parametric monitoring requirements, and a schedule of compliance for meeting the 40 CFR 63 Subpart YY specifications. Operational requirements for enclosed ground flares, including continuous parametric monitoring requirements.
17	Added capture system requirements for elevated and enclosed ground flares
28-31	Greenhouse gas emissions recordkeeping requirements

Best Available Control Technology
Control technology is consistent with PSD BACT for PSD pollutants (VOC, NO_X, CO, and GHG) and state minor NSR BACT for other pollutants. A control technology review was conducted for all pollutants. The controls described in this section were determined to satisfy BACT requirements based on a review of recently issued permits from Texas and other states, and consideration of the RACT/BACT/LAER Clearinghouse (RBLC) data provided by the applicant. A more detailed description of the control technology review is included in the permit file.

EPN	Source Name	Best Available Control Technology Description
1018	Olefins 1 Elevated Flare	The elevated flares are existing steam assist flares used to waste gas vent streams. The flares are designed to meet the requirements of 40 CFR § 60.18, and to achieve a destruction efficiency of 99% for compounds up to three carbons and 98% for compounds with greater than three carbons. The flares are proposed to meet the Ethylene MACT rule (40 CFR 63 Subpart YY). The flares are equipped with a waste gas flow rate monitor, and BTU analyzer or calorimeter. Total fuel sulfur total sulfur does not exceed 5 gr/100dscf. GHGs from the flare will be limited through use of low carbon fuels, good combustion practices, and will be operated in accordance with the new RTR flare monitoring requirements.
1067	Olefins 2 Elevated Flare	
OL3-FLRA	Olefins 3 Elevated Flare A	
OL3-FLRB	Olefins 3 Elevated Flare A	
OL3-FLRC	Olefins 3 Elevated Flare A	
EGF-1	Enclosed Ground Flare 1	The low pressure enclosed ground flares new flares that will be used to control process vents. The flares are designed to meet the requirements of 40 CFR § 60.18 and the Ethylene MACT rule (40 CFR 63 Subpart YY), and to achieve a destruction efficiency of 99% for
EGF-2	Enclosed Ground Flare 2	

EPN	Source Name	Best Available Control Technology Description
EGF-3	Enclosed Ground Flare 3	compounds up to three carbons and 98% for compounds with greater than three carbons. The flares are equipped with a waste gas flow rate monitor, and calorimeter. Total fuel sulfur total sulfur does not exceed 5 gr/100dscf. GHGs from the flare will be limited through use of low carbon fuels, good combustion practices, and will be operated in accordance with the new RTR flare monitoring requirements.
EGF-4	Enclosed Ground Flare 4	
1028 (Permit No. 19168)	Olefins 1 Plant Fugitives	The permit requires use of a modified version of the TCEQ 28VHP LDAR program and the 28CNTA LDAR program for components in VOC service. The modified 28VHP uses a 500 ppm leak definition from the 28MID LDAR program in conjunction with the 28VHP work practices. GHGs from the piping components will be limited through use of the LDAR programs.
1068 (Permit No. 19168)	Olefins 2 Fugitives	

Permits Incorporation

Permit by Rule (PBR) / Standard Permit / Permit Nos.	Description (include affected EPNs)	Action (Reference / Consolidate / Void)
PCP SP Registration No. 159515	Alternate flare to control waste gas from sources at the Olefins Plant (EPNs OL3-LPFLR1 and OL3-LPRLR2)	Consolidate and void
PCP SP Registration No. 161950	Replacement of flare tip (EPN 1018)	Consolidate and void
PCP SP Registration No. 162757	Replacement of flare tip (EPN 1067)	Consolidate and void
PCP SP Registration No. 167823	Replacement of flare tip (EPN OL3-FLRC)	Consolidate and void

Impacts Evaluation

Was modeling conducted? **Yes** Type of Modeling: **AERMOD**

Is the site within 3,000 feet of any school? **No**

Additional site/land use information: Ranch land to the north and east. Industrial to the south. Residential to the west.

Air dispersion modeling was performed by the applicant to evaluate total air emissions from the proposed project. Based on the results of the dispersion model, emissions from the site are not expected to result in a violation of any state or national ambient air quality standard, or a violation of any PSD increment. Emissions of non-criterial air contaminants are not expected to create adverse impacts to public health. The air dispersion modeling demonstration was audited by the TCEQ Air Dispersion Modeling Team and approved (memos dated September 22, 2022 and July 25, 2023). A detailed description of the air dispersion modeling performed is contained in the Preliminary Determination Summary.

Project Reviewer	Date	Team Leader	Date
Cara Hill		Joel Stanford	

TCEQ Interoffice Memorandum

To: Cara Hill
Mechanical/Coatings Section

Thru: Chad Dumas, Team Leader
Air Dispersion Modeling Team (ADMT)

From: Robert Scalise
ADMT

Date: September 22, 2022

Subject: Air Quality Analysis Audit – Formosa Plastics Corporation, Texas (RN100218973)

1. Project Identification Information

Permit Application Numbers: 40157/PSDTX1222, 19200/PSDTX1237, 19871/PSDTX1236, 19201/PSDTX1232, 20203/PSDTX1224, 91780/PSDTX1240, 19168/PSDTX1226, 140763/PSDTX1500, and 107518/PSDTX1383
NSR Project Numbers: 336055, 336051, 336049, 336056, 336054, 336050, 336052, 336048, and 336053
ADMT Project Number: 8069
County: Calhoun
Published Map: \\tceq4avmgisdata\GISWRK\APD\MODEL PROJECTS\8069\8069.pdf

Air Quality Analysis: Submitted by Power Engineers, July 2022, on behalf of Formosa Plastics Corporation, Texas. Additional information provided August 2022. A single analysis was submitted since the project affects all permits identified above.

2. Report Summary

The air quality analysis (AQA) is acceptable, as supplemented by the ADMT, for all review types and pollutants. The results are summarized below.

A. De Minimis Analysis

A De Minimis analysis was initially conducted to determine if a full impacts analysis would be required. The De Minimis analysis modeling results indicate that 1-hr NO_2 exceeds the interim de minimis concentration and requires a full impacts analysis. The De Minimis analysis modeling results for 1-hr and 8-hr CO and annual NO_2 indicate that the project is below the respective de minimis concentrations and no further analysis is required.

The justification for selecting the EPA's interim 1-hr NO_2 De Minimis levels is based on the assumptions underlying EPA's development of the 1-hr NO_2 De Minimis levels. As explained in EPA guidance memoranda[1], the EPA believes it is reasonable as an interim approach to use a De Minimis level that represents 4% of the 1-hr NO_2 NAAQS.

Table 1. Modeling Results for PSD De Minimis Analysis in Micrograms Per Cubic Meter (µg/m³)

Pollutant	Averaging Time	GLCmax (µg/m³)	De Minimis (µg/m³)
NO_2	1-hr	34.7	7.5

[1] www.tceq.texas.gov/assets/public/permitting/air/memos/guidance_1hr_no2naaqs.pdf

Pollutant	Averaging Time	GLCmax (µg/m^3)	De Minimis (µg/m^3)
NO_2	Annual	0.1	1
CO	1-hr	400	2000
CO	8-hr	121	500

The 1-hr NO_2 GLCmax is based on the highest five-year average of the maximum predicted concentrations determined for each receptor.

The GLCmax for all other pollutants and averaging times represent the maximum predicted concentrations over five years of meteorological data.

Table 2. Modeling Results for Ozone PSD De Minimis Analysis in Parts per Billion (ppb)

Pollutant	Averaging Time	GLCmax (ppb)	De Minimis (ppb)
O_3	8-hr	2.01	1

The applicant performed an O_3 analysis as part of the PSD AQA. The applicant evaluated project emissions of O_3 precursor emissions (NO_x and VOC). For the project NO_x and VOC emissions, the applicant provided an analysis based on a Tier 1 demonstration approach consistent with the EPA's Guideline on Air Quality Models (GAQM). Specifically, the applicant used a Tier 1 demonstration tool developed by the EPA referred to as Modeled Emission Rates for Precursors (MERPs). Using data associated with the worst-case source for NO_x and VOC, the applicant estimated an 8-hr O_3 concentration of 2.01 ppb. When the estimates of ozone concentrations from the project emissions are added together, the results are greater than the De Minimis level. Since the O_3 impact is above the De minimis level, a full impacts analysis is required.

B. Air Quality Monitoring

The De Minimis analysis modeling results indicate that NO_2 and CO are below their respective monitoring significance levels.

Table 3. Modeling Results for PSD Monitoring Significance Levels

Pollutant	Averaging Time	GLCmax (µg/m^3)	Increment (µg/m^3)
NO_2	Annual	0.1	14
CO	8-hr	121	575

The GLCmax for all pollutants and averaging times represent the maximum predicted concentrations over five years of meteorological data.

Since the project has a net emissions increase of 100 tons per year (tpy) or more of VOC or NO_x, ambient O_3 monitoring data were evaluated.

A background concentration for O_3 was obtained from the applicant's monitoring network (FPC NW Site). The three-year average (2019-2021) of the annual fourth highest daily maximum 8-hr concentrations (64.67 ppb) was used in the analysis. The use of this monitor is reasonable as it is sited adjacent to the project site.

C. National Ambient Air Quality Standard (NAAQS) Analysis

The De Minimis analysis modeling results indicate that 1-hr NO_2 exceeds its interim de minimis concentration and requires a full impacts analysis. The full NAAQS modeling results indicate the total predicted concentrations will not result in an exceedance of the NAAQS.

Table 4. Total Concentrations for PSD NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLCmax (µg/m^3)	Background (µg/m^3)	Total Conc. = [Background + GLCmax] (µg/m^3)	Standard (µg/m^3)
NO_2	1-hr	79.4	57.7	137.1	188

The 1-hr NO_2 GLCmax (79.4 µg/m^3) is sum of the highest five-year average of the 98th percentile of the annual distribution of predicted daily maximum 1-hr concentrations determined for each receptor from the as-built modeling conducted in 2021 (44.7 µg/m^3) and the highest five-year average of the maximum predicted concentrations determined for each receptor for the current project (34.7 µg/m^3). This is a conservative approach.

Background concentrations for NO_2 were obtained from the applicant's monitoring network (FPC NW Site). The three-year average (2019-2021) of the 98th percentile of the annual distribution of the maximum daily 1-hr concentrations was used for the 1-hr value. The use of this monitor is reasonable as it is sited adjacent to the project site.

Table 5. Total Ozone Concentrations for PSD NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLCmax (ppb)	Background (ppb)	Total Conc. = [Background + GLCmax] (ppb)	Standard (ppb)
O_3	8-hr	2.01	64.67	66.68	70

The applicant performed an O_3 analysis as part of the PSD AQA. The applicant evaluated project emissions of O_3 precursor emissions (NO_x and VOC). For the project NO_x and VOC emissions, the applicant provided an analysis based on a Tier 1 demonstration approach consistent with the EPA's GAQM. As noted above, the applicant used a Tier 1 demonstration tool developed by the EPA referred to as MERPs. Using data associated with the worst-case source for NO_x and VOCs, the applicant estimated an 8-hr O_3 concentration of 2.01 ppb. When the estimates of ozone concentrations from the project emissions are added to the background concentration listed in the table above, the results are less than the NAAQS.

D. Additional Impacts Analysis

The applicant performed an Additional Impacts Analysis as part of the PSD AQA. The applicant conducted a growth analysis and determined that population will not significantly increase as a result of the proposed project. The applicant conducted a soils and vegetation analysis and determined that all evaluated criteria pollutant concentrations are below their respective secondary NAAQS. The applicant meets the Class II visibility

analysis requirement by complying with the opacity requirements of 30 TAC Chapter 111. The Additional Impacts Analyses are reasonable and possible adverse impacts from this project are not expected.

The ADMT evaluated predicted concentrations from the proposed project to determine if emissions could adversely affect a Class I area. The nearest Class I area, Caney Creek Wilderness, is located approximately 570 kilometers (km) from the proposed site.

The predicted concentrations of NO_2 and SO_2 for all averaging times, are all less than de minimis levels at a distance of 14 km from the proposed sources in the direction the Caney Creek Wilderness Class I area. The Caney Creek Wilderness Class I area is an additional 556 km from the location where the predicted concentrations of NO_2 and SO_2 for all averaging times are less than de minimis. Therefore, emissions from the proposed project are not expected to adversely affect the Caney Creek Wilderness Class I area.

E. Minor Source NSR and Air Toxics Analysis

Table 6. Project-Related Modeling Results for State Property Line

Pollutant	Averaging Time	GLCmax (µg/m^3)	De Minimis (µg/m^3)
SO_2	1-hr	0.25	20.42

The applicant reported a project-related GLCmax of 0.16 µg/m^3 for the SO_2 State Property Line analysis. This is not consistent with the model output. The ADMT supplemented the model predicted GLCmax in the table above.

Table 7. Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLCmax (µg/m^3)	De Minimis (µg/m^3)
SO_2	1-hr	0.2	7.8
SO_2	3-hr	0.1	25

The 1-hr SO_2 GLCmax is based on the highest five-year average of the maximum predicted concentrations determined for each receptor. The 3-hr SO_2 GLCmax is the maximum predicted concentration associated with one year of meteorological data.

The primary NAAQS for 24-hr and annual SO_2 have been revoked for Calhoun County and are not reported above.

The justification for selecting the EPA's interim 1-hr SO_2 De Minimis levels was based on the assumptions underlying EPA's development of the 1-hr SO_2 De Minimis levels. As explained in EPA guidance memoranda[2], the EPA believes it is reasonable as an interim approach to use a De Minimis level that represents 4% of the 1-hr SO_2 NAAQS.

Table 8. Generic Modeling Results

Source ID	1-hr GLCmax (µg/m^3 per lb/hr)	Annual GLCmax (µg/m^3 per lb/hr)
EGF12MX	0.02	0.0003

[2] www.epa.gov/sites/production/files/2015-07/documents/appwso2.pdf

Source ID	1-hr GLCmax (µg/m^3 per lb/hr)	Annual GLCmax (µg/m^3 per lb/hr)
EGF34MX	0.02	0.0003
EGFALLMX	0.04	0.0005
EGF12MD	0.1	0.0009
EGF34MD	0.1	0.0008
EGFALLMD	0.14	0.0016
EGF12LO	0.37	0.011
EGF34LO	0.3	0.0092
EGFALLLO	0.56	0.0198
EGF1MX	0.01	0.0002
EGF2MX	0.01	0.0002
EGF3MX	0.01	0.0002
EGF4MX	0.01	0.0001
EGF1MD	0.06	0.0005
EGF2MD	0.06	0.0005
EGF3MD	0.05	0.0004
EGF4MD	0.05	0.0004
EGF1LO	0.19	0.0055
EGF2LO	0.19	0.0056
EGF3LO	0.16	0.0048
EGF4LO	0.15	0.0045
OL3FLRA	0.02	0.0004
OL3MSSFL	0.01	0.0001
1018	0.11	0.0052

Source ID	1-hr GLCmax (µg/m^3 per lb/hr)	Annual GLCmax (µg/m^3 per lb/hr)
1067	0.08	0.0028
1018_MSS	0.01	0.0001
1067_MSS	0.01	0.0001
1028NG	10.48	0.1059
1068NG	7.47	0.0673
1028WG	18.55	0.2262
1068WG	7.45	0.066

3. Model Used and Modeling Techniques

AERMOD (Version 21112) was used in a refined screening mode.

A unitized emission rate of 1 lb/hr was used to predict a generic short-term and/or long-term impact for each source. The generic impact was multiplied by the proposed pollutant specific emission rates to calculate a maximum predicted concentration for each source. The maximum predicted concentration for each source was summed to get a total predicted concentration for each pollutant. These total predicted concentrations were used in step 3 of the MERA analysis. All pollutants met the criteria of step 3.

The applicant conducted the 1-hr and annual NO_2 NAAQS analyses using the ARM2 model option following EPA guidance.

For the CO and NO_x analyses, the applicant conducted a load analysis to determine the worst-case operating scenario. The following were evaluated:

- MAX – maximum emission rates based on a 220000 lb/hr waste gas flow, representative of MSS activities.
- MID – emission rates based on a 110000 waste gas flow, representative of routine MSS and normal operations.
- LOW – emission rates based on a 11000 was gas flow.

The MAX and MID operating scenarios were evaluated for the SO_2 and health effects analyses. The results associated with the worst-case operating scenarios for all affected pollutants and averaging times are reported in the tables above.

A. Land Use

Medium roughness and flat terrain were used in the modeling analysis. These selections are consistent with the AERSURFACE analysis, topographic map, and aerial photography. The selection of medium roughness is reasonable.

B. Meteorological Data

Surface Station and ID: Victoria, TX (Station #: 12912)
Upper Air Station and ID: Corpus Christi, TX (Station #: 12924)

Meteorological Dataset: 2016 for the Health Effects, State Property Line, and 3-hr SO_2 analyses
2014-2018 for all other NAAQS analyses
Profile Base Elevation: 35.7 meters

C. Receptor Grid

The grid modeled was sufficient in density and spatial coverage to capture representative maximum ground-level concentrations

D. Building Wake Effects (Downwash)

Input data to Building Profile Input Program Prime (Version 04274) are consistent with the aerial photography, plot plan, and modeling report.

4. Modeling Emissions Inventory

The modeled emission point, area, and volume source parameters and rates were consistent with the modeling report. The source characterizations used to represent the sources were appropriate.

The computation of the effective stack diameters for the flares is consistent with TCEQ modeling guidance.

Maximum allowable hourly emission rates were used for the short-term averaging time analyses, and annual average emission rates were used for the annual averaging time analyses.

TCEQ Interoffice Memorandum

To: Cara Hill
Mechanical/Coatings Section

Thru: Chad Dumas, Team Leader
Air Dispersion Modeling Team (ADMT)

From: Robert Scalise
ADMT

Date: July 25, 2023

Subject: Second Air Quality Analysis Audit – Formosa Plastics Corporation, Texas (RN100218973)

1. Project Identification Information

Permit Application Numbers: 40157/PSDTX1222, 19200/PSDTX1237, 19871/PSDTX1236, 19201/PSDTX1232, 20203/PSDTX1224, 91780/PSDTX1240, 19168/PSDTX1226, 140763/PSDTX1500, and 107518/PSDTX1383
NSR Project Numbers: 336055, 336051, 336049, 336056, 336054, 336050, 336052, 336048, and 336053
ADMT Project Number: 8595
County: Calhoun
Published Map: \\tceq4avmgisdata\GISWRK\APD\MODEL PROJECTS\8595\8595.pdf

Air Quality Analysis: Submitted by Power Engineers, May 2023, on behalf of Formosa Plastics Corporation, Texas. Additional information provided June 2023. A single analysis was submitted since the project affects all permits identified above.

This is the second modeling audit for these NSR project numbers, and the audit was conducted to review updated modeling performed to account for additional receptors, update meteorological data and AERMOD version, and update background concentration data. This modeling audit memorandum represents a complete summary and the modeling results in this document supersede the corresponding modeling results in the original modeling audit memorandum dated September 22, 2022 (WCC content ID 6291301).

2. Report Summary

The air quality analysis (AQA) is acceptable, as supplemented by the ADMT, for all review types and pollutants. The results are summarized below.

A. De Minimis Analysis

A De Minimis analysis was initially conducted to determine if a full impacts analysis would be required. The De Minimis analysis modeling results indicate that 1-hr NO_2 exceeds the interim de minimis concentration and requires a full impacts analysis. The De Minimis analysis modeling results for 1-hr and 8-hr CO and annual NO_2 indicate that the project is below the respective de minimis concentrations and no further analysis is required.

The justification for selecting the EPA's interim 1-hr NO_2 De Minimis level is based on the assumptions underlying EPA's development of the 1-hr NO_2 De Minimis level. As explained in EPA guidance memoranda[1], the EPA believes it is reasonable as an interim approach to use a De Minimis level that represents 4% of the 1-hr NO_2 NAAQS.

[1] www.tceq.texas.gov/assets/public/permitting/air/memos/guidance_1hr_no2naaqs.pdf

The ozone De Minimis levels are the EPA recommended De Minimis levels. The use of the EPA recommended De Minimis levels is sufficient to conclude that a proposed source will not cause or contribute to a violation of an ozone NAAQS based on the analyses documented in EPA guidance and policy memoranda[2].

Table 1. Modeling Results for PSD De Minimis Analysis in Micrograms Per Cubic Meter (µg/m^3)

Pollutant	Averaging Time	GLCmax (µg/m^3)	De Minimis (µg/m^3)
NO_2	1-hr	34	7.5
NO_2	Annual	0.1	1
CO	1-hr	358	2000
CO	8-hr	143	500

The 1-hr NO_2 GLCmax is based on the highest five-year average of the maximum predicted concentrations determined for each receptor.

The GLCmax for all other pollutants and averaging times represent the maximum predicted concentrations over five years of meteorological data.

Table 2. Modeling Results for Ozone PSD De Minimis Analysis in Parts per Billion (ppb)

Pollutant	Averaging Time	GLCmax (ppb)	De Minimis (ppb)
O_3	8-hr	2.03	1

The applicant performed an O_3 analysis as part of the PSD AQA. The applicant evaluated project emissions of O_3 precursor emissions (NO_x and VOC). For the project NO_x and VOC emissions, the applicant provided an analysis based on a Tier 1 demonstration approach consistent with the EPA's Guideline on Air Quality Models (GAQM). Specifically, the applicant used a Tier 1 demonstration tool developed by the EPA referred to as Modeled Emission Rates for Precursors (MERPs). Using data associated with the worst-case source for NO_x and VOC, the applicant estimated an 8-hr O_3 concentration of 2.03 ppb. When the estimates of ozone concentrations from the project emissions are added together, the results are greater than the De Minimis level. Since the O_3 impact is above the De minimis level, a full impacts analysis is required.

B. Air Quality Monitoring

The De Minimis analysis modeling results indicate that NO_2 and CO are below their respective monitoring significance levels.

Table 3. Modeling Results for PSD Monitoring Significance Levels

Pollutant	Averaging Time	GLCmax (µg/m^3)	Increment (µg/m^3)

[2] www.tceq.texas.gov/permitting/air/modeling/epa-mod-guidance.html

NO_2	Annual	0.1	14
CO	8-hr	143	575

The GLCmax represent the maximum predicted concentrations over five years of meteorological data.

Since the project has a net emissions increase of 100 tons per year (tpy) or more of VOC or NO_x, ambient O_3 monitoring data were evaluated.

A background concentration for O_3 was obtained from the applicant's monitoring network (FPC NW Site). The three-year average (2020-2022) of the annual fourth highest daily maximum 8-hr concentrations (63.9 ppb) was used in the analysis. The use of this monitor is reasonable as it is sited adjacent to the project site.

C. National Ambient Air Quality Standard (NAAQS) Analysis

The De Minimis analysis modeling results indicate that 1-hr NO_2 exceeds its interim de minimis concentration and requires a full impacts analysis. The full NAAQS modeling results indicate the total predicted concentrations will not result in an exceedance of the NAAQS.

Table 4. Total Concentrations for PSD NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLCmax ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total Conc. = [Background + GLCmax] ($\mu g/m^3$)	Standard ($\mu g/m^3$)
NO_2	1-hr	181	Note background discussion below	181	188

The 1-hr NO_2 GLCmax is the highest five-year average of the 98th percentile of the annual distribution of predicted daily maximum 1-hr concentrations determined for each receptor.

Background concentrations for NO_2 were obtained from the applicant's monitoring network (FPC NW Site). The applicant conducted their evaluation by combining NO_2 background concentrations on a seasonal basis with the predicted concentrations of the project and other on- and off-property sources on a seasonal (quarterly) basis for each modeled receptor. The applicant followed EPA guidance when developing seasonal-hourly background concentrations. The seasonal background concentrations were based on the maximum three-year average (2020-2022) of the 98th percentile of the annual distribution of the daily maximum 1-hr concentrations for each hour and season. These background values were then used in the model (as background scalars) to be combined with model predictions giving a total predicted concentration. The use of this monitor is reasonable as it is sited adjacent to the project site.

Table 5. Total Ozone Concentrations for PSD NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLCmax (ppb)	Background (ppb)	Total Conc. = [Background + GLCmax] (ppb)	Standard (ppb)
O_3	8-hr	2.03	63.9	65.93	70

The applicant performed an O_3 analysis as part of the PSD AQA. The applicant evaluated project emissions of O_3 precursor emissions (NO_x and VOC). For the project NO_x and VOC emissions, the applicant provided an analysis based on a Tier 1 demonstration approach consistent with the EPA's GAQM. As noted above, the applicant used a Tier 1 demonstration tool developed by the EPA referred to as MERPs. Using data associated with the worst-case source for NO_x and VOCs, the applicant estimated an 8-hr O_3 concentration of 2.03 ppb. When the estimates of ozone concentrations from the project emissions are added to the background concentration listed in the table above, the results are less than the NAAQS.

D. Additional Impacts Analysis

The applicant performed an Additional Impacts Analysis as part of the PSD AQA. The applicant conducted a growth analysis and determined that population will not significantly increase as a result of the proposed project. The applicant conducted a soils and vegetation analysis and determined that all evaluated criteria pollutant concentrations are below their respective secondary NAAQS. The applicant meets the Class II visibility analysis requirement by complying with the opacity requirements of 30 TAC Chapter 111. The Additional Impacts Analyses are reasonable and possible adverse impacts from this project are not expected.

The ADMT evaluated predicted concentrations from the proposed project to determine if emissions could adversely affect a Class I area. The nearest Class I area, Caney Creek Wilderness, is located approximately 570 kilometers (km) from the proposed site.

The predicted concentrations of NO_2 and SO_2 for all averaging times, are all less than de minimis levels at a distance of 14 km from the proposed sources in the direction the Caney Creek Wilderness Class I area. The Caney Creek Wilderness Class I area is an additional 556 km from the location where the predicted concentrations of NO_2 and SO_2 for all averaging times are less than de minimis. Therefore, emissions from the proposed project are not expected to adversely affect the Caney Creek Wilderness Class I area.

E. Minor Source NSR and Air Toxics Analysis

Table 6. Project-Related Modeling Results for State Property Line

Pollutant	Averaging Time	GLCmax (µg/m^3)	De Minimis (µg/m^3)
SO_2	1-hr	0.17	20.42

Table 7. Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLCmax (µg/m^3)	De Minimis (µg/m^3)
SO_2	1-hr	0.2	7.8
SO_2	3-hr	0.1	25

The 1-hr SO_2 GLCmax is based on the highest five-year average of the maximum predicted concentrations determined for each receptor. The 3-hr SO_2 GLCmax is the maximum predicted concentration associated with one year of meteorological data.

The primary NAAQS for 24-hr and annual SO_2 have been revoked for Calhoun County and are not reported above.

The justification for selecting the EPA's interim 1-hr SO_2 De Minimis level was based on the assumptions underlying EPA's development of the 1-hr SO_2 De Minimis level. As explained in EPA guidance memoranda[3], the EPA believes it is reasonable as an interim approach to use a De Minimis level that represents 4% of the 1-hr SO_2 NAAQS.

Table 8. Generic Modeling Results

Source ID	1-hr GLCmax (µg/m^3 per lb/hr)	Annual GLCmax (µg/m^3 per lb/hr)
EGF1MX	0.02	0.0002
EGF2MX	0.02	0.0002
EGF3MX	0.02	0.0002
EGF4MX	0.01	0.0002
EGF1MD	0.03	0.0005
EGF2MD	0.03	0.0005
EGF3MD	0.03	0.0005
EGF4MD	0.03	0.0004
EGF1LO	0.21	0.007
EGF2LO	0.21	0.007
EGF3LO	0.18	0.006
EGF4LO	0.2	0.005
OL3FLRA	0.02	0.0005
OL3MSSFL	0.01	0.0001
1018	0.12	0.006
1067	0.07	0.003
1018_MSS	0.01	0.0001
1067_MSS	0.01	0.0001
1028WG	24.44	0.24
1068WG	10.52	0.07

[3] www.epa.gov/sites/production/files/2015-07/documents/appwso2.pdf

3. Model Used and Modeling Techniques

AERMOD (Version 22112) was used in a refined screening mode.

For the health effects analysis, a unitized emission rate of 1 lb/hr was used to predict a generic short-term and long-term impact for each source. The generic impact was multiplied by the proposed pollutant specific emission rates to calculate a maximum predicted concentration for each source. The maximum predicted concentration for each source was summed to get a total predicted concentration for each pollutant. These total predicted concentrations were used in step 3 of the MERA analysis. All pollutants met the criteria of step 3.

The applicant conducted the 1-hr and annual NO_2 NAAQS analyses using the ARM2 model option following EPA guidance.

For the CO and NO_x analyses, the applicant conducted a load analysis to determine the worst-case operating scenario. The following were evaluated:

- MAX – maximum emission rates based on a 220,000 lb/hr waste gas flow, representative of MSS activities.
- MID – emission rates based on a 110,000 lb/hr waste gas flow, representative of routine MSS and normal operations.
- LOW – emission rates based on a 11,000 lb/hr waste gas flow.

The applicant did not update the load analysis to account for the most recent AERMOD version and TCEQ pre-processed meteorological data together with the rest of the analysis. However, the ADMT conducted test modeling using the most recent version of AERMOD (22112) and meteorological data consistent with the rest of the updated analysis and determined that this discrepancy does not affect the overall conclusions of the analysis.

The MAX and MID operating scenarios were evaluated for the health effects analyses. The results associated with the worst-case operating scenarios for all affected pollutants and averaging times are reported in the tables above.

SO_2 analyses were conducted with the MID operating scenario only.

A. Land Use

Medium roughness and flat terrain were used in the modeling analysis. These selections are consistent with the AERSURFACE analysis, topographic map, and aerial photography. The selection of medium roughness is reasonable.

B. Meteorological Data

Surface Station and ID: Victoria, TX (Station #: 12912)
Upper Air Station and ID: Corpus Christi, TX (Station #: 12924)
Meteorological Dataset: 2020 for the Health Effects, State Property Line, and 3-hr SO_2 analyses
2017-2021 for all other NAAQS analyses
Profile Base Elevation: 35.7 meters

C. Receptor Grid

The grid modeled was sufficient in density and spatial coverage to capture representative maximum ground-level concentrations.

D. Building Wake Effects (Downwash)

Input data to Building Profile Input Program Prime (Version 04274) are consistent with the aerial photography, plot plan, and modeling report.

4. Modeling Emissions Inventory

The modeled emission point and area source parameters and rates were generally consistent with the modeling report. The source characterizations used to represent the sources were appropriate.

Off-property source ID A514671 was modeled at an exit velocity higher than what was reported in the AQA. However, given the relatively low emission rate(s) associated with this source, this discrepancy would not change the overall conclusions of the analysis.

Off-property source ID A514671 was modeled at a stack height inconsistent with what was reported in the AQA. However, given the relatively low emission rates associated with this source and the distance (approximately 31km) from the GLCmax, this discrepancy does not affect the overall conclusions of the analysis.

The computation of the effective stack diameters for the flares is consistent with TCEQ modeling guidance.

To account for operational limitations, the modeled emission rates for the emergency engines (Source IDs OL3GEN, PDHGEN, and LD_002) and fire water pumps (Source IDs PC_EG01, FPM_02A, FPM_02B, FPM_02C, FPM_02D, FPM_02E, UPO_F02A, UPO_F02B, UPO_F02C, 7900LJD, N7900LJD, 8FP_D20A, and 8FPD20B) were multiplied by 0 during the hours of 5 pm to 8 am.

For the 1-hr NO_2 NAAQS analysis, emissions from the temporary portable combustors (EPNs OL1-TEMP, OL2-TEMP, and LLDPE-TEMP), Diesel Emergency Engines (EPNs OL3-GEN, PDH-GEN, LD-002, EG-01, EG-02, EG-03, EG-04, PC-EG01, 7900LJD, and N7900LJD), and Fire Water Pumps (EPNs FPM-02A, FPM-02B, FPM-02C, FPM-02D, FPM-02E, UPO-F02A, UPO-F02B, UPO-F02C, 8FP-D20A, and 8FP-D20B) were modeled with an annual average emission rate, consistent with EPA guidance for evaluating intermittent emissions. Emissions from each emergency engine and fire water pump testing were represented to occur for no more than 100 hours per year. Emissions from the temporary portable combustor (EPN LLDPE-TMP) were represented to occur for no more than 26 hours per year.

Except as noted above, maximum allowable hourly emission rates were used for the short-term averaging time analyses, and annual average emission rates were used for the annual averaging time analyses.

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Compliance History Report

Compliance History Report for CN600130017, RN100218973, Rating Year 2022 which includes Compliance History (CH) components from September 1, 2017, through August 31, 2022.

Customer, Respondent, or Owner/Operator:	CN600130017, Formosa Plastics Corporation, Texas	**Classification:** SATISFACTORY	**Rating:** 19.87
Regulated Entity:	RN100218973, FORMOSA POINT COMFORT PLANT	**Classification:** SATISFACTORY	**Rating:** 20.31
Complexity Points:	57	**Repeat Violator:** YES	
CH Group:	05 - Chemical Manufacturing		
Location:	201 FORMOSA DR POINT COMFORT, TX 77978, CALHOUN COUNTY		
TCEQ Region:	REGION 14 - CORPUS CHRISTI		

ID Number(s):

AIR OPERATING PERMITS ACCOUNT NUMBER CB0038Q
AIR OPERATING PERMITS PERMIT 1484
AIR OPERATING PERMITS PERMIT 1951
AIR OPERATING PERMITS PERMIT 1953
AIR OPERATING PERMITS PERMIT 1954
AIR OPERATING PERMITS PERMIT 1955
AIR OPERATING PERMITS PERMIT 1956
AIR OPERATING PERMITS PERMIT 1957
AIR OPERATING PERMITS PERMIT 1958
AIR OPERATING PERMITS PERMIT 3409
AIR OPERATING PERMITS PERMIT 3421
AIR OPERATING PERMITS PERMIT 4165
AIR OPERATING PERMITS PERMIT 4166
AIR OPERATING PERMITS PERMIT 4212
AIR OPERATING PERMITS PERMIT 4286
AIR OPERATING PERMITS PERMIT 4293
PUBLIC WATER SYSTEM/SUPPLY REGISTRATION 0290074
AIR NEW SOURCE PERMITS AFS NUM 4805700015
AIR NEW SOURCE PERMITS PERMIT 7699
AIR NEW SOURCE PERMITS PERMIT 17030
AIR NEW SOURCE PERMITS PERMIT 19166
AIR NEW SOURCE PERMITS PERMIT 19167
AIR NEW SOURCE PERMITS PERMIT 19168
AIR NEW SOURCE PERMITS PERMIT 19198
AIR NEW SOURCE PERMITS PERMIT 19199
AIR NEW SOURCE PERMITS PERMIT 19200
AIR NEW SOURCE PERMITS PERMIT 19201
AIR NEW SOURCE PERMITS PERMIT 19871
AIR NEW SOURCE PERMITS PERMIT 20203
AIR NEW SOURCE PERMITS REGISTRATION 29765
AIR NEW SOURCE PERMITS REGISTRATION 31130
AIR NEW SOURCE PERMITS REGISTRATION 26267
AIR NEW SOURCE PERMITS REGISTRATION 26270
AIR NEW SOURCE PERMITS REGISTRATION 26351
AIR NEW SOURCE PERMITS REGISTRATION 26523
AIR NEW SOURCE PERMITS REGISTRATION 26266
AIR NEW SOURCE PERMITS REGISTRATION 35292
AIR NEW SOURCE PERMITS REGISTRATION 37070
AIR NEW SOURCE PERMITS PERMIT 40157
AIR NEW SOURCE PERMITS REGISTRATION 40293
AIR NEW SOURCE PERMITS REGISTRATION 41145
AIR NEW SOURCE PERMITS REGISTRATION 43265
AIR NEW SOURCE PERMITS REGISTRATION 44847
AIR NEW SOURCE PERMITS REGISTRATION 44933
AIR NEW SOURCE PERMITS ACCOUNT NUMBER CB0038Q
AIR NEW SOURCE PERMITS REGISTRATION 52859
AIR NEW SOURCE PERMITS REGISTRATION 52259
AIR NEW SOURCE PERMITS EPA PERMIT HAP10
AIR NEW SOURCE PERMITS REGISTRATION 75974
AIR NEW SOURCE PERMITS PERMIT 76305
AIR NEW SOURCE PERMITS PERMIT AMOC213
AIR NEW SOURCE PERMITS PERMIT 76044
AIR NEW SOURCE PERMITS PERMIT 107520
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1053
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX699
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX760M3
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX760M4
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1058
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX760M6
AIR NEW SOURCE PERMITS REGISTRATION 78769
AIR NEW SOURCE PERMITS REGISTRATION 79826
AIR NEW SOURCE PERMITS EPA PERMIT HAP2
AIR NEW SOURCE PERMITS EPA PERMIT HAP7
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX760M8
AIR NEW SOURCE PERMITS PERMIT 83763
AIR NEW SOURCE PERMITS REGISTRATION 83990
AIR NEW SOURCE PERMITS REGISTRATION 84788
AIR NEW SOURCE PERMITS REGISTRATION 84730
AIR NEW SOURCE PERMITS REGISTRATION 85081
AIR NEW SOURCE PERMITS REGISTRATION 91047
AIR NEW SOURCE PERMITS REGISTRATION 85100
AIR NEW SOURCE PERMITS PERMIT 91780
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1222
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1230
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1232
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1224

AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1226
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1234
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1236
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX226M7
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1500
AIR NEW SOURCE PERMITS REGISTRATION 132905
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1383
AIR NEW SOURCE PERMITS EPA PERMIT GHGPSDTX47
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1384
AIR NEW SOURCE PERMITS EPA PERMIT GHGPSDTX46
AIR NEW SOURCE PERMITS PERMIT AMOC27
AIR NEW SOURCE PERMITS EPA PERMIT GHGPSDTX223
AIR NEW SOURCE PERMITS EPA PERMIT GHGPSDTX218
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1232M1
AIR NEW SOURCE PERMITS REGISTRATION 167823
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1224M1
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1236M1
AIR NEW SOURCE PERMITS EPA PERMIT GHGPSDTX221
AIR NEW SOURCE PERMITS EPA PERMIT GHGPSDTX48M1
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1237M1
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1383M2
AIR NEW SOURCE PERMITS REGISTRATION 170533
AIR NEW SOURCE PERMITS REGISTRATION 171046
AIR NEW SOURCE PERMITS REGISTRATION 163451
AIR NEW SOURCE PERMITS PERMIT AMOC26
AIR NEW SOURCE PERMITS REGISTRATION 142099
AIR NEW SOURCE PERMITS REGISTRATION 145753
AIR NEW SOURCE PERMITS PERMIT AMOC66
AIR NEW SOURCE PERMITS REGISTRATION 157260
AIR NEW SOURCE PERMITS REGISTRATION 155838
AIR NEW SOURCE PERMITS REGISTRATION 160487
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1588
AIR NEW SOURCE PERMITS REGISTRATION 159793
AIR NEW SOURCE PERMITS REGISTRATION 160486
AIR NEW SOURCE PERMITS REGISTRATION 175139
AIR NEW SOURCE PERMITS PERMIT AMOC234
AIR NEW SOURCE PERMITS REGISTRATION 176819
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1588M1
AIR NEW SOURCE PERMITS REGISTRATION 175611
AIR NEW SOURCE PERMITS REGISTRATION 176849
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1610
AIR NEW SOURCE PERMITS PERMIT 170552
AIR NEW SOURCE PERMITS REGISTRATION 172660
AIR NEW SOURCE PERMITS REGISTRATION 171738
AIR NEW SOURCE PERMITS REGISTRATION 173338
AIR NEW SOURCE PERMITS REGISTRATION 172733
AIR NEW SOURCE PERMITS REGISTRATION 179481
AIR NEW SOURCE PERMITS REGISTRATION 180073
AIR NEW SOURCE PERMITS PERMIT AMOC255
AIR NEW SOURCE PERMITS REGISTRATION 180902
UNDERGROUND INJECTION CONTROL PERMIT WDW471
UNDERGROUND INJECTION CONTROL PERMIT WDW402
UNDERGROUND INJECTION CONTROL PERMIT WDW474
UNDERGROUND INJECTION CONTROL PERMIT WDW470
UNDERGROUND INJECTION CONTROL PERMIT WDW469
UNDERGROUND INJECTION CONTROL PERMIT WDW475
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1240
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1238
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1237
AIR NEW SOURCE PERMITS PERMIT 107518
AIR NEW SOURCE PERMITS EPA PERMIT GHGPSDTX48
AIR NEW SOURCE PERMITS PERMIT 127838
AIR NEW SOURCE PERMITS PERMIT 140763
AIR NEW SOURCE PERMITS REGISTRATION 129793
AIR NEW SOURCE PERMITS PERMIT 128752
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX760M9
AIR NEW SOURCE PERMITS REGISTRATION 161950
AIR NEW SOURCE PERMITS REGISTRATION 166145
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1500M1
AIR NEW SOURCE PERMITS REGISTRATION 167459
AIR NEW SOURCE PERMITS EPA PERMIT GHGPSDTX222
AIR NEW SOURCE PERMITS EPA PERMIT GHGPSDTX224
AIR NEW SOURCE PERMITS EPA PERMIT GHGPSDTX46M1
AIR NEW SOURCE PERMITS REGISTRATION 162757
AIR NEW SOURCE PERMITS EPA PERMIT GHGPSDTX225
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1226M1
AIR NEW SOURCE PERMITS EPA PERMIT GHGPSDTX219
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1222M1
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1240M1
AIR NEW SOURCE PERMITS PERMIT AMOC172
AIR NEW SOURCE PERMITS REGISTRATION 150952
AIR NEW SOURCE PERMITS REGISTRATION 145955
AIR NEW SOURCE PERMITS REGISTRATION 145953
AIR NEW SOURCE PERMITS REGISTRATION 159948
AIR NEW SOURCE PERMITS PERMIT AMOC133
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1383M1
AIR NEW SOURCE PERMITS REGISTRATION 163454
AIR NEW SOURCE PERMITS REGISTRATION 155332
AIR NEW SOURCE PERMITS REGISTRATION 152521
AIR NEW SOURCE PERMITS REGISTRATION 173222
AIR NEW SOURCE PERMITS REGISTRATION 171880
AIR NEW SOURCE PERMITS REGISTRATION 176741
AIR NEW SOURCE PERMITS REGISTRATION 173194
AIR NEW SOURCE PERMITS PERMIT AMOC224
AIR NEW SOURCE PERMITS REGISTRATION 176859
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX1384M1
AIR NEW SOURCE PERMITS REGISTRATION 172616
AIR NEW SOURCE PERMITS REGISTRATION 170493
AIR NEW SOURCE PERMITS REGISTRATION 173343
AIR NEW SOURCE PERMITS REGISTRATION 172930
AIR NEW SOURCE PERMITS REGISTRATION 176288
AIR NEW SOURCE PERMITS REGISTRATION 173242
AIR NEW SOURCE PERMITS REGISTRATION 179485
AIR NEW SOURCE PERMITS REGISTRATION 177140
AIR NEW SOURCE PERMITS REGISTRATION 178764
IHW CORRECTIVE ACTION SOLID WASTE REGISTRATION # (SWR) 31945
UNDERGROUND INJECTION CONTROL PERMIT WDW478
UNDERGROUND INJECTION CONTROL PERMIT WDW403
UNDERGROUND INJECTION CONTROL PERMIT WDW477
UNDERGROUND INJECTION CONTROL PERMIT WDW472
UNDERGROUND INJECTION CONTROL PERMIT WDW473
UNDERGROUND INJECTION CONTROL PERMIT WDW476

STORMWATER PERMIT TXR1525LK
STORMWATER PERMIT TXR1556ME
STORMWATER PERMIT TXR1529QA
STORMWATER PERMIT TXR1539KX
WASTEWATER PERMIT WQ0002436000
AIR EMISSIONS INVENTORY ACCOUNT NUMBER CB0038Q
POLLUTION PREVENTION PLANNING ID NUMBER P08990
INDUSTRIAL AND HAZARDOUS WASTE SOLID WASTE REGISTRATION # (SWR) 31945
TAX RELIEF ID NUMBER 16667
TAX RELIEF ID NUMBER 16792
TAX RELIEF ID NUMBER 22276
TAX RELIEF ID NUMBER 22282
TAX RELIEF ID NUMBER 22270
TAX RELIEF ID NUMBER 22283
TAX RELIEF ID NUMBER 23639
TAX RELIEF ID NUMBER 23640
TAX RELIEF ID NUMBER 23655
TAX RELIEF ID NUMBER 16796
TAX RELIEF ID NUMBER 16663
TAX RELIEF ID NUMBER 22286
TAX RELIEF ID NUMBER 22290
TAX RELIEF ID NUMBER 22285
TAX RELIEF ID NUMBER 22281
TAX RELIEF ID NUMBER 22277
TAX RELIEF ID NUMBER 22266
TAX RELIEF ID NUMBER 22289
TAX RELIEF ID NUMBER 22275
TAX RELIEF ID NUMBER 22264
STORMWATER PERMIT TXR15594N
STORMWATER PERMIT TXR1575OV
STORMWATER PERMIT TXR1578PB
STORMWATER PERMIT TXR05GN80
WASTEWATER EPA ID TX0085570
POLLUTION PREVENTION PLANNING ID NUMBER P00254
INDUSTRIAL AND HAZARDOUS WASTE EPA ID TXT490011293
INDUSTRIAL AND HAZARDOUS WASTE PERMIT PCO31945
TAX RELIEF ID NUMBER 16751
TAX RELIEF ID NUMBER 16795
TAX RELIEF ID NUMBER 22279
TAX RELIEF ID NUMBER 22269
TAX RELIEF ID NUMBER 22280
TAX RELIEF ID NUMBER 23653
TAX RELIEF ID NUMBER 23654
TAX RELIEF ID NUMBER 23651
TAX RELIEF ID NUMBER 23652
TAX RELIEF ID NUMBER 16793
TAX RELIEF ID NUMBER 22274
TAX RELIEF ID NUMBER 22265
TAX RELIEF ID NUMBER 22278
TAX RELIEF ID NUMBER 22272
TAX RELIEF ID NUMBER 22268
TAX RELIEF ID NUMBER 22287
TAX RELIEF ID NUMBER 22273
TAX RELIEF ID NUMBER 22267
TAX RELIEF ID NUMBER 22288
TAX RELIEF ID NUMBER 27309

Compliance History Period: September 01, 2017 to August 31, 2022 **Rating Year:** 2022 **Rating Date:** 09/01/2022

Date Compliance History Report Prepared: September 15, 2025

Agency Decision Requiring Compliance History: Permit - Issuance, renewal, amendment, modification, denial, suspension, or revocation of a permit.

Component Period Selected: December 02, 2016 to December 02, 2021

TCEQ Staff Member to Contact for Additional Information Regarding This Compliance History.

Name: TCEQ Staff Member **Phone:** (512) 239-1000

Site and Owner/Operator History:

1) Has the site been in existence and/or operation for the full five year compliance period? YES
2) Has there been a (known) change in ownership/operator of the site during the compliance period? NO

Components (Multimedia) for the Site Are Listed in Sections A - J

A. Final Orders, court judgments, and consent decrees:

1 Effective Date: 04/13/2017 ADMINORDER 2016-0903-AIR-E (Findings Order-Agreed Order Without Denial)

Classification: Moderate

Citation: 30 TAC Chapter 101, SubChapter A 101.20(3)
30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)

Rqmt Prov: General Terms and Conditions OP
Special Condition No 1 PERMIT
Special Terms and Conditions No 12 OP

Description: Failure to prevent unauthorized emissions to the atmosphere during an emissions event that was

discovered on September 08, 2014, TCEQ/STEERS Incident No. 203344. Specifically, Formosa Point Comfort Plant released unauthorized emissions in the amount of 93,797.066 pounds (lbs) of total Carbon Monoxide (CO), 17,476.832 lbs Nitrogen Oxides (NOx), and 77,082.326 lbs of Volatile Organic Compounds (VOCs) from the Olefins I elevated flare (EPN 1018). The event lasted 61 hours and 26 minutes.

2 Effective Date: 05/30/2017 ADMINORDER 2014-0923-IHW-E (1660 Order-Agreed Order With Denial)

Classification: Moderate

Citation: 30 TAC Chapter 335, SubChapter C 335.69(a)(1)(A)
30 TAC Chapter 335, SubChapter E 335.112(a)(8)
40 CFR Chapter 262, SubChapter I, PT 262, SubPT C 262.34(a)(1)(i)
40 CFR Chapter 265, SubChapter I, PT 265, SubPT I 265.171

Description: Failed to manage containers holding hazardous waste in good condition.

Classification: Moderate

Citation: 30 TAC Chapter 335, SubChapter H 335.261(a)
40 CFR Chapter 273, SubChapter I, PT 273, SubPT B 273.13(d)

Description: Failed to manage universal waste lamps in containers or packages that are structurally sound, adequate to prevent breakage, compatible with the contents of the lamps, that remain closed, and that lack evidence of leakage, spillage, or damage that could cause leakage under reasonable foreseeable conditions.
Classification: Minor

Citation: 30 TAC Chapter 335, SubChapter H 335.262(c)(2)(F)

Description: Failed to contain paint and paint-related wastes in a container, multiple container package unit, tank, transport vehicle or vessel that is labeled or marked clearly with the words "Universal Waste - Paint and Paint-Related Wastes."
Classification: Minor

Citation: 30 TAC Chapter 335, SubChapter A 335.6(c)

Description: Failed to update the Facility's Notice of Registration ("NOR"). Specifically, spent catalyst waste generated in the High Density Polyethylene 1 ("HDPE 1") unit was not included in the waste stream and management units, and container storage area NOR 035 was inappropriately listed as a non-hazardous storage area
Classification: Moderate

Citation: 30 TAC Chapter 335, SubChapter A 335.6(h)

Description: Failed to submit a written notice to the TCEQ to include the type(s) of industrial solid waste or municipal hazardous waste to be recycled, the method of storage prior to recycling, and the nature of the recycling activity, 90 days prior to recycling of industrial solid waste or municipal hazardous waste
Classification: Moderate

Citation: 30 TAC Chapter 335, SubChapter A 335.10(a)(1)
40 CFR Chapter 262, SubChapter I, PT 262, SubPT B 262.20(a)

Description: Failed to use the correct manifest when shipping hazardous waste for disposal, in violation of 30 TEX. ADMIN. CODE §?335.10(a)(1) and 40 CFR § 262.20(a), as documented during an investigation conducted on March 10, 2014. Specifically, on November 20 and 21, 2013 the Respondent shipped a total of 59,720 pounds of spent Puraspec 3450 catalyst waste to Amlon Resources Group, LLC in New York City, New York through a waste broker, Univar Chemcare, for metals reclamation. On December 16, 2013, the
Classification: Minor

Citation: 30 TAC Chapter 335, SubChapter A 335.9(a)(2)

Description: Failed to submit a complete and accurate Annual Waste Summary. Specifically, the Respondent failed to include spent catalyst waste generated in the HDPE 1 unit on the annual waste summaries for 2011, 2012 and 2013
Classification: Major

Citation: 30 TAC Chapter 335, SubChapter A 335.2

Description: Failed to obtain a permit, amended permit, or other authorization from the Texas Commission on Environmental Quality (commission) or its predecessor agencies, the Department of State Health Services (DSHS), or other valid authorization from a Texas state agency prior to any activity of storage, processing, or disposal of any industrial solid waste or municipal hazardous.
Classification: Moderate

Citation: 30 TAC Chapter 335, SubChapter C 335.69(a)(1)(B)
30 TAC Chapter 335, SubChapter E 335.112(a)(9)
40 CFR Chapter 262, SubChapter I, PT 262, SubPT C 262.34(a)(1)(ii)
40 CFR Chapter 265, SubChapter I, PT 265, SubPT J 265.190
40 CFR Chapter 265, SubChapter I, PT 265, SubPT J 265.191

Description: Failed to obtain a written assessment reviewed and certified by a qualified professional engineer attesting that the storage tanks at the Facility have sufficient structural integrity and are acceptable for the storing and treating of hazardous waste. Specifically, the HDPE 1 unit tank numbers C212A and C212B that were being utilized to manage spent catalyst waste did not have the required integrity assessment and secondary containment

3 Effective Date: 09/25/2018 ADMINORDER 2018-0011-AIR-E (1660 Order-Agreed Order With Denial)

Classification: Moderate

Citation: 30 TAC Chapter 101, SubChapter A 101.20(3)
30 TAC Chapter 116, SubChapter B 116.115(b)(2)(F)
30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)

Rqmt Prov: General Terms & Conditions OP
Special Condition 15 PERMIT
Special Condition PERMIT
Special Term & Condition 15 OP

Description: Failure to prevent unauthorized emissions to the atmosphere during an emissions event that was discovered on April 11, 2017, TCEQ/STEERS

4 Effective Date: 09/26/2018 ADMINORDER 2017-0884-AIR-E (1660 Order-Agreed Order With Denial)

Classification: Moderate

Citation: 30 TAC Chapter 101, SubChapter F 101.201(a)(1)(B)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)

Rqmt Prov: General Terms & Conditions OP
Special Term & Condition 2F OP

Description: Failure to submit an initial notification for Incident No. 228622 no later than 24 hours after the discovery of the emissions event.

Classification: Moderate

Citation: 30 TAC Chapter 101, SubChapter A 101.20(3)
30 TAC Chapter 116, SubChapter B 116.115(b)(2)(F)
30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)

Rqmt Prov: General Terms & Conditions OP
Special Condition 1 PERMIT
Special Terms & Condition 8 OP

Description: Failure to prevent unauthorized emissions to the atmosphere during an emissions event that was discovered on May 6, 2015 at 00:28 hours, TCEQ/STEERS Incident No. 228622.

Classification: Moderate

Citation: 30 TAC Chapter 101, SubChapter A 101.20(3)
30 TAC Chapter 116, SubChapter B 116.115(b)(2)(F)
30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)

Rqmt Prov: General Terms & Conditions OP
PSDTX226M7 PERMIT
Special Condition 1 PERMIT
Special Term & Condition 15 OP

Description: Failure to prevent unauthorized emissions to the atmosphere during an emissions event that was discovered on September 19, 2016, TCEQ/STEERS Incident No. 244126.

5 Effective Date: 01/17/2019 ADMINORDER 2017-0737-IWD-E (Findings Order-Agreed Order Without Denial)

Classification: Moderate

Citation: 2D TWC Chapter 26, SubChapter A 26.121(a)(1)
30 TAC Chapter 305, SubChapter F 305.125(1)

Rqmt Prov: Eff. Limits and Monitoring RQMTs; No. 3 PERMIT

Description: Failed to prevent the discharge of solids in other than trace amounts into or adjacent to any water in the state, in violation of TEX. WATER CODE § 26.121(a)(1), 30 TEX. ADMIN. CODE § 305.125(1), and Texas Pollutant Discharge Elimination System ("TPDES") Permit No. WQ0002436000, Effluent Limitations and Monitoring Requirements No. 3, Outfall Nos. 006, 008, and 009.

Classification: Minor

Citation: 30 TAC Chapter 305, SubChapter F 305.125(1)
30 TAC Chapter 319, SubChapter A 319.11(c)

Rqmt Prov: Monitoring and Reporting; No.2(a); Pg. 4 PERMIT

Description: Failed to properly analyze effluent samples, in violation of 30 TEX. ADMIN. CODE §§ 305.125(1) and

319.11(c) and TPDES Permit No. WQ0002436000, Monitoring and Reporting Requirements No. 2.a.

6 Effective Date: 03/05/2020 ADMINORDER 2018-1384-AIR-E (1660 Order-Agreed Order With Denial)

Classification: Moderate

Citation: 30 TAC Chapter 101, SubChapter A 101.20(3)
30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)

Rqmt Prov: FOP O-03409, Special Term & Condition 8 OP
PSDTX 1058, Special Condition 14 PERMIT

Description: Failure to comply with the established six-minute average oxygen concentration limit. Specifically, the Respondent established the six-minute average oxygen concentration limit of 5.8 parts per million ("ppm") for Incinerator/Scrubber I-01, EPN I-01, but the six-minute average oxygen concentration was an average of 3.4 ppm on five instances on February 21, 2017, and the Respondent established the six-minute average oxygen concentration limit of 5.3 for Incinerator/Scrubber I-02, EPN I-02, but

Classification: Moderate

Citation: 30 TAC Chapter 101, SubChapter A 101.20(3)
30 TAC Chapter 116, SubChapter B 116.115(b)(2)(F)
30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)

Rqmt Prov: 6.B PERMIT
7.B PERMIT
FOP O-03409, Special Term & Condition 8 OP
General Terms & Conditions OP
PSDTX1058, Special Condition 1 PERMIT

Description: Failure to comply with the mximum allowable emissions rate for particulate matter (PM) at Emission Point Number (EPN) BD-B04. Specifically, the Respondent exceeded the PM10 MAER of 0.06 ton per year based on a 12-month rolling period for the Train 2 Dryer Combustion Emissions, EPN BD-B04, for the 12-month rolling periods ending from January 2017 through December 2017, resulting in the release of 2.53 tons of unauthorized PM10 emissions.

Classification: Moderate

Citation: 30 TAC Chapter 101, SubChapter A 101.20(1)
30 TAC Chapter 101, SubChapter A 101.20(2)
30 TAC Chapter 101, SubChapter A 101.20(3)
30 TAC Chapter 113, SubChapter C 113.100
30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
40 CFR Chapter 60, SubChapter C, PT 60, SubPT A 60.18(c)(2)
40 CFR Chapter 63, SubChapter C, PT 63, SubPT A 63.11(b)(5)
5C THSC Chapter 382 382.085(b)

Rqmt Prov: FOP O-01957, Special Term & Condition 10 OP
PSDTX1222, Special Condition 8B PERMIT
PSDTX1224, Special Condition 6B PERMIT
PSDTX1232, Special Condition 7B PERMIT

Description: Failure to operate a flare with a pilot flame present at all times. Specifically, the Respondent failed to maintain the pilot flame on the Elevated Flare, EPN 1067, on September 12, 2016, September 28, 2016, and January 14, 2017.

7 Effective Date: 02/01/2021 ADMINORDER 2019-0688-AIR-E (1660 Order-Agreed Order With Denial)

Classification: Moderate

Citation: 30 TAC Chapter 101, SubChapter A 101.20(3)
30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)

Rqmt Prov: General Terms and Conditions OP
NSR 7699, SC 1 PERMIT
Special Terms and Conditions No. 9 OP

Description: Failed to prevent unauthorized emissions. Specifically, the Respondent released 69.45 pounds ("lbs") of ethylene dichloride, 118.69 lbs of vinyl chloride monomer ("VCM"), and 68.40 lbs of hydrochloric acid as fugitive emissions, during an emissions event (Incident No. 260227) that began on June 12, 2017 and lasted four hours and 25 minutes. The emissions event occurred when a pinhole leak developed in a sparger tube due to corrosion,

resulting in the release to the atmosphere.
Classification: Moderate

Citation: 30 TAC Chapter 101, SubChapter A 101.20(3)
30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)

Rqmt Prov: General Terms and Conditions OP
Special Condition 1 PERMIT
Special Terms and Conditions No. 9 OP

Description: Failed to prevent unauthorized emissions. Specifically, the Respondent released 4,050.21 lbs of VCM as fugitive emissions, during an emissions event (Incident No. 264689) that occurred on August 3, 2017 and lasted three hours and 40 minutes. The emissions event occurred due to a leak in a transfer line from external corrosion, resulting in the release to the atmosphere.
Classification: Moderate

Citation: 30 TAC Chapter 101, SubChapter A 101.20(3)
30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)

Rqmt Prov: General Terms and Conditions OP
NSR 76305 SC1 PERMIT
Special Terms and Conditions No. 8 OP

Description: Failed to prevent unauthorized emissions. Specifically, the Respondent released 395.20 lbs of VCM as fugitive emissions, during an emissions event (Incident No. 270255) that occurred on October 14, 2017 and lasted 17 minutes. The emissions event occurred when a two-inch drain valve was left open prior to startup, resulting in the release to the atmosphere.
Classification: Moderate

Citation: 30 TAC Chapter 101, SubChapter A 101.20(3)
30 TAC Chapter 116, SubChapter B 116.115(b)(2)(F)
30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)

Rqmt Prov: [PSDTX1058], Special Condition 1 PERMIT
[PSDTX1058], Special Condition 21 PERMIT
General Terms & Conditions OP
Special Term & Condition 8 OP

Description: Failed to comply with the maximum allowable emissions rates ("MAERs"). Specifically, during stack tests conducted on February 20, 2012, October 25, 2013, December 3, 2015, and December 18, 2017, the Respondent exceeded the particulate matter equal to or less than ten microns in diameter ("PM10") MAER of 0.02 pound per hour ("lb/hr") by 0.04 lb/hr for 14,712 hours from February 20, 2012 to October 24, 2013, 0.07 lb/hr for 18,456 hours from October 25, 2013 to December 2, 2015,
Classification: Moderate

Citation: 30 TAC Chapter 101, SubChapter F 101.201(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)

Rqmt Prov: General Terms and Conditions OP
Special Terms and Conditions No. 2.F OP

Description: Failed to submit a final record for a reportable emissions event no later than two weeks after the end of the emissions event. Specifically, the final record for Incident No. 318728 was due by August 27, 2019, but was not submitted until August 28, 2019.
Classification: Moderate

Citation: 30 TAC Chapter 101, SubChapter A 101.20(3)
30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)

Rqmt Prov: General Terms and Conditions OP
PSDTX1226, Special Condition 1 PERMIT
Special Terms and Conditions No. 14 OP

Description: Failed to prevent unauthorized emissions. Specifically, the Respondent released 59.94 lbs of volatile organic compounds ("VOC"), 14.92 lbs of CO, and 1.74 lbs of nitrogen oxides ("NOx") from the Olefins 2 Flare, EPN 1067, during an emissions event (Incident No. 318728) that occurred on August 13, 2019 and lasted 15 minutes. The emissions event occurred due to an O-ring failure that caused a relief valve to prematurely lift, resulting in flaring.

Classification: Moderate

Citation: 30 TAC Chapter 101, SubChapter A 101.20(3)
30 TAC Chapter 116, SubChapter B 116.115(b)(2)(F)
30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)

Rqmt Prov: [PSDTX1224] Special Condition 1 PERMIT
General Terms and Conditions OP
Special Term & Condition 10 OP

Description: Failed to comply with the MAERs. Specifically, the Respondent exceeded the VOC MAER of 1.77 lbs/hr by approximately 12.09 lbs/hr for 960 hours on 40 days from June 13, 2018 to July 27, 2018 and by approximately 0.72 lb/hr for 456 hours on 19 days from July 5, 2019 to August 19, 2019 and the VOC MAER of 7.72 tons per year based on a 12-month rolling period for the 12-month periods ending from July 2018 through May 2019 for the Linear Low Density Polyethylene Cooling Tower, EPN LL-CT,

Classification: Moderate

Citation: 30 TAC Chapter 101, SubChapter A 101.20(3)
30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)

Rqmt Prov: General Terms and Conditions OP
NSR 19168/PSDTX1226, Special Condition 1 PERMIT
Special Terms and Conditions No. 14 OP

Description: Failed to prevent unauthorized emissions. Specifically, the Respondent released 289.93 lbs of VOC, 31.51 lbs of CO, and 6.46 lbs of NOx from the Olefins 1 Flare, EPN 1018, during an emissions event (Incident No. 312203) that occurred on June 23, 2019 and lasted four hours and 51 minutes. The emissions event occurred when a furnace tripped offline that caused a pressure relief valve to open, resulting in flaring.

B. Criminal convictions:

N/A

C. Chronic excessive emissions events:

N/A

D. The approval dates of investigations (CCEDS Inv. Track. No.):

Item 1	December 09, 2016	(1362459)
Item 2	January 03, 2017	(1381671)
Item 3	January 20, 2017	(1398288)
Item 4	February 27, 2017	(1395749)
Item 5	February 28, 2017	(1395630)
Item 6	March 06, 2017	(1394886)
Item 7	March 20, 2017	(1412266)
Item 8	April 11, 2017	(1396497)
Item 9	April 14, 2017	(1396534)
Item 10	April 20, 2017	(1418765)
Item 11	May 01, 2017	(1409476)
Item 12	May 19, 2017	(1414489)
Item 13	May 25, 2017	(1415512)
Item 14	June 20, 2017	(1432421)
Item 15	July 06, 2017	(1408468)
Item 16	July 20, 2017	(1440974)
Item 17	August 18, 2017	(1444664)
Item 19	September 20, 2017	(1451250)
Item 20	October 18, 2017	(1457123)
Item 21	November 10, 2017	(1443331)
Item 22	November 17, 2017	(1462576)
Item 23	November 27, 2017	(1448255)
Item 25	December 13, 2017	(1447685)
Item 26	December 20, 2017	(1468977)
Item 27	January 19, 2018	(1475677)

Item 28	February 05, 2018	(1458998)
Item 29	February 20, 2018	(1487861)
Item 30	February 26, 2018	(1472611)
Item 31	March 12, 2018	(1474057)
Item 32	March 27, 2018	(1491548)
Item 33	May 10, 2018	(1454993)
Item 34	May 17, 2018	(1501748)
Item 35	June 08, 2018	(1485339)
Item 36	June 21, 2018	(1486074)
Item 37	July 20, 2018	(1515168)
Item 38	August 08, 2018	(1474272)
Item 39	September 19, 2018	(1528403)
Item 40	October 18, 2018	(1534742)
Item 41	November 05, 2018	(1525836)
Item 42	November 19, 2018	(1542576)
Item 43	December 17, 2018	(1435354)
Item 44	December 20, 2018	(1525175)
Item 45	December 21, 2018	(1519940)
Item 46	January 18, 2019	(1563090)
Item 47	January 28, 2019	(1540334)
Item 48	February 19, 2019	(1563088)
Item 49	March 04, 2019	(1446831)
Item 50	March 14, 2019	(1548396)
Item 51	March 19, 2019	(1563089)
Item 52	April 18, 2019	(1572960)
Item 53	May 31, 2019	(1570782)
Item 54	June 28, 2019	(1570919)
Item 55	August 27, 2019	(1524661)
Item 56	September 20, 2019	(1607517)
Item 57	October 18, 2019	(1614395)
Item 59	November 27, 2019	(1611837)
Item 60	December 20, 2019	(1627533)
Item 61	January 20, 2020	(1635166)
Item 62	February 20, 2020	(1641781)
Item 63	March 20, 2020	(1648295)
Item 64	April 20, 2020	(1654647)
Item 66	May 14, 2020	(1647055)
Item 67	May 21, 2020	(1650896)
Item 68	May 28, 2020	(1650788)
Item 69	June 04, 2020	(1645788)
Item 70	June 12, 2020	(1652426)
Item 71	June 19, 2020	(1667742)
Item 72	June 24, 2020	(1652420)
Item 73	June 25, 2020	(1651907)
Item 74	July 20, 2020	(1674689)
Item 75	August 19, 2020	(1681461)
Item 76	August 20, 2020	(1671072)
Item 77	August 28, 2020	(1671729)
Item 78	August 30, 2020	(1651856)
Item 79	September 18, 2020	(1688038)
Item 80	October 20, 2020	(1694394)
Item 81	November 13, 2020	(1678667)
Item 82	November 17, 2020	(1686553)
Item 83	November 18, 2020	(1715790)
Item 84	December 02, 2020	(1678695)
Item 85	January 08, 2021	(1680193)
Item 86	January 14, 2021	(1697759)
Item 87	January 20, 2021	(1715792)

Item 89	February 18, 2021	(1728863)
Item 90	March 19, 2021	(1728864)
Item 91	April 08, 2021	(1685490)
Item 92	April 23, 2021	(1703310)
Item 93	May 06, 2021	(1704585)
Item 94	May 14, 2021	(1700296)
Item 95	May 18, 2021	(1704928)
Item 96	May 20, 2021	(1741734)
Item 97	May 28, 2021	(1712106)
Item 98	June 21, 2021	(1678144)
Item 99	July 20, 2021	(1752810)
Item 100	July 21, 2021	(1722651)
Item 101	July 22, 2021	(1724495)
Item 102	August 04, 2021	(1746445)
Item 103	August 27, 2021	(1736889)
Item 104	September 15, 2021	(1738719)
Item 105	October 19, 2021	(1777940)
Item 106	October 21, 2021	(1755903)
Item 107	November 05, 2021	(1761838)
Item 108	November 19, 2021	(1784739)

E. Written notices of violations (NOV) (CCEDS Inv. Track. No.):

A notice of violation represents a written allegation of a violation of a specific regulatory requirement from the commission to a regulated entity. A notice of violation is not a final enforcement action, nor proof that a violation has actually occurred.

1 Date: 12/04/2020 (1678681)

Self Report? NO Classification: Moderate

Citation: 30 TAC Chapter 101, SubChapter A 101.20(3)
30 TAC Chapter 116, SubChapter B 116.115(b)(2)(F)
30 TAC Chapter 116, SubChapter B 116.115(c)
5C THSC Chapter 382 382.085(b)
Special Condition 1 PERMIT

Description: Failure to prevent unauthorized emissions to the atmosphere during an Emissions Event that was discovered on November 11, 2019, TCEQ/STEERS Incident No. 324566.

2 Date: 01/15/2021 (1659745)

Self Report? NO Classification: Moderate

Citation: 30 TAC Chapter 101, SubChapter A 101.20(3)
30 TAC Chapter 116, SubChapter B 116.115(b)(2)(F)
30 TAC Chapter 116, SubChapter B 116.115(c)
5C THSC Chapter 382 382.085(b)
Special Condition 1 PERMIT

Description: Failure to prevent unauthorized emissions to the atmosphere during an emissions event that was discovered on March 12, 2020, TCEQ/STEERS Incident No. 332001.

Self Report? NO Classification: Moderate

Citation: 30 TAC Chapter 101, SubChapter F 101.201(c)
5C THSC Chapter 382 382.085(b)

Description: Failure to submit a final report no later than two weeks after the end of the emissions event for TCEQ/STEERS Incident No. 332001.

3 Date: 01/28/2021 (1591474)

Self Report? NO Classification: Moderate

Citation: 30 TAC Chapter 101, SubChapter A 101.20(3)
30 TAC Chapter 116, SubChapter B 116.115(b)(2)(F)
30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)
GTC OP
PSDTX1058, SC 1 PERMIT
STC 8 OP

Description: Failure to prevent unauthorized emissions to the atmosphere during an emissions event that was discovered on July 20, 2019, TCEQ/STEERS Incident No. 316461.

Compliance History Report for CN600130017, RN100218973, Rating Year 2022 which includes Compliance History (CH) components from December 02, 2016, through December 02, 2021.

4 Date: 03/05/2021 (1692864)

Self Report? NO Classification: Moderate

Citation: 30 TAC Chapter 111, SubChapter A 111.111(a)(7)(A)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)
GTC & STC 3.B.iii.1 OP

Description: Failure to perform quarterly visible emissions observation as required.

Self Report? NO Classification: Moderate

Citation: 30 TAC Chapter 116, SubChapter B 116.115(b)(2)(C)
30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)
GC 5 PERMIT
GTC & STC 15 OP
SC 14.A.1 PERMIT

Description: Failure to perform annual calibrations of flow monitoring devices as required.

Self Report? NO Classification: Moderate

Citation: 30 TAC Chapter 116, SubChapter B 116.115(b)(2)(C)
30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
GC 5 PERMIT
GTC & STC 15 OP
SC 14.A.1 PERMIT

Description: Failure to perform annual calibrations of flow monitoring devices as required.

Self Report? NO Classification: Moderate

Citation: 30 TAC Chapter 116, SubChapter B 116.115(b)(2)(C)
30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)
GC 5 PERMIT
GTC & STC 15 OP
SC 14.A.2 PERMIT

Description: Failure to sample cooling tower water as required.

Self Report? NO Classification: Moderate

Citation: 30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)
GTC & STC 15 OP
SC 12 PERMIT

Description: Failure to maintain pH of incinerator scrubbing solutions as required.

5 Date: 03/19/2021 (1698346)

Self Report? NO Classification: Moderate

Citation: [PSDTX226M7] Special Condition 1 PERMIT
30 TAC Chapter 101, SubChapter A 101.20(3)
30 TAC Chapter 116, SubChapter B 116.115(b)(2)(F)
30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)
Special Term & Condition 15 OP

Description: Failure to prevent unauthorized emissions to the atmosphere during an emissions event that was discovered on December 13, 2020, TCEQ/STEERS Incident No. 347629.

Self Report? NO Classification: Minor

Citation: 30 TAC Chapter 101, SubChapter F 101.201(a)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)
Special Term & Condition 2.F OP

Description: Failure to submit the initial notification of an emissions event within 24 hours of discovery of the event.

6 Date: 03/31/2021 (1728865)

Self Report? YES Classification: Moderate

Citation: 2D TWC Chapter 26, SubChapter A 26.121(a)
30 TAC Chapter 305, SubChapter F 305.125(1)

Description: Failure to meet the limit for one or more permit parameter

7 Date: 05/31/2021 (1748152)

Self Report? YES Classification: Moderate

Citation: 2D TWC Chapter 26, SubChapter A 26.121(a)
30 TAC Chapter 305, SubChapter F 305.125(1)

Description: Failure to meet the limit for one or more permit parameter

8 Date: 07/01/2021 (1722340)

Self Report? NO Classification: Moderate

Citation: 30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
40 CFR Chapter 60, SubChapter C, PT 60, SubPT Kb 60.113b(a)(2)
5C THSC Chapter 382 382.085(b)
Special Condition 5B PERMIT
Special Term & Condition 12 OP

Description: Failure to perform annual visual tank inspections.

Self Report? NO Classification: Minor

Citation: 30 TAC Chapter 122, SubChapter B 122.145(2)(A)
5C THSC Chapter 382 382.085(b)

Description: Failure to report all instances of deviations.

9 Date: 07/27/2021 (1737487)

Self Report? YES Classification: Moderate

Citation: 30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)
SC 5 OP
SC 6 OP
STC 9 OP

Description: Failure to maintain the steam-to-fuel ratio at all loads greater than 0.515 in order to achieve compliance with the concentration limit stated in Special Condition No.5 of NSR 17030.

Self Report? YES Classification: Moderate

Citation: 30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)
SC 3(B) OP
STC 9 OP

Description: Failure to maintain the average hourly concentration in parts per million by volume (ppmv) dry corrected to 15 percent oxygen (Cor. 15% O2) in the stack gases for Gas Turbine 7E at or below 33 ppmv and 25 ppmv for NOx and Carbon Monoxide (CO), respectively.

Self Report? YES Classification: Moderate

Citation: 30 TAC Chapter 116, SubChapter B 116.115(b)(2)(F)
30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)
SC 1 OP
STC 9 OP

Description: Failure to comply with the Maximum Allowable Emission Rate Table (MAERT) limit of 132.02 pounds per hour (lbs/hr) for Nitrogen Oxides (NOx) from Emission Point Number (EPN) 7E (No.5 Gas Turbine).

10 Date: 07/30/2021 (1678145)

Self Report? YES Classification: Moderate

Citation: 30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)
GTC OP
SC 9A OP
STC 17 OP

Description: Failure to operate vapor combustors in accordance with permit requirements.

Self Report? YES Classification: Moderate

Citation: 30 TAC Chapter 116, SubChapter B 116.115(b)(2)(F)
30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)
GTC OP
SC 1 OP
STC 17 OP

Description: Failure to comply with the Maximum Allowable Emission Rate Table (MAERT) limit of 8.20 pounds per hour (lbs/hr) for Carbon Monoxide (CO) from Emission Point Number (EPN) 1007 (Pyrolysis Furnace).

Self Report? YES Classification: Moderate

Citation: 30 TAC Chapter 116, SubChapter B 116.115(b)(2)(F)
30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)
GTC OP
SC 8(B) OP
STC 17 OP

Description: Failure to operate flares with a flame present at all times and/or have a constant pilot flame.

Self Report? YES Classification: Moderate

Citation: 30 TAC Chapter 116, SubChapter B 116.115
30 TAC Chapter 116, SubChapter B 116.115(b)(2)(F)
30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)
GTC OP
SC 1 OP
STC 17 OP

Description: Failure to comply with the Maximum Allowable Emission Rate Table (MAERT) limit of 765.51 pounds per hour (lbs/hr) for Volatile Organic Compounds (VOC) from Emission Point Number (EPN) 1018 (Olefins 1 Flare)

Self Report? YES Classification: Moderate

Citation: 30 TAC Chapter 116, SubChapter B 116.115
30 TAC Chapter 116, SubChapter B 116.115(b)(2)(F)
30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)
GTC OP
SC 8(A) OP
STC 17 OP

Description: Failure to maintain the minimum required net heating value for a flare.

Self Report? YES Classification: Moderate

Citation: 30 TAC Chapter 116, SubChapter B 116.115(b)
30 TAC Chapter 122, SubChapter B 122.143(4)
30 TAC Chapter 122, SubChapter B 122.145(2)(A)
5C THSC Chapter 382 382.085(b)
GTC OP

Description: Failure to report, in writing, to the Texas Commission of Environmental Quality (TCEQ) all instances of deviations, the probable cause of the deviations, and any corrective actions or preventative measures taken for each emission unit addressed in the permit.

11 Date: 07/31/2021 (1758223)

Self Report? YES Classification: Moderate

Citation: 2D TWC Chapter 26, SubChapter A 26.121(a)
30 TAC Chapter 305, SubChapter F 305.125(1)

Description: Failure to meet the limit for one or more permit parameter

12 Date: 08/06/2021 (1746448)

Self Report? NO Classification: Moderate

Citation: 30 TAC Chapter 101, SubChapter A 101.20(3)
30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)
Special Condition No. 8 PERMIT
Special Terms and Conditions No. 8 OP

Description: Failure to comply with permit limitations.

13 Date: 08/06/2021 (1746425)

Self Report? NO Classification: Moderate

Citation: 30 TAC Chapter 101, SubChapter A 101.20(1)
30 TAC Chapter 111, SubChapter A 111.111(a)(4)(A)
30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
40 CFR Chapter 63, SubChapter C, PT 63, SubPT A 63.11(b)(4)

5C THSC Chapter 382 382.085(b)
Special Condition No. 6.C. PERMIT
Special Terms and Conditions No. 13 OP

Description: Failure to comply with permit limitations regarding visible emissions from the operation of flares.

14 Date: 08/06/2021 (1736481)

Self Report? YES Classification: Moderate

Citation: 30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)
5C THSC Chapter 382 382.085(b)
SC 25 OP
STC 15 OP

Description: Failure to equip all storage vessels with level indicators and alarm systems to prevent overfilling

15 Date: 08/31/2021 (1767489)

Self Report? YES Classification: Moderate

Citation: 2D TWC Chapter 26, SubChapter A 26.121(a)
30 TAC Chapter 305, SubChapter F 305.125(1)

Description: Failure to meet the limit for one or more permit parameter

F. Environmental audits:

Notice of Intent Date: 09/27/2018 (1523151)

Disclosure Date: 04/26/2019

Viol. Classification: Moderate

Citation: 30 TAC Chapter 122, SubChapter B 122.142(b)(2)(A)

Description: Failed to include the applicable requirements under NSPS RRR in the Title V permit. Specifically, NSR Permit No. 19198 and PSDTX1234, Special Condition No. 16 requires compliance with NSPSs NNN and RRR and a letter from Richard Hyde of the TCEQ dated February 25, 2001 authorized Formosa to utilize the alternative flow monitoring requirements under NSPSs RRR. However, the Title V Permit (No. O1484) Applicable Requirements Summary does not reference any of the applicable citations under NSPS RRR

Viol. Classification: Moderate

Citation: 30 TAC Chapter 116, SubChapter B 116.115(c)

Rqmt Prov: PERMIT Special Condition No. 18.A
PERMIT Special Condition No. 21.A
PERMIT Special Condition No. 27.A

Description: Failed to include all data sheets, calculations, charts (records of Continuous Emissions Monitoring Systems (CEMS)), cylinder gas concentration certificates, necessary to confirm that the CEMS performance meets the specification. Specifically, the quarterly CEMS reports for Olefins 1 and II, Ethylene Glycol (EG) [2 CEMS], the High Density Polyethylene 1 (KDPE1), and the Low linear Density Polyethylene 1 (LLDPE), did not include the required information.

Viol. Classification: Moderate

Citation: 30 TAC Chapter 116, SubChapter B 116.115(c)

Rqmt Prov: PERMIT Special Condition No. 18.B
PERMIT Special Condition No. 21.B
PERMIT Special Condition No. 27.B

Description: Failed to report on a quarterly basis all CEMS accuracy results, as determined by the Relative Accuracy Test Audit (RATA), Performance Assessment (PA), and/or Cylinder Gas Audit (CGA) performed. Specifically, the quarterly CEMS for 2017 to date did not include the CGA and PA results for the EG (2 CEMS), the CGA for the HDPE1, or the LLDPE.

Viol. Classification: Minor

Citation: 30 TAC Chapter 116, SubChapter B 116.115(c)

Rqmt Prov: PERMIT Special Condition 21.C

Description: Failed to multiply the measured hourly average concentration from each CEMS by the flow rate measured during the latest stack test performed in accordance with Special Condition No. 19, to determine the hourly emission rate. Specifically, the facility was using the design flow rate to perform calculations and was not aware of the results of the latest stack test result to obtain the correct flow rate of the calculation.

Viol. Classification: Minor

Citation: 30 TAC Chapter 116, SubChapter B 116.115(c)

Rqmt Prov: PERMIT Special Condition No. 31.B
PERMIT Special Condition No. 31.D
PERMIT Special Condition No. 31.E

Description: Failed to meet reactor abrasive blasting requirements. Specifically, records of the blast media's hourly mass usage rate, daily records of the usage hours and location, ad the particulate matter emissions have not been maintained of the most recent blasting activities for the reactors operated in the EG process unit.

Viol. Classification: Moderate

Citation: 30 TAC Chapter 115, SubChapter B 115.126(3)

Description: Failed to maintain sufficient records for each vent exempted from control requirements in accordance with 30 TAC 115.127 to demonstrate compliance with the applicable exemption limit.

Viol. Classification: Moderate

Citation: 40 CFR Chapter 60, SubChapter C, PT 60, SubPT DDD 60.564(d)
40 CFR Chapter 60, SubChapter C, PT 60, SubPT DDD 60.565(a)

Description: Failed to determine compliance with the individual stream exemptions and failed to use the appropriate test procedures and keep an up-to-date, readily accessible record. Specifically, records were not available to demonstrate compliance with the exemption limit for Unit ID PP1-Unit for individual vent streams that emit continuous emissions in O1956 Title V Permit.

Viol. Classification: Minor

Citation: 30 TAC Chapter 116, SubChapter B 116.115(c)

Rqmt Prov: PERMIT Special Condition No. 28

Description: Failed to calibrate the GC at least once every day. Specifically, interviews with plant personnel indicated that the GC is calibrated every 30 days (Olefins I).

Viol. Classification: Moderate

Citation: 40 CFR Chapter 63, SubChapter C, PT 63, SubPT XX 63.1086(b)
40 CFR Chapter 63, SubChapter C, PT 63, SubPT YY 63.1103(e)(3)

Description: Failed to appropriately monitor the cooling water at the entrance and exit of each individual heat exchanger. Specifically, current practice did not take a minimum of three sets of samples at each heat exchanger entrance and exit, calculate the average entrance and exit concentrations, nor use a one-sided statistical procedure at the 0.05 level of significance.

Viol. Classification: Moderate

Citation: 30 TAC Chapter 116, SubChapter B 116.115(c)

Rqmt Prov: PERMIT Special Condition 27.C

Description: Failed to multiply the measured hourly concentration from each CEMS by the flow rate measured during the latest stack test. Specifically, the facility was not performing this calculation and was not aware of the results of the latest stack test results.

Viol. Classification: Moderate

Citation: 30 TAC Chapter 116, SubChapter B 116.115(c)

Rqmt Prov: PERMIT Special Condition No. 27

Description: Failed to maintain records of monthly emissions and rolling 12-month MSS emissions, updated on a monthly basis, of planned MSS activities for the Ethylene Glycol process unit.

Viol. Classification: Moderate

Citation: 30 TAC Chapter 335, SubChapter E 335.112(a)
30 TAC Chapter 335, SubChapter C 335.69(a)(1)(A)

Description: Failed to ensure that a container holding hazardous waste is closed at all times during accumulation. Specifically, tarps in 25 yard roll-offs used to cover hazardous waste containers in the Satellite Accumulation Area (SAA) in the WWTP and in the <90 day storage area had holes in them.

Viol. Classification: Moderate

Citation: 40 CFR Chapter 265, SubChapter I, PT 265, SubPT D 265.53(b)
30 TAC Chapter 335, SubChapter E 335.112(a)(3)

Description: Failed to submit a copy of the contingency plan and all revisions to the plan to all local police departments, fire departments, and hospitals. Specifically, the Integrated Contingency Plan (ICP) used as the Large Quantity Generator (LQG) Plan does not include arrangements with the local police/sheriff's department.

Viol. Classification: Moderate

Citation: 30 TAC Chapter 305, SubChapter F 305.125(1)

Rqmt Prov: PERMIT Part 3, Section F.1(g)(v)
PERMIT Part 3, Section F.2(a)

Description: Failed to include in the construction SWPPP the entire property as well as laydown areas, the grassy area between Outfall 009 and the Olefins III flare has become an area for used material including railing train track, and rail road ties. Additionally, there is a pile near the Olefins IIII flare that appears to be a dumping ground.

Viol. Minor

Citation: 40 CFR Chapter 279, SubChapter I, PT 279, SubPT C 279.22(c)
30 TAC Chapter 324, SubChapter A 324.1

Description: Failed to label or mark clearly with the words "Used Oil" on approximately 15 used oil drums stored outside the used oil shed a the Poly Olefins I Maintenance Shop.

Viol. Minor

Citation: 30 TAC Chapter 305, SubChapter F 305.125(1)

Rqmt Prov: PERMIT Eff. Lim. & Mon. Req. OF 12, No. 1
PERMIT Eff. Lim. & Mon. Req. OF 12, No. 2

Description: Failed to collect one sample per day from Outfall No. 12 (OF 12) for Total Organic Carbon, Oil and Grease, and pH. The closed gate (OF 12) was leaking, there was no secondary valve downstream to retain the leaked discharge, and this discharge was not sampled.

Viol. Minor

Citation: 30 TAC Chapter 319, SubChapter A 319.11(e)

Description: Failed to ensure laboratories routinely use and document intra-laboratory quality control practices. Specifically, standards in the metals laboratory were difficult to trace to the original standard, the original standard had multiple bottles and the bottles were reported as empty before the next standard was made. Also, acids and solvents added to the samples were not recorded by lot number and manufacturer.

Viol. Minor

Citation: 30 TAC Chapter 305, SubChapter F 305.125(1)
30 TAC Chapter 319, SubChapter A 319.11

Rqmt Prov: PERMIT Mon. & Rep. Req. No. 2

Description: Failed to ensure that biomonitoring samples maintained chain-of-custody. Specifically, samples were collected and left on the sidewalk at the parking lot for the laboratory to pick up.

Notice of Intent Date: 10/21/2021 (1773404)
Disclosure Date: 02/04/2022

Viol. Minor

Citation: 30 TAC Chapter 111, SubChapter A 111.111(a)

Description: Failed to keep records of Method 9 training certifications for five years. Specifically, several years of records are missing due to the conversion from paper files to electronic files.

Viol. Moderate

Citation: 30 TAC Chapter 116, SubChapter B 116.115(c)
30 TAC Chapter 122, SubChapter B 122.143(4)

Rqmt Prov: OP STC 7

Description: Failed to generate quality assured (or valid) data when the Incinerator-Scrubber System is operating. Specifically, Incinerators B and C continued to operate but CEMS data was not collected as "loss of valid data due to monitor break down" and the measurements were not estimated using good engineering judgment and recorded for the missing values.

Viol. Moderate

Citation: 30 TAC Chapter 325, SubChapter A 325.3(a)(5)(C)(ii)

Description: Failed to submit update reports within 90 days for new chemicals added.

Viol. Minor

Citation: 30 TAC Chapter 325, SubChapter A 325.3(a)

Description: Failed to have accurate reports by providing calculations not present for the total quantity of EHSs at the facility at any one time (sulfuric acid and lead in 2020) where calculations must include the addition of the quantities present of the EHS as a component in all mixtures and all other quantities of the EHS.

Viol. Minor

Viol.
Citation: 30 TAC Chapter 325, SubChapter A 325.3(a)

Description: Failed to submit accurate reports. Specifically, 2020 forms listed components; however the EHS box was not checked nor the amounts of each component was not listed.

Viol. Classification: Minor

Citation: 5B THSC Chapter 370, SubChapter B 370.003

Description: Failed to accurately submit reports. Specifically, 621.03 lbs of chlorine listed in air emissions spreadsheet , but not reported on Form R, the total for benzene on the 2020 TRI report was inaccurate, and the 2019 energy recovery on-site and quantity recycled on-site were reported exactly the same as the previous year.

Viol. Classification: Moderate

Citation: 40 CFR Chapter 279, SubChapter I, PT 279, SubPT C 279.24(b)

30 TAC Chapter 324, SubChapter A 324.11

Description: Failed to ensure used oil is transported by a registered transporter. Specifically, used oil is transported to the CFB used oil tank in quantities greater than 55-gallons periodically.

Viol. Classification: Minor

Citation: 30 TAC Chapter 335, SubChapter C 335.69(a)(2)

30 TAC Chapter 335, SubChapter C 335.69(a)(3)

Description: Failed to label with a hazardous waste label with the accumulation start date and maintain the condition of a container. Specifically, the 90-day storage cabinet in the 042 tech lab area contained a small, extremely corroded container of methanol that was not labeled with a hazardous waste label nor marker with an accumulation start date.

G. Type of environmental management systems (EMSs):

N/A

H. Voluntary on-site compliance assessment dates:

N/A

I. Participation in a voluntary pollution reduction program:

N/A

J. Early compliance:

N/A

Sites Outside of Texas:

N/A

Preliminary Determination Summary

Formosa Plastics Corporation, Texas
Permit Numbers 140763, PSDTX1500M1, and GHGPSDTX46M1; 19871, PSDTX1236M1, and GHGPSDTX221; 91780, PSDTX1240M1, and GHGPSDTX223; 19200, PSDTX1237M1, and GHGPSDTX218; 19168, PSDTX1226M1, and GHGPSDTX224; 107518, PSDTX1383M2, and GHGPSDTX48M1; 20203, PSDTX1224M1, and GHGPSDTX222; 40157, PSDTX1222M1, and GHGPSDTX225; 19201, PSDTX1232M1, and GHGPSDTX219

I. Applicant

Formosa Plastics Corporation Texas
PO Box 700
Point Comfort, TX 77978-0700

II. Project Location

Formosa Point Comfort Plant
201 Formosa Drive
Calhoun County
Point Comfort, Texas 77978

III. Project Description

Formosa Plastics Corporation, Texas (FPC TX) owns and operates a chemical complex in Point Comfort, Calhoun and Jackson Counties, Texas. FPC TX submitted nine concurrent amendment applications to request authorization for the Flare Improvement Project, which will involve changes to the elevated flares and construction of four new low pressure enclosed ground flares to comply with the EPA Residual Risk and Technology Review rulemakings. Additional fugitive components will also be required. FPC TX is also proposing to update the MSS flaring emissions. Finally, FPC TX proposes to establish emission caps for the flares. Standard Permit (SP) registrations will be incorporated consolidation. Maintenance, startup, and shutdown are located within these permits.

IV. Emissions

Air Contaminant	Proposed Allowable Emission Rates (tpy)								
	19168	19200	19201	19871	20203	40157	91780	107518	140763
VOC	679.17	100.65	215.46	97.45	132.92	118.63	95.61	1062.43	31.94
NO_x	2217.26	8.40	50.22	35.78	38.11	14.62	8.55	630.75	101.50
SO_2	39.77	0.07	0.39	0.37	0.18	0.13	0.06	113.89	7.34
CO	1145.92	67.87	98.96	92.27	43.33	68.69	62.69	3256.09	156.34
PM	405.72	36.16	24.15	5.58	17.92	9.09	50.05	108.41	35.75
PM_{10}	379.41	8.38	21.09	5.58	17.13	6.03	30.46	86.56	35.58
$PM_{2.5}$	358.92	6.59	19.36	5.58	15.06	4.30	24.79	73.83	35.03
H_2SO_4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.37
NH_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	125.01	146.25

Air Contaminant	Proposed Allowable Emission Rates (tpy)								
	19168	19200	19201	19871	20203	40157	91780	107518	140763
CO_2	1,057,041	38,115.84	17,082.70	0.00	5,251.5	26,193.4	39,204.30	3,567,759	1,097,173
CH_4	3190.57	115.05	51.56	0.00	15.85	79.06	118.34	1509.09	25
SF_6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N_2O	0.00	0.38	0.17	0.00	0.05	0.26	0.39	29.23	3.00
CO_2 Equivalents (CO_{2e})	1,139,948	41,105.70	18,422.70	0.00	5,663.5	28,428	42,279.50	3,615,589	1,098,405

CO2e - carbon dioxide equivalents based on global warming potentials of CH4 = 25, N2O = 298, SF6=22,800.

V. Federal Applicability

The following chart illustrates the annual project emissions for each pollutant and whether this pollutant triggers PSD or Nonattainment (NA) review.

Pollutant	Project Emissions (tpy)	Major Mod Trigger (tpy)	NA Triggered Y/N	PSD Triggered Y/N
VOC	522.34	40	N/A	Y
NO_x	291.90	40	N/A	Y
SO_2	4.63	40	N/A	N
CO	1444.00	100	N/A	Y
PM	N/A	25	N/A	N
PM_{10}	N/A	15	N/A	N
$PM_{2.5}$	N/A	10	N/A	N
H_2SO_4	N/A	7	N/A	N
H_2S	N/A	10	N/A	N

The proposed project triggers PSD review for non-GHG NSR regulated pollutants. As shown in the table below, because the project increase is more than 75,000 tpy of CO2e, PSD review is triggered for GHG emissions.

Pollutant	Project Emissions (tpy)	Major Source or Major Mod Trigger Level (tpy)	PSD Triggered Y/N
CO2e	323,028.00	75,000	Y

VI. Control Technology Review

Control technology is consistent with PSD BACT for PSD pollutants (VOC, NO_X, CO, and GHG) and state minor NSR BACT for other pollutants. A control technology review was conducted for all pollutants. The controls described in this section were determined to satisfy BACT requirements based on a review of recently issued permits from Texas and other states, and consideration of the RACT/BACT/LAER Clearinghouse (RBLC) data provided by the applicant. A more detailed description of the control technology review is included in the permit file.

Elevated flares (EPNs 1018, 1067, OL3-FLRA, OL3-FLRB, and OL3-FLRC)
The elevated flares are existing steam assist flares used to waste gas vent streams. The flares are designed to meet the requirements of 40 CFR § 60.18, and to achieve a destruction efficiency of 99% for compounds up to three carbons and 98% for compounds with greater than three carbons. The flares are proposed to meet the Ethylene MACT rule (40 CFR 63 Subpart YY). The flares are equipped with a waste gas flow rate monitor, and BTU analyzer or calorimeter. Total fuel sulfur total sulfur does not exceed 5 gr/100dscf. GHGs from the flare will be limited through use of low carbon fuels, good combustion practices, and will be operated in accordance with the new RTR flare monitoring requirements.

Enclosed ground flares (EPNs EGF-1, EGF-2, EGF-3, and EGF-4)
The low pressure enclosed ground flares new flares that will be used to control process vents. The flares are designed to meet the requirements of 40 CFR § 60.18 and the Ethylene MACT rule (40 CFR 63 Subpart YY), and to achieve a destruction efficiency of 99% for compounds up to three carbons and 98% for compounds with greater than three carbons. The flares are equipped with a waste gas flow rate monitor, and calorimeter. Total fuel sulfur total sulfur does not exceed 5 gr/100dscf. GHGs from the flare will be limited through use of low carbon fuels, good combustion practices, and will be operated in accordance with the new RTR flare monitoring requirements.

Fugitive emissions (EPNs 1028 and 1068)
The permit requires use of a modified version of the TCEQ 28VHP LDAR program and the 28CNTA LDAR program for components in VOC service. The modified 28VHP uses a 500 ppm leak definition from the 28MID LDAR program in conjunction with the 28VHP work practices. GHGs from the piping components will be limited through use of the LDAR programs.

VII. Air Quality Analysis

The air quality analysis (AQA) is acceptable, as supplemented by the ADMT, for all review types and pollutants. The results are summarized below.

A. De Minimis Analysis

A De Minimis analysis was initially conducted to determine if a full impacts analysis would be required. The De Minimis analysis modeling results indicate that 1-hr NO_2 exceeds the interim de minimis concentration and requires a full impacts analysis. The De Minimis analysis modeling results for 1-hr and 8-hr CO and annual NO_2 indicate that the project is below the respective de minimis concentrations and no further analysis is required.

The justification for selecting the EPA's interim 1-hr NO_2 De Minimis level is based on the assumptions underlying EPA's development of the 1-hr NO_2 De Minimis level. As explained in EPA guidance memoranda[1], the EPA believes it is reasonable as an interim approach to use a De Minimis level that represents 4% of the 1-hr NO_2 NAAQS.

The ozone De Minimis levels are the EPA recommended De Minimis levels. The use of the EPA recommended De Minimis levels is sufficient to conclude that a proposed source will not cause or contribute to a violation of an ozone NAAQS based on the analyses documented in EPA guidance and policy memoranda[2].

Table 1. Modeling Results for PSD De Minimis Analysis in Micrograms Per Cubic Meter (µg/m³)

Pollutant	Averaging Time	GLCmax (µg/m³)	De Minimis (µg/m³)
NO_2	1-hr	34	7.5
NO_2	Annual	0.1	1
CO	1-hr	358	2000
CO	8-hr	143	500

The 1-hr NO_2 GLCmax is based on the highest five-year average of the maximum predicted concentrations determined for each receptor.

The GLCmax for all other pollutants and averaging times represent the maximum predicted concentrations over five years of meteorological data.

[1] www.tceq.texas.gov/assets/public/permitting/air/memos/guidance_1hr_no2naaqs.pdf
[2] www.tceq.texas.gov/permitting/air/modeling/epa-mod-guidance.html

Table 2. Modeling Results for Ozone PSD De Minimis Analysis in Parts per Billion (ppb)

Pollutant	Averaging Time	GLCmax (ppb)	De Minimis (ppb)
O_3	8-hr	2.03	1

The applicant performed an O_3 analysis as part of the PSD AQA. The applicant evaluated project emissions of O_3 precursor emissions (NO_x and VOC). For the project NO_x and VOC emissions, the applicant provided an analysis based on a Tier 1 demonstration approach consistent with the EPA's Guideline on Air Quality Models (GAQM). Specifically, the applicant used a Tier 1 demonstration tool developed by the EPA referred to as Modeled Emission Rates for Precursors (MERPs). Using data associated with the worst-case source for NO_x and VOC, the applicant estimated an 8-hr O_3 concentration of 2.03 ppb. When the estimates of ozone concentrations from the project emissions are added together, the results are greater than the De Minimis level. Since the O_3 impact is above the De minimis level, a full impacts analysis is required.

B. Air Quality Monitoring

The De Minimis analysis modeling results indicate that NO_2 and CO are below their respective monitoring significance levels.

Table 3. Modeling Results for PSD Monitoring Significance Levels

Pollutant	Averaging Time	GLCmax (µg/m^3)	Increment (µg/m^3)
NO_2	Annual	0.1	14
CO	8-hr	143	575

The GLCmax represent the maximum predicted concentrations over five years of meteorological data.

Since the project has a net emissions increase of 100 tons per year (tpy) or more of VOC or NO_x, ambient O_3 monitoring data were evaluated.

A background concentration for O_3 was obtained from the applicant's monitoring network (FPC NW Site). The three-year average (2020-2022) of the annual fourth highest daily maximum 8-hr concentrations (63.9 ppb) was used in the analysis. The use of this monitor is reasonable as it is sited adjacent to the project site.
.

C. National Ambient Air Quality Standards (NAAQS) Analysis

The De Minimis analysis modeling results indicate that 1-hr NO_2 exceeds its interim de minimis concentration and requires a full impacts analysis. The full NAAQS modeling

results indicate the total predicted concentrations will not result in an exceedance of the NAAQS.

Table 4. Total Concentrations for PSD NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLCmax ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total Conc. = [Background + GLCmax] ($\mu g/m^3$)	Standard ($\mu g/m^3$)
NO_2	1-hr	181	Note background discussion below	181	188

The 1-hr NO_2 GLCmax is the highest five-year average of the 98th percentile of the annual distribution of predicted daily maximum 1-hr concentrations determined for each receptor.

Background concentrations for NO_2 were obtained from the applicant's monitoring network (FPC NW Site). The applicant conducted their evaluation by combining NO_2 background concentrations on a seasonal basis with the predicted concentrations of the project and other on- and off-property sources on a seasonal (quarterly) basis for each modeled receptor. The applicant followed EPA guidance when developing seasonal-hourly background concentrations. The seasonal background concentrations were based on the maximum three-year average (2020-2022) of the 98th percentile of the annual distribution of the daily maximum 1-hr concentrations for each hour and season. These background values were then used in the model (as background scalars) to be combined with model predictions giving a total predicted concentration. The use of this monitor is reasonable as it is sited adjacent to the project site.

Table 5. Total Ozone Concentrations for PSD NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLCmax (ppb)	Background (ppb)	Total Conc. = [Background + GLCmax] (ppb)	Standard (ppb)
O_3	8-hr	2.03	63.9	65.93	70

The applicant performed an O_3 analysis as part of the PSD AQA. The applicant evaluated project emissions of O_3 precursor emissions (NO_x and VOC). For the project NO_x and VOC emissions, the applicant provided an analysis based on a Tier 1 demonstration approach consistent with the EPA's GAQM. As noted above, the applicant used a Tier 1 demonstration tool developed by the EPA referred to as MERPs. Using data associated with the worst-case source for NO_x and VOCs, the applicant estimated an 8-hr O_3 concentration of 2.03 ppb. When the estimates of ozone concentrations from the project emissions are added to the background concentration listed in the table above, the results are less than the NAAQS.

D. Increment Analysis

The De Minimis analysis modeling results indicate that NO_2 and CO are below their respective monitoring significance levels.

E. Additional Impacts Analysis

The applicant performed an Additional Impacts Analysis as part of the PSD AQA. The applicant conducted a growth analysis and determined that population will not significantly increase as a result of the proposed project. The applicant conducted a soils and vegetation analysis and determined that all evaluated criteria pollutant concentrations are below their respective secondary NAAQS. The applicant meets the Class II visibility analysis requirement by complying with the opacity requirements of 30 TAC Chapter 111. The Additional Impacts Analyses are reasonable and possible adverse impacts from this project are not expected.

The ADMT evaluated predicted concentrations from the proposed project to determine if emissions could adversely affect a Class I area. The nearest Class I area, Caney Creek Wilderness, is located approximately 570 kilometers (km) from the proposed site.

The predicted concentrations of NO_2 and SO_2 for all averaging times, are all less than de minimis levels at a distance of 14 km from the proposed sources in the direction the Caney Creek Wilderness Class I area. The Caney Creek Wilderness Class I area is an additional 556 km from the location where the predicted concentrations of NO_2 and SO_2 for all averaging times are less than de minimis. Therefore, emissions from the proposed project are not expected to adversely affect the Caney Creek Wilderness Class I area.

F. Minor Source NSR and Air Toxics Review

Table 6. Project-Related Modeling Results for State Property Line

Pollutant	Averaging Time	GLCmax (µg/m^3)	De Minimis (µg/m^3)
SO_2	1-hr	0.17	20.42

Table 7. Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLCmax (µg/m^3)	De Minimis (µg/m^3)
SO_2	1-hr	0.2	7.8
SO_2	3-hr	0.1	25

The 1-hr SO_2 GLCmax is based on the highest five-year average of the maximum predicted concentrations determined for each receptor. The 3-hr SO_2 GLCmax is the maximum predicted concentration associated with one year of meteorological data.

The primary NAAQS for 24-hr and annual SO_2 have been revoked for Calhoun County and are not reported above.

The justification for selecting the EPA's interim 1-hr SO_2 De Minimis level was based on the assumptions underlying EPA's development of the 1-hr SO_2 De Minimis level. As explained

in EPA guidance memoranda[3], the EPA believes it is reasonable as an interim approach to use a De Minimis level that represents 4% of the 1-hr SO_2 NAAQS.

Table 8. Generic Modeling Results

Source ID	1-hr GLCmax (µg/m³ per lb/hr)	Annual GLCmax (µg/m³ per lb/hr)
EGF1MX	0.02	0.0002
EGF2MX	0.02	0.0002
EGF3MX	0.02	0.0002
EGF4MX	0.01	0.0002
EGF1MD	0.03	0.0005
EGF2MD	0.03	0.0005
EGF3MD	0.03	0.0005
EGF4MD	0.03	0.0004
EGF1LO	0.21	0.007
EGF2LO	0.21	0.007
EGF3LO	0.18	0.006
EGF4LO	0.2	0.005
OL3FLRA	0.02	0.0005
OL3MSSFL	0.01	0.0001
1018	0.12	0.006
1067	0.07	0.003
1018_MSS	0.01	0.0001
1067_MSS	0.01	0.0001

[3] www.epa.gov/sites/production/files/2015-07/documents/appwso2.pdf

Source ID	1-hr GLCmax (µg/m^3 per lb/hr)	Annual GLCmax (µg/m^3 per lb/hr)
1028WG	24.44	0.24
1068WG	10.52	0.07

G. Greenhouse Gases

EPA has stated that unlike the criteria pollutants for which EPA has historically issued PSD permits, there is no National Ambient Air Quality Standard (NAAQS) for GHGs, including no PSD increment. The global climate-change inducing effects of GHG emissions, according to the “Endangerment and Cause or Contribute Finding”, are far-reaching and multi-dimensional (75 FR 66497). Climate change modeling and evaluations of risks and impacts are typically conducted for changes in emissions that are orders of magnitude larger than the emissions from individual projects that might be analyzed in PSD permit reviews. Quantifying the exact impacts attributable to a specific GHG source obtaining a permit in specific places and points would not be possible [EPA’s PSD and Title V Permitting Guidance for GHGs at 48]. Thus, EPA has concluded in other GHG PSD permitting actions it would not be meaningful to evaluate impacts of GHG emissions on a local community in the context of a single permit.

The TCEQ has determined that an air quality analysis would provide no meaningful data and has not required the applicant to perform one. As stated in the preamble to TCEQ’s adoption of the GHG PSD program, the impacts review for individual air contaminants will continue to be addressed, as applicable, in the state's traditional minor and major NSR permits program per 30 TAC Chapter 116.

VIII. Conclusion

As described above, the applicant has demonstrated that the project meets all applicable rules, regulations and requirements of the Texas and Federal Clean Air Acts. The Executive Director’s preliminary determination is that the permits should be issued.

TCEQ AIR QUALITY PERMIT NUMBERS: 140763, PSDTX1500M1, and GHGPSDTX46M1; 19871, PSDTX1236M1, and GHGPSDTX221; 91780, PSDTX1240M1, and GHGPSDTX223; 19200, PSDTX1237M1, and GHGPSDTX218; 19168, PSDTX1226M1, and GHGPSDTX224; 107518, PSDTX1383M2, and GHGPSDTX48M1; 20203, PSDTX1224M1, and GHGPSDTX222; 40157, PSDTX1222M1, and GHGPSDTX225; 19201, PSDTX1232M1, and GHGPSDTX219

APPLICATION BY	**§**	**BEFORE THE**
FORMOSA PLASTICS CORPORATION, TEXAS	**§**	**TEXAS COMMISSION ON**
POINT COMFORT PLANT	**§**	
POINT COMFORT, CALHOUN COUNTY	**§**	**ENVIRONMENTAL QUALITY**

EXECUTIVE DIRECTOR'S RESPONSE TO PUBLIC COMMENT

The Executive Director of the Texas Commission on Environmental Quality (the commission or TCEQ) files this Response to Public Comment (Response) on the New Source Review Authorization application and Executive Director's preliminary decision.

As required by Title 30 TEXAS ADMINISTRATIVE CODE (TAC) § 55.156, before an application is approved, the Executive Director prepares a response to all timely, relevant and material, or significant comments. The Office of Chief Clerk received timely comments from the following persons: Colin Cox (on behalf of the Environmental Integrity Project [EIP] and the San Antonio Bay Estuarine Waterkeeper), Cynthia J. Kaleri (on behalf of the U.S. Environmental Protection Agency [EPA]), Kris Leabo, Sandra Hardy McKenzie, Robin Schneider (on behalf of Texas Campaign for the Environment), Diane Wilson, and Frederick L. Woodland. This Response addresses all timely public comments received, whether or not withdrawn. If you need more information about this permit application or the permitting process, please call the TCEQ Public Education Program at 1-800-687-4040. General information about TCEQ can be found at our website at www.tceq.texas.gov.

BACKGROUND

Description of Facility

Formosa Plastics Corporation, Texas (Applicant) has applied to the TCEQ for a New Source Review Authorization under Texas Clean Air Act (TCAA) § 382.0518. This will authorize the modification of an existing facility that may emit air contaminants.

This permit will authorize the Applicant to modify the Formosa Point Comfort Plant. The facility is located at 201 Formosa Drive, Point Comfort, Calhoun County. Contaminants authorized under these permits include carbon monoxide, nitrogen oxides, organic compounds, hazardous air pollutants, particulate matter including particulate matter with diameters of 10 microns or less and 2.5 microns or less, sulfur dioxide, and sulfuric acid mist.

Procedural Background

Before work is begun on the modification of an existing facility that may emit air contaminants, the person planning the modification must obtain a permit amendment from the commission. This permit application is for a permit amendment of Air Quality Permit Numbers 140763, 19871, 91780, 19200, 19168, 107518, 20203, 40157, and 19201, modification to Prevention of Significant Deterioration (PSD) Air Quality Permit Numbers PSDTX1500M1, PSDTX1236M1, PSDTX1240M1, PSDTX1237M1, PSDTX1226M1, PSDTX1383M2, PSDTX1224M1, PSDTX1222M1, and PSDTX1232M1, modification to Greenhouse Gas (GHG) PSD Air Quality Permit Numbers GHGPSDTX46M1 and GHGPSDTX48M1 for emissions of GHGs, and issuance of GHG PSD Air Quality Permit Numbers GHGPSDTX221, GHGPSDTX223, GHGPSDTX218, GHGPSDTX224, GHGPSDTX222, GHGPSDTX225, and GHGPSDTX219 for emissions of GHGs. The Applicant is proposing two separate projects in this permitting action. First, the Applicant seeks to update the flaring emissions to comply with the EPA Risk and Technology Review (RTR) for the Ethylene Production source category. Second, the Applicant proposes an increase in annual MSS flaring emissions due to additional required shutdowns. These projects span multiple permits and trigger federal PSD review therefore, the corresponding air quality permits, PSD permits, and GHG permits are included in this review.

The permit application was received on December 2, 2021, and declared administratively complete on December 16, 2021. The Notice of Receipt and Intent to Obtain an Air Quality Permit (NORI - first public notice) for this permit application was published in English on December 22, 2021, in the *Port Lavaca Wave* and in Spanish on December 20, 2021, in the *Revista De Victoria.* The Notice of Application and Preliminary Decision for an Air Quality Permit (NAPD - second public notice) was published on October 19, 2022, in English in the *Port Lavaca Wave* and on October 26, 2022, in Spanish in *Revista De Victoria.* A public meeting was held on February 2, 2023, at the Bauer Community Center, 2300 State Highway 35 North, Port Lavaca, Texas 77979. The notice of public meeting was mailed on December 28, 2022. The public comment period ended on October 18, 2023. Because this application was received after September 1, 2015, it is subject to the procedural requirements of and rules implementing Senate Bill 709 (84th Legislature, 2015).

COMMENTS AND RESPONSES

COMMENT 1: Health Effects / Air Quality

Commenters are concerned about the effect of the emissions from the proposed project on the air quality and health of people, particularly sensitive populations such as the elderly, children, and people with existing medical conditions. Colin Cox questioned whether the proposed emissions would cause or contribute to exceedances of National Ambient Air Quality Standards (NAAQS), exceed allowable Prevention of Significant Deterioration (PSD) Increments or cause nuisance conditions violating 30 Texas Administrative Code (30 TAC) § 101.4. Mr. Cox questioned whether the

proposed emissions would threaten the health and safety of nearby residents. Robin Schneider expressed concern regarding potential emissions of carcinogens like benzene, as well as expressed concern regarding the proposed increase of Greenhouse Gas (GHG) emissions.

(Colin Cox, Robin Schneider, Diane Wilson, Fredrick Woodland)

RESPONSE 1: The Executive Director is required to review permit applications to ensure they will be protective of human health and the environment. For this type of air permit application, potential impacts to human health and welfare or the environment are determined by comparing the Applicant's proposed air emissions to appropriate state and federal standards and guidelines. These standards and guidelines include the National Ambient Air Quality Standards (NAAQS), TCEQ Effects Screening Levels (ESLs), and TCEQ rules. As described in detail below, the Executive Director determined that the emissions authorized by this permit are protective of both human health and welfare and the environment.

NAAQS

The EPA created and continues to evaluate the NAAQS, which include both primary and secondary standards, for pollutants considered harmful to public health and the environment.[1] Primary standards protect public health, including sensitive members of the population such as children, the elderly, and those individuals with preexisting health conditions. Secondary NAAQS protect public welfare and the environment, including animals, crops, vegetation, visibility, and buildings, from any known or anticipated adverse effects from air contaminants. The EPA has set NAAQS for criteria pollutants, which include carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), sulfur dioxide (SO_2), particulate matter less than or equal to 10 microns in aerodynamic diameter (PM_{10}), and PM less than or equal to 2.5 microns in aerodynamic diameter ($PM_{2.5}$).

The likelihood of whether adverse health effects caused by emissions from the facility could occur in members of the general public, including sensitive subgroups such as children, the elderly, or people with existing respiratory conditions, was determined by comparing the facility's maximum predicted air dispersion modeling concentrations to the relevant state and federal standards and ESLs. TCEQ staff used modeling results to verify that predicted ground-level concentrations from the proposed facility are not likely to adversely impact public health and welfare. The overall evaluation process provides a conservative prediction that is protective of public health. The modeling predictions were reviewed by the TCEQ Air Dispersion Modeling Team, and the modeling analysis was determined to be acceptable. The Applicant used the American Meteorological Society (AMS)/EPA Regulatory Model (AERMOD) modeling system to provide a reasonable worst-case representation of potential impacts from the

[1] 40 CFR § 50.2

proposed emissions on the area surrounding the facility. See Response 3 for additional information concerning the modeling.

The Applicant conducted a NAAQS analysis for NO_2, CO, SO_2, and O_3. The first step of the NAAQS analysis is to compare the proposed modeled emissions against the established de minimis level. Predicted concentrations (GLC_{max})[2] below the de minimis level are considered to be so low that they do not require further NAAQS analysis. Table 1 contains the results of the de minimis analysis.

Table 1. Modeling Results for PSD De Minimis Analysis in Micrograms per Cubic Meter ($\mu g/m^3$)

Pollutant	Averaging Time	GLC_{max} ($\mu g/m^3$)	De Minimis ($\mu g/m^3$)
NO_2	1-hr	34	7.5
NO_2	Annual	0.1	1
CO	1-hr	358	2000
CO	8-hr	143	500

The pollutants below the de minimis level should not cause or contribute to a violation of the NAAQS and are protective of human health and the environment.

The Applicant conducted a full NAAQS analysis for those pollutants above de minimis to account for cumulative effects by including an evaluation of all on-property sources, applicable off-property sources, and representative monitored background concentrations. Results of the NAAQS analysis are presented below in Table 2. The total concentration was determined by adding the GLC_{max} to the appropriate background concentration. Background concentrations are obtained from ambient air monitors across the state and are added to the modeled concentration (both on-property and off-property sources) to account for sources not explicitly modeled. The ambient air monitors were selected to ensure that they are representative of the proposed site. The total concentration was then compared to the NAAQS to ensure that the concentration is below the standard. For any subsequent projects submitted pertaining to this or any other facility in the area, the air quality analysis for that project will have to include the emissions authorized by this project, as well as other applicable off-property sources, if a full impacts analysis is required.

[2] The GLC_{max} is the maximum ground level concentration predicted by the modeling.

Table 2. Total Concentrations for PSD NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLC_{max} ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total Conc. = [Background + GLC_{max}] ($\mu g/m^3$)	Standard ($\mu g/m^3$)
NO_2	1-hr	181	Note background discussion below	181	188

Background concentrations for NO_2 were obtained from the applicant's monitoring network (FPC NW Site). The applicant conducted their evaluation by combining NO_2 background concentrations on a seasonal basis with the predicted concentrations of the project and other on- and off-property sources on a seasonal (quarterly) basis for each modeled receptor. The applicant followed EPA guidance when developing seasonal-hourly background concentrations. The seasonal background concentrations were based on the maximum three-year average (2020-2022) of the 98th percentile of the annual distribution of the daily maximum 1-hr concentrations for each hour and season. These background values were then used in the model (as background scalars) to be combined with model predictions giving a total predicted concentration. The use of this monitor is reasonable as it is sited adjacent to the project site

The NAAQS analysis results are below the standard for each pollutant, should not cause or contribute to violation of the NAAQS, and are protective of human health and the environment.

PSD Increment Analysis

The PSD program limits the extent to which air quality may be allowed to deteriorate in areas where pollutant concentrations are below the NAAQS (attainment areas). When air quality in a geographic area meets or is below the NAAQS, it is called an attainment area. The Formosa plant is physically located in Calhoun and Jackson Counties. Both Calhoun and Jackson Counties are in attainment. Increases in pollutant concentrations over background are limited to certain increments, which are values specified by EPA at 40 CFR §52.21(c). When the de minimis analysis modeling indicates that a criteria pollutant exceeds its respective de minimis concentration, a PSD increment analysis is necessary for those criteria pollutants for which EPA has established an increment. The results of the PSD Increment Analysis are shown in Table 3 below.

Table 3. Modeling Results for PSD Monitoring Significance Levels

Pollutant	Averaging Time	GLC_{max} ($\mu g/m^3$)	Increment ($\mu g/m^3$)
NO_2	Annual	0.1	14
CO	8-hr	143	575

Ozone Analysis

The Applicant performed an O_3 analysis as part of the PSD Air Quality Analysis (AQA). The Applicant evaluated project emissions of O_3 precursor emissions (NO_x and VOC). For the project nitrogen oxides (NO_x) and volatile organic compounds (VOC) emissions, the applicant provided an analysis based on a Tier 1 demonstration approach consistent with the EPA's Guideline on Air Quality Models (GAQM). Specifically, the applicant used a Tier 1 demonstration tool developed by the EPA referred to as Modeled Emission Rates for Precursors (MERPs). Using data associated with the worst-case source for NO_x and VOC, the applicant estimated an 8-hr O_3 concentration of 2.01 ppb. When the estimates of ozone concentrations from the project emissions are added together, the results are greater than the de minimis level. Since the O_3 impact is above the de minimis level, a full impacts analysis is required.

Table 4. Modeling Results for Ozone PSD De Minimis Analysis in Parts per Billion (ppb)

Pollutant	Averaging Time	GLC_{max} ($\mu g/m^3$)	Increment ($\mu g/m^3$)
O_3	8-hr	2.01	1

The Applicant performed a full impact analysis for O_3 as part of the PSD AQA. When the estimates of ozone concentrations from the project emissions are added to the background concentration, the results are less than the NAAQS, as shown in Table 5 below.

Table 5. Total Ozone Concentrations for PSD NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLC_{max} (ppb)	Background (ppb)	Total Conc. = [Background + GLC_{max}] (ppb)	Standard (ppb)
O_3	8-hr	2.01	64.67	66.68	70

Additional Impact Analysis

The Applicant performed an Additional Impacts Analysis as part of the PSD AQA. The applicant conducted a growth analysis and determined that population will not significantly increase as a result of the proposed project. The applicant conducted a soils and vegetation analysis and determined that all evaluated criteria pollutant concentrations are below their respective secondary NAAQS. The applicant meets the Class II visibility analysis requirement by complying with the opacity requirements of 30 TAC Chapter 111. The Additional Impacts Analyses are reasonable and possible adverse impacts from this project are not expected.

Class I

The Air Dispersion Modeling Team (ADMT) evaluated predicted concentrations from the proposed project to determine if emissions could adversely affect a Class I area. The nearest Class I area, Caney Creek Wilderness, is located approximately 570 kilometers (km) from the proposed site.

The predicted concentrations of NO_2 and SO_2 for all averaging times, are all less than de minimis levels at a distance of 14 km from the proposed sources in the direction the Caney Creek Wilderness Class I area. The Caney Creek Wilderness Class I area is an additional 556 km from the location where the predicted concentrations of NO_2 and SO_2 for all averaging times are less than de minimis. Therefore, emissions from the proposed project are not expected to adversely affect the Caney Creek Wilderness Class I area.

Effects Screening Levels (ESLs) – Health Effects Analysis

To evaluate potential impacts of non-criteria pollutants, a health effects analysis was performed. ESLs are specific guideline concentrations used in TCEQ's evaluation of certain non-criteria pollutants. These guidelines are derived by TCEQ's Toxicology Division and are based on a pollutant's potential to cause adverse health effects, odor nuisances, and effects on vegetation. Health-based ESLs are set below levels reported to produce adverse health effects, and are set to protect the general public, including sensitive subgroups such as children, the elderly, or people with existing respiratory conditions. TCEQ's Toxicology Division specifically considers the possibility of cumulative and aggregate exposure when developing the ESL values that are used in air permitting, creating an additional margin of safety that accounts for potential cumulative and aggregate impacts. Adverse health or welfare effects are not expected to occur if the air concentration of a pollutant is below its respective ESL. If an air concentration of a pollutant is above the screening level, it is not necessarily indicative that an adverse effect will occur, but rather that further evaluation is warranted.

The health effects analysis is performed using TCEQ guidance document Air Permit Reviewer Reference Guide – APDG 5874 - Modeling and Effects Review Applicability (MERA) process.[3] The MERA is a step-by-step process to evaluate the potential impacts of non-criteria pollutants which are evaluated against the ESL for each chemical species. The initial steps are simple and conservative, and as the review progresses through the process, the steps require more detail and result in a more refined analysis. If the contaminant meets the criteria of a step, the review of human health and welfare effects for that chemical species is complete and is said to "fall out" of the MERA process at that step because it is protective of human health and welfare. All non-criteria pollutants, including benzene, proposed to be authorized were below their respective ESLs. Thus, these pollutants satisfied the MERA criteria and would not be expected to cause adverse health effects. As described above, if an air concentration of

[3] *See* APDG 5874 guidance document.

a pollutant is above the ESL, it is not indicative of an adverse effect but rather that further evaluation is warranted.

The potential for odor nuisance is reviewed through the use of ESLs. As described above, the Applicant performed a health effects analysis based on MERA guidance and all non-criteria pollutants complied with the MERA criteria; therefore, emissions would not be expected to cause an odor nuisance or adverse health effects. While nuisance conditions are not expected if the plant is operated in compliance with the terms of the permit, operators must also comply with 30 TAC § 101.4, which prohibits nuisance conditions.

State Property Line Analysis (30 TAC Chapter 112)

Because this application has sulfur emissions, the Applicant conducted a state property line analysis to demonstrate compliance with TCEQ rules for net ground-level concentrations for sulfur dioxide (SO_2), hydrogen sulfide (H_2S), and sulfuric acid (H_2SO_4), as applicable. This analysis demonstrated that resulting air concentrations will not exceed the applicable state standard, as shown in Tables 6 and 7 below.

Table 6. Project-Related Modeling Results for State Property Line

Pollutant	Averaging Time	GLC_{max} (µg/m³)	De Minimis (µg/m³)
SO_2	1-hr	0.25	20.42

Table 7. Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLC_{max} (µg/m³)	De Minimis (µg/m³)
SO_2	1-hr	0.2	7.8
SO_2	3-hr	0.1	25

In June 2010, U.S. EPA established a new primary one-hour standard and revoked the primary annual and 24-hour standards for SO_2 in Calhoun and Jackson Counties.[4] Therefore, the 24-hour and primary annual SO_2 averaging times are not reported above.

The proposed emissions increases have been adequately represented and included in the impact analysis. Additionally, TCEQ staff and the ADMT have reviewed the proposed emissions from sources, represented source parameters and locations, point and area source representations, and background concentrations. Based on the data and representations, TCEQ staff and ADMT determined that the modeling analysis was acceptable. Please see Response 4 for additional information regarding Best Available Control Technology (BACT), and Response 8 for additional information regarding emissions sources and calculations used to support the application.

[4] *See* https://www.federalregister.gov/documents/2021/03/26/2021-05397/air-quality-designations-for-the-2010-primary-sulfur-dioxide-so2-national-ambient-air-quality.

In summary, based on the Executive Director's staff review, it is not expected that existing health conditions will worsen, or that there will be adverse health effects on the general public, sensitive subgroups, or the public welfare and the environment as a result of proposed emission rates associated with this project.

Greenhouse Gases

EPA has stated that unlike the criteria pollutants for which EPA has historically issued PSD permits, there is no NAAQS or PSD increment for GHGs. The EPA Administrator has recognized that human-induced climate change has the potential to be far-reaching and multi-dimensional.[5] Climate change modeling and evaluations of risks and impacts are typically conducted for changes in emissions that are orders of magnitude larger than the emissions from individual projects that might be analyzed in permit reviews. Quantifying the exact impacts attributable to a specific GHG source obtaining a permit in specific places and points would not be possible with current climate change modeling.[6] Thus, EPA has concluded it would not be meaningful to evaluate impacts of GHG emissions on a local community in the context of a single permit.

TCEQ has determined that an air quality analysis for GHG emissions would provide no meaningful data and has not required the Applicant to perform one. As stated in the preamble to the TCEQ's adoption of the GHG PSD program, the impacts review for individual air contaminants will continue to be addressed, as applicable, in the state's traditional minor and major NSR permits program per 30 TAC Chapter 116 and 30 Tex. Reg. 2629, 2904 (April 11, 2014).

COMMENT 2: Environmental and Water Concerns

Commenters expressed concern about the effect of the proposed project on the surrounding environment, including livestock, cattle, and nearby ranches. Diane Wilson and Fredrick Woodland expressed concern regarding a nearby creek, stating that they have seen soot, tar puddles, and plastic pellets in the water.

(Colin Cox, Diane Wilson, Fredrick Woodland)

RESPONSE 2: The secondary NAAQS are those the EPA Administrator determines are necessary to protect public welfare and the environment, including animals, crops, vegetation, visibility, and structures, from any known or anticipated adverse effects associated with the presence of a contaminant in the ambient air. Because the emissions from this facility should not cause an exceedance of the NAAQS, air emissions from this facility are not expected to adversely impact land, livestock, wildlife, crops, or visibility, nor should emissions interfere with the use and enjoyment of surrounding land or water. Unless toxicity data indicate a need for specific animals,

[5] *See* Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 75 Fed. Reg. 66496, 66497 (Dec. 15, 2009).
[6] EPA's PSD and Title V Permitting Guidance for Greenhouse Gases, March 2011 at p. 48. https://www.epa.gov/sites/production/files/2015-12/documents/ghgpermittingguidance.pdf

the human health-based ESLs also protect animals. All regulated pollutants proposed to be authorized by this permit were reviewed and evaluated as described in Response 1. In addition, 30 TAC § 101.4 prohibits the discharge of contaminants which may be injurious to, or adversely affect, animal life.

Although TCEQ is responsible for the environmental protection of air and water as well as the safe management of waste, this proposed permit will regulate the control and abatement of air emissions only. Therefore, issues regarding water quality or discharge and the handling of waste are not within the scope of this review.

COMMENT 3: Air Dispersion Modeling

Colin Cox questioned whether the Air Quality Analysis (AQA) complies with TCEQ rules and guidance.

(Colin Cox)

RESPONSE 3: As described in Response 1, appropriate site-specific air dispersion modeling was performed for this application. The Applicant used the EPA-approved AERMOD air dispersion modeling program to provide an estimate of the worst-case potential impacts on the area surrounding the proposed facility. The modeling procedures, methodology, predictions, and results were audited by TCEQ's ADMT and determined to be acceptable. The ADMT review was conducted following the procedures outlined in TCEQ Publication APDG 6232, Air Quality Modeling Guidelines. [7]

COMMENT 4: Best Available Control Technology

Colin Cox questioned whether new and modified sources will utilize BACT, as well as questioned whether greenhouse gas controls reflect the use of BACT. Mr. Cox states that the Applicant should install a flare gas recovery system to reduce flaring and associated emissions and expressed concern that the Applicant did not consider this option in the control technology analysis for the project, stating that the Applicant should analyze flare gas recovery for technical feasibility and economical reasonableness. Mr. Cox commented that fence line monitoring should be adopted as BACT for the flares. Robin Schneider commented that the Applicant should be required to use BACT, specifically recirculating gases and not just flaring them.

(Colin Cox, Robin Schneider)

RESPONSE 4: TCEQ does not compare pollution controls between individual facilities (which can vary depending on plant configuration, scale of the plant, and production rates), rather it reviews each permit application in terms of meeting best available control technology, air quality standards, and all relevant and applicable rules and regulations within its jurisdiction. During the course of the technical review of a permit application, the permit reviewer evaluates air pollution control requirements

[7] *See* Air Quality Modeling Guidelines – APDG 6232.

and confirms that the applicant has proposed the appropriate air pollution controls and properly determined off-site impacts for the project facilities and associated sources. The Applicant's air pollution control review, along with the permit reviewer's air pollution control evaluation and final recommendation provide a record that demonstrates that the operation of a proposed facility will not cause or contribute to a condition of air pollution and will comply with all applicable federal regulations and state rules as well as with the intent of the TCAA. The manufacturing plant is located in Jackson and Calhoun Counties, which are both classified as attainment for all criteria pollutants. This project is not subject to nonattainment review, and thus Lowest Achievable Emission Rate (LAER) does not apply to the new or modified sources proposed in this project.

The TCAA and TCEQ rules require an evaluation of air quality permit applications to determine whether adverse effects to public health, general welfare, or physical property are expected to result from a facility's proposed emissions. As part of the evaluation of applications for new or amended permits, the permit reviewer audits all sources of air contaminants at the proposed facility and assures that the facility will be using the BACT applicable for the sources and types of contaminants emitted. BACT is based upon control measures that are designed to minimize the level of emissions from specific sources at a facility. Applying BACT results in requiring technology that best controls air emissions with consideration given to the technical practicability and economic reasonableness of reducing or eliminating emissions.[8] BACT may be numerical limitations, the use of an add-on control technology, design considerations, the implementation of work practices, or operational limitations.

The TCEQ BACT evaluation is conducted using a "tiered" analysis approach. The evaluation begins at the first tier and continues sequentially through subsequent tiers only if necessary, as determined by the evaluation process described in agency guidance. In each tier, BACT is evaluated on a case-by-case basis for technical practicability and economic reasonableness. The three tiers are described in the following paragraphs:

- Tier I: Emission reduction performance levels accepted as BACT in recent permit reviews for the same process and/or industry continue to be acceptable.
- Tier II: Tier II BACT evaluation involves consideration of controls that have been accepted as BACT in recent permits for similar air emission streams in a different process or industry. For example, an applicant may propose to control VOC emissions in one industry using technology already in use in another industry. A Tier II evaluation includes issues relating to stream comparison and possible differences in overall performance of a particular emission reduction option. In addition, the Tier II evaluation considers technical differences between the processes or industries in question. To demonstrate technical practicability, detailed technical analysis may be required to assess the cross-

[8] *See* TCAA §382.0518; 30 TAC §116.111.

applicability of emission reduction options. In Tier II, economic reasonableness is established by historical and current practice.

- Tier III: A Tier III BACT evaluation is a detailed technical and quantitative economic analysis of all emission reduction options available for the process under review and is similar to EPA's top-down approach. Technical practicability is established through demonstrated success of an emission reduction option based on previous use, and/or engineering evaluation of a new technology. Economic reasonableness is determined solely by the cost-effectiveness of controlling emissions (dollars per ton of pollutant reduced) and does not consider the effect of emission reduction costs on corporate economics

The Applicant conducted a Tier I BACT evaluation for all sources of air contaminants from the proposed new and modified facilities. Use of appropriate control measures will minimize the amount of air contaminants emitted into the atmosphere by this chemical plant. The permit reviewer reviewed the proposed controls and determined that BACT for all sources has been met.

The Applicant proposed Tier I BACT for the flares, which is a minimum destruction and removal efficiency (DRE) of 99% for hydrocarbons containing three carbon atoms or less, and 98% for all other compounds. This is to be achieved through compliance with the operating requirements of 40 CFR Part 63, Subpart YY, Generic Maximum Achievable Control Technology Standards (Ethylene Production). The DRE of the flares is discussed further in Response 5.

Tier I BACT for process vents is to route the process vent to a control device, and, where possible, implementation of measures that reduce process vent flaring, such as a flare gas recovery unit, recycling of streams, rework of off-spec product, and any site-specific work practices or procedures. The permit special conditions contain provisions that allow the recovered vent streams to be routed to combustion sources for use as fuel. The Applicant proposed the use of the 28VHP leak detection and repair (LDAR) program as Tier I BACT for the fugitive VOC emissions.

BACT for GHG emissions from the flare consists of practices which limit the formation of CO_2. These practices include the use of low-carbon fuels and the use of good combustion practices. Carbon Capture and Sequestration (CCS) is not currently considered a feasible option due to the lack of dispensation options. Additionally, CCS has not been required in any recently issued PSD permits for olefins plants, EO/MEG plants, or polyethylene plants. BACT for GHG emissions from piping components leaks consists of prompt repair of methane leaks. Compliance with the 28VHP LDAR program ensures satisfaction of BACT for GHG emissions.

See Response 12 regarding additional monitoring information, including fence line monitoring.

COMMENT 5: Technical Justification for the Flare VOC DRE

EPA requested that TCEQ provide the technical rationale for the DRE of 99% for VOC compounds up to three carbon atoms. EPA stated that TCEQ's acceptance of such destruction efficiencies should be accompanied by supporting technical justification in the permitting record. EPA questioned TCEQ's reliance on flare studies conducted by EPA in the early 1980's since more recent studies used to support of the development of the Refinery MACT and Ethylene Production MACT are available.

EPA stated that they have not explicitly identified monitoring or operating requirements within the Ethylene Production MACT rulemaking that can ensure compliant flares will continuously achieve 99% VOC DRE, and do not believe that these regulations ensure compliance with 99% DRE for steam-assisted, air-assisted, or non-assisted flares. Finally, EPA requested that TCEQ explain for each type of flare what monitoring and/or operating limits/assumptions the commission relied on to authorize 99% DRE, whether compliance with these assumptions is practically enforceable, and what data the commission reviewed to ensure that the proposed operating limits can ensure that both the assisted and non-assisted flares will continuously achieve 99% VOC DRE in practice.

(EPA)

RESPONSE 5: The TCAA and TCEQ rules require an evaluation of air quality permit applications to determine whether adverse effects to public health, general welfare, or physical property are expected to result from a facility's proposed emissions. As part of the evaluation of applications for new or amended permits, the permit reviewer audits all sources of air contaminants for the proposed project, and ensures that the facility will be using BACT applicable for the sources and types of contaminants emitted. BACT is based upon control measures that are designed to minimize the level of emissions from specific sources at a facility. Applying BACT results in requiring technology that best controls air emissions with consideration given to the technical practicability and economic reasonableness of reducing or eliminating emissions (*see* TCAA § 382.0518; *see also* 30 TAC § 116.111). BACT may be numerical limitations, the use of an add-on control technology, design considerations, the implementation of work practices, or operational limitations.

The authorized flares at this site include five elevated, steam assist flare systems. The application also proposes four new enclosed ground flares at the site.

Flares are used to control routine emissions, planned maintenance, startup, and shutdown (MSS), and process upsets. BACT for VOCs is compliance with 40 CFR § 60.18 specifications for maximum tip velocity and minimum net heating value. A waste gas flow monitor, and a gas composition analyzer or calorimeter are required. The flares are required to be equipped with a thermocouple or infrared monitor to ensure the presence of a pilot flame. Visible emissions are prohibited except for periods not to exceed a total of five minutes during any two consecutive hours. Flare

pilot fuel is limited to no more than 5 grains of total sulfur per 100 dry standard cubic feet.

Additionally, the flares at this site will comply with the design and operating requirements of 40 CFR Part 63 Subpart YY, National Emission Standards for Hazardous Air Pollutants for Source Categories: Generic Maximum Achievable Control Technology Standards, which directly applies the requirements of 40 CFR Part 63 Subpart CC - National Emission Standards for Hazardous Air Pollutants from Petroleum Refineries. Because the site produces ethylene, and the ethylene production operates with one or more of the affected emission points for the source category, the provisions of 40 CFR Part 63 Subpart YY apply to this site. The flare requirements in the draft permits for this site are consistent with design and monitoring for flares in accordance with the provisions of these rules. The following special conditions contain the flare monitoring requirements for each permit:

Permit Numbers	Special Condition Numbers
19168, PSDTX1226M1, and GHGPSDTX224	12-13
19200, PSDTX1237M1, and GHGPSDTX218	6-7
19201, PSDTX1232M1, and GHGPSDTX219	10-11
19871, and PSDTX1236M1, and GHGPSDTX221	7-9
20203, PSDTX1224M1, and GHGPSDTX222	9-10
40157, PSDTX1222M1, and GHGPSDTX225	8-9
91780, PSDTX1240M1, and GHGPSDTX223	8-9
107518, PSDTX1383M2, and GHGPSDTX48M1	10-11
140763, PSDTX1500M1, and GHGPSDTX46M1	15-16

TCEQ's practice regarding VOC DRE for flares is based on longstanding guidance that, when a flare is properly operated in accordance with permit requirements and the provisions of 40 CFR § 60.18, 99 percent DRE should be attained for compounds up to three carbons, and 98 percent DRE for compounds with four or more carbons. TCEQ flare guidance and assumed DRE values are based in part on historical EPA research and publications.

TCEQ relied upon the EPA flare studies conducted in the 1980s to support the development of appropriate flare destruction efficiencies. The 1980s study shows destruction efficiencies well above 99 percent for the properly operated flares.

Documents published since these studies continue to support these conclusions. EPA AP-42 Chapter 13.5 (*Industrial Flares*, revised September 1991), states, "…recent studies on flare performance using passive Fourier Transform Infrared (pFTIR) spectroscopy have been performed on a number of different flares. The studies cover a number of flares at refineries, chemical plants, and flare test facilities with varying waste gas compositions. The pFTIR studies support the conclusion that the combustion zone properties of the steam-waste gas mixture are predictive of proper flare combustion." The combustion zone is being monitored through the requirements of the permit special conditions and the Ethylene Production MACT requirements.

While Ethylene Production MACT and Refinery MACT standards may not have been developed with the intention of defining monitoring or operating requirements that ensure 99% DRE, the monitoring requirements delineated in these rules require monitoring of the parameters that ensure proper combustion of the waste gas, including monitoring of the net heating value in the combustion zone and measures that prevent over-assisting. EPA's document, "Parameters for Properly Designed and Operated Flares," (April 2012) identifies the factors that should be considered in order to be confident that a flare is operated properly to achieve good combustion efficiency. These operational practices are consistent with the monitoring requirements of the Ethylene Production MACT and Refinery MACT.

TCEQ is also aware that more recent studies have observed that, in some tested cases, compliance with the flare tip velocity and stream heating value requirements of 40 CFR § 60.18 alone may not always result in 98% or 99% DRE. However, at this juncture, TCEQ has not seen enough conclusive data to establish a different and specific DRE value, or to substantially revise BACT requirements for flares. Further, the proposed flare destruction efficiencies of 98% (4 or more carbons) or 99% (3 or less carbons) are consistent with at least eight RACT/BACT/LAER Clearinghouse (RBLC) data entries for VOC control since 2017, including sites in Texas and Ohio.

TCEQ is also aware of the possibility that over-assistance can occur at improperly operated steam- or air-assisted flares. As noted in the April 2012 publication from EPA's Office of Air Quality Planning and Standards (OAQPS) entitled *Parameters for Properly Designed and Operated Flares*, excess aeration "can actually result in a flare operating outside its stable flame envelope, decreasing the combustion efficiency," and "can dilute the flare vent gas, making the flare vent gas too lean to burn in the combustion zone." For this site, the five elevated flares (EPNs 1018, 1067, OL3-FLRA, OL3-FLRB, and OL3-FLRC) are steam-assisted. The flares are required to comply with the design and operating requirements of 40 CFR § 60.670. 40 CFR § 63.670(h) prohibits visible emissions, except for a maximum of 5-minutes during any 2 consecutive hours. 40 CFR § 63.670(b) requires that flares be operated with a flame present at all times. 40 CFR § 63.670(e) requires that the net heating value of flare combustion zone gas (NHV_{cz}) at or above 270 British thermal unit (Btu) per standard cubic foot or feet (Btu/scf). 40 CFR §63.670(d) requires that flares be designed and operated with an exit velocity less than the velocity (V_{max}) as determined in 40 CFR § 63.670(d). The special conditions of the permits require continuous parametric

monitoring to ensure compliance with the provisions of 40 CFR § 63.670. These design, operating, and monitoring requirements provide the monitoring necessary to ensure proper flare combustion and thus, would prevent over-assistance of the flare.

As indicated in the *EPA Air Pollution Control Cost Manual* (August 2019, Section 3.2, Chapter 1), in steam-assisted flares, injected steam is used to reduces smoke formation, "to promote turbulence for mixing and to induce air into the flame," and for "drawing in more combustion air and improving combustion efficiency."

As indicated above, 40 CFR § 63.670(h) prohibits visible emissions, except for a maximum of 5-minutes during any 2 consecutive hours. This prohibition on visible emissions is reiterated in the special conditions of the permit. TCEQ believes that compliance with the visible emissions limit is one indicator of proper use of steam assist and good combustion. The additional continuous monitoring requirements for pilot flame, waste gas flow, and composition for minimum heating value required by the special conditions will also help ensure good combustion at the flares.

For the existing elevated flares, Formosa conducted an analysis of various other calculation methodologies including EPA's guidance, AP-42 Chapter 13.5. The proposed project emissions, assuming total hydrocarbons is equivalent to total VOCs from the flares, were evaluated in accordance with EPA's methodology. As a result of using this guidance as the calculation methodology for VOCs, the routine emissions combined with MSS emissions result in 479.24 tons VOC per year which is much less than the 1,189.54 tons VOC per year using the accepted TCEQ guidance. Therefore, by using TCEQ's recommended guidance of 99 percent DRE for compounds up to three carbons, and 98 percent DRE for compounds with four or more carbons, leads to higher estimated VOC emissions resulting in a more conservative evaluation for federal applicability analysis and off-property impacts analysis.

For the enclosed ground flares, EPA's guidance, AP-42 Chapter 13.5 indicates that the emissions factor data set for the ground flare burners had an average destruction efficiency of 99.99%, which is well above the assumed 99% DRE for compounds up to three carbons, and 98% DRE for compounds with four or more carbons. TCEQ's recommended guidance of 99% DRE for compounds up to three carbons, and 98% DRE for compounds with four or more carbons, leads to higher estimated VOC emissions resulting in a more conservative evaluation for federal applicability analysis and off-property impacts analysis.

TCEQ will continue to evaluate new data and new federal requirements for flares and will revise BACT and monitoring requirements for these sources at such time sufficient data or applicable federal regulations become available. In the meantime, we believe compliance with the monitoring requirements in draft permit special conditions (regarding the pilot flame, flow rate, and stream composition or heating value), in conjunction with compliance with the federal provisions of 40 CFR § 60.670, will ensure that the authorized emission limits are not exceeded.

COMMENT 6: Specification of Destruction Efficiencies

EPA stated that the application representations do not appear to be incorporated by reference or plainly stated in the draft permits and requested that the destruction efficiencies be included in the permit as an enforceable permit condition.

(EPA)

RESPONSE 6: The DRE has not been included in the Special Conditions, except where the condition already existed, because a DRE of 99% DRE for compounds up to three carbons, and 98% DRE for compounds with four or more carbons, will be achieved as a result of the proper operation of the flares. The Special Conditions contain the operating and monitoring requirements necessary to achieve the DRE, therefore specifying the DRE is not needed to make the flare emission limit enforceable. Additionally, as provided in 30 TAC § 116.116(a), the Applicant is bound by these representations, including the represented performance characteristics of the control equipment. The permit holder must also operate within the limits of the permit, including the emission limits as listed in the Maximum Allowable Emissions Rate Table (MAERT), which were determined based on the DRE.

COMMENT 7: Enforceability of Emission Caps

EPA requested that TCEQ explain in detail how Formosa is able to determine which plant or combination of process areas are contributing to each individual flare and how compliance with each distinct limit is independently determined and ensured.

(EPA)

RESPONSE 7: Each waste gas line exiting a process area and being directed to a flare is equipped with a flow meter. The total volumetric flow rate is summed from the individual waste gas streams. Waste gas lines exiting a process area, are determined either with instrumentation to determine the heating value, or are a known heating value. Each flare is equipped with an analyzer to determine the net heating value of the incoming stream.

COMMENT 8: Emission Rates and Calculations

Colin Cox questioned whether the emissions calculation methodologies used in the application were flawed or outdated.

(Colin Cox)

RESPONSE 8: The Applicant represented the appropriate methodologies to control and minimize emissions and utilized corresponding control efficiencies when calculating the emission rates. These methodologies and efficiencies were determined to be correct and applicable by TCEQ staff during the technical review based on standard

industry permitting practices. As provided in 30 TAC § 116.116(a), the Applicant is bound by these representations, including the represented performance characteristics of the control equipment. In addition, the permit holder must operate within the limits of the permit, including the emission limits as listed in the MAERT.

Emissions calculations for the proposed project were determined utilizing the following methods: Emissions from flares are calculated using the emission factors given in TCEQ Publication RG-109.6. For VOC, the emission rate is the product of the pre-control mass flow rate of the pollutant, reduced by the applicable DRE. For NO_X and CO, the emission rate is the product of the applicable emission factor and the heat duty of the flare, determined based on the net heating value (or lower heating value) of the flare gas. SO_2 emissions from flares are calculated using a mass balance approach, assuming that 100% of sulfur atoms in the flare gas are converted to SO_2 molecules. Fugitive emission rate estimates were calculated using TCEQ's common fugitive calculation workbook in accordance with the TCEQ's Air Permit Technical Guidance for Chemical Sources: Fugitive Guidance – APDG 6422 (June 2018). The fugitive emission stream weight percentages authorized in the permit represent the maximum expected concentrations of each chemical under any operation condition. All calculations were based on the maximum production rates.

See Response 5 regarding flares.

COMMENT 9: Project Scope / Application Representations

Colin Cox commented that while the Applicant represented that the purpose of the project is to comply with new EPA rules, it has not been explained as to why the project seeks to increase flare limits beyond current levels. Mr. Cox expressed concern that the application states there are "no physical changes or changes in the method of operation in any process unit that would affect the nature of, or increase quantities of, any flared waste gas stream currently generated within the entire chemical complex," stating that he is unable to reconcile this statement with the proposal to increase flaring limits.

(Colin Cox)

RESPONSE 9: The Applicant is proposing two separate projects in this permitting action. First, the Applicant seeks to update the flaring emissions to comply with the EPA Risk and Technology Review (RTR) for the Ethylene Production source category. Second, the Applicant proposes an increase in annual MSS flaring emissions due to additional required shutdowns. The emissions from the flares will be increasing due to both the additional emissions associated with the MSS activities, and to comply with the new EPA rules. The new EPA rules differ from the previous method required to calculate emissions, and specify a minimum net heating value in the combustion zone (NHVcz). Additional supplemental BTU content in the form of fuel gas is needed to keep the heating value in the combustion zone above the EPA mandated 270 BTU/scf and does not add additional production capacity or modify the facility. The addition of

fuel to increase the net heating value in the combustion zone gas is intended to result in better combustion and removal of hazardous air pollutants (HAPs), and the approach to achieve this is consistent across the industry.

COMMENT 10: Access to Permit Documents

Colin Cox questioned whether the Applicant and TCEQ supplied the public with adequate information to verify the bases for the Applicant's claims and for TCEQ's decision to issue the permits.

(Colin Cox)

RESPONSE 10: Title 30 TAC § 39.405 requires the Applicant to provide copies of the application and the Executive Director's preliminary decision at a public place in the county in which the facility is located or proposed to be located. The rules also require the public have an opportunity to review and copy these materials. In addition, the application, including any subsequent revisions to the application, must be available for review for the duration of the comment period. The Applicant represented that the application was made available at the TCEQ central office, the TCEQ Corpus Christi regional office, the Calhoun County Public Library – Port Lavaca Branch, 200 West Mahan Street, Port Lavaca, Calhoun County, and the Jackson County Memorial Library, 411 North Wells Street, Edna, Jackson County, Texas. No confidential information was submitted with the application, and thus all application materials were available for public review.

COMMENT 11: Monitoring, Recordkeeping, and Reporting Requirements

Commenters expressed concern about the monitoring requirements contained in the draft permit. Colin Cox questioned whether the monitoring and reporting requirements contained in the permit Special Conditions are adequate to ensure compliance with the Clean Air Act and protect local residents. Mr. Cox questioned whether the draft permit conditions are adequate to protect the public from cumulative risks in accordance with Texas Water Code § 5.130. Mr. Cox expressed concern that the permit special conditions do not limit the volume of gas that can be flared and asks what permit conditions will prevent the Applicant from increasing its flaring.

(Colin Cox)

RESPONSE 11: Special conditions have been included as part of the draft permit to ensure the Applicant can demonstrate compliance with the emission limitations set forth in the permit. The flares subject to monitoring requirements in 40 CFR Part 63, Subpart YY, Generic Maximum Achievable Control Technology Standards (Ethylene Production). The Special Conditions require that the flares be equipped with flow monitors, and a composition analyzer or calorimeter to monitor the net heating value in the combustion zone, which will continuously determine compliance with the

minimum required heating value to ensure proper combustion efficiency and abatement of the waste gas stream. The fugitive emissions are monitored using a LDAR program, where the Applicant is required to regularly inspect fugitive components to identify leaks using instruments. Leaks identified by the inspections are then repaired within a specified period.

The permit holder is also required to maintain records to demonstrate compliance, including the monitoring listed above. Records must be made available upon request to representatives of TCEQ, EPA, or any local air pollution control program having jurisdiction. The Regional Office may perform investigations of the facility which may include an inspection of the site including all equipment, control devices, monitors, and a review of all calculations and required recordkeeping.

The permit Special Conditions do not limit the volume of gas that can be flared, but rather require continuous monitoring of the flowrate and heating value of the waste stream, continuous monitoring of the pilot flame, monitoring of visible emissions, and a maximum hourly and annual mass emission rate limit. These provisions are adequate to ensure abatement of the waste gas stream and compliance with the emission limits as listed in the MAERT. Additionally, the volumetric flow rate of waste gas being routed to the flare is represented in the calculations in the application. As provided in 30 TAC § 116.116(a), the Applicant is bound by these representations.

The permit holder must operate within the limits of the permit, including the emission limits as listed in the MAERT. If the permit holder wishes to increase flaring in an amount that would exceed the emission limits as listed in the MAERT or modify the flares, the permit holder would be required to submit an application for a permit amendment in accordance with 30 TAC § 116.110.

TCEQ evaluates all complaints received. If a facility is found to be out of compliance with the terms and conditions of its permit, it will be subject to investigation and possible enforcement action. Individuals are encouraged to report any concerns about nuisance issues or suspected noncompliance with terms of any permit or other environmental regulation by contacting the TCEQ Corpus Christi Regional Office at 361-881-6900 or by calling the 24-hour toll-free Environmental Complaints Hotline at 1-888-777-3186.Citizen-collected evidence may be used in such an action. *See* 30 TAC § 70.4, Enforcement Action Using Information Provided by Private Individual, for details on gathering and reporting such evidence. Under the citizen-collected evidence program, individuals can provide information on possible violations of environmental law. The information, if gathered according to agency procedures and guidelines, can be used by TCEQ to pursue enforcement. In this program, citizens can become involved and may eventually testify at a hearing or trial concerning the violation. For additional information, see the TCEQ publication, "Do You Want to Report an Environmental Problem? Do You Have Information or Evidence?" This booklet is available in English and Spanish from the TCEQ Publications office at 512-239-0028 and may be downloaded from the agency website at http://www.tceq.texas.gov (under

Publications, search for document number 278). *See* Response 1 regarding health effects and air quality, and Response 2 regarding environmental and water concerns.

Although TCEQ is responsible for the environmental protection of air and water as well as the safe management of waste, this proposed permit will regulate the control and abatement of air emissions only. Therefore, issues regarding water quality or discharge and the handling of waste, including the provisions of Texas Water Code § 5.130, are not within the scope of this review.

COMMENT 12: Additional Monitoring and Testing

Sandra L. Hardy McKenzie commented that if the permits are granted, the government should require funds to be set aside by the Applicant to pay for surprise, unscheduled, independent monitoring and independent stationary monitoring of toxic emissions, including but not limited to ethylene dichloride (EDC) and vinyl chloride monomer (VCM). Ms. McKenzie requests that this monitoring be performed by independent third-party experts selected by TCEQ, Sierra Club, Diane Wilson, or an organization she approves such as River Keepers, and/or Audubon and/or organizations involved in protecting public health and the environment. Ms. McKenzie further requests that funding be set aside by the Applicant to pay for independent monitoring of emissions as well as particles of incomplete combustion and flaring, for this monitoring to include in-person sampling and testing, as well as video and audio monitoring. Ms. McKenzie requests that the Applicant be required to conduct appropriate human and animal testing to determine whether emissions have caused health effects to the human and animal populations, and for these test results and methods to be made available to the public to verify that the methods and analysis meet scientific standards.

Colin Cox commented that the Applicant should install monitors along their fence line to protect the local community, citing other refineries which have proposed and implemented such monitoring. Robin Schneider commented that fence line monitoring should be required so downwind residents know what is coming from the facility.

(Colin Cox, Sandra L. Hardy McKenzie, Robin Schneider)

RESPONSE 12:

Monitoring

Special conditions have been included as part of the proposed permit to ensure the Applicant can demonstrate compliance with the emission limitations set forth in the permit. These monitoring requirements are discussed in detail in Response 11.

TCEQ does not have the authority to conduct testing on humans or animals, nor to collect funds from the applicant outside the fees in the amounts and for purposes specified by the TCEQ rules. Both the TCAA and TCEQ rules provide for an extensive

review of the application to ensure that emissions from the proposed facility will not violate the NAAQS and will not be expected to adversely affect human health or the environment. This review is discussed in more detail in Response 1.

Inspections

As required for any major source, the Regional Office is required to perform periodic investigations of the plant. The investigation may include an inspection of the site including all equipment, control devices, monitors, and a review of all calculations and required recordkeeping. TCEQ evaluates all complaints received. If a facility is found to be out of compliance with the terms and conditions of its permit, it will be subject to investigation and possible enforcement action. Individuals are encouraged to report any concerns about nuisance issues or suspected noncompliance with terms of any permit or other environmental regulation by contacting the TCEQ Corpus Christi Regional Office at 361-881-6900 or by calling the 24-hour toll-free Environmental Complaints Hotline at 1-888-777-3186.

Citizen-collected evidence may be used in such an action. See 30 TAC § 70.4, Enforcement Action Using Information Provided by Private Individual, for details on gathering and reporting such evidence. Under the citizen-collected evidence program, individuals can provide information on possible violations of environmental law. The information, if gathered according to agency procedures and guidelines, can be used by TCEQ to pursue enforcement. In this program, citizens can become involved and may eventually testify at a hearing or trial concerning the violation. For additional information, see the TCEQ publication, "Do You Want to Report an Environmental Problem? Do You Have Information or Evidence?" This booklet is available in English and Spanish from the TCEQ Publications office at 512-239-0028 and may be downloaded from the agency website at http://www.tceq.texas.gov (under Publications, search for document number 278).

Fenceline Monitoring

Since stationary air monitors are sited to measure air quality that is representative of a broader area or region; monitors are not typically placed to measure the impacts from specific industrial facilities. See Response 1 for detailed information regarding the health effects review and air dispersion modeling performed for this application and for information on the representative background concentrations from the Formosa monitoring network used in the AQA.

Due to cost and logistical constraints, the placement of air monitors is prioritized to provide data on regional air quality in areas frequented by the public. The existing air monitoring network is the result of a strategic balance of matching federal monitoring requirements with state and local needs. Consistent with federal air monitoring requirements, TCEQ evaluates the placement of air quality monitors within the air monitoring network using trends in population, reported emissions inventory data, and existing air monitoring data for a given area. In addition, TCEQ may prioritize

monitor placement in areas with potential regional air quality issues, such as those related to increased oil and gas activity in the Barnett Shale and Eagle Ford Shale areas. TCEQ annually evaluates the number and location of air monitors within its network to assess compliance with federal monitoring requirements and the adequacy of monitoring coverage for identified monitoring objectives as a part of the Annual Monitoring Network Plan provided to EPA on July 1 of each year. This plan is made available on TCEQ's website for public review and comment for 30 days beginning in mid-May. Requests for additional monitoring or the identification of additional monitoring needs may be made during this public comment period and will be considered along with other monitoring priorities across the state. To receive email announcements related to the ambient air monitoring network, including the availability of the Annual Monitoring Network Plan for public review and comment, please visit the following link https://service.govdelivery.com/accounts/TXTCEQ/subscriber/new and select "Air Monitoring Network Announcements."

The draft permit contains detailed monitoring requirements that will generate data sufficient for estimating actual emissions from the terminal and determining its compliance with the permit on an ongoing basis. However, the draft permit does not contain a requirement for the permit holder to conduct fence line monitoring or otherwise install ambient air monitors. The monitoring requirements in the permit are described in Response 11.

COMMENT 13: Compliance History / Emissions Events

Commenters expressed concern regarding the compliance history of the Applicant and the site, specifically stating that the Applicant has not been a good neighbor. Multiple commenters cite the Applicants history of air and water violations, as well as unauthorized emissions events. Sandra L. Hardy McKenzie commented that independent monitoring should be required due to the Applicant's history of violating federal and state environmental laws. Colin Cox stated that the Applicant's record of environmental violations is long and therefore they should not be allowed to increase flaring limits. Robin Schneider expressed concern that the Applicant is a 'serial polluter'.

(Colin Cox, Sandra L. Hardy McKenzie, Robin Schneider, Diane Wilson, Fredrick Woodland)

RESPONSE 13: TCEQ defines an upset event as an unplanned or unanticipated occurrence or excursion of a process or operation that results in an unauthorized emissions of air contaminants. An upset event that results in unauthorized emissions from an emission point is an emissions event. The air permit does not authorize upset events. If an upset occurs, the permit holder must comply with the requirements in 30 TAC § 101.201 regarding the recording and reporting of emission events. If the permit holder fails to report in accordance with 30 TAC § 101.201, the commission

may initiate enforcement action for failing to report the underlying emissions event itself. *See* Response 2 regarding concerns about water.

With respect to emissions events or spills, as set forth in 30 TAC § 101.201(a), regulated entities are required to notify the TCEQ regional office within 24 hours of the discovery of releases into the air and in advance of maintenance activities that could or have resulted in emissions in excess of a reportable quantity. The reportable quantity varies based on the air contaminant released. In the event an individual is adversely impacted by air emissions from this or any other facility, they may register a complaint with the TCEQ Corpus Christi Regional Office at 361-881-6900 or by calling the 24-hour toll free Environmental Complaints Hotline at 1 888-777-3186. Complaints are addressed in accordance with TCEQ procedures. In the event of an emergency, the Local Emergency Planning Committee and the regulated entity have the primary responsibility of notifying potentially impacted parties regarding the situation. Occasionally a permit application may require a disaster review. Whether a permit application requires a disaster review depends on the chemicals handled, the location of facility, and the processes involved. Proposed projects which involve toxic chemicals that are known or suspected to have potential for life-threatening effects upon off-facility property in the event of a disaster and involve manufacturing processes that may contribute to the potential for disastrous events, are candidates for disaster review. None of these applications required a disaster review.

During the technical review of the permit application, a compliance history review of both the company and the site is conducted based on the criteria in 30 TAC Chapter 60. These rules may be found at the following website: https://www.tceq.texas.gov/rules/index.html.

The compliance history is reviewed for the five-year period prior to the date the permit application was received and includes multimedia compliance-related components about the site under review. These components include: enforcement orders, consent decrees, court judgments, criminal convictions, chronic excessive emissions events, investigations, notices of violations, audits and violations disclosed under the Audit Act, environmental management systems, voluntary on-site compliance assessments, voluntary pollution reduction programs, and early compliance. However, the TCEQ does not have jurisdiction to consider violations outside of the State of Texas.

A company and site may have one of the following classifications and ratings:

- High: rating below 0.10 – complies with environmental regulations extremely well;
- Satisfactory: rating 0.10 – 55.00 – generally complies with environmental regulations;
- Unsatisfactory: rating greater than 55.00 – fails to comply with a significant portion of the relevant environmental regulations.

This site has a rating of 13.63 and a classification of Satisfactory. The company rating has a rating of 12.55 and a classification of Satisfactory. The company rating reflects the average of the ratings for all sites the company owns in Texas.

TCEQ cannot deny authorization of a facility if a permit application contains a demonstration that all applicable statutes, rules, and regulations will be met. Additionally, the Special Conditions of the permit contain detailed monitoring requirements and the Regional Office may perform investigations of the plant that may include monitoring equipment. Detailed monitoring requirements in information regarding inspections are described in Response 11 and Response 12.

COMMENT 14: Jurisdictional Issues

Diane Wilson expressed concern regarding loud noise from the existing flare, as well as commented that the Applicant has harmed the health, property, and livelihoods of nearby residents.

(Diane Wilson)

RESPONSE 14: TCEQ does not have the authority to consider potential effects from plant location, aesthetics, quality of life, zoning and land use issues, or effects on property values when determining whether to approve or deny this air permit. Accordingly, TCEQ does not have authority under the TCAA to require or enforce any noise abatement measures. Noise ordinances are normally enacted by cities or counties and enforced by local law enforcement authorities. Commenters should contact their local authorities with questions or complaints about noise.

COMMENT 15: Environmental Justice

Colin Cox questioned whether the Applicant and TCEQ adequately considered the environmental justice impacts of the proposed emissions increases.

(Colin Cox)

RESPONSE 15: Air permits evaluated by TCEQ are reviewed without reference to the socioeconomic or racial status of the surrounding community. TCEQ is committed to protecting the health of the people of Texas and the environment regardless of location. A health effects review was conducted for the proposed facilities during the permit review and the permit was found to be protective of human health and the environment.

TCEQ encourages participation in the permitting process. The Office of the Chief Clerk works to help the public and neighborhood groups participate in the regulatory process to ensure that agency programs that may affect human health or the environment operate without discrimination and to make sure that concerns are considered thoroughly and are handled in a way that is fair to all. You may contact the

Office of the Chief Clerk at (512) 239-3300 for further information. More information may be found on the TCEQ website: Title VI Compliance at TCEQ - Texas Commission on Environmental Quality - www.tceq.texas.gov.

COMMENT 16: TCEQs Responsibility to the Community

Commenters asked that TCEQ consider residents and their wishes and choose not to approve the proposed emissions increases associated with the project. Colin Cox commented on the compliance history of the Applicant at the site, stating that the record of environmental violations should not be rewarded with permits that allow more flaring and air pollution. Robin Schneider asks why the TCEQ would issue permission to pollute the environment more, specially to a company that has been called a 'serial polluter' by a federal judge. Robin Schneider commented that the TCEQ acts on behalf of the polluters rather than in the interests of public health.

(Colin Cox, Kris Leabo, Robin Schneider, Diane Wilson)

RESPONSE 16: The Executive Director's staff has reviewed the permit application in accordance with the applicable state and federal law, policy and procedures, and the agency's mission to protect the state's human and natural resources consistent with sustainable economic development. TCEQ cannot deny authorization of a facility if a permit application contains a demonstration that all applicable statutes, rules, and regulations will be met. *See* Response 13 regarding Compliance History.

CHANGES MADE IN RESPONSE TO COMMENT

No changes to the draft permit have been made in response to public comment.

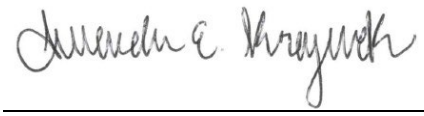
Respectfully submitted,

Texas Commission on Environmental Quality

Kelly Keel, Executive Director

Phillip Ledbetter, Director
Office of Legal Services

Charmaine Backens, Deputy Director
Environmental Law Division



Amanda Kraynok, Staff Attorney
Environmental Law Division
State Bar Number 24107838
PO Box 13087, MC 173
Austin, Texas 78711-3087

REPRESENTING THE
EXECUTIVE DIRECTOR OF THE
TEXAS COMMISSION ON
ENVIRONMENTAL QUALITY

Brooke T. Paup, *Chairwoman*
Bobby Janecka, *Commissioner*
Catarina R. Gonzales, *Commissioner*
Kelly Keel, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

May 1, 2025

TO: All interested persons.

RE: Formosa Plastics Corporation, Texas
TCEQ Air Quality Permit Numbers: 140763, PSDTX1500M1, and GHGPSDTX46M1; 19871, PSDTX1236M1, and GHGPSDTX221; 91780, PSDTX1240M1, and GHGPSDTX223; 19200, PSDTX1237M1, and GHGPSDTX218; 19168, PSDTX1226M1, and GHGPSDTX224; 107518, PSDTX1383M2, and GHGPSDTX48M1; 20203, PSDTX1224M1, and GHGPSDTX222; 40157, PSDTX1222M1, and GHGPSDTX225; 19201, PSDTX1232M1, and GHGPSDTX219

Decision of the Executive Director.

The executive director has made a decision that the above-referenced permit application meets the requirements of applicable law. **This decision does not authorize construction or operation of any proposed facilities.** This decision will be considered by the commissioners at a regularly scheduled public meeting before any action is taken on this application unless all requests for contested case hearing or reconsideration have been withdrawn before that meeting.

Enclosed with this letter are instructions to view the Executive Director's Response to Public Comment (RTC) on the Internet. Individuals who would prefer a mailed copy of the RTC or are having trouble accessing the RTC on the website, should contact the Office of the Chief Clerk, by phone at (512) 239-3300 or by email at chiefclk@tceq.texas.gov. A complete copy of the RTC (including the mailing list), complete application, draft permit and related documents, including public comments, are available for review at the TCEQ Central Office. Additionally, a copy of the complete application, the draft permit, and executive director's preliminary decision are available for viewing and copying at the TCEQ Central Office, the TCEQ Corpus Christi Regional Office, the Calhoun County Public Library – Port Lavaca Branch, 200 West Mahan Street, Port Lavaca, Calhoun County, and the Jackson County Memorial Library, 411 North Wells Street, Edna, Jackson County. The facility's compliance file, if any exists, is available for public review at the TCEQ Corpus Christi Regional Office, 500 North Shoreline Boulevard, Suite 500, Corpus Christi, Texas.

If you disagree with the executive director's decision, and you believe you are an "affected person" as defined below, you may request a contested case hearing. In addition, anyone may request reconsideration of the executive director's decision. The procedures for the commission's evaluation of hearing requests/requests for reconsideration are located in 30 Texas Administrative Code Chapter 55, Subchapter F. A brief description of the procedures for these two requests follows.

How to Request a Contested Case Hearing.

It is important that your request include all the information that supports your right to a contested case hearing. Your hearing request must demonstrate that you meet the applicable legal requirements to have your hearing request granted. The commission's consideration of your request will be based on the information you provide.

The request must include the following:

(1) Your name, address, daytime telephone number, and, if possible, a fax number.

(2) The name of the applicant, the permit number and other numbers listed above so that your request may be processed properly.

(3) A statement clearly expressing that you are requesting a contested case hearing. For example, the following statement would be sufficient: "I request a contested case hearing."

(4) If the request is made by a group or association, the request must identify:

(A) one person by name, address, daytime telephone number, and, if possible, the fax number, of the person who will be responsible for receiving all communications and documents for the group;

(B) the comments on the application submitted by the group that are the basis of the hearing request; and

(C) by name and physical address one or more members of the group that would otherwise have standing to request a hearing in their own right. The interests the group seeks to protect must relate to the organization's purpose. Neither the claim asserted nor the relief requested must require the participation of the individual members in the case.

Additionally, your request must demonstrate that you are an **"affected person."** An affected person is one who has a personal justiciable interest related to a legal right, duty, privilege, power, or economic interest affected by the application. Your request must describe how and why you would be adversely affected by the proposed facility or activity in a manner not common to the general public. For example, to the extent your request is based on these concerns, you should describe the likely impact on your health, safety, or uses of your property which may be adversely affected by the proposed facility or activities. To demonstrate that you have a personal justiciable interest, you must state, as specifically as you are able, your location and the distance between your location and the proposed facility or activities. A person who may be affected by emissions of air contaminants from the facility is entitled to request a contested case hearing.

Your request must raise disputed issues of fact that are relevant and material to the commission's decision on this application that were raised **by you** during the public comment period. The request cannot be based solely on issues raised in comments that you have withdrawn.

To facilitate the commission's determination of the number and scope of issues to be referred to hearing, you should: 1) specify any of the executive director's responses to **your** comments that you dispute; 2) the factual basis of the dispute; and 3) list any disputed issues of law.

How to Request Reconsideration of the Executive Director's Decision.

Unlike a request for a contested case hearing, anyone may request reconsideration of the executive director's decision. A request for reconsideration should contain your name, address, daytime phone number, and, if possible, your fax number. The request must state that you are requesting reconsideration of the executive director's decision, and must explain why you believe the decision should be reconsidered.

Deadline for Submitting Requests.

A request for a contested case hearing or reconsideration of the executive director's decision must be **received by** the Chief Clerk's office no later than **30 calendar days** after the date of this letter. You may submit your request electronically at www.tceq.texas.gov/agency/decisions/cc/comments.html or by mail to the following address:

Laurie Gharis, Chief Clerk
TCEQ, MC-105
P.O. Box 13087
Austin, Texas 78711-3087

Processing of Requests.

Timely requests for a contested case hearing or for reconsideration of the executive director's decision will be referred to the TCEQ's Alternative Dispute Resolution Program and set on the agenda of one of the commission's regularly scheduled meetings. Additional instructions explaining these procedures will be sent to the attached mailing list when this meeting has been scheduled.

How to Obtain Additional Information.

If you have any questions or need additional information about the procedures described in this letter, please call the Public Education Program, toll free, at 1-800-687-4040.

Sincerely,

Laurie Gharis
Chief Clerk

LG/cb

Enclosure

EXECUTIVE DIRECTOR'S RESPONSE TO PUBLIC COMMENT
for
Formosa Plastics Corporation, Texas
TCEQ Air Quality Permit Numbers: 140763, PSDTX1500M1, and GHGPSDTX46M1; 19871, PSDTX1236M1, and GHGPSDTX221; 91780, PSDTX1240M1, and GHGPSDTX223; 19200, PSDTX1237M1, and GHGPSDTX218; 19168, PSDTX1226M1, and GHGPSDTX224; 107518, PSDTX1383M2, and GHGPSDTX48M1; 20203, PSDTX1224M1, and GHGPSDTX222; 40157, PSDTX1222M1, and GHGPSDTX225; 19201, PSDTX1232M1, and GHGPSDTX219

The Executive Director has made the Response to Public Comment (RTC) for the application by Formosa Plastics Corporation, Texas for TCEQ Air Quality Permit Numbers: 140763, PSDTX1500M1, and GHGPSDTX46M1; 19871, PSDTX1236M1, and GHGPSDTX221; 91780, PSDTX1240M1, and GHGPSDTX223; 19200, PSDTX1237M1, and GHGPSDTX218; 19168, PSDTX1226M1, and GHGPSDTX224; 107518, PSDTX1383M2, and GHGPSDTX48M1; 20203, PSDTX1224M1, and GHGPSDTX222; 40157, PSDTX1222M1, and GHGPSDTX225; 19201, PSDTX1232M1, and GHGPSDTX219 available for viewing on the Internet. You may view and print the document by visiting the TCEQ Commissioners' Integrated Database at the following link:

https://www.tceq.texas.gov/goto/cid

In order to view the RTC at the link above, enter the TCEQ ID Number for this application (140763, PSDTX1500M1, GHGPSDTX46M1; 19871, PSDTX1236M1, GHGPSDTX221; 91780, PSDTX1240M1, GHGPSDTX223; 19200, PSDTX1237M1, GHGPSDTX218; 19168, PSDTX1226M1, GHGPSDTX224; 107518, PSDTX1383M2, GHGPSDTX48M1; 20203, PSDTX1224M1, GHGPSDTX222; 40157, PSDTX1222M1, GHGPSDTX225; 19201, PSDTX1232M1, GHGPSDTX219.) and click the "Search" button. The search results will display a link to the RTC.

Individuals who would prefer a mailed copy of the RTC or are having trouble accessing the RTC on the website, should contact the Office of the Chief Clerk, by phone at (512) 239-3300 or by email at chiefclk@tceq.texas.gov.

Additional Information

For more information on the public participation process, you may contact the Office of the Public Interest Counsel at (512) 239-6363 or call the Public Education Program, toll free, at (800) 687-4040.

A complete copy of the RTC (including the mailing list), the complete application, the draft permit, and related documents, including comments, are available for review at the TCEQ Central Office in Austin, Texas. Additionally, a copy of the complete application, the draft permit, and executive director's preliminary decision are available for viewing and copying at the TCEQ Central Office, the TCEQ Corpus Christi Regional Office, the Calhoun County Public Library – Port Lavaca Branch, 200 West Mahan Street, Port Lavaca, Calhoun County, and the Jackson County Memorial Library, 411 North Wells Street, Edna, Jackson County. The facility's compliance file, if any exists, is available for public review at the TCEQ Corpus Christi Regional Office, 500 North Shoreline Boulevard, Suite 500, Corpus Christi, Texas.

MAILING LIST
for
Formosa Plastics Corporation, Texas
TCEQ Air Quality Permit Numbers: 140763, PSDTX1500M1, and GHGPSDTX46M1; 19871, PSDTX1236M1, and GHGPSDTX221; 91780, PSDTX1240M1, and GHGPSDTX223; 19200, PSDTX1237M1, and GHGPSDTX218; 19168, PSDTX1226M1, and GHGPSDTX224; 107518, PSDTX1383M2, and GHGPSDTX48M1; 20203, PSDTX1224M1, and GHGPSDTX222; 40157, PSDTX1222M1, and GHGPSDTX225; 19201, PSDTX1232M1, and GHGPSDTX219

FOR THE APPLICANT:

Rick Crabtree
Vice President & General Manager
Formosa Plastics Corporation, Texas
P.O. Box 700
Point Comfort, Texas 77978

Tammy Lasater
Corporate Air Permitting Manager
Formosa Plastics Corporation, Texas
P.O. Box 320
Delaware City, Delaware 19706

INTERESTED PERSONS:

See attached list

FOR THE EXECUTIVE DIRECTOR
via electronic mail:

Ryan Vise, Deputy Director
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TCEQ AIR QUALITY PERMIT NUMBERS: 140763, PSDTX1500M1, and GHGPSDTX46M1; 19871, PSDTX1236M1, and GHGPSDTX221; 91780, PSDTX1240M1, and GHGPSDTX223; 19200, PSDTX1237M1, and GHGPSDTX218; 19168, PSDTX1226M1, and GHGPSDTX224; 107518, PSDTX1383M2, and GHGPSDTX48M1; 20203, PSDTX1224M1, and GHGPSDTX222; 40157, PSDTX1222M1, and GHGPSDTX225; 19201, PSDTX1232M1, and GHGPSDTX219

APPLICATION BY	**§**	**BEFORE THE**
FORMOSA PLASTICS CORPORATION, TEXAS	**§**	**TEXAS COMMISSION ON**
POINT COMFORT PLANT	**§**	
POINT COMFORT, CALHOUN COUNTY	**§**	**ENVIRONMENTAL QUALITY**

EXECUTIVE DIRECTOR'S RESPONSE TO PUBLIC COMMENT

The Executive Director of the Texas Commission on Environmental Quality (the commission or TCEQ) files this Response to Public Comment (Response) on the New Source Review Authorization application and Executive Director's preliminary decision.

As required by Title 30 TEXAS ADMINISTRATIVE CODE (TAC) § 55.156, before an application is approved, the Executive Director prepares a response to all timely, relevant and material, or significant comments. The Office of Chief Clerk received timely comments from the following persons: Colin Cox (on behalf of the Environmental Integrity Project [EIP] and the San Antonio Bay Estuarine Waterkeeper), Cynthia J. Kaleri (on behalf of the U.S. Environmental Protection Agency [EPA]), Kris Leabo, Sandra Hardy McKenzie, Robin Schneider (on behalf of Texas Campaign for the Environment), Diane Wilson, and Frederick L. Woodland. This Response addresses all timely public comments received, whether or not withdrawn. If you need more information about this permit application or the permitting process, please call the TCEQ Public Education Program at 1-800-687-4040. General information about TCEQ can be found at our website at www.tceq.texas.gov.

BACKGROUND

Description of Facility

Formosa Plastics Corporation, Texas (Applicant) has applied to the TCEQ for a New Source Review Authorization under Texas Clean Air Act (TCAA) § 382.0518. This will authorize the modification of an existing facility that may emit air contaminants.

This permit will authorize the Applicant to modify the Formosa Point Comfort Plant. The facility is located at 201 Formosa Drive, Point Comfort, Calhoun County. Contaminants authorized under these permits include carbon monoxide, nitrogen oxides, organic compounds, hazardous air pollutants, particulate matter including particulate matter with diameters of 10 microns or less and 2.5 microns or less, sulfur dioxide, and sulfuric acid mist.

Procedural Background

Before work is begun on the modification of an existing facility that may emit air contaminants, the person planning the modification must obtain a permit amendment from the commission. This permit application is for a permit amendment of Air Quality Permit Numbers 140763, 19871, 91780, 19200, 19168, 107518, 20203, 40157, and 19201, modification to Prevention of Significant Deterioration (PSD) Air Quality Permit Numbers PSDTX1500M1, PSDTX1236M1, PSDTX1240M1, PSDTX1237M1, PSDTX1226M1, PSDTX1383M2, PSDTX1224M1, PSDTX1222M1, and PSDTX1232M1, modification to Greenhouse Gas (GHG) PSD Air Quality Permit Numbers GHGPSDTX46M1 and GHGPSDTX48M1 for emissions of GHGs, and issuance of GHG PSD Air Quality Permit Numbers GHGPSDTX221, GHGPSDTX223, GHGPSDTX218, GHGPSDTX224, GHGPSDTX222, GHGPSDTX225, and GHGPSDTX219 for emissions of GHGs. The Applicant is proposing two separate projects in this permitting action. First, the Applicant seeks to update the flaring emissions to comply with the EPA Risk and Technology Review (RTR) for the Ethylene Production source category. Second, the Applicant proposes an increase in annual MSS flaring emissions due to additional required shutdowns. These projects span multiple permits and trigger federal PSD review therefore, the corresponding air quality permits, PSD permits, and GHG permits are included in this review.

The permit application was received on December 2, 2021, and declared administratively complete on December 16, 2021. The Notice of Receipt and Intent to Obtain an Air Quality Permit (NORI - first public notice) for this permit application was published in English on December 22, 2021, in the *Port Lavaca Wave* and in Spanish on December 20, 2021, in the *Revista De Victoria.* The Notice of Application and Preliminary Decision for an Air Quality Permit (NAPD - second public notice) was published on October 19, 2022, in English in the *Port Lavaca Wave* and on October 26, 2022, in Spanish in *Revista De Victoria.* A public meeting was held on February 2, 2023, at the Bauer Community Center, 2300 State Highway 35 North, Port Lavaca, Texas 77979. The notice of public meeting was mailed on December 28, 2022. The public comment period ended on October 18, 2023. Because this application was received after September 1, 2015, it is subject to the procedural requirements of and rules implementing Senate Bill 709 (84th Legislature, 2015).

COMMENTS AND RESPONSES

COMMENT 1: Health Effects / Air Quality

Commenters are concerned about the effect of the emissions from the proposed project on the air quality and health of people, particularly sensitive populations such as the elderly, children, and people with existing medical conditions. Colin Cox questioned whether the proposed emissions would cause or contribute to exceedances of National Ambient Air Quality Standards (NAAQS), exceed allowable Prevention of Significant Deterioration (PSD) Increments or cause nuisance conditions violating 30 Texas Administrative Code (30 TAC) § 101.4. Mr. Cox questioned whether the

proposed emissions would threaten the health and safety of nearby residents. Robin Schneider expressed concern regarding potential emissions of carcinogens like benzene, as well as expressed concern regarding the proposed increase of Greenhouse Gas (GHG) emissions.

(Colin Cox, Robin Schneider, Diane Wilson, Fredrick Woodland)

RESPONSE 1: The Executive Director is required to review permit applications to ensure they will be protective of human health and the environment. For this type of air permit application, potential impacts to human health and welfare or the environment are determined by comparing the Applicant's proposed air emissions to appropriate state and federal standards and guidelines. These standards and guidelines include the National Ambient Air Quality Standards (NAAQS), TCEQ Effects Screening Levels (ESLs), and TCEQ rules. As described in detail below, the Executive Director determined that the emissions authorized by this permit are protective of both human health and welfare and the environment.

NAAQS

The EPA created and continues to evaluate the NAAQS, which include both primary and secondary standards, for pollutants considered harmful to public health and the environment.[1] Primary standards protect public health, including sensitive members of the population such as children, the elderly, and those individuals with preexisting health conditions. Secondary NAAQS protect public welfare and the environment, including animals, crops, vegetation, visibility, and buildings, from any known or anticipated adverse effects from air contaminants. The EPA has set NAAQS for criteria pollutants, which include carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), sulfur dioxide (SO_2), particulate matter less than or equal to 10 microns in aerodynamic diameter (PM_{10}), and PM less than or equal to 2.5 microns in aerodynamic diameter ($PM_{2.5}$).

The likelihood of whether adverse health effects caused by emissions from the facility could occur in members of the general public, including sensitive subgroups such as children, the elderly, or people with existing respiratory conditions, was determined by comparing the facility's maximum predicted air dispersion modeling concentrations to the relevant state and federal standards and ESLs. TCEQ staff used modeling results to verify that predicted ground-level concentrations from the proposed facility are not likely to adversely impact public health and welfare. The overall evaluation process provides a conservative prediction that is protective of public health. The modeling predictions were reviewed by the TCEQ Air Dispersion Modeling Team, and the modeling analysis was determined to be acceptable. The Applicant used the American Meteorological Society (AMS)/EPA Regulatory Model (AERMOD) modeling system to provide a reasonable worst-case representation of potential impacts from the

[1] 40 CFR § 50.2

proposed emissions on the area surrounding the facility. See Response 3 for additional information concerning the modeling.

The Applicant conducted a NAAQS analysis for NO_2, CO, SO_2, and O_3. The first step of the NAAQS analysis is to compare the proposed modeled emissions against the established de minimis level. Predicted concentrations (GLC_{max})[2] below the de minimis level are considered to be so low that they do not require further NAAQS analysis. Table 1 contains the results of the de minimis analysis.

Table 1. Modeling Results for PSD De Minimis Analysis in Micrograms per Cubic Meter ($\mu g/m^3$)

Pollutant	Averaging Time	GLC_{max} ($\mu g/m^3$)	De Minimis ($\mu g/m^3$)
NO_2	1-hr	34	7.5
NO_2	Annual	0.1	1
CO	1-hr	358	2000
CO	8-hr	143	500

The pollutants below the de minimis level should not cause or contribute to a violation of the NAAQS and are protective of human health and the environment.

The Applicant conducted a full NAAQS analysis for those pollutants above de minimis to account for cumulative effects by including an evaluation of all on-property sources, applicable off-property sources, and representative monitored background concentrations. Results of the NAAQS analysis are presented below in Table 2. The total concentration was determined by adding the GLC_{max} to the appropriate background concentration. Background concentrations are obtained from ambient air monitors across the state and are added to the modeled concentration (both on-property and off-property sources) to account for sources not explicitly modeled. The ambient air monitors were selected to ensure that they are representative of the proposed site. The total concentration was then compared to the NAAQS to ensure that the concentration is below the standard. For any subsequent projects submitted pertaining to this or any other facility in the area, the air quality analysis for that project will have to include the emissions authorized by this project, as well as other applicable off-property sources, if a full impacts analysis is required.

[2] The GLC_{max} is the maximum ground level concentration predicted by the modeling.

Table 2. Total Concentrations for PSD NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLC_{max} ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total Conc. = [Background + GLC_{max}] ($\mu g/m^3$)	Standard ($\mu g/m^3$)
NO_2	1-hr	181	Note background discussion below	181	188

Background concentrations for NO_2 were obtained from the applicant's monitoring network (FPC NW Site). The applicant conducted their evaluation by combining NO_2 background concentrations on a seasonal basis with the predicted concentrations of the project and other on- and off-property sources on a seasonal (quarterly) basis for each modeled receptor. The applicant followed EPA guidance when developing seasonal-hourly background concentrations. The seasonal background concentrations were based on the maximum three-year average (2020-2022) of the 98th percentile of the annual distribution of the daily maximum 1-hr concentrations for each hour and season. These background values were then used in the model (as background scalars) to be combined with model predictions giving a total predicted concentration. The use of this monitor is reasonable as it is sited adjacent to the project site

The NAAQS analysis results are below the standard for each pollutant, should not cause or contribute to violation of the NAAQS, and are protective of human health and the environment.

PSD Increment Analysis

The PSD program limits the extent to which air quality may be allowed to deteriorate in areas where pollutant concentrations are below the NAAQS (attainment areas). When air quality in a geographic area meets or is below the NAAQS, it is called an attainment area. The Formosa plant is physically located in Calhoun and Jackson Counties. Both Calhoun and Jackson Counties are in attainment. Increases in pollutant concentrations over background are limited to certain increments, which are values specified by EPA at 40 CFR §52.21(c). When the de minimis analysis modeling indicates that a criteria pollutant exceeds its respective de minimis concentration, a PSD increment analysis is necessary for those criteria pollutants for which EPA has established an increment. The results of the PSD Increment Analysis are shown in Table 3 below.

Table 3. Modeling Results for PSD Monitoring Significance Levels

Pollutant	Averaging Time	GLC_{max} ($\mu g/m^3$)	Increment ($\mu g/m^3$)
NO_2	Annual	0.1	14
CO	8-hr	143	575

Ozone Analysis

The Applicant performed an O_3 analysis as part of the PSD Air Quality Analysis (AQA). The Applicant evaluated project emissions of O_3 precursor emissions (NO_x and VOC). For the project nitrogen oxides (NO_x) and volatile organic compounds (VOC) emissions, the applicant provided an analysis based on a Tier 1 demonstration approach consistent with the EPA's Guideline on Air Quality Models (GAQM). Specifically, the applicant used a Tier 1 demonstration tool developed by the EPA referred to as Modeled Emission Rates for Precursors (MERPs). Using data associated with the worst-case source for NO_x and VOC, the applicant estimated an 8-hr O_3 concentration of 2.01 ppb. When the estimates of ozone concentrations from the project emissions are added together, the results are greater than the de minimis level. Since the O_3 impact is above the de minimis level, a full impacts analysis is required.

Table 4. Modeling Results for Ozone PSD De Minimis Analysis in Parts per Billion (ppb)

Pollutant	Averaging Time	GLC_{max} ($\mu g/m^3$)	Increment ($\mu g/m^3$)
O_3	8-hr	2.01	1

The Applicant performed a full impact analysis for O_3 as part of the PSD AQA. When the estimates of ozone concentrations from the project emissions are added to the background concentration, the results are less than the NAAQS, as shown in Table 5 below.

Table 5. Total Ozone Concentrations for PSD NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLC_{max} (ppb)	Background (ppb)	Total Conc. = [Background + GLC_{max}] (ppb)	Standard (ppb)
O_3	8-hr	2.01	64.67	66.68	70

Additional Impact Analysis

The Applicant performed an Additional Impacts Analysis as part of the PSD AQA. The applicant conducted a growth analysis and determined that population will not significantly increase as a result of the proposed project. The applicant conducted a soils and vegetation analysis and determined that all evaluated criteria pollutant concentrations are below their respective secondary NAAQS. The applicant meets the Class II visibility analysis requirement by complying with the opacity requirements of 30 TAC Chapter 111. The Additional Impacts Analyses are reasonable and possible adverse impacts from this project are not expected.

Class I

The Air Dispersion Modeling Team (ADMT) evaluated predicted concentrations from the proposed project to determine if emissions could adversely affect a Class I area. The nearest Class I area, Caney Creek Wilderness, is located approximately 570 kilometers (km) from the proposed site.

The predicted concentrations of NO_2 and SO_2 for all averaging times, are all less than de minimis levels at a distance of 14 km from the proposed sources in the direction the Caney Creek Wilderness Class I area. The Caney Creek Wilderness Class I area is an additional 556 km from the location where the predicted concentrations of NO_2 and SO_2 for all averaging times are less than de minimis. Therefore, emissions from the proposed project are not expected to adversely affect the Caney Creek Wilderness Class I area.

Effects Screening Levels (ESLs) – Health Effects Analysis

To evaluate potential impacts of non-criteria pollutants, a health effects analysis was performed. ESLs are specific guideline concentrations used in TCEQ's evaluation of certain non-criteria pollutants. These guidelines are derived by TCEQ's Toxicology Division and are based on a pollutant's potential to cause adverse health effects, odor nuisances, and effects on vegetation. Health-based ESLs are set below levels reported to produce adverse health effects, and are set to protect the general public, including sensitive subgroups such as children, the elderly, or people with existing respiratory conditions. TCEQ's Toxicology Division specifically considers the possibility of cumulative and aggregate exposure when developing the ESL values that are used in air permitting, creating an additional margin of safety that accounts for potential cumulative and aggregate impacts. Adverse health or welfare effects are not expected to occur if the air concentration of a pollutant is below its respective ESL. If an air concentration of a pollutant is above the screening level, it is not necessarily indicative that an adverse effect will occur, but rather that further evaluation is warranted.

The health effects analysis is performed using TCEQ guidance document Air Permit Reviewer Reference Guide – APDG 5874 - Modeling and Effects Review Applicability (MERA) process.[3] The MERA is a step-by-step process to evaluate the potential impacts of non-criteria pollutants which are evaluated against the ESL for each chemical species. The initial steps are simple and conservative, and as the review progresses through the process, the steps require more detail and result in a more refined analysis. If the contaminant meets the criteria of a step, the review of human health and welfare effects for that chemical species is complete and is said to "fall out" of the MERA process at that step because it is protective of human health and welfare. All non-criteria pollutants, including benzene, proposed to be authorized were below their respective ESLs. Thus, these pollutants satisfied the MERA criteria and would not be expected to cause adverse health effects. As described above, if an air concentration of

[3] *See* APDG 5874 guidance document.

a pollutant is above the ESL, it is not indicative of an adverse effect but rather that further evaluation is warranted.

The potential for odor nuisance is reviewed through the use of ESLs. As described above, the Applicant performed a health effects analysis based on MERA guidance and all non-criteria pollutants complied with the MERA criteria; therefore, emissions would not be expected to cause an odor nuisance or adverse health effects. While nuisance conditions are not expected if the plant is operated in compliance with the terms of the permit, operators must also comply with 30 TAC § 101.4, which prohibits nuisance conditions.

State Property Line Analysis (30 TAC Chapter 112)

Because this application has sulfur emissions, the Applicant conducted a state property line analysis to demonstrate compliance with TCEQ rules for net ground-level concentrations for sulfur dioxide (SO_2), hydrogen sulfide (H_2S), and sulfuric acid (H_2SO_4), as applicable. This analysis demonstrated that resulting air concentrations will not exceed the applicable state standard, as shown in Tables 6 and 7 below.

Table 6. Project-Related Modeling Results for State Property Line

Pollutant	Averaging Time	GLC_{max} (µg/m³)	De Minimis (µg/m³)
SO_2	1-hr	0.25	20.42

Table 7. Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLC_{max} (µg/m³)	De Minimis (µg/m³)
SO_2	1-hr	0.2	7.8
SO_2	3-hr	0.1	25

In June 2010, U.S. EPA established a new primary one-hour standard and revoked the primary annual and 24-hour standards for SO_2 in Calhoun and Jackson Counties.[4] Therefore, the 24-hour and primary annual SO_2 averaging times are not reported above.

The proposed emissions increases have been adequately represented and included in the impact analysis. Additionally, TCEQ staff and the ADMT have reviewed the proposed emissions from sources, represented source parameters and locations, point and area source representations, and background concentrations. Based on the data and representations, TCEQ staff and ADMT determined that the modeling analysis was acceptable. Please see Response 4 for additional information regarding Best Available Control Technology (BACT), and Response 8 for additional information regarding emissions sources and calculations used to support the application.

[4] *See* https://www.federalregister.gov/documents/2021/03/26/2021-05397/air-quality-designations-for-the-2010-primary-sulfur-dioxide-so2-national-ambient-air-quality.

In summary, based on the Executive Director's staff review, it is not expected that existing health conditions will worsen, or that there will be adverse health effects on the general public, sensitive subgroups, or the public welfare and the environment as a result of proposed emission rates associated with this project.

Greenhouse Gases

EPA has stated that unlike the criteria pollutants for which EPA has historically issued PSD permits, there is no NAAQS or PSD increment for GHGs. The EPA Administrator has recognized that human-induced climate change has the potential to be far-reaching and multi-dimensional.[5] Climate change modeling and evaluations of risks and impacts are typically conducted for changes in emissions that are orders of magnitude larger than the emissions from individual projects that might be analyzed in permit reviews. Quantifying the exact impacts attributable to a specific GHG source obtaining a permit in specific places and points would not be possible with current climate change modeling.[6] Thus, EPA has concluded it would not be meaningful to evaluate impacts of GHG emissions on a local community in the context of a single permit.

TCEQ has determined that an air quality analysis for GHG emissions would provide no meaningful data and has not required the Applicant to perform one. As stated in the preamble to the TCEQ's adoption of the GHG PSD program, the impacts review for individual air contaminants will continue to be addressed, as applicable, in the state's traditional minor and major NSR permits program per 30 TAC Chapter 116 and 30 Tex. Reg. 2629, 2904 (April 11, 2014).

COMMENT 2: Environmental and Water Concerns

Commenters expressed concern about the effect of the proposed project on the surrounding environment, including livestock, cattle, and nearby ranches. Diane Wilson and Fredrick Woodland expressed concern regarding a nearby creek, stating that they have seen soot, tar puddles, and plastic pellets in the water.

(Colin Cox, Diane Wilson, Fredrick Woodland)

RESPONSE 2: The secondary NAAQS are those the EPA Administrator determines are necessary to protect public welfare and the environment, including animals, crops, vegetation, visibility, and structures, from any known or anticipated adverse effects associated with the presence of a contaminant in the ambient air. Because the emissions from this facility should not cause an exceedance of the NAAQS, air emissions from this facility are not expected to adversely impact land, livestock, wildlife, crops, or visibility, nor should emissions interfere with the use and enjoyment of surrounding land or water. Unless toxicity data indicate a need for specific animals,

[5] *See* Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 75 Fed. Reg. 66496, 66497 (Dec. 15, 2009).
[6] EPA's PSD and Title V Permitting Guidance for Greenhouse Gases, March 2011 at p. 48. https://www.epa.gov/sites/production/files/2015-12/documents/ghgpermittingguidance.pdf

the human health-based ESLs also protect animals. All regulated pollutants proposed to be authorized by this permit were reviewed and evaluated as described in Response 1. In addition, 30 TAC § 101.4 prohibits the discharge of contaminants which may be injurious to, or adversely affect, animal life.

Although TCEQ is responsible for the environmental protection of air and water as well as the safe management of waste, this proposed permit will regulate the control and abatement of air emissions only. Therefore, issues regarding water quality or discharge and the handling of waste are not within the scope of this review.

COMMENT 3: Air Dispersion Modeling

Colin Cox questioned whether the Air Quality Analysis (AQA) complies with TCEQ rules and guidance.

(Colin Cox)

RESPONSE 3: As described in Response 1, appropriate site-specific air dispersion modeling was performed for this application. The Applicant used the EPA-approved AERMOD air dispersion modeling program to provide an estimate of the worst-case potential impacts on the area surrounding the proposed facility. The modeling procedures, methodology, predictions, and results were audited by TCEQ's ADMT and determined to be acceptable. The ADMT review was conducted following the procedures outlined in TCEQ Publication APDG 6232, Air Quality Modeling Guidelines. [7]

COMMENT 4: Best Available Control Technology

Colin Cox questioned whether new and modified sources will utilize BACT, as well as questioned whether greenhouse gas controls reflect the use of BACT. Mr. Cox states that the Applicant should install a flare gas recovery system to reduce flaring and associated emissions and expressed concern that the Applicant did not consider this option in the control technology analysis for the project, stating that the Applicant should analyze flare gas recovery for technical feasibility and economical reasonableness. Mr. Cox commented that fence line monitoring should be adopted as BACT for the flares. Robin Schneider commented that the Applicant should be required to use BACT, specifically recirculating gases and not just flaring them.

(Colin Cox, Robin Schneider)

RESPONSE 4: TCEQ does not compare pollution controls between individual facilities (which can vary depending on plant configuration, scale of the plant, and production rates), rather it reviews each permit application in terms of meeting best available control technology, air quality standards, and all relevant and applicable rules and regulations within its jurisdiction. During the course of the technical review of a permit application, the permit reviewer evaluates air pollution control requirements

[7] *See* Air Quality Modeling Guidelines – APDG 6232.

and confirms that the applicant has proposed the appropriate air pollution controls and properly determined off-site impacts for the project facilities and associated sources. The Applicant's air pollution control review, along with the permit reviewer's air pollution control evaluation and final recommendation provide a record that demonstrates that the operation of a proposed facility will not cause or contribute to a condition of air pollution and will comply with all applicable federal regulations and state rules as well as with the intent of the TCAA. The manufacturing plant is located in Jackson and Calhoun Counties, which are both classified as attainment for all criteria pollutants. This project is not subject to nonattainment review, and thus Lowest Achievable Emission Rate (LAER) does not apply to the new or modified sources proposed in this project.

The TCAA and TCEQ rules require an evaluation of air quality permit applications to determine whether adverse effects to public health, general welfare, or physical property are expected to result from a facility's proposed emissions. As part of the evaluation of applications for new or amended permits, the permit reviewer audits all sources of air contaminants at the proposed facility and assures that the facility will be using the BACT applicable for the sources and types of contaminants emitted. BACT is based upon control measures that are designed to minimize the level of emissions from specific sources at a facility. Applying BACT results in requiring technology that best controls air emissions with consideration given to the technical practicability and economic reasonableness of reducing or eliminating emissions.[8] BACT may be numerical limitations, the use of an add-on control technology, design considerations, the implementation of work practices, or operational limitations.

The TCEQ BACT evaluation is conducted using a "tiered" analysis approach. The evaluation begins at the first tier and continues sequentially through subsequent tiers only if necessary, as determined by the evaluation process described in agency guidance. In each tier, BACT is evaluated on a case-by-case basis for technical practicability and economic reasonableness. The three tiers are described in the following paragraphs:

- Tier I: Emission reduction performance levels accepted as BACT in recent permit reviews for the same process and/or industry continue to be acceptable.
- Tier II: Tier II BACT evaluation involves consideration of controls that have been accepted as BACT in recent permits for similar air emission streams in a different process or industry. For example, an applicant may propose to control VOC emissions in one industry using technology already in use in another industry. A Tier II evaluation includes issues relating to stream comparison and possible differences in overall performance of a particular emission reduction option. In addition, the Tier II evaluation considers technical differences between the processes or industries in question. To demonstrate technical practicability, detailed technical analysis may be required to assess the cross-

[8] *See* TCAA §382.0518; 30 TAC §116.111.

applicability of emission reduction options. In Tier II, economic reasonableness is established by historical and current practice.

- Tier III: A Tier III BACT evaluation is a detailed technical and quantitative economic analysis of all emission reduction options available for the process under review and is similar to EPA's top-down approach. Technical practicability is established through demonstrated success of an emission reduction option based on previous use, and/or engineering evaluation of a new technology. Economic reasonableness is determined solely by the cost-effectiveness of controlling emissions (dollars per ton of pollutant reduced) and does not consider the effect of emission reduction costs on corporate economics

The Applicant conducted a Tier I BACT evaluation for all sources of air contaminants from the proposed new and modified facilities. Use of appropriate control measures will minimize the amount of air contaminants emitted into the atmosphere by this chemical plant. The permit reviewer reviewed the proposed controls and determined that BACT for all sources has been met.

The Applicant proposed Tier I BACT for the flares, which is a minimum destruction and removal efficiency (DRE) of 99% for hydrocarbons containing three carbon atoms or less, and 98% for all other compounds. This is to be achieved through compliance with the operating requirements of 40 CFR Part 63, Subpart YY, Generic Maximum Achievable Control Technology Standards (Ethylene Production). The DRE of the flares is discussed further in Response 5.

Tier I BACT for process vents is to route the process vent to a control device, and, where possible, implementation of measures that reduce process vent flaring, such as a flare gas recovery unit, recycling of streams, rework of off-spec product, and any site-specific work practices or procedures. The permit special conditions contain provisions that allow the recovered vent streams to be routed to combustion sources for use as fuel. The Applicant proposed the use of the 28VHP leak detection and repair (LDAR) program as Tier I BACT for the fugitive VOC emissions.

BACT for GHG emissions from the flare consists of practices which limit the formation of CO_2. These practices include the use of low-carbon fuels and the use of good combustion practices. Carbon Capture and Sequestration (CCS) is not currently considered a feasible option due to the lack of dispensation options. Additionally, CCS has not been required in any recently issued PSD permits for olefins plants, EO/MEG plants, or polyethylene plants. BACT for GHG emissions from piping components leaks consists of prompt repair of methane leaks. Compliance with the 28VHP LDAR program ensures satisfaction of BACT for GHG emissions.

See Response 12 regarding additional monitoring information, including fence line monitoring.

COMMENT 5: Technical Justification for the Flare VOC DRE

EPA requested that TCEQ provide the technical rationale for the DRE of 99% for VOC compounds up to three carbon atoms. EPA stated that TCEQ's acceptance of such destruction efficiencies should be accompanied by supporting technical justification in the permitting record. EPA questioned TCEQ's reliance on flare studies conducted by EPA in the early 1980's since more recent studies used to support of the development of the Refinery MACT and Ethylene Production MACT are available.

EPA stated that they have not explicitly identified monitoring or operating requirements within the Ethylene Production MACT rulemaking that can ensure compliant flares will continuously achieve 99% VOC DRE, and do not believe that these regulations ensure compliance with 99% DRE for steam-assisted, air-assisted, or non-assisted flares. Finally, EPA requested that TCEQ explain for each type of flare what monitoring and/or operating limits/assumptions the commission relied on to authorize 99% DRE, whether compliance with these assumptions is practically enforceable, and what data the commission reviewed to ensure that the proposed operating limits can ensure that both the assisted and non-assisted flares will continuously achieve 99% VOC DRE in practice.

(EPA)

RESPONSE 5: The TCAA and TCEQ rules require an evaluation of air quality permit applications to determine whether adverse effects to public health, general welfare, or physical property are expected to result from a facility's proposed emissions. As part of the evaluation of applications for new or amended permits, the permit reviewer audits all sources of air contaminants for the proposed project, and ensures that the facility will be using BACT applicable for the sources and types of contaminants emitted. BACT is based upon control measures that are designed to minimize the level of emissions from specific sources at a facility. Applying BACT results in requiring technology that best controls air emissions with consideration given to the technical practicability and economic reasonableness of reducing or eliminating emissions (*see* TCAA § 382.0518; *see also* 30 TAC § 116.111). BACT may be numerical limitations, the use of an add-on control technology, design considerations, the implementation of work practices, or operational limitations.

The authorized flares at this site include five elevated, steam assist flare systems. The application also proposes four new enclosed ground flares at the site.

Flares are used to control routine emissions, planned maintenance, startup, and shutdown (MSS), and process upsets. BACT for VOCs is compliance with 40 CFR § 60.18 specifications for maximum tip velocity and minimum net heating value. A waste gas flow monitor, and a gas composition analyzer or calorimeter are required. The flares are required to be equipped with a thermocouple or infrared monitor to ensure the presence of a pilot flame. Visible emissions are prohibited except for periods not to exceed a total of five minutes during any two consecutive hours. Flare

pilot fuel is limited to no more than 5 grains of total sulfur per 100 dry standard cubic feet.

Additionally, the flares at this site will comply with the design and operating requirements of 40 CFR Part 63 Subpart YY, National Emission Standards for Hazardous Air Pollutants for Source Categories: Generic Maximum Achievable Control Technology Standards, which directly applies the requirements of 40 CFR Part 63 Subpart CC - National Emission Standards for Hazardous Air Pollutants from Petroleum Refineries. Because the site produces ethylene, and the ethylene production operates with one or more of the affected emission points for the source category, the provisions of 40 CFR Part 63 Subpart YY apply to this site. The flare requirements in the draft permits for this site are consistent with design and monitoring for flares in accordance with the provisions of these rules. The following special conditions contain the flare monitoring requirements for each permit:

Permit Numbers	Special Condition Numbers
19168, PSDTX1226M1, and GHGPSDTX224	12-13
19200, PSDTX1237M1, and GHGPSDTX218	6-7
19201, PSDTX1232M1, and GHGPSDTX219	10-11
19871, and PSDTX1236M1, and GHGPSDTX221	7-9
20203, PSDTX1224M1, and GHGPSDTX222	9-10
40157, PSDTX1222M1, and GHGPSDTX225	8-9
91780, PSDTX1240M1, and GHGPSDTX223	8-9
107518, PSDTX1383M2, and GHGPSDTX48M1	10-11
140763, PSDTX1500M1, and GHGPSDTX46M1	15-16

TCEQ's practice regarding VOC DRE for flares is based on longstanding guidance that, when a flare is properly operated in accordance with permit requirements and the provisions of 40 CFR § 60.18, 99 percent DRE should be attained for compounds up to three carbons, and 98 percent DRE for compounds with four or more carbons. TCEQ flare guidance and assumed DRE values are based in part on historical EPA research and publications.

TCEQ relied upon the EPA flare studies conducted in the 1980s to support the development of appropriate flare destruction efficiencies. The 1980s study shows destruction efficiencies well above 99 percent for the properly operated flares.

Documents published since these studies continue to support these conclusions. EPA AP-42 Chapter 13.5 (*Industrial Flares*, revised September 1991), states, "…recent studies on flare performance using passive Fourier Transform Infrared (pFTIR) spectroscopy have been performed on a number of different flares. The studies cover a number of flares at refineries, chemical plants, and flare test facilities with varying waste gas compositions. The pFTIR studies support the conclusion that the combustion zone properties of the steam-waste gas mixture are predictive of proper flare combustion." The combustion zone is being monitored through the requirements of the permit special conditions and the Ethylene Production MACT requirements.

While Ethylene Production MACT and Refinery MACT standards may not have been developed with the intention of defining monitoring or operating requirements that ensure 99% DRE, the monitoring requirements delineated in these rules require monitoring of the parameters that ensure proper combustion of the waste gas, including monitoring of the net heating value in the combustion zone and measures that prevent over-assisting. EPA's document, "Parameters for Properly Designed and Operated Flares," (April 2012) identifies the factors that should be considered in order to be confident that a flare is operated properly to achieve good combustion efficiency. These operational practices are consistent with the monitoring requirements of the Ethylene Production MACT and Refinery MACT.

TCEQ is also aware that more recent studies have observed that, in some tested cases, compliance with the flare tip velocity and stream heating value requirements of 40 CFR § 60.18 alone may not always result in 98% or 99% DRE. However, at this juncture, TCEQ has not seen enough conclusive data to establish a different and specific DRE value, or to substantially revise BACT requirements for flares. Further, the proposed flare destruction efficiencies of 98% (4 or more carbons) or 99% (3 or less carbons) are consistent with at least eight RACT/BACT/LAER Clearinghouse (RBLC) data entries for VOC control since 2017, including sites in Texas and Ohio.

TCEQ is also aware of the possibility that over-assistance can occur at improperly operated steam- or air-assisted flares. As noted in the April 2012 publication from EPA's Office of Air Quality Planning and Standards (OAQPS) entitled *Parameters for Properly Designed and Operated Flares*, excess aeration "can actually result in a flare operating outside its stable flame envelope, decreasing the combustion efficiency," and "can dilute the flare vent gas, making the flare vent gas too lean to burn in the combustion zone." For this site, the five elevated flares (EPNs 1018, 1067, OL3-FLRA, OL3-FLRB, and OL3-FLRC) are steam-assisted. The flares are required to comply with the design and operating requirements of 40 CFR § 60.670. 40 CFR § 63.670(h) prohibits visible emissions, except for a maximum of 5-minutes during any 2 consecutive hours. 40 CFR § 63.670(b) requires that flares be operated with a flame present at all times. 40 CFR § 63.670(e) requires that the net heating value of flare combustion zone gas (NHV_{cz}) at or above 270 British thermal unit (Btu) per standard cubic foot or feet (Btu/scf). 40 CFR §63.670(d) requires that flares be designed and operated with an exit velocity less than the velocity (V_{max}) as determined in 40 CFR § 63.670(d). The special conditions of the permits require continuous parametric

monitoring to ensure compliance with the provisions of 40 CFR § 63.670. These design, operating, and monitoring requirements provide the monitoring necessary to ensure proper flare combustion and thus, would prevent over-assistance of the flare.

As indicated in the *EPA Air Pollution Control Cost Manual* (August 2019, Section 3.2, Chapter 1), in steam-assisted flares, injected steam is used to reduces smoke formation, "to promote turbulence for mixing and to induce air into the flame," and for "drawing in more combustion air and improving combustion efficiency."

As indicated above, 40 CFR § 63.670(h) prohibits visible emissions, except for a maximum of 5-minutes during any 2 consecutive hours. This prohibition on visible emissions is reiterated in the special conditions of the permit. TCEQ believes that compliance with the visible emissions limit is one indicator of proper use of steam assist and good combustion. The additional continuous monitoring requirements for pilot flame, waste gas flow, and composition for minimum heating value required by the special conditions will also help ensure good combustion at the flares.

For the existing elevated flares, Formosa conducted an analysis of various other calculation methodologies including EPA's guidance, AP-42 Chapter 13.5. The proposed project emissions, assuming total hydrocarbons is equivalent to total VOCs from the flares, were evaluated in accordance with EPA's methodology. As a result of using this guidance as the calculation methodology for VOCs, the routine emissions combined with MSS emissions result in 479.24 tons VOC per year which is much less than the 1,189.54 tons VOC per year using the accepted TCEQ guidance. Therefore, by using TCEQ's recommended guidance of 99 percent DRE for compounds up to three carbons, and 98 percent DRE for compounds with four or more carbons, leads to higher estimated VOC emissions resulting in a more conservative evaluation for federal applicability analysis and off-property impacts analysis.

For the enclosed ground flares, EPA's guidance, AP-42 Chapter 13.5 indicates that the emissions factor data set for the ground flare burners had an average destruction efficiency of 99.99%, which is well above the assumed 99% DRE for compounds up to three carbons, and 98% DRE for compounds with four or more carbons. TCEQ's recommended guidance of 99% DRE for compounds up to three carbons, and 98% DRE for compounds with four or more carbons, leads to higher estimated VOC emissions resulting in a more conservative evaluation for federal applicability analysis and off-property impacts analysis.

TCEQ will continue to evaluate new data and new federal requirements for flares and will revise BACT and monitoring requirements for these sources at such time sufficient data or applicable federal regulations become available. In the meantime, we believe compliance with the monitoring requirements in draft permit special conditions (regarding the pilot flame, flow rate, and stream composition or heating value), in conjunction with compliance with the federal provisions of 40 CFR § 60.670, will ensure that the authorized emission limits are not exceeded.

COMMENT 6: Specification of Destruction Efficiencies

EPA stated that the application representations do not appear to be incorporated by reference or plainly stated in the draft permits and requested that the destruction efficiencies be included in the permit as an enforceable permit condition.

(EPA)

RESPONSE 6: The DRE has not been included in the Special Conditions, except where the condition already existed, because a DRE of 99% DRE for compounds up to three carbons, and 98% DRE for compounds with four or more carbons, will be achieved as a result of the proper operation of the flares. The Special Conditions contain the operating and monitoring requirements necessary to achieve the DRE, therefore specifying the DRE is not needed to make the flare emission limit enforceable. Additionally, as provided in 30 TAC § 116.116(a), the Applicant is bound by these representations, including the represented performance characteristics of the control equipment. The permit holder must also operate within the limits of the permit, including the emission limits as listed in the Maximum Allowable Emissions Rate Table (MAERT), which were determined based on the DRE.

COMMENT 7: Enforceability of Emission Caps

EPA requested that TCEQ explain in detail how Formosa is able to determine which plant or combination of process areas are contributing to each individual flare and how compliance with each distinct limit is independently determined and ensured.

(EPA)

RESPONSE 7: Each waste gas line exiting a process area and being directed to a flare is equipped with a flow meter. The total volumetric flow rate is summed from the individual waste gas streams. Waste gas lines exiting a process area, are determined either with instrumentation to determine the heating value, or are a known heating value. Each flare is equipped with an analyzer to determine the net heating value of the incoming stream.

COMMENT 8: Emission Rates and Calculations

Colin Cox questioned whether the emissions calculation methodologies used in the application were flawed or outdated.

(Colin Cox)

RESPONSE 8: The Applicant represented the appropriate methodologies to control and minimize emissions and utilized corresponding control efficiencies when calculating the emission rates. These methodologies and efficiencies were determined to be correct and applicable by TCEQ staff during the technical review based on standard

industry permitting practices. As provided in 30 TAC § 116.116(a), the Applicant is bound by these representations, including the represented performance characteristics of the control equipment. In addition, the permit holder must operate within the limits of the permit, including the emission limits as listed in the MAERT.

Emissions calculations for the proposed project were determined utilizing the following methods: Emissions from flares are calculated using the emission factors given in TCEQ Publication RG-109.6. For VOC, the emission rate is the product of the pre-control mass flow rate of the pollutant, reduced by the applicable DRE. For NO_X and CO, the emission rate is the product of the applicable emission factor and the heat duty of the flare, determined based on the net heating value (or lower heating value) of the flare gas. SO_2 emissions from flares are calculated using a mass balance approach, assuming that 100% of sulfur atoms in the flare gas are converted to SO_2 molecules. Fugitive emission rate estimates were calculated using TCEQ's common fugitive calculation workbook in accordance with the TCEQ's Air Permit Technical Guidance for Chemical Sources: Fugitive Guidance – APDG 6422 (June 2018). The fugitive emission stream weight percentages authorized in the permit represent the maximum expected concentrations of each chemical under any operation condition. All calculations were based on the maximum production rates.

See Response 5 regarding flares.

COMMENT 9: Project Scope / Application Representations

Colin Cox commented that while the Applicant represented that the purpose of the project is to comply with new EPA rules, it has not been explained as to why the project seeks to increase flare limits beyond current levels. Mr. Cox expressed concern that the application states there are "no physical changes or changes in the method of operation in any process unit that would affect the nature of, or increase quantities of, any flared waste gas stream currently generated within the entire chemical complex," stating that he is unable to reconcile this statement with the proposal to increase flaring limits.

(Colin Cox)

RESPONSE 9: The Applicant is proposing two separate projects in this permitting action. First, the Applicant seeks to update the flaring emissions to comply with the EPA Risk and Technology Review (RTR) for the Ethylene Production source category. Second, the Applicant proposes an increase in annual MSS flaring emissions due to additional required shutdowns. The emissions from the flares will be increasing due to both the additional emissions associated with the MSS activities, and to comply with the new EPA rules. The new EPA rules differ from the previous method required to calculate emissions, and specify a minimum net heating value in the combustion zone (NHVcz). Additional supplemental BTU content in the form of fuel gas is needed to keep the heating value in the combustion zone above the EPA mandated 270 BTU/scf and does not add additional production capacity or modify the facility. The addition of

fuel to increase the net heating value in the combustion zone gas is intended to result in better combustion and removal of hazardous air pollutants (HAPs), and the approach to achieve this is consistent across the industry.

COMMENT 10: Access to Permit Documents

Colin Cox questioned whether the Applicant and TCEQ supplied the public with adequate information to verify the bases for the Applicant's claims and for TCEQ's decision to issue the permits.

(Colin Cox)

RESPONSE 10: Title 30 TAC § 39.405 requires the Applicant to provide copies of the application and the Executive Director's preliminary decision at a public place in the county in which the facility is located or proposed to be located. The rules also require the public have an opportunity to review and copy these materials. In addition, the application, including any subsequent revisions to the application, must be available for review for the duration of the comment period. The Applicant represented that the application was made available at the TCEQ central office, the TCEQ Corpus Christi regional office, the Calhoun County Public Library – Port Lavaca Branch, 200 West Mahan Street, Port Lavaca, Calhoun County, and the Jackson County Memorial Library, 411 North Wells Street, Edna, Jackson County, Texas. No confidential information was submitted with the application, and thus all application materials were available for public review.

COMMENT 11: Monitoring, Recordkeeping, and Reporting Requirements

Commenters expressed concern about the monitoring requirements contained in the draft permit. Colin Cox questioned whether the monitoring and reporting requirements contained in the permit Special Conditions are adequate to ensure compliance with the Clean Air Act and protect local residents. Mr. Cox questioned whether the draft permit conditions are adequate to protect the public from cumulative risks in accordance with Texas Water Code § 5.130. Mr. Cox expressed concern that the permit special conditions do not limit the volume of gas that can be flared and asks what permit conditions will prevent the Applicant from increasing its flaring.

(Colin Cox)

RESPONSE 11: Special conditions have been included as part of the draft permit to ensure the Applicant can demonstrate compliance with the emission limitations set forth in the permit. The flares subject to monitoring requirements in 40 CFR Part 63, Subpart YY, Generic Maximum Achievable Control Technology Standards (Ethylene Production). The Special Conditions require that the flares be equipped with flow monitors, and a composition analyzer or calorimeter to monitor the net heating value in the combustion zone, which will continuously determine compliance with the

minimum required heating value to ensure proper combustion efficiency and abatement of the waste gas stream. The fugitive emissions are monitored using a LDAR program, where the Applicant is required to regularly inspect fugitive components to identify leaks using instruments. Leaks identified by the inspections are then repaired within a specified period.

The permit holder is also required to maintain records to demonstrate compliance, including the monitoring listed above. Records must be made available upon request to representatives of TCEQ, EPA, or any local air pollution control program having jurisdiction. The Regional Office may perform investigations of the facility which may include an inspection of the site including all equipment, control devices, monitors, and a review of all calculations and required recordkeeping.

The permit Special Conditions do not limit the volume of gas that can be flared, but rather require continuous monitoring of the flowrate and heating value of the waste stream, continuous monitoring of the pilot flame, monitoring of visible emissions, and a maximum hourly and annual mass emission rate limit. These provisions are adequate to ensure abatement of the waste gas stream and compliance with the emission limits as listed in the MAERT. Additionally, the volumetric flow rate of waste gas being routed to the flare is represented in the calculations in the application. As provided in 30 TAC § 116.116(a), the Applicant is bound by these representations.

The permit holder must operate within the limits of the permit, including the emission limits as listed in the MAERT. If the permit holder wishes to increase flaring in an amount that would exceed the emission limits as listed in the MAERT or modify the flares, the permit holder would be required to submit an application for a permit amendment in accordance with 30 TAC § 116.110.

TCEQ evaluates all complaints received. If a facility is found to be out of compliance with the terms and conditions of its permit, it will be subject to investigation and possible enforcement action. Individuals are encouraged to report any concerns about nuisance issues or suspected noncompliance with terms of any permit or other environmental regulation by contacting the TCEQ Corpus Christi Regional Office at 361-881-6900 or by calling the 24-hour toll-free Environmental Complaints Hotline at 1-888-777-3186.Citizen-collected evidence may be used in such an action. *See* 30 TAC § 70.4, Enforcement Action Using Information Provided by Private Individual, for details on gathering and reporting such evidence. Under the citizen-collected evidence program, individuals can provide information on possible violations of environmental law. The information, if gathered according to agency procedures and guidelines, can be used by TCEQ to pursue enforcement. In this program, citizens can become involved and may eventually testify at a hearing or trial concerning the violation. For additional information, see the TCEQ publication, "Do You Want to Report an Environmental Problem? Do You Have Information or Evidence?" This booklet is available in English and Spanish from the TCEQ Publications office at 512-239-0028 and may be downloaded from the agency website at http://www.tceq.texas.gov (under

Publications, search for document number 278). *See* Response 1 regarding health effects and air quality, and Response 2 regarding environmental and water concerns.

Although TCEQ is responsible for the environmental protection of air and water as well as the safe management of waste, this proposed permit will regulate the control and abatement of air emissions only. Therefore, issues regarding water quality or discharge and the handling of waste, including the provisions of Texas Water Code § 5.130, are not within the scope of this review.

COMMENT 12: Additional Monitoring and Testing

Sandra L. Hardy McKenzie commented that if the permits are granted, the government should require funds to be set aside by the Applicant to pay for surprise, unscheduled, independent monitoring and independent stationary monitoring of toxic emissions, including but not limited to ethylene dichloride (EDC) and vinyl chloride monomer (VCM). Ms. McKenzie requests that this monitoring be performed by independent third-party experts selected by TCEQ, Sierra Club, Diane Wilson, or an organization she approves such as River Keepers, and/or Audubon and/or organizations involved in protecting public health and the environment. Ms. McKenzie further requests that funding be set aside by the Applicant to pay for independent monitoring of emissions as well as particles of incomplete combustion and flaring, for this monitoring to include in-person sampling and testing, as well as video and audio monitoring. Ms. McKenzie requests that the Applicant be required to conduct appropriate human and animal testing to determine whether emissions have caused health effects to the human and animal populations, and for these test results and methods to be made available to the public to verify that the methods and analysis meet scientific standards.

Colin Cox commented that the Applicant should install monitors along their fence line to protect the local community, citing other refineries which have proposed and implemented such monitoring. Robin Schneider commented that fence line monitoring should be required so downwind residents know what is coming from the facility.

(Colin Cox, Sandra L. Hardy McKenzie, Robin Schneider)

RESPONSE 12:

Monitoring

Special conditions have been included as part of the proposed permit to ensure the Applicant can demonstrate compliance with the emission limitations set forth in the permit. These monitoring requirements are discussed in detail in Response 11.

TCEQ does not have the authority to conduct testing on humans or animals, nor to collect funds from the applicant outside the fees in the amounts and for purposes specified by the TCEQ rules. Both the TCAA and TCEQ rules provide for an extensive

review of the application to ensure that emissions from the proposed facility will not violate the NAAQS and will not be expected to adversely affect human health or the environment. This review is discussed in more detail in Response 1.

Inspections

As required for any major source, the Regional Office is required to perform periodic investigations of the plant. The investigation may include an inspection of the site including all equipment, control devices, monitors, and a review of all calculations and required recordkeeping. TCEQ evaluates all complaints received. If a facility is found to be out of compliance with the terms and conditions of its permit, it will be subject to investigation and possible enforcement action. Individuals are encouraged to report any concerns about nuisance issues or suspected noncompliance with terms of any permit or other environmental regulation by contacting the TCEQ Corpus Christi Regional Office at 361-881-6900 or by calling the 24-hour toll-free Environmental Complaints Hotline at 1-888-777-3186.

Citizen-collected evidence may be used in such an action. See 30 TAC § 70.4, Enforcement Action Using Information Provided by Private Individual, for details on gathering and reporting such evidence. Under the citizen-collected evidence program, individuals can provide information on possible violations of environmental law. The information, if gathered according to agency procedures and guidelines, can be used by TCEQ to pursue enforcement. In this program, citizens can become involved and may eventually testify at a hearing or trial concerning the violation. For additional information, see the TCEQ publication, "Do You Want to Report an Environmental Problem? Do You Have Information or Evidence?" This booklet is available in English and Spanish from the TCEQ Publications office at 512-239-0028 and may be downloaded from the agency website at http://www.tceq.texas.gov (under Publications, search for document number 278).

Fenceline Monitoring

Since stationary air monitors are sited to measure air quality that is representative of a broader area or region; monitors are not typically placed to measure the impacts from specific industrial facilities. See Response 1 for detailed information regarding the health effects review and air dispersion modeling performed for this application and for information on the representative background concentrations from the Formosa monitoring network used in the AQA.

Due to cost and logistical constraints, the placement of air monitors is prioritized to provide data on regional air quality in areas frequented by the public. The existing air monitoring network is the result of a strategic balance of matching federal monitoring requirements with state and local needs. Consistent with federal air monitoring requirements, TCEQ evaluates the placement of air quality monitors within the air monitoring network using trends in population, reported emissions inventory data, and existing air monitoring data for a given area. In addition, TCEQ may prioritize

monitor placement in areas with potential regional air quality issues, such as those related to increased oil and gas activity in the Barnett Shale and Eagle Ford Shale areas. TCEQ annually evaluates the number and location of air monitors within its network to assess compliance with federal monitoring requirements and the adequacy of monitoring coverage for identified monitoring objectives as a part of the Annual Monitoring Network Plan provided to EPA on July 1 of each year. This plan is made available on TCEQ's website for public review and comment for 30 days beginning in mid-May. Requests for additional monitoring or the identification of additional monitoring needs may be made during this public comment period and will be considered along with other monitoring priorities across the state. To receive email announcements related to the ambient air monitoring network, including the availability of the Annual Monitoring Network Plan for public review and comment, please visit the following link https://service.govdelivery.com/accounts/TXTCEQ/subscriber/new and select "Air Monitoring Network Announcements."

The draft permit contains detailed monitoring requirements that will generate data sufficient for estimating actual emissions from the terminal and determining its compliance with the permit on an ongoing basis. However, the draft permit does not contain a requirement for the permit holder to conduct fence line monitoring or otherwise install ambient air monitors. The monitoring requirements in the permit are described in Response 11.

COMMENT 13: Compliance History / Emissions Events

Commenters expressed concern regarding the compliance history of the Applicant and the site, specifically stating that the Applicant has not been a good neighbor. Multiple commenters cite the Applicants history of air and water violations, as well as unauthorized emissions events. Sandra L. Hardy McKenzie commented that independent monitoring should be required due to the Applicant's history of violating federal and state environmental laws. Colin Cox stated that the Applicant's record of environmental violations is long and therefore they should not be allowed to increase flaring limits. Robin Schneider expressed concern that the Applicant is a 'serial polluter'.

(Colin Cox, Sandra L. Hardy McKenzie, Robin Schneider, Diane Wilson, Fredrick Woodland)

RESPONSE 13: TCEQ defines an upset event as an unplanned or unanticipated occurrence or excursion of a process or operation that results in an unauthorized emissions of air contaminants. An upset event that results in unauthorized emissions from an emission point is an emissions event. The air permit does not authorize upset events. If an upset occurs, the permit holder must comply with the requirements in 30 TAC § 101.201 regarding the recording and reporting of emission events. If the permit holder fails to report in accordance with 30 TAC § 101.201, the commission

may initiate enforcement action for failing to report the underlying emissions event itself. *See* Response 2 regarding concerns about water.

With respect to emissions events or spills, as set forth in 30 TAC § 101.201(a), regulated entities are required to notify the TCEQ regional office within 24 hours of the discovery of releases into the air and in advance of maintenance activities that could or have resulted in emissions in excess of a reportable quantity. The reportable quantity varies based on the air contaminant released. In the event an individual is adversely impacted by air emissions from this or any other facility, they may register a complaint with the TCEQ Corpus Christi Regional Office at 361-881-6900 or by calling the 24-hour toll free Environmental Complaints Hotline at 1 888-777-3186. Complaints are addressed in accordance with TCEQ procedures. In the event of an emergency, the Local Emergency Planning Committee and the regulated entity have the primary responsibility of notifying potentially impacted parties regarding the situation. Occasionally a permit application may require a disaster review. Whether a permit application requires a disaster review depends on the chemicals handled, the location of facility, and the processes involved. Proposed projects which involve toxic chemicals that are known or suspected to have potential for life-threatening effects upon off-facility property in the event of a disaster and involve manufacturing processes that may contribute to the potential for disastrous events, are candidates for disaster review. None of these applications required a disaster review.

During the technical review of the permit application, a compliance history review of both the company and the site is conducted based on the criteria in 30 TAC Chapter 60. These rules may be found at the following website: https://www.tceq.texas.gov/rules/index.html.

The compliance history is reviewed for the five-year period prior to the date the permit application was received and includes multimedia compliance-related components about the site under review. These components include: enforcement orders, consent decrees, court judgments, criminal convictions, chronic excessive emissions events, investigations, notices of violations, audits and violations disclosed under the Audit Act, environmental management systems, voluntary on-site compliance assessments, voluntary pollution reduction programs, and early compliance. However, the TCEQ does not have jurisdiction to consider violations outside of the State of Texas.

A company and site may have one of the following classifications and ratings:

- High: rating below 0.10 – complies with environmental regulations extremely well;
- Satisfactory: rating 0.10 – 55.00 – generally complies with environmental regulations;
- Unsatisfactory: rating greater than 55.00 – fails to comply with a significant portion of the relevant environmental regulations.

This site has a rating of 13.63 and a classification of Satisfactory. The company rating has a rating of 12.55 and a classification of Satisfactory. The company rating reflects the average of the ratings for all sites the company owns in Texas.

TCEQ cannot deny authorization of a facility if a permit application contains a demonstration that all applicable statutes, rules, and regulations will be met. Additionally, the Special Conditions of the permit contain detailed monitoring requirements and the Regional Office may perform investigations of the plant that may include monitoring equipment. Detailed monitoring requirements in information regarding inspections are described in Response 11 and Response 12.

COMMENT 14: Jurisdictional Issues

Diane Wilson expressed concern regarding loud noise from the existing flare, as well as commented that the Applicant has harmed the health, property, and livelihoods of nearby residents.

(Diane Wilson)

RESPONSE 14: TCEQ does not have the authority to consider potential effects from plant location, aesthetics, quality of life, zoning and land use issues, or effects on property values when determining whether to approve or deny this air permit. Accordingly, TCEQ does not have authority under the TCAA to require or enforce any noise abatement measures. Noise ordinances are normally enacted by cities or counties and enforced by local law enforcement authorities. Commenters should contact their local authorities with questions or complaints about noise.

COMMENT 15: Environmental Justice

Colin Cox questioned whether the Applicant and TCEQ adequately considered the environmental justice impacts of the proposed emissions increases.

(Colin Cox)

RESPONSE 15: Air permits evaluated by TCEQ are reviewed without reference to the socioeconomic or racial status of the surrounding community. TCEQ is committed to protecting the health of the people of Texas and the environment regardless of location. A health effects review was conducted for the proposed facilities during the permit review and the permit was found to be protective of human health and the environment.

TCEQ encourages participation in the permitting process. The Office of the Chief Clerk works to help the public and neighborhood groups participate in the regulatory process to ensure that agency programs that may affect human health or the environment operate without discrimination and to make sure that concerns are considered thoroughly and are handled in a way that is fair to all. You may contact the

Office of the Chief Clerk at (512) 239-3300 for further information. More information may be found on the TCEQ website: Title VI Compliance at TCEQ - Texas Commission on Environmental Quality - www.tceq.texas.gov.

COMMENT 16: TCEQs Responsibility to the Community

Commenters asked that TCEQ consider residents and their wishes and choose not to approve the proposed emissions increases associated with the project. Colin Cox commented on the compliance history of the Applicant at the site, stating that the record of environmental violations should not be rewarded with permits that allow more flaring and air pollution. Robin Schneider asks why the TCEQ would issue permission to pollute the environment more, specially to a company that has been called a 'serial polluter' by a federal judge. Robin Schneider commented that the TCEQ acts on behalf of the polluters rather than in the interests of public health.

(Colin Cox, Kris Leabo, Robin Schneider, Diane Wilson)

RESPONSE 16: The Executive Director's staff has reviewed the permit application in accordance with the applicable state and federal law, policy and procedures, and the agency's mission to protect the state's human and natural resources consistent with sustainable economic development. TCEQ cannot deny authorization of a facility if a permit application contains a demonstration that all applicable statutes, rules, and regulations will be met. *See* Response 13 regarding Compliance History.

CHANGES MADE IN RESPONSE TO COMMENT

No changes to the draft permit have been made in response to public comment.

Respectfully submitted,

Texas Commission on Environmental Quality

Kelly Keel, Executive Director

Phillip Ledbetter, Director
Office of Legal Services

Charmaine Backens, Deputy Director
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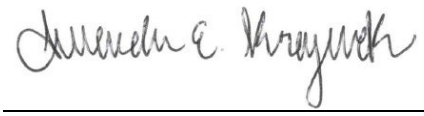

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Austin, Texas 78711-3087

REPRESENTING THE
EXECUTIVE DIRECTOR OF THE
TEXAS COMMISSION ON
ENVIRONMENTAL QUALITY

Questions or Comments >>

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TCEQ Commissioners' Integrated Database - All Activity Actions

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Activity Action List:

Date	Document Type	Action
09/03/2025	AGENDA SETTING LTR	MAILED
08/01/2025	TCEQ DOCKET NUMBER	REQUESTED
08/01/2025	TCEQ DOCKET NUMBER	ISSUED
06/02/2025	RFR/HR PERIOD	END
05/01/2025	FINAL DECISION LETTER	MAILED
04/24/2025	RESPONSE TO COMMENTS	RECEIVED
10/31/2023	ALTERNATIVE LANGUAGE VERIFICATION FORM	RECEIVED
10/31/2023	AVAILABILITY VERIFICATIO	RECEIVED
10/18/2023	COMMENT PERIOD	END
09/21/2023	ALTERNATIVE LANGUAGE AFFIDAVIT	RECEIVED
09/21/2023	ALTERNATIVE LANGUAGE TEARSHEET	RECEIVED
09/21/2023	AFFIDAVIT - NAPD	RECEIVED
09/18/2023	ALTERNATIVE LANGUAGE NOTICE	PUBLISHED
09/05/2023	NEWSPAPER TEARSHEET	RECEIVED
08/23/2023	NOTICE - PRELIM DECISION	PUBLISHED
07/28/2023	NOTICE - PRELIM DECISION	MAILED
07/26/2023	LETTER	SENT TO
07/26/2023	LETTER	SENT TO
07/26/2023	LETTER	SENT TO
07/26/2023	LETTER	SENT TO
07/26/2023	LETTER	SENT TO
07/26/2023	LETTER	SENT TO
07/26/2023	NOTICE - PRELIM DECISION	RECEIVED
07/26/2023	LETTER	SENT TO
07/26/2023	LETTER	SENT TO
07/26/2023	LETTER	SENT TO
02/06/2023	COMMENT PERIOD	END
02/02/2023	PUBLIC MEETING	SCHEDULED
02/02/2023	PUBLIC MEETING	HELD
12/28/2022	NOTICE OF PUBLIC MEETING	MAILED

12/22/2022	NOTICE OF PUBLIC MEETING	RECEIVED
12/18/2022	CONFIRMATION	RECEIVED
11/28/2022	PUBLIC MEETING	ED APPROVE
11/25/2022	COMMENT PERIOD	END
11/08/2022	ALTERNATIVE LANGUAGE AFFIDAVIT	RECEIVED
11/01/2022	NEWSPAPER TEARSHEET	RECEIVED
11/01/2022	ALTERNATIVE LANGUAGE TEARSHEET	RECEIVED
11/01/2022	AFFIDAVIT - NAPD	RECEIVED
10/26/2022	ALTERNATIVE LANGUAGE NOTICE	PUBLISHED
10/19/2022	NOTICE - PRELIM DECISION	PUBLISHED
10/17/2022	NOTICE - PRELIM DECISION	MAILED
10/13/2022	NOTICE - PRELIM DECISION	RECEIVED
09/30/2022	NOTICE - PRELIM DECISION	MAILED
09/28/2022	NOTICE - PRELIM DECISION	RECEIVED
09/23/2022	LETTER	SENT TO
01/31/2022	AVAILABILITY VERIFICATIO	RECEIVED
01/31/2022	BILINGUAL VERIFICATION	RECEIVED
01/21/2022	COMMENT PERIOD	END
01/07/2022	LETTER	SENT TO
01/07/2022	LETTER	SENT TO
01/07/2022	LETTER	SENT TO
01/07/2022	LETTER	SENT TO
01/07/2022	LETTER	SENT TO
01/07/2022	LETTER	SENT TO
01/07/2022	LETTER	SENT TO
01/07/2022	LETTER	SENT TO
01/07/2022	LETTER	SENT TO
01/07/2022	LETTER	SENT TO
01/06/2022	BILINGUAL AFFIDAVIT	RECEIVED
01/06/2022	BILINGUAL TEARSHEET	RECEIVED
01/06/2022	NEWSPAPER TEARSHEET	RECEIVED
01/06/2022	AFFIDAVIT - NORI	RECEIVED
12/22/2021	NOTICE OF RECEIPT/INTENT	PUBLISHED
12/20/2021	NOTICE OF RECEIPT/INTENT	MAILED
12/20/2021	BILINGUAL NOTICE	PUBLISHED
12/16/2021	NOTICE OF RECEIPT/INTENT	RECEIVED
12/16/2021	ADMIN REVIEW	COMPLETE
12/02/2021	APPLICATION	RECEIVED

Related Links:

Central Registry	**Commissioners Agenda**	**Executive Director's Agenda**	**Commission Issued Orders**	**Public Meetings**	**State Office of Administrative Hearings**
Public Notice	**Comment on Pending Applications**	**File documents**			

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